

PIMS # 1281, GEF SEC # 1149

Full Size Project of Kazakhstan: Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply

Response to Council Comments (Switzerland)

Comment	Response	Location where document was revised (sections, paragraphs)
<p>Generally the efficiency of HOB systems is lower than modern individual heating systems. DH systems with HOB on a CO2 emission basis, are of interest only when they are using at least part of biomass or energy recovered from wastes (such as municipal waste incineration). The project does not mention these options. Biomass, and/or wastes have not been considered as an option to reduce CO2 emissions.</p>	<p>It is true that modern individual heating systems, in general, are more efficient than centralized HOB systems. The question, however, is about the optimal use of available resources. For different reasons (including the fuel prices), it is not feasible to replace all the existing, centralized HOB systems with individual building or apartment level heating systems, from which the rationality of looking also the energy efficiency of the centralized HOB systems is raising from. Another consideration is that by maintaining the HOB systems, a possibility remains for upgrading them later for a CHP system, which opportunity in the case of individual systems is lost.</p> <p>Most of the HOBs in Kazakhstan operate using coal as primary fuel. The fuel balance of HOBs is as follows: 70% -coal, 10% -oil, 20% -gas. The price of coal is about US\$ 2,5 per Gcal, while the price of gas is about US\$ 10 per Gcal and the light oil price – US\$ 40 per Gcal. Therefore, it is difficult for individual gas or oil fired heating systems to compete with mainly coal fired HOBs.</p> <p>There are only few cities in Kazakhstan, in the West and South, where HOBs operate on gas. Unfortunately, West and South of Kazakhstan are poor with biomass. Also waste incineration is not a common practice, because there is not a problem with land for waste disposal.</p>	<p>Part 1. Situation analysis. Heating and Hot Water Supply. Paragraph 8.</p>
<p>Heat recovery from industries has not been mentioned as an option. It would be interesting (if not</p>	<p>Heat recovery from industry is used mostly for industry purpose in Kazakhstan. Cogeneration is already a major source of heat in Almaty. Possibilities for additional heat recovery from industry is, however, definitely an interesting option and can be</p>	<p>To be reflected during project implementation</p>

<p>already assessed) to consider the potential for Integration of DH to industrial processes.</p>	<p>explored in further detail during the project implementation.</p>	
<p>It is not clear if the energy price of the DH can be competitive against individual boiler systems. If after upgrading the price of the energy supplied by the DH systems goes up, and the oil-gas is at the market price, there is a risk of disconnection from the DH systems and installation of individual boilers. Is there any provision at the policy level to avoid this?</p>	<p>Concerning a competition of the DH against individual boiler systems: Most of the HOBs in Kazakhstan operate using coal as primary fuel. The fuel balance of HOBs is as follows: 70% -coal, 10% -oil, 20% -gas. The price of coal is about US\$ 2,5 per Gcal, while the price of gas is about US\$ 10 per Gcal and the light oil price – US\$ 40 per Gcal. Therefore, it is difficult for individual gas or oil fired heating systems to compete with mainly coal fired HOBs.</p> <p>Only for few cities with gas fired HOBs individual boilers might be a preferable option for heat supply. Decentralization of heat supply for such cities is a subject of master plans.</p>	<p>Part II Strategy. Project Goal, Objective, Outcomes and Outputs/Activities. Paragraph 43</p>
<p>Energy metering at building level certainly brings a lot of useful information and makes the energy management possible. But it seems that the first priority should be given to the upgrading of control systems at DH and building levels, pumps and control replacement, and monitoring of the global DH performances. The savings achieved could then be</p>	<p>With regard to the first priority, introduction of energy metering and a consumption based billing system is to be considered as a prerequisite for having incentives for implementing energy efficiency measures at the building level, including upgrading control systems. Only through metered consumption, the actual energy savings can be capitalized.</p> <p>ESCOs will undertake energy efficiency measures either on supply or demand sides by contracting with customers under Energy Performance Contracts.</p> <p>Monetary savings from implementation of energy savings measures on demand side and calculated on the basis of metered energy consumption will be transferred by heat customers to an ESCO. In a case of the DH, the agreed share of monetary savings from savings of fuel or electricity can be transferred by DH company to an ESCO.</p>	<p>Part II Strategy. Project Goal, Objective, Outcomes and Outputs/Activities. Paragraph 44</p>

<p>devoted to the financing of energy metering and other energy saving measures. It is not clear how the monetary savings at DH level could be transferred to an ESCO for further energy saving financing.</p>		
<p>The nature of Association of Apartment Owners (AAO) is generally not technical. It seems that the project overestimates the potential of such associations to play a key role in energy savings.</p>	<p>Associations of Apartment Owners (AAO) in Kazakhstan are non governmental organizations (NGOs). Owners of Buildings delegate the AAO the right to manage the maintenance of their multi - apartment buildings. AAOs have the right to contract any company, including an ESCO, for providing maintenance service for buildings. At present, most AAOs are not strong enough and the project aims to strengthen the role of AAOs in managing the buildings</p>	<p>Part I. Situation Analysis. Housing Sector. Paragraph 17. Part II. Logical Framework Analysis. Outcome 1. Output 1.4.</p>
<p>The project document does not mention a priority strategy in approaching the worst systems first (by benchmarking all DH ?). It would be beneficial to consider developing a strategy where priorities are established.</p>	<p>At present almost all DH systems need to be repaired in Kazakhstan. Technical condition of the DH systems, availability of resources, affordability and other financial aspects should be considered. The financing opportunities will determine the priorities and strategic actions.</p> <p>The project focus on reducing barriers to improve energy efficiency. All DHs would benefit from it, including the worst and fairly performing DHs. At the same time, more than 50% of DHs are private and semiprivate, that is why it is not clear how to approach the worst systems and what priority steps will be reflected in the national strategy.</p>	<p>Part II Strategy. Project Goal, Objective and Outputs/Activities. Paragraph 42.</p>
<p>Local pollution levels have not been considered as a criteria for selection</p>	<p>Local populations are the main beneficiaries from the project. Effect of HOBs and CHPs improvements will represent only about 10% of population that will add the value in the overall picture to introduce energy</p>	

of priorities of actions?	efficiency schemes. In addition, as majority of heating systems are coal -based (including systems in Almaty and Kokchetau), local pollution issues will be addressed through their improvements.	
The financing of the ESCOs and their actions after the pilot phase is not clear.	ESCO is expected to become self -sufficient organization from its business after the pilot phase. Detailed steps of the project exit strategy will be reflected in the project work plan.	
Strategies such as summer decentralised domestic hot water systems (DHW) do not seem to have been considered (shutting down of the DH in summer?, reducing structural losses significantly).	In Kazakhstan, the cost of hot wa ter from DHs (about US\$ 1,5 per meter cubic) is cheaper compared to decentralized domestic hot water systems such as solar or electricity even without investment component. This alternative will be reviewed in course of the project implementation.	
<p>Conclusions and Recommendations This project meets perfectly the objectives of the OP5 (Removal of barriers to energy efficiency and energy conservation). The project would benefit from addressing the aspects mentioned above. The project is recommended for Council approval.</p>		



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Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply

The objective of the project is to reduce greenhouse gas (GHG) emissions from the municipal heat and hot water supply systems in Kazakhstan and to lay the foundation for the sustainable development of these services taking into account local as well as global environmental considerations. Within this framework, the project will (i) assist the Government of Kazakhstan in reviewing and improving the legal and regulatory framework dealing with the heat and hot water supply sector, with a specific emphasis on the tariff issues and consumption based billing to motivate energy efficiency; (ii) build the capacity of the local heat supply companies to develop and manage their services on a commercial basis and to attract financing for the investments needed; (iii) build the capacity of the local tenants and home owner associations to manage the heat and hot water supply services and to implement cost -efficient energy saving measures at the building level; (iv) introduce and gain experience on new institutional and financing arrangements such as Energy Service Companies (ESCOs) and reduce the risks and uncertainties of energy efficiency investments in the heating sector otherwise by facilitating the implementation of selected pilot activities, and v) monitor, evaluate and disseminate the project results and lessons learnt thereby facilitating their effective replication.



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ACRONYMS

AAO	Association of Apartment Owners
AMA	Antimonopoly Agency
AMC	Antimonopoly Committee
APR	Annual Project Report
CEO	GEF Chief Executive Officer
CIS	Commonwealth of Independent States
CHP	Combined Heat and Power
CO	UNDP Country Office
CO ₂	Carbon dioxide
CP	Country Programme
CTA	Chief Technical Adviser
DH	District Heating
EBRD	European Bank for Reconstruction and Development
EE	Energy Efficiency
EPC	Energy Performance Contract
ESCO	Energy Service Company
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
HOB	Heat Only Boiler
HQ	UNDP Headquarters
IEA	International Energy Agency
IR	Inception Report
IW	Inception Workshop
JSC	Joint Stock Company
MDG	UN Millenium Development Goals
MEMR	Ministry of Energy and Mineral Resources
M&E	Monitoring and Evaluation
MYFF	Multi-year Funding Framework
QPR	Quarterly Progress Report
PDF	Project Development Facility
PIR	Project Implementation Review
PM	Project Manager
PMU	Project Management Unit
PSC	Project Steering Committee
RCU	UNDP Regional Co-ordination Unit
SRF	Strategic Results Framework
TPR	Tripartite Review
TTR	Terminal Tripartite Review
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Program
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change

SECTION I: ELABORATION OF THE NARRATIVE

Part I: Situation Analysis

1. It is well known that by far the biggest potential in reducing the greenhouse gas emissions in the countries with the economies in transition lie in improving their energy efficiency. As a major energy consumer and the source of GHG emissions, this applies also to the heat and hot water supply services.
2. The GHG emissions from meeting the basic heat and hot water supply needs of the population typically account for some 25 -35% of the total GHG emissions of the CIS countries. Taking into account that the overall energy losses of the existing heat and hot water supply systems in these countries easily reach 50% (compared to the losses of 20 -25% of modern, well-maintained heat and hot water supply systems or even less if the additional benefits of cogeneration are accounted), it is obvious that the greenhouse gas emission reduction potential of this sector is remarkable and probably bigger than within any other end use sector in the CIS countries.
3. Kazakhstan is the largest emitter of greenhouse gases in Central Asia. Based on the results of the greenhouse gas inventory conducted in 1994 -1998, the total net greenhouse gas emissions were estimated at 320 million tons of CO₂-equivalent (CO_{2eq}) in 1990. According to the 2001 data of the International Energy Agency (IEA), Kazakhstan was the third largest emitter of energy related CO₂ per GDP (4.68 kg CO_{2eq} /USD¹) in the world and the 29th largest emitter per capita (8.02 t CO_{2eq} /capita).
4. Similar to the development in other CIS countries, the economic collapse in Kazakhstan in 1990's resulted in the consequent decline of power and heat consumption and the associated greenhouse gas emissions. According to the 2001 data, the total GHG emissions were estimated at 154.9 million tons of CO_{2eq}, thereby placing Kazakhstan among the top 15 CO₂-emitting GEF programme countries. The energy sector was responsible of some 79.2 % of the total emissions, of which the share of energy production (electricity and heat) was about 41%.
5. With the recovery of the economy already observed during the last few years, the GHG emissions are expected to rise sharply due to the very high energy intensity of the economy. The energy intensity in Kazakhstan is three times higher than the average in OECD countries. The scenarios presented in the Initial National Communication of Kazakhstan to the UNFCCC estimate that the GHG emissions from Kazakhstan's energy sector will reach the 1990 level in 2011 and will exceed that by 37% in 2020.
6. As a result of improved production capacity and increasing oil prices, the economic rebound in Kazakhstan started in 1999. The real GDP grew 13.5% in 2001 and 9.5% in 2002. The non-oil sector growth has averaged 9% and it is expected that the GDP will continue to grow approximately 7% per year for the next several years. Among other indicators of economic health, the capital investments grew 54% in 2002, the non-oil revenues to national budget increased with 13% and the national budget deficit was decreased to 0.1% of GDP. While the

¹ With 1995 US Dollar Exchange Rate

average income has increased to USD 1,520 per capita, overcoming the poverty remains as one of the main challenges especially in the rural areas. The inability of the oil, gas and mining sectors to create a large number of new jobs continues to hamper the poverty reduction efforts.

7. While the recovery of the economy can be considered to have negative consequences in terms of growing GHG emissions, it will also improve the solvency of the population, which has been one of key barriers towards increasing the costs of energy supply up to the level of full cost recovery.² The positive economic development has also resulted in a significant surplus in the state budget, with increased financing possibilities of the public sector to support the required rehabilitation investments of the municipal utility services.

Heating and Hot Water Supply

8. Due to its climatic conditions, Kazakhstan consumes significant quantity of energy for heating. The length of the heating period in the southern parts of Kazakhstan is about 3500 -4000 hours per year with an average outside temperature of -2°C and in the north more than 5000 hours with average outside temperature of -8°C . In 2002, the heat demand constituted 160 million Gcal or about 60 % of the total consumption of energy (heat and power). More than 60% of heat energy is consumed in the cities, of which approximately 80% within the residential sector.

An important fact to take into consideration is that modern individual heating systems, in general, are more efficient than centralized HOB systems. The question, however, remains the optimal use of available resources. For different reasons (including the fuel prices), it is not feasible to replace all existing, centralized HOB systems with individual building or apartment level heating systems. Furthermore, by maintaining the HOB systems, a possibility remains for upgrading them later for a CHP system, in which case, the opportunity of using individual systems is lost.

Most of the HOB operate with coal in Kazakhstan. The fuel balance of HOBs is as follows: 70% -coal, 10% -oil, 20% -gas. The price of coal is about US\$ 2,5 per Gcal, while the price of gas is about US\$ 10 per Gcal and the light oil price – US\$ 40 per Gcal. Therefore, it is difficult for individual gas or oil fired heating systems to compete with mainly coal fired HOBs.

There are only few cities in Kazakhstan, in the West and South, where HOBs operate with gas. Unfortunately, West and South of Kazakhstan are poor with biomass.

² The average monthly income per person is about \$50 per month in Kazakhstan (2001) while the heat tariff is ranged about 10-20 \$/Gcal. In Almaty, the average monthly income is USD 92 per person (2001). For Kokshetau, separate data is not available, but for the Akmola oblast the estimate is USD 38 per person. For Kazakhstan as a whole, about 28% of population have income below subsistence level (31\$ per capita). It leads to a situation that in lower income groups, a three people family with a two room flat has to pay about 25-30% of their monthly income for utility service. Hence, the Government has been forced to regulate the growth of the tariffs on the basis of social-economic development indices. A social assistance program exist and is aimed at supporting low-income people, when the costs for utility services exceed 25% of the monthly household income. In Almaty City, the available resources of the Social Aid Fund have been about 300 million Tenge (2 million USD) a year, while only 170 million tenge (about 1.1 million US) a year have actually been spent.

In is also interesting to note that waste incineration is not common, because there is not a problem with the available land for waste deposit.

9. District heating (DH) is very common in Kazakhstan. Over 50% of the urban heating demand is covered by DH. There are 42 large DH systems connected to 38 large co-generation plants (CHPs) and 30 big central heat only boilers (HOBs). Total heat capacity of the CHPs constitutes 35,000 MW and their total power generation capacity 6,700 MW, or about 38% of all power generation capacity in Kazakhstan. The total heat capacity of central HOBs is about 5,800 MW. Annual quantity of heat generated by CHPs and central HOBs totals to approximately 59 million GCal, of which 75% is produced by CHPs and the rest by central HOBs. Most CHPs are coal fired, while the HOBs are primarily using mazut as fuel. Total annual amount of fuel used by CHPs and central HOBs for heating purpose is about 12 million tce, or about 40% of total quantity of fuel used in the energy sector. The rest of heat demand in the cities is covered by decentralized heating, including a large number of district HOBs (197 units) with a capacity above 23 MW per each, owned by municipalities and the private sector. The production of the decentralized units is about 45,6 million Gcal of heat per year, corresponding to about 43% of the heat demand of the cities. It is foreseen in the Electricity Development Programme up to 2015 that the share of centralized heating in the cities will be increased up to 68% from the current 57%. The share of cogenerated heat from CHPs and big centralized HOBs in the cities will be increased from current 43% up to 53% of the total heat demand of the cities, which from the GHG reduction point of view can be considered as a positive trend.

10. Apart from using co-generation as a source of heat in some systems, the efficiency of the DH systems is otherwise low with heat losses reaching up to 50% of the primary energy used. The high level of heat losses is primarily due to old, obsolete equipment (typically having reached an age between 25 and 40 years) and inadequate maintenance. As a comparison, the overall system losses of modern, well maintained DH systems are typically 25 -30 % of the primary energy used or even less, if the additional benefits of co-generation are accounted. By improving the energy efficiency of the existing DH systems and by further promoting co-generation, the total conservative GHG emission reduction potential has been estimated at about 4,6 million tons of CO_{2eq.} per year. The methodology for calculating the GHG emission reduction of the project is discussed in further detail in section “Replication”.

Institutional, Legal and Regulatory Framework

11. At the institutional side, the energy sector of Kazakhstan has gone through significant changes during the past few years with the aim to liberalize the sector. The government has been undertaking measures to create a competitive power market and to diminish government’s direct participation in the energy sector development. About 45% of CHPs and connected DH systems have been privatized, while others have remained or have returned under municipal ownership. The generation and distribution is not separated, but is normally owned and managed by the same entity.

12. To reduce the high energy consumption, the Parliament of the Republic of Kazakhstan approved in 1997 a “Law on Energy Saving” together with a “National Program on Energy Saving”. In the heating sector, the National Program is envisaging further development of co-generation and district heating as well as employment of high-efficient autonomous heat supply

systems, when economically feasible. Increasing the efficiency of the heat supply is also mentioned in the Initial National Communication of Kazakhstan as one of the priority sectors to be targeted.

13. According to the “Law on Energy”, the power and heat should be considered as commercial commodities and the relation between the heat supplier and consumer is to be regulated by business agreements. In the case of natural monopolies, the Government retains only the right to regulate the tariffs under the supervision of the Agency for Natural Monopoly Regulation (Antimonopoly Agency/ AMA). Oblast and city -level Antimonopoly Committees (AMCs) are established in each oblast and city to deal with tariff policy issues and to review and approve the tariffs at the local level.

Current Tariff Policy and Spendings on Heat and Hot Water Supply Services

14. In order to improve investment climate in heating sector, amendments for tariff policy were adopted by AMA in 2003. While the specific fuel and electricity consumption of each plant continues to provide the basis for calculating the maximum allowed tariff ³, the new provisions take more fully into account the investments made by the DH companies to improve the DH system. The main improvements to the earlier tariff calculation policy include the following:

- Proposals for investments projects to improve the performance of the heat supply system can be submitted to AMC and if approved by the AMC, the financing costs (interest + back payment of the principal) can be included into the tariff calculations for the duration of 3 -5 years;
- The tariff can remain the same for the mentioned 3 -5 years, meaning that any savings accumulated during that period will be for the company’s benefit; and
- The allowed rate of profit is calculated as a percentage of the value of the fixed assets of the company, thereby encouraging the company to make investments. Earlier the maximum allowed profit has been calculated as a percentage of the production costs.

15. This new policy should encourage the heat supply companies to invest into energy efficiency, rather than continuing the operation of the existing inefficient systems. The main limiting factor continues to be the low solvency of the population, which prevents the heat supply companies to significantly increase the tariffs unless parallel measures will be undertaken at the consumer side to replace the current flat fee tariff with consumption based metering and billing and to improve the heat regulation possibilities and demand side energy efficiency in general. Another limiting factor is the weak financial situation and low creditworthiness of the heat supply companies to apply for commercial loans. Both barriers have been taken into account in the project design and will be addressed during its implementation.

³ The specific electricity and fuel consumption is calculated by dividing the annual electricity and fuel consumption of the heat plant with its annual heat production, and the result is multiplied with the actual market prices of electricity and the fuel(s) used. While the fuel and electricity prices are based on actual market prices, neither the heat production nor the fuel and electricity consumption are based on actual measured values, but on normative (planned) figures. Typically, the actual heat losses (including so called “commercial losses”) of the current deteriorated systems are much higher than the figures used in the calculations.

16. In those cities, in which the district heating systems are in municipal ownership, local municipalities (“akimats”) are spending a remarkable share of their annual budgets for just keeping the system in operation – a burden, which could be reduced by improving the energy efficiency of the systems. For instance, the end users currently lack necessary equipment for regulating the heat consumption leading to a situation, in which some apartments might be constantly overheated and some others underheated. Another thing is that only about 10% residential buildings are currently equipped with heat meters and thus there are no specific incentives for the residents to save energy. By improved heat regulation and by creating incentives for energy savings through heat metering and consumption based billing, it has been estimated that the fuel consumption could be reduced by 15 -20% with associated savings in the municipal budgets.

Housing Sector

17. In the housing sector, major changes have also taken place. Apartments of the residential buildings have been privatized by tenants and by the “Association of Apartment Owners (AAO)” a non-governmental organizations (NGOs) have been established. Owners of Buildings delegate the AAO the right to manage the maintenance of their multi -apartment buildings. AAOs have the right to contract any company, including an ESCO, for providing maintenance service for buildings. At present, most AAOs are not strong enough and the project aims to strengthen the role of AAOs in managing the buildings. As a part of this process, the responsibility for the maintenance and utility payments of the buildings has been transferred to the tenants. AAOs are responsible for maintenance of the common areas of the buildings and their technical systems. The maintenance is financed by monthly charges collected from the tenants and paid to the accounts of utility companies.

18. In practice, however, AAOs have played no significant role in the field of utility services and the local utilities still have to deal with a large number of individual clients. This is quite onerous for the utilities and it also limits the possibilities of the tenants to implement any energy savings measures at the building level. The situation is typical for most countries of the former Soviet Union as during the Soviet time most apartments were owned by the state and all the communal as well as the general management and maintenance services in the buildings were provided by the state for a nominal fee. Therefore, there was neither much need nor any possibilities or incentives for the consumers to organize themselves for procuring various communal services. As such, the organization of the heat and hot water supply in many countries is still broadly perceived as the responsibility of the state. Should the state not be able to provide these services, most people feel more comfortable with solving their own problems individually rather than co-operating with the other residents of the building. A contributing factor is that in many buildings the income levels of the residents can vary significantly. There is also lack of information and capacity among the residents on the practical management of the AAOs and how to effectively deal, for instance, with the non -paying residents of the building or with empty apartments.

Situation in Almaty and Kokshetau

19. During the PDF B phase of the project, detailed case studies were conducted for two cities, namely Almaty, the biggest city and the former capital of Kazakhstan having the largest district

heating system, and the city of Kokshetau, located in the northern part of Kazakhstan and characterized with severe winters and high level of heat consumption . While the climatic conditions of Almaty are close to Western European cities such as Vienna with some 3200 Degree days per year, Kokshetau with about 5000 Degree days is closer to the conditions of cities in Northern Europe such as Helsinki. The case studies were concluded with an analysis of the priority investments for both cities to improve the energy efficiency of the existing heating systems as well as an analysis of the barriers and possible measures to get the required investments implemented. The findings of the studies are reflected in the section below.

20. The district heating (DH) supply systems comprise a significant part of the infrastructure of Almaty and Kokshetau, covering about 60% of the heat load. The DH supply companies, however, are facing severe technical and economic difficulties with worn out equipment and high heat losses. As a result of the low tariffs combined with the problems with payment collection, the DH companies have not been able to work on a financially sustainable basis and there has not been enough financial resources for essential system rehabilitation or repairs. During the PDF B phase of the project (2000 -2002), two heat supply companies, namely KazNIIEnergetika in Almaty and Technokcontract in Kokshetau went into bankruptcy. The annual losses of KazNIIEnergetika were about 15% of annual revenues, while the losses of Technokcontract accounted for about 25% of the revenues. In order to sustain heat supply services in Almaty and Kokshetau, the operations of the bankrupted companies have been taken over by the municipality. Another DH company in Almaty investigated during the PDF B, namely the Almatyteplocommunenergo JSC, has had a negative balance for the last two years at the time of conducting the study.

21. The main factors contributing to the negative annual balance of the DH companies in Almaty and Kokshetau have been related to the problems already discussed, namely the tariff regulations, which have neither taken into account the real costs of the companies to maintain the heat supply in changing conditions nor the investments to improve the system, and the problem with non-payments. Ultimately, the losses have become a burden to the municipal budgets. For instance, in Kokshetau the Municipality (Akimat of Kokshetau) has been spending about US\$ 2.4 million annually for fuel procurement and system repairs.

22. Both cities have started to implement measures to improve the situation and according to the information received from the heat supply companies, they have managed to improve, for instance, the payment collection rates from the earlier 70% up to 90%. In Kokshetau, the municipality together with the new DH company⁴ has also started to implement the supply side measures that came out as recommendations from the study conducted during the PDF B phase of the project. In 2001 -2003, the total investment of the municipality and the DH company amounted 434 million Tenge equivalent to 3.1 million US dollars. An additional budget allocation of 511 million Tenge (USD 3.65 million) has been made for continuing the implementation of the suggested measures during 2004 -2006. In Almaty, the municipality adopted a decision in September, 2004 to develop a program for improving the heat and hot water supply system of the city and has also reacted positively on the proposal made in the frame

⁴ In 2002, the management of the new DH company was transferred under the management of a private company "Kokshetau Power" through a lease agreement, but in 2004 back into the "Kokshetau Municipal District Heating Company". For the management of the debt of the earlier DH company "Technocontract", a separate company has been established and as such the accounts of the new DH company are free from this debt.

of the UNDP/GEF project to establish a municipal ESCO to support the heat meter installations and other demand side measures in residential and public buildings.

23. The project strategy is built on these emerging actions and attention to heating sector problems in Almaty and Kokshetau and will support the overcoming of the barriers to their implementation and successful completion as well as the replication of the promoted measures at the national and, as applicable, regional level.

Barrier Analysis

24. As concluded by the case studies conducted during the PDF B phase of the project, there are a number of barriers, which despite the existence of general policy supporting energy efficiency and some positive developments in tariff-setting and institutional areas, prevent many energy efficiency investments to take place in practice. Based on the experiences gained from the heating sector restructuring efforts in other countries, one of the most important measures and fundamentals for providing incentives for both the end users and the heat suppliers to improve their energy efficiency is to shift from a flat fee tariff and billing system to a consumption based billing. In order to leverage financing for the actual investments, there is also a need to improve the payment collection rate so that the heat supply companies can demonstrate the full cost recovery of their services and to convince the potential financiers of the returns the investments will make.

25. While supporting the commercial operation of the DH companies by revised tariff structure and enforcement of the payments, there is a continued need for the Government to also support the poorest part of the population to cover their expenses for these basic services. A common approach that has been recommended in other countries is that instead of subsidizing all the consumers through artificial low tariffs or by allowing no or partial payments for the services received, the heat supply companies should be allowed and obliged to operate according to the normal commercial principles. When state subsidies are needed, they should be targeted to support directly those families that really need them. In parallel, there is a need for technical measures that allow the consumers individually and/or collectively at the building level to regulate their heat consumption according to their solvency and comfort requirements.

26. Taking into account the above, the identified key barriers to improving the energy efficiency of the heat and hot water supply systems in Kazakhstan are briefly discussed below:

Legal, regulatory and policy related barriers

27. While the current legislation, including the “Law on Energy” and “Law on Energy Saving” provides the general framework for promoting sustainable development of the heat and hot water supply services in Kazakhstan, there are several other legal and regulatory provisions and technical standards from the past that need to be reviewed and, as applicable, revised to make them consistent with the objectives of the above mentioned legislation. Areas, in which the legal and regulatory framework would need to be further developed include:

a) Ensuring that adequate financial incentives exist for the DH companies to improve the energy efficiency of their DH systems to the extent that these investments can be economically justified. Despite the recent improvements adopted by the Antimonopoly Agency in their tariff

determining policy, further work is needed to explore the remaining legal and regulatory barriers and the changes in tariff regulation to increase economic stimulus of both DH companies and the final end users to invest in energy efficiency and to encourage the shift to consumption based billing. A key feature of the revised tariff policy should be that the tariffs reflect the full costs of the service (including capital costs) and any additional support needed for the low income part of the population will be arranged through a separate social support scheme;

- b) Introduction and enforcement/promotion of heat metering and consumption based billing. The current billing procedures for heat supply services are mainly based on a flat rate fee per m²;
- c) Enforcement of payments (covering technical, institutional and legal instruments) and streamlining the mechanisms and procedures for solving eventual disputes and conflicts between the heat supply companies and clients. In order to enforce the payment collection, there needs to be a legal foundation and streamlined technical and other mechanisms for the heat supplier to cut off the service and/or bring the non-paying customers to the court in the case of non-payment. In parallel, the tariff setting and billing principles have to be made transparent, so that the consumers know what they are actually paying for;
- d) Strengthening the Associations of Apartment Owners (AAOs) as credible, legally and financially responsible contracting counterparts for commercial heat service providers, including the review of the legal and regulatory provisions governing the relationship between the AAOs and the tenants;
- e) Review of and changes in the social support schemes, allowing the increase of the tariffs up to the level of full cost recovery, while at the same time ensuring that adequate support is available for the low-income families to cover their basic heating and other needs; and
- f) Reviewing and updating the outdated technical standards and regulations, which sometimes prevent the use of new, more efficient equipment and installation techniques.

Financial and related institutional barriers

26. While as a result of the positive economic development, the possibilities to obtain public sector financing for the necessary municipal infrastructure rehabilitation investments have significantly improved in Kazakhstan during the past few years, there is also a continuing need to attract private sector financing to complement the resources of the municipal and state budgets. This private sector investment is needed to facilitate implementation of the targeted energy efficiency investments at the consumer side as well as for improving the energy efficiency of the supply side managed by private heat supply companies or by companies, which are under municipal ownership, but work more or less as independent commercial entities with their own account and liabilities.

27. In respect to the above, the identified key barriers can be summarized as follows:

- a) Lack of experience of the financial sector and high perceived risks of investing into energy efficiency projects in Kazakhstan leading to high expected rates of return, high interest rates, high collateral requirements and short payback periods of the available commercial or semi-

commercial financing sources making them practically unusable for most energy efficiency investments;

- b) Weak financial status and low creditworthiness of the targeted consumer groups and the existing DH companies;
- c) Difficulties for private or semi-private DH companies in obtaining state or municipal guarantees required by most international “soft” loan providers; and
- d) Absence and/or lack of experience using new institutional and financial mechanisms for developing, financing and implementing energy efficiency investments in both supply and demand side, such as Energy Service Companies (ESCOs), private -public partnerships, vendor credits, leasing etc.;

General institutional and capacity related barriers

28. Finally, there are institutional and capacity related barriers, including:

- a) Lack of local capacity to formulate “bankable” energy efficiency project proposals, to structure financing for them and to manage the development and the implementation of the EE projects otherwise;
- b) Lack of experience and capacity to create and manage new institutional and financing mechanisms such as Energy Service Companies (ESCOs), Performance Contracts and private -public partnerships;
- c) Lack of tradition and capacity among the apartment owners in organising the heat and hot water supply and other building related tasks and services in a most feasible way at the building level (including investments into energy efficiency, when economically feasible); and
- d) Lack of general awareness and information of the different stakeholder groups on the available, cost-effective energy saving technologies and measures

Stakeholder analysis

Please, see section IV, Part IV: Stakeholder Involvement Plan

Baseline Analysis

29. The baseline scenario is that in the absence of adequate information, trained personnel and proven models, the key stakeholders both at the consumer and supplier side do not have the capacity, institutional basis and financial tools to facilitate and/or accelerate the sustainable development of the heat and hot water supply sector in Kazakhstan. Limited resources will most likely continue to be used for covering the costs of different emergency investments and losses of DH companies, instead of using them in a more cost-efficient way to improve the overall efficiency, financial sustainability and creditworthiness of the heat and hot water supply sector and thereby also leverage additional financial resources for its sustainable development.

30. In the baseline scenario, the greenhouse gas emissions resulting from the heat and hot water supply services will remain considerably higher than in the countries with similar climatic conditions, for instance, in Western and Northern Europe. Given the high share of the primary energy resources used to produce these services, the impact also in Kazakhstan's overall GHG balance will be significant. In the incremental cost analysis conducted for the project, it was estimated that by facilitating the gradual development of the energy efficiency of the heat and hot water supply services through measures elaborated in greater detail in the section "Project Strategy", the baseline emissions could be reduced by up to 4.6 million tons of CO₂ per year, or at approximately 46 million tons of CO₂ over the next 20 years, by gradually improving the system. The methodology for calculating this GHG emission reduction potential has been discussed in further detail in section "Replication". As a direct result of the proposed pilot activities, the GHG emissions reduction potential compared to the baseline has been estimated at 0.67 million tons of CO₂ over a 20 year period.

Part II Strategy

Project Rationale and Policy Conformity

32. Until now, the heating sector activities of the international donors in the transitional economies have largely focused on Central and Eastern Europe. The proposed project strategy, outputs and activities take into account the experiences and lessons learned from the implementation of these activities. The introduction of consumption based metering and billing, strengthening the role of the condominiums and other forms of consumer associations, opening the market for competition and increasing private sector participation are broadly recognized as some of the key vehicles to promote the commercialization of the heat supply sector and, related to that, its energy efficiency.

33. At the same time, it has been recognized that the models applied in Central and Eastern Europe can not be directly transferred, but have to be adapted to the specific characteristics of the country or subregion concerned. In Kazakhstan, the situation in terms of the condition of the existing DH system as well as the solvency of the population differ significantly from the situation, e.g. in Poland or the Baltic countries. Thus, apart from the direct GHG reduction and other benefits that the project can produce in Kazakhstan, it has significant piloting value to test some new approaches and measures such as the use of a municipal ESCO in supporting the implementation of a heat metering program and other demand side measures in one of the lower income CIS countries, with significant replication opportunities in other CIS countries/municipalities with comparable situation.

34. The project design is consistent with the objectives of the GEF Operational Program # 5 "Removal of Barriers to Energy Efficiency and Energy Conservation" and with the GEF strategic priority CC-2 "Increased Access to Local Sources of Financing for Renewable Energy and Energy Efficiency". As outlined in the document GEF/C.21/Inf.11, Strategic Business Planning: Direction and Targets: "Supporting financial intermediaries like NGOs, microcredit lenders, savings groups, or Energy Service Companies, and providing risk-sharing instruments to financial players (i.e., credit risk guarantees and other contingent finance instruments) can be very cost-effective ways of addressing this barrier". "Alternatively, sustainable public sources of

financing can be a lasting source of financing, which needs to be tapped”. “Beneficiaries are usually small and medium enterprises, end -users like home owners, consumers and rural population, and local authorities (municipalities, village councils)”.

35. As financing mechanisms, the project will support the establishment of a municipal ESCO by sharing the risk with the municipality of Almaty with a partial equity contribution. It will also demonstrate the more efficient use of public funds in Kokshetau by investing into energy efficiency with the target to turn the municipal DH company into a self sustaining entity with capacity to leverage additional financing from the local financial markets (including both public and private) to continue the EE investments.

36. Through its technical assistance activities and by introducing and sharing the risks of the pilot institutional and financing initiatives in Almaty and Kokshetau, the project seeks to introduce commercially feasible and thereby replicable examples and models that after the end of the project can continue to operate on a self sustaining basis with a potential to leverage additional private and/or public sector financing for the targeted energy efficiency investments on their own and encourage the introduction of similar measures in other municipalities and countries. In other words, the goal is to break the vicious circle, in which both the heat supply companies and customers, for various reasons, have difficulties in or lack adequate incentives for structuring financing for energy efficiency investments that from the economic point of view would make perfect sense, but are still not implemented. As regards the local public sector funds, the goal is to increasingly leverage their use for cost-effective energy efficiency investments rather than continuing their use to cover the operational losses of the DH companies, for which the poor energy efficiency of the heat supply systems is a major contributing factor.

37. While the financing barriers associated with high interest rates and extensive guarantee requirements, which are characteristics for the country’s commercial financial market in general, remain as a challenge, the project seeks to start the process of gradually building up the capacity and creditworthiness of the targeted key stakeholders, including local heat supply companies, AAOs and ESCO type of companies, so that when the commercial financing market is maturing, the targeted stakeholders can have increasing access also to these resources. At the initial stage, additional financing for replication of the pilot activities in Almaty and Kokshetau will be primarily sought from public funds as well as from other specific sources such as vendor and export credits. The increasing involvement of local commercial banks for, e.g, refinancing ESCO investments is, however, continued to be explored during the implementation of the project. For more details, see paragraph 84.

Project Goal, Objective, Outcomes and Outputs/Activities

38. The objective of the project is to reduce greenhouse gas (GHG) emissions from the municipal heat and hot water supply systems in Kazakhstan and to lay the foundation for the sustainable development of these services by taking into account local and global environmental considerations. The project will build the capacity and create incentives for the implementation of new institutional and financing mechanisms with the target to leverage new, local sources of financing for the energy efficiency investments needed. The project results, experiences and lessons learnt can be used as a basis for replicating similar measures in other transitional economies.

39. In designing the project strategy, the experiences and lessons learnt from other GEF as well as non-GEF funded heating sector projects (see section IV, Part V) have been taken into account and they have been taken one step further by introducing new institutional and financing mechanisms in the project design such as the use of a municipal ESCO in supporting the implementation of a heat metering program and other demand and, as applicable, supply side measures in Almaty. It will combine local and national level measures, which through selected pilot activities in Almaty and Kokshetau will create awareness, build the capacity and provide concrete experiences and new institutional and financing models for implementing energy saving measures in practice, while simultaneously addressing country and sector wide barriers that require action at the Government level. Furthermore, the project will support the dissemination and effective replication of the project results both at the national and regional level.

40. The specific project components consist of: i) strengthening the legal, regulatory and institutional framework to promote energy efficiency of the heat and hot water supply services in Kazakhstan; ii) enhancing the awareness and building the local capacity to implement and adopt new institutional and financing mechanisms for organizing energy efficient heat and hot water supply services and leveraging financing for them; and iii) compiling, analysing and disseminating the project experiences and lessons learnt and initiating their effective replication in Kazakhstan and in other countries of the region.

41. Within these components, the project will: (i) assist the Government in reviewing and improving the legal and regulatory framework dealing with the heat and hot water supply sector, with a specific emphasis on the tariff issues and consumption based billing to motivate energy efficiency; (ii) build the capacity of the municipalities and heat supply companies to develop and manage their services on a commercial basis and to attract financing for the investments needed; (iii) build the capacity of the local tenants and home owner associations to manage the heat and hot water supply services and to implement cost-efficient energy saving measures at the building level in general; (iv) introduce new institutional and financing mechanisms for energy efficiency project implementation and financing, taking into account the experiences and lessons learnt, for instance, from Energy Service Companies (ESCOs) and financing of residential building EE measures in other countries; (v) build the capacity for and gain experience about new institutional and financing arrangements and reducing the related risks and uncertainties by facilitating the implementation of selected pilot activities, and vi) monitoring, evaluating and disseminating the project results and lessons learnt thereby facilitating their effective replication.

42. The proposed activities will complement the National Energy Saving Programme and the energy-related legislation, such as the Energy Law and the Energy Saving Law. Despite these legal provisions, there is a situation similar to most other CIS countries, in which the measures encouraged at the policy level are not necessarily implemented in practice. The proposed project, hence, aims to overcome the barriers to and provide applicable models for the actual implementation of some key energy efficiency measures at the practical level, thereby facilitating also the further development of the legislative and regulatory framework. Results and lessons learnt from the projects related to energy efficiency, such as the ECE UN energy efficiency demonstration zone in Almaty and the USAID energy efficiency project in Atyrau have been taken into account in designing the project activities and the project is envisaged to continue close co-operation with the mentioned donors also in the future.

At present, almost all DH systems need to be repaired in Kazakhstan. Technical condition of the DH systems, availability of resources, affordability and other financial aspects should be considered. The financing opportunities will determine the priorities and strategic actions. The project focuses on reducing barriers to improve energy efficiency. All DHs would benefit from it, including the worst and fair DHs. At the same time, more than 50% of DHs are private and semiprivate, that is why it is not clear how to approach the worst systems and what priority steps will be reflected in the national strategy.

43. As regards the technologies to be promoted, the project is not focusing on the DH systems *per se*, but is working to create a framework for the sustainable development of the heat and hot water supply sector as a whole. It can support the rehabilitation of the existing district heating systems in the areas, which are feasible for district heating in terms of heat load density and opportunities for co-generation; it can also support more decentralized options in the areas, for which the continuation of centralized DH services can not be justified. The use of renewable and other “alternative” energy technologies such as solar water heating will be explored, wherever feasible⁵. The over-reaching strategy is to promote the commercial development of the heat and hot water supply services on a lower carbon intensity basis, taking into account the energy efficiency as well as greenhouse gas reduction aspects.

Concerning a competition of the DH against individual boiler systems: Most of the HOB operate with coal in Kazakhstan. The fuel balance of HOBs is as follows: 70% -coal, 10% -oil, 20% -gas. The price of coal is about US\$ 2,5 per Gcal, while the price of gas is about US\$ 10 per Gcal and the light oil price – US\$ 40 per Gcal. Therefore, it is difficult for individual gas or oil fired heating systems to compete with mainly coal fired HOBs. Only for few cities with gas fired HOBs individual boilers might be a preferable option for heat supply. Decentralization of heat supply for such cities is a subject of master plans.

44. One of the key vehicles for improving the energy efficiency of the current heat and hot water supply practices and for leveraging increasing financing for this purpose is to strengthen the role of the local Associations of Apartment Owners in organizing and procuring the heat and hot water supply services collectively at the building level. First of all, signing the contract at the building level would reduce the risk of the commercial service providers and is likely to enforce a stricter payment discipline since in the case of non-payment the whole building can be disconnected⁶. Secondly, the introduction of a consumption based metering and billing system and signing a contract at the building level, when applicable, will be considerable easier and cheaper for the service providers than doing it separately for each apartment⁷. Thirdly, many measures to improve the overall energy efficiency of the buildings such as repair of the windows and corridor doors, improved insulation etc. will only be feasible through collective action.

⁵ One project elaborated during the PDF B phase for using thermal solar collectors for preheating the return water in a DH system has already been implemented in Almaty with co-financing from CIDA. The initial results have shown positive results with the expected pay-back period of 4-5 years.

⁶ While technically this is relatively easy, the legal and regulatory aspects require further consideration. Alternatively, streamlined legal proceedings to bring non-paying individual customers into the court by the heat supply companies and/or AAOs may need to be considered.

⁷ Ultimately, the issue whether to organise the heat metering and billing at the building or apartment level and whether this should be done by the AAOs or heat supply companies needs to be evaluated on a case by case basis using, among others, the experiences gained from implementing the pilot activities in Almaty and Kokshetau.

Finally, by effectively organizing themselves, the residents will have an option to make their own investments (e.g. on a mini DH network or building boiler or energy efficient heating and hot water supply systems) thereby enforcing the other service providers to improve the efficiency of their operations, should they wish to keep up with the competition. In addition to building the management capacity of the DH companies, the project will provide a solid institutional framework for implementing EE measures on the demand side by supporting the establishment and effective operationalisation and management of the AAOs with a specific emphasis on the heat and hot water supply services.

With regards to the first priority, the introduction of energy metering and a consumption based billing system is to be considered as a prerequisite for having incentives for implementing energy efficiency measures at the building level, including upgrading control systems. Only through metered consumption, the actual energy savings can be capitalized. ESCOs will make business by implementing energy efficiency measures either on supply or demand sides by contracting customers with Energy Performance Contracts. Monetary saving of implementation of energy savings measures on demand side and calculated on the basis of metered energy consumption will be transferred by heat customers to an ESCO. In a case of the DH, the agreed share of monetary savings from savings of fuel or electricity can be transferred by DH company to an ESCO.

45. During the PDF B phase, four pilot investment projects were developed to provide the framework and basis for project's technical assistance activities and to gain experience for and reduce the risks of further investments. The training and capacity building of the municipalities and the companies currently managing the DH system in Almaty and Kokshetau as well as the development of measures to address the identified legal and regulatory barriers will be combined with the implementation of concrete investment projects. According to the experiences from other projects, this approach has proven to be the most effective strategy for capacity building and public awareness raising. The purpose of the projects is to (i) test and demonstrate the use of new institutional and financing mechanisms for project implementation and financing; (ii) build the local capacity on the energy efficiency project development and management through their practical implementation; (iii) demonstrate the technical, economic and financial feasibility of the suggested EE measures for different stakeholder groups, including the policy makers so as to justify the further development of the legal and regulatory framework and (iv) reduce the uncertainties and perceived risks of the suggested EE measures and their implementation and financing arrangements so as to facilitate their further replication.

46. In Almaty, the investment component is directed on removing barriers to energy efficiency on the demand side by establishing a municipal energy service company (ESCO). As a conclusion from the consultations conducted during the PDF phase, this was considered as the most feasible strategy to promote and implement the identified priority measures in Almaty, given the fact that the DH companies do not yet see the benefits that demand side energy efficiency measures would have for their business, and because the Associations of Apartment Owners typically have neither the capacity nor financing to implement the suggested measures on their own. The identified priority measures include: a) installation of heat meters; b) improving the temperature control of buildings; and, c) as applicable, supporting other, relatively low investment intensive EE measures at the demand or supply side with high internal rate of return

such as reduction of air and heat leakages through windows, doors and missing insulation and replacement of pumps and their control systems at the pumping substations.

47. There are few private companies in Almaty providing service to consumers on installation of heat meters and temperature control systems. Those companies, however, are offering their service only against immediate payment without allowing any repayment by installments. Since the AAOs do not have sufficient funds to pay for the installation up-front and due to their low credit-worthiness can not borrow money from the commercial banks either, heat meter programs and other energy saving measures are typically not implemented in the residential sector. As such, an ESCO approach has been suggested to tackle the problem. In addition, a possibility to use a monthly collected “renovation fee” as a surrogate for energy savings in a third party financing scheme will be explored. There are some experiences e.g. from Poland that the Banks will lend to housing associations for EE investments, if a housing association has funds in the renovation account sufficient to cover one year’s debt service for EE project loans. The renovation account is placed with the lending institution and can serve as collateral.

48. The municipal authorities in Almaty strongly support the idea of establishing a municipal ESCO to develop energy efficiency activities in public and residential sector, because a significant share of the municipal budget is currently spent on covering the heating costs of public buildings and on providing social support for low income population. Almaty City Akimat is envisaged to cover 66.7 % of the initial capitalisation of the ESCO and 33.3 % is requested from the GEF in order to share the risks and the initial costs of ESCO establishment. In addition, the proposed ESCO is seeking to attract private sector financing through local commercial bank loans and/or supplier credits. After the initial stage, the privatisation of the ESCO as a whole can also be considered.

49. While the costs of a heat metering programme for the whole DH area of Almaty city is estimated at about USD 15 millions, the capitalisation of the municipal ESCO to cover the first pilot investments, including primarily heat meters and improved heat regulation, has been proposed at USD 1.5 million. It has been estimated that investing this amount into the selected EE measures discussed before would result in direct fuel savings of 19,400 MWh per year and corresponding CO₂ emission reduction of 3,350 tons a year or about 10 0,000 tons of CO_{2eq} over the next 20 years with the average simple pay-back period of 7.4 years (without considering the GHG benefits of the project)⁸. Services for other demand and, as applicable, supply side energy efficiency measures will be offered based on the needs and, as applicable, depending on the financing capacity of the ESCO.

50. In Kokshetau, the proposal is directed towards commercialisation of the local DH company by removing barriers to the implementation of cost-effective EE measures within the existing DH system, including both supply and demand side, and attracting financing for the investments

⁸ For estimating this energy saving and GHG reduction potential, it has been assumed that by investing USD 1,5 million into heat metering and improved regulation of the buildings, annual fuel savings corresponding to 19,400 MWh can be achieved, which by using the average emission factor of 0,173 kgCO₂ / KWh for heat supply plants in Almaty (71% mainly coal fired co-generated heat, 29% gas) corresponds to annual CO₂ reduction potential of 3,350 tons of CO₂. In co-generation plants, 50% of the GHG emissions have been accounted for heat supply. In estimating the total CO₂ reduction potential over 20 years, it has been assumed that the mentioned USD 1,5 million can be used for another round of similar investments after 10 years.

through public funds as well as through supplier credits. The training and capacity building of the municipality and the company currently managing the DH system will be combined with the implementation of concrete investment projects, which based on experiences from other projects has proven to be the most effective strategy for capacity building.

51. The technical components of the Kokshetau sub-project supporting the capacity building activities will include: a) an in-depth analysis of the existing system and developing a long term strategy/master plan for optimizing the system design and operation; b) overall balancing of the system and restoring the worn-out parts of the network and, as applicable, replacing them with preinsulated pipes⁹; c) restoring the hot water supply by installing new DHW units at the building level; d) replacing the pumps at the network pumping station; and e) shifting from a flat fee tariff to heat metering and consumption-based billing, combined with measures to improve the regulation of heat and hot water supply within the buildings..

52. The implementation of the energy efficiency components of the project described above would reduce the use of coal at the boiler house by some 75,000 MWh a year, and the use of electricity by 3,060 MWh a year. The corresponding total reduction of the CO₂ emissions would constitute about 28,600 tons of CO_{2eq} a year or some 570,000 tons of CO_{2eq} over the next 20 years. The total investment costs of the project have been estimated at USD 6.75 million. The simple back-payment period for the pumps replacement is around 3 years, while for the magistral pipe replacement the investments can not be justified on the basis of energy savings alone.

53. The energy efficiency investments in Kokshetau are envisaged to be jointly financed by the local Akimat and the DH company. As a part of the technical assistance package, GEF assistance is requested for supporting the DH company in further developing and managing the project and for sharing the costs of introducing the consumption based metering and billing. It is expected that after the project implementation, the DH company will improve significantly its reliability and can continue to operate on a commercial basis, thereby providing a model for similar measures in other cities of Kazakhstan.

54. The proposed measures are in conformity with the decision of the Government to select Kokshetau as the second pilot city for the proposed UNDP/GEF project. While in Almaty, the heat metering and improved regulation is suggested to be promoted on a full cost recovery basis through the establishment of a municipal ESCO (based on the expectation that the installation of the heat meter will produce direct savings to the consumer due to current, expected lower than normative heat consumption), the lower solvency of the population and the expected higher than normative heat consumption in Kokshetau is calling for another approach i.e. covering the initial meter installation costs through public or DH company funds. In that respect, the Government, together with the Kokshetau municipality and municipal heat supply company, are requesting UNDP/GEF support to facilitate the implementation of a pilot heat metering and demand side regulation component in Kokshetau to complement the supply side investments financed by the local partners and to gain experience for broader introduction of similar measures by the municipality and/or heat supply company itself. During the project, the experiences and lessons

⁹ The pre-insulated pipes are recommended as technically better solution especially for underground pipes, but since they are not manufactured in Kazakhstan, the costs remain as a barrier. In that respect, even the improved mineral wool insulation of the existing above-ground pipes can significantly reduce the distribution losses.

learnt from implementing the heat metering programs in Almaty and Kokshetau, together with experiences from other countries, will be further explored so as to provide a basis for nationwide introduction of heat and hot water metering on the basis of a models or a mix of models that appear to be most applicable in different locations and for different types of buildings. This will include, as applicable, attracting financial resources from the state budget for supporting the implementation the program.

55. A more detailed description of the project objectives, outcomes, outputs is presented in Section II, Strategic Results Framework.

Project Indicators, Risks and Assumptions

56. Key indicators of the project's success include:

- a) Adoption and enforcement of the proposed legal and regulatory changes to overcome the identified key legal and regulatory barriers related to, for instance:
 - shifting to consumption based metering and billing;
 - effective enforcement of the payments;
 - outdated technical standards;
 - role of the Associations of Apartment Owners in managing the heat and hot water supply services at the building level;
- b) Successful completion of the first pilot projects in Almaty and Kokshetau together with the associated capacity building and public awareness raising activities, and continuing operation of the supported institutional and financing mechanisms at the end of the project on a self sustaining basis;
- c) Agreements signed on the implementation of new investments in other cities/ city districts by building on the institutional and financing models introduced in the project at the amount of at least USD 10 million

57. The main risk of the project is that in spite of the available technical and financial assistance, the identified energy efficiency measures and technologies will not be adopted and implemented at the projected scale by the foreseen clients and/or the project will not achieve its long term objectives of removing barriers to energy efficiency in Kazakhstan after the GEF assistance has ended. The project tries to avoid this risk by proper project planning and agreements with the key stakeholders in -prior starting the actual implementation of the project and by taking stock on the experiences and lessons learned on promoting energy efficiency and renewable energy measures in other countries.

58. A major aspect that determines the project success are the changes adopted in the legal and regulatory framework, in particular the tariff formulation policy, which should be based on the full coverage of the expenses for heat production and distribution and allow the recovery of the investments made for improving the energy efficiency of the system, including Energy Performance Contracts (EPC). It is evident that it will be impossible to attract investments for

suggested energy efficiency investments without first introducing the required changes in the tariff legislation. While some positive developments have already taken place, as elaborated in paragraph 14, the project will continue to co-operate closely with the Antimonopoly Agency and cities' Antimonopoly Committees and other interested organizations, as well as with heat supply companies in order to further develop proper tariff policy.

59. Tariff setting requires continued reform so that consumers understand what they are effectively paying for. The risk that substantial tariff reform will not be carried out is mitigated through the parallel implementation of concrete pilot projects and carefully designing the TA component of the project.

60. Another risk to the project's success is the weak financial status of the district heating companies and the associated low solvency of the population thereby posing specific challenges for justifying the financial feasibility of the investments to be made and the price of the services to be provided. The project is designed to overcome this barrier by determining the technologies and measures to be promoted on the basis of the investment capacity of the targeted companies and the related payment capacity of the majority of the population. Development of a social support scheme for the most needy families is intended to assist these families in covering their heating expenses and will also be a topic to be addressed during the project.

61. Given the past history of state-owned property, there is a lack of experience and tradition in Kazakhstan and in other CIS countries on the collective management of the buildings by tenants, which is posing some cultural and social barriers to the effective operation of the Associations of Apartment Owners. The project tries to overcome this risk, among others, by targeted public awareness and educational activities in order to train the tenants on the basic principles and operational characteristics of similar organizational arrangements in other countries and by facilitating the implementation of selected pilot projects so as to provide "hands-on" experience on the benefits that properly managed buildings can bring to the tenants.

62. The financing arrangements with the key project partners constitute crucial component for project's successful completion and operation. The ability to raise funds and to attract domestic and foreign sources of investment capital for the follow up phase will largely determine the success of the project as a whole, including the commitment of the local partners to provide co-financing for the project. In order to mitigate this risk, specific emphasis will be given to active participation and involvement of all the major financial stakeholders of the project. It will also require active co-operation with the Government to ensure that adequate legal, regulatory and institutional framework will be in place to support the investments in energy efficiency and environmental protection in Kazakhstan, thus sending a clear message to the financial market.

63. Ultimately, financing needs to be attracted from the private sector to finance heating sector projects on a fully commercial basis. While this will not entirely neglect the need for public support, the project is looking after the possibility to re-program those resources. The direct and indirect subsidies, which are currently spent on supporting the existing heating systems, constitute a significant share of the annual budget of the municipalities. Therefore, one of the main project objectives is to reprogram at least part of these resources for the improvement of the heating infrastructure rather than continuing to support the existing inefficient systems.

64. In a project of this complexity, an experienced and good quality project management is absolutely essential for its success. Beside experience and good knowledge of technical questions that project is dealing with, the project manager has to be experienced with the economic analysis and project financing, including working experience with private sector and international financing organizations. A crucial qualification for the project manager is an ability to effectively raise awareness, broker deals and promote the project goals and objectives among the identified key stakeholders. In that respect, management contracts with experienced foreign companies with demonstrated success in promoting ESCO type of activities and commercialisation of municipal DH companies will be considered.

Expected global, national and local benefits

65. The expected global benefits consist of reduction of Kazakhstan's greenhouse gas emissions through improving the energy efficiency of the heat and hot water supply. For more details, see sections "Incremental Cost Analysis" and "Replicability".

66. The expected national and local benefits include:

- financially more sustainable heat and hot water supply sector;
- improved quality of the heat and hot water supply services to the consumers;
- reduction of local pollution;
- new employment and/or business opportunities

Country Ownership: Country eligibility and country drivenness

67. Kazakhstan has ratified the UNFCCC on 17 May 1995 and as a country with the economy in transition is eligible for UNDP/GEF funding.

68. The proposed project is supporting the Government of Kazakhstan in implementing the National Energy Saving Programme and the energy-related legislation, such as the Energy Law and the Energy Saving Law, which have identified the improvement of the energy efficiency of the heating sector as a priority measure.

69. To reduce the high energy consumption, the Parliament of the Republic of Kazakhstan approved in 1997 a "Law on Energy Saving" together with a "National Program on Energy Saving". In the heating sector, the National Program is envisaging further development of cogeneration and district heating as well as employment of high-efficient autonomous heat supply systems, when economically feasible. Increasing the efficiency of the heat supply is also mentioned in the Initial National Communication of Kazakhstan as one of the priority sectors to be targeted.

70. The project is strongly supported also by the municipal administrations of the two pilot cities, Almaty and Kokshetau, demonstrated by their commitments to co-finance the project.

71. The UNDP Country Programme for 2005–2009 is focusing on three thematic areas: a) Poverty reduction and monitoring; b) Governance and participatory development and c) Environmental management and human security. While the proposed project has linkages to all

the mentioned thematic areas, operationally the project is managed as a part of UNDP's environment program in Kazakhstan with the targeted outcomes of integrating a comprehensive approach to sustainable development into national development planning and increasing the livelihood opportunities for the poor through expanded access to natural resources and sustainable energy.

72. The endorsement letter of the GEF Operational Focal Point is attached .

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Sustainability

73. The sustainability of the project is addressed, directly and indirectly, by combining concrete investment projects with carefully designed technical assistance activities and mechanisms to facilitate effective replication. Financial sustainability is addressed through the promotion of consumption-based billing using commercial rates and by introducing financial mechanisms applying a principle of cost recovery. Overall sustainability of the project is further supported through continued legal and regulatory reform to support the heat and hot water sector.

74. The experiences and lessons learnt from other GEF and non -GEF projects have been taken into account in designing the project activities with a specific focus on sustainability aspects. While a common experience has been that neither stand -alone technical assistance, capacity building and training nor demonstration projects financed mainly by grants are leveraging significant additional financial resources for EE investments after the project has ended, the proposed project links the technical assistance with pilot investments that do not seek to demonstrate the achieved energy savings of any particular technology *per se*, but the feasibility of the new institutional and financing mechanisms in terms of the cost recovery of the investments made and financially sustainable continuation of their operation. If successful, the project is envisaged to substantially decrease the perceived risks and thereby increase the access of similar projects to local and international commercial, semi -commercial and public sources of financing. This is further supported by the foreseen improvement of the legal and regulatory framework in terms of encouraging EE investments in the tariff policy, by providing incentives for broader adoption of heat metering and consumption based billing, by enforcing stricter payment discipline and by introducing other incentives and measures for creating a more attractive investment climate and framework for the financially sustainable operation of the local heat supply companies. In that respect, the project also seeks to influence the change of the prevailing practice of the Government and local municipalities to cover directly or indirectly the losses of the inefficient heating sector and to redirect this support for measures promoting EE investments and commercial operation of the heat supply companies.

75. While some important improvements have recently been already introduced by the Government Antimonopoly Agency (AMA) into tariff policy to encourage EE investments, the project will continue to work closely with the AMA towards this direction. The identification and creation of possible incentive mechanisms to promote EE investments and making the relevant stakeholders aware of these incentives will play a central role in the project strategy also otherwise.

Replicability

76. Based on the statistical data available in Kazakhstan, over 50% of the current, urban heat demand is covered by centralized district heating, of which 75% (43% of total) is using co-generation as a source of heat. Taking into account the climatic conditions in Kazakhstan, the existing energy infrastructure and the increasing emphasis on GHG emissions of energy production (considering the major role that the share of co-generation in any country's energy balance can play there), it can be concluded that the heat supply in Kazakhstan is likely to be largely based on centralized district heating systems also in the foreseen future. This is in line with the Government Energy Sector Development Programme up to 2015 envisaging that the share of centralized heating in the cities will be increased up to 68% from the current 57% and the share of cogenerated heat from CHPs will be increased from current 43% up to 53% of the total heat demand of the cities. Thus the question is not really whether there is some future for district heating in Kazakhstan, but how to facilitate this and how to ensure that the poor energy efficiency and condition of the current DH systems can be improved by supporting the local municipalities in identifying the best and most cost-effective technical, institutional and financing approaches to do that. Table 1 presents some key characteristics of selected cities in Kazakhstan.

Table 1 - Characteristics of DH systems of Kazakhstan for Replicating the Project Activities.

City	Number of residents, thousand ¹	Heated floor area, thousand m ²	Annual heat production of DH 1000 MWh ²	Annual heat demand for res. sector, 1000 MWh	Annual fuel consumption 1000 MWh (estimated)	Overall efficiency of DHs, % (estimated)
Almaty	1,165	14,778 ²	7,710	4,070 ²	9,676 ²	51
Astana	507	3,482 ²	2,975	1,682	3,790	53
Kokshetau	131	1,600	803	456 ²	1036 ²	54
Shimkent	412	n/a	962	n/a	n/a	n/a
Taraz	328	n/a	556	n/a	638	71
Ust-Kamenogorsk	314	n/a	2,740	n/a	3,530	63
Pavlodar	307	n/a	8,977	n/a	11,674	70
Semipalatinsk	298	n/a	1,006	n/a	1,376	63
Aktobe	274	n/a	2,470	n/a	3,286	n/a
Uralsk	214	n/a	1,376	n/a	1,681	n/a
Petropavlovsk	201	n/a	2,136	n/a	2,928	47
Atyrau	196	n/a	1,453	n/a	1,976	n/a
Kzyl-Orda	196	n/a	413	n/a	595	n/a
Aktau	160	n/a	2,652	n/a	3,181	78
Ekibastuz	140	n/a	1,693	n/a	2,125	43
All cities	8,342	86,800 ¹	68,400	35,000	91,000 ³	60

¹ Kazakhstan Statistic Data

² UNDP/GEF PDF B project

³ Program of Energy System Development of Kazakhstan up to 2010-2015. KazNIPENERGOPROM

77. It can be roughly calculated that covering the heat demand of the residents in Kazakhstan accounts for some 25% of the total greenhouse gas emissions of the country. By gradually increasing the overall efficiency of the existing DH systems from the current 50-60% up to 70%

(thereby being closer to “western” standards) and by increasing the share of co-generation in line with the Government strategy, it has been estimated that the country’s greenhouse gas emissions could be reduced by about 4.6 million tons annually or 46 million tons over the next 20 years, thereby being one of the most effective, if not the most effective, sector specific intervention available to reduce Kazakhstan’s GHG emissions.

78. The replication strategy of the project is based on the following features of the project design:

- technical assistance activities that are intended to lay the necessary foundation of a supportive legal and regulatory framework, institutional structures and national capacities to initiate, develop and manage sustainable heating and hot water supply services. The training and awareness raising activities will be national in scope with the wide geographic range. The targeted beneficiaries include the Antimonopoly Agency, which in practice is responsible for the regulation of the development of the municipal services and tariff policy (including distribution of costs of between co-generated power and heat), the Ministry of Energy and Mineral Resources responsible for technical standards and country’s CHP policy otherwise; and the municipal authorities and personnel of the heat supply companies. The training is envisaged to include, but is not limited to on-the-job training, study tour(s), information exchange networks, workshops, seminars etc;
- evaluating the feasibility for and, as applicable, establishing a network of Kazakh municipalities to be used as a channel for training, capacity building and information exchange;
- implementation of selected pilot activities to support public awareness and capacity building activities and to gain experience on appropriate service delivery models and thereby reduce the risks of the implementation of similar projects in other areas;
- close monitoring and evaluation of the project implementation and results, thereby providing lesson learned for future action; and
- ongoing public awareness raising efforts and effective dissemination of the project results.

79. It is evident that the effective replication of project activities will require a combination of policy related changes as well as effective dissemination of the project results and lessons learned, thereby providing applicable examples for the implementation of the things in practice. Often some results at the practical side are needed, before the necessary changes at the policy level can be effectively promoted and implemented. The project will facilitate the continuing contacts and co-operation between the different stakeholder groups by organizing seminars, workshops and other public events, thereby bringing the project proponents, the policy makers and the potential investors / other donors together.

80. Replication will increase significantly due to efforts to disseminate the project’s approaches in other CIS countries. Therefore, the project activities will be designed to have a regional impact where possible. For example, training materials developed for the project will be made available to other countries with similar training needs. The project can also invite observers

from other countries in the region to key meetings and training, and the project staff can, as applicable, attend relevant meetings abroad, which will give them access to a regional audience. Furthermore, the project will identify key stakeholders from other countries in the region, including public officials, private sector entrepreneurs, NGOs, and other donors, and will use them as information points for distributing ideas and templates for policies and financing. These stakeholders may also be involved in a regional meeting to review the progress of the investment and financing components, and they may be included in a study tour to the project sites.

Part III Project Management Arrangements

81. The project executing agency will be the Ministry of Energy and Mineral Resources (MEMR) and the project will use NEX execution modality applied according to UNDP/GEF rules and regulations. The executing agency will appoint a National Project Director (NPD), who as a representative of the Ministry will assume the overall responsibility for the project, i.e. accountability for the use of funds and for meeting the overall objectives of the project.

82. A Project Steering Committee (PSC), consisting of representatives of the key stakeholders such as the key ministries, AMA and AMCs, municipal authorities, research institutes, the private sector representatives as well as AAOs representatives will be established to oversee the implementation of the project and to provide advice and guidance for the Project Management Unit (PMU).

83. The PMU will be located in Almaty. It will consist of a full time national project manager, international technical adviser and 1-3 supporting staff with a responsibility to manage and coordinate the project activities on a day to day basis.

84. The Almaty project component is proposed to be implemented by a Municipal Energy Service Company (ESCO), which will cover the whole process from the initial energy audits to the planning, financing, installation and technical supervision services. The ESCO is envisaged to be established by Almaty Akimat as a municipal company, with an equity base of US\$ 1.5 million. Of this amount, the Almaty Akimat is expected to finance US\$ 1 million and the GEF is requested to share the risk with a grant component of US\$0.5 million. Additional financing is sought through the local commercial banks and supplier credits, backed up, as applicable, by a municipal guarantee provided by the Almaty Akimat. There are several local and international heat meter suppliers currently present in Almaty (including Danfoss, Dasu, Energocenter –Asia, Samson, Kamstrup etc.), for which a tender will be organized requesting their proposals also for financing heat meter installations by using a supplier credit. In addition to the direct cash contribution and guarantees, the Almaty Akimat will provide political support for creating effective cost recovery mechanisms for energy efficiency investments in the public sector and participate in the dissemination of the project results, experiences and lessons learnt. It is proposed that close cooperation will also be established with the UNECE energy efficiency project, Norway energy efficiency training programme as well as with the UNDP/GEF energy efficiency project in Ukraine so as to facilitate information exchange and utilize the lessons learnt.

85. The key staff of the municipal ESCO will be recruited by the Almaty Akimat, in consultation with UNDP and based on an open tender with possible participation of experienced

ESCOs from other countries. In that respect, the option of a management contract will also be explored. The manager of the ESCO will be assisted by the project's international adviser. Otherwise, the ESCO is expected to operate on a commercial and self-sustainable basis.

86. For the pilot project in Kokshetau, the formal beneficiary will be the city Akimat. In practice, however, the project will be implemented by the "Kokshetau Municipal District Heating Company" in consultation and with support from UNDP and the personnel of the PMU. The need for longer term management support of a foreign company will be explored also in this case.

87. Beside the stakeholders mentioned above, there is a variety of institutions, which are engaged in matters related to energy efficiency and which are expected to take part in the project's implementation either as the members of the Project Steering Committee or otherwise. A more detailed discussion on these institutions and their role in the proposed GEF project is included in Section IV, "Stakeholder Involvement Plan".

88. In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF. The UNDP logo should be more prominent -- and separated a bit from the GEF logo if possible as, with non-UN logos, there can be security issues for staff.

Part IV: Monitoring and Evaluation Plan and Budget

89. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the project team and the UNDP Country Office (UNDP-CO) with support from UNDP/GEF. The Logical Framework Matrix in Section II provides performance and impact indicators for project implementation along with their corresponding means of verification. These will form the basis on which the project's Monitoring and Evaluation system will be built.

90. The following sections outline the principle components of the Monitoring and Evaluation Plan and indicative cost estimates related to M&E activities. The project's Monitoring and Evaluation Plan will be presented and finalized at the Project's Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

1. MONITORING AND REPORTING

Project Inception Phase

91. A Project Inception Workshop will be conducted with the full project team, relevant government counterparts, co-financing partners, the UNDP-CO and representation from the UNDP-GEF Regional Coordinating Unit, as well as UNDP-GEF (HQs) as appropriate.

92. A fundamental objective of this Inception Workshop will be to assist the project team to understand and take ownership of the project's goals and objectives, as well as finalize preparation of the project's first annual workplan on the basis of the project's logframe matrix. This will include reviewing the logframe (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

93. Additionally, the purpose and objective of the Inception Workshop (IW) will be to: (i) introduce project staff with the UNDP -GEF expanded team which will support the project during its implementation, namely the CO and responsible Regional Coordinating Unit staff; (ii) detail the roles, support services and complementary responsibilities of UNDP-CO and RCU staff vis a vis the project team; (iii) provide a detailed overview of UNDP -GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs) and related documentation, the Annual Project Report (APR), Tripartite Review Meetings, as well as mid-term and final evaluations. Equally, the IW will provide an opportunity to inform the project team on UNDP project related budgetary planning, budget reviews, and mandatory budget rephasings.

94. The IW will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff and decision-making structures will be discussed again, as needed, in order to clarify for all each parties responsibilities during the project's implementation phase.

Monitoring responsibilities and events

95. A detailed schedule of project reviews meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include : (i) tentative time frames for Tripartite Reviews, Steering Committee Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project related Monitoring and Evaluation activities.

96. *Day to day monitoring of implementation progress* will be the responsibility of the Project Coordinator, Director or CTA (depending on the established project structure) based on the project's Annual Workplan and its indicators. The Project Team will inform the UNDP -CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

97. The Project Coordinator and the Project GEF Technical Advisor will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the Inception Workshop with support from UNDP -CO and assisted by the UNDP -GEF Regional Coordinating Unit.. Specific targets for the first year implementation progress indicators together with their means of verification will be developed at this Workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Workplan. The local implementing agencies will also take part in the Inception Workshop in which a common vision of overall project goals will be established.

Targets and indicators for subsequent years would be defined annually as part of the internal evaluation and planning processes undertaken by the project team.

98. Measurement of impact indicators related to global benefits will occur according to the schedules defined in the Inception Workshop and tentatively outlined in the indicative Impact Measurement Template at the end of this Annex. The measurement of these will be undertaken through subcontracts or retainers with relevant institutions or through specific studies that are to form part of the project's activities (e.g. measurement carbon benefits from improved efficiency of ovens or through surveys for capacity building efforts) or periodic sampling such as with sedimentation.

99. *Periodic monitoring of implementation progress* will be undertaken by the UNDP-CO through quarterly meetings with the project proponent, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

100. UNDP Country Offices and UNDP-GEF RCUs as appropriate, will conduct yearly visits to projects that have field sites, or more often based on an agreed upon schedule to be detailed in the project's Inception Report / Annual Workplan. to assess first hand project progress. Any other member of the Steering Committee can also accompany, as decided by the SC. A Field Visit Report will be prepared by the CO and circulated no less than one month after the visit to the project team, all SC members, and UNDP-GEF.

101. *Annual Monitoring* will occur through the **Tripartite Review (TPR)**. This is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to Tripartite Review (TPR) at least once every year. The first such meeting will be held within the first twelve months of the start of full implementation. The project proponent will prepare an Annual Project Report (APR) and submit it to UNDP-CO and the UNDP-GEF regional office at least two weeks prior to the TPR for review and comments.

102. The APR will be used as one of the basic documents for discussions in the TPR meeting. The project proponent will present the APR to the TPR, highlighting policy issues and recommendations for the decision of the TPR participants. The project proponent also informs the participants of any agreement reached by stakeholders during the APR preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary.

Terminal Tripartite Review (TTR)

103. The terminal tripartite review is held in the last month of project operations. The project proponent is responsible for preparing the Terminal Report and submitting it to UNDP-CO and LAC-GEF's Regional Coordinating Unit. It shall be prepared in draft at least two months in advance of the TTR in order to allow review, and will serve as the basis for discussions in the TTR. The terminal tripartite review considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as a vehicle through

which lessons learnt can be captured to feed into other projects under implementation of formulation.

104. The TPR has the authority to suspend disbursement if project performance benchmarks are not met. Benchmarks are provided in Annex .../will be developed at the Inception Workshop, based on delivery rates, and qualitative assessments of achievements of outputs.

Project Monitoring Reporting

105. The Project Coordinator in conjunction with the UNDP -GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process. Items (a) through (f) are mandatory and strictly related to monitoring, while (g) through (h) have a broader function and the frequency and nature is project specific to be defined throughout implementation.

(a) Inception Report (IR)

106. A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year/ Annual Work Plan divided in quarterly time -frames detailing the activities and progress indicators that will guide implementation during the first year of the project. This Work Plan would include the dates of specific field visits, support missions from the UNDP -CO or the Regional Coordinating Unit (RCU) or consultants, as well as time-frames for meetings of the project's decision making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time -frame.

107. The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start -up activities and an update of any changed external conditions that may effect project implementation.

108. When finalized the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the IR, the UNDP Country Office and UNDP -GEF's Regional Coordinating Unit will review the document.

(b) Annual Project Report (APR)

109. The APR is a UNDP requirement and part of UNDP's Country Office central oversight, monitoring and project management. It is a self -assessment report by project management to the CO and provides input to the country office reporting process and the ROAR, as well as forming a key input to the Tripartite Project Review. An APR will be prepared on an annual basis prior to the Tripartite Project Review, to reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work.

110. The format of the APR is flexible but should include the following:

- An analysis of project performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome;
- The constraints experienced in the progress towards results and the reasons for these;
- The three (at most) major constraints to achievement of results;
- AWP, CAE and other expenditure reports (ERP generated);
- Lessons learned;
- Clear recommendations for future orientation in addressing key problems in lack of progress

(c) Project Implementation Review (PIR)

111. The PIR is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for a year, a Project Implementation Report must be completed by the CO together with the project. The PIR can be prepared any time during the year (July-June) and ideally prior to the TPR. The PIR should then be discussed in the TPR so that the result would be a PIR that has been agreed upon by the project, the executing agency, UNDP CO and the concerned RC.

112. The individual PIRs are collected, reviewed and analysed by the RCs prior to sending them to the focal area clusters at the UNDP/GEF headquarters. The focal area clusters supported by the UNDP/GEF M&E Unit analyse the PIRs by focal area, theme and region for common issues/results and lessons. The TAs and PTAs play a key role in this consolidating analysis.

113. The focal area PIRs are then discussed in the GEF Interagency Focal Area Task Forces in or around November each year and consolidated reports by focal area are collated by the GEF Independent M&E Unit based on the Task Force findings.

114. The GEF M&E Unit provides the scope and content of the PIR. In light of the similarities of both APR and PIR, UNDP/GEF has prepared a harmonized format for reference. Please refer to Annex H-3.

(d) Quarterly Progress Reports

115. Short reports outlining main updates in project progress will be provided quarterly to the local UNDP Country Office and the UNDP -GEF regional office by the project team. See format attached.

(e) Periodic Thematic Reports

116. As and when called for by UNDP, UNDP -GEF or the Implementing Partner, the project team will prepare Specific Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be provided to the project team in written form by UNDP and will clearly state the issue or activities that need to be reported on. These reports can be used as a form of lessons learnt exercise, specific oversight in key areas, or as troubleshooting

exercises to evaluate and overcome obstacles and difficulties encountered. UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary will allow reasonable timeframes for their preparation by the project team.

(f) Project Terminal Report

117. During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved, structures and systems implemented, etc. and will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities.

(g) Technical Reports (project specific - optional)

118. Technical Reports are detailed documents covering specific areas of analysis or scientific specializations within the overall project. As part of the Inception Report, the project team will prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent AP Rs. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined areas of research within the framework of the project and its sites. These technical reports will represent, as appropriate, the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national and international levels.

(h) Project Publications (project specific - optional)

119. Project Publications will form a key method of crystallizing and disseminating the results and achievements of the Project. These publications may be scientific or informational texts on the activities and achievements of the Project, in the form of journal articles, multimedia publications, etc. These publications can be based on Technical Reports, depending upon the relevance, scientific worth, etc. of these Reports, or may be summaries or compilations of a series of Technical Reports and other research. The project team will determine if any of the Technical Reports merit formal publication, and will also (in consultation with UNDP, the government and other relevant stakeholder groups) plan and produce these Publications in a consistent and recognizable format. Project resources will need to be defined and allocated for these activities as appropriate and in a manner commensurate with the project's budget.

2. INDEPENDENT EVALUATION

120. The project will be subjected to at least two independent external evaluations as follows:

(i) Mid-term Evaluation

121. An independent Mid-Term Evaluation will be undertaken at the end of the second year of implementation. The Mid-Term Evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the

effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

(ii) Final Evaluation

122. An independent Final Evaluation will take place three months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

Audit Clause

123. The Government will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

3. LEARNING AND KNOWLEDGE SHARING

124. Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and forums. In addition:

- The project will participate, as relevant and appropriate, in UNDP/GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics.
- The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation through lessons learned.

125. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identify and analyzing lessons learned is an on-going process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every 12 months. UNDP/GEF shall provide a format and assist the project team in categorizing, documenting and reporting on lessons learned. To this end a percentage of project resources will need to be allocated for these activities.

Table G-1 : Indicative Monitoring and Evaluation Work plan and corresponding Budget

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team Staff time</i>	Time frame
Inception Workshop	§ Project Coordinator § UNDP CO § UNDP GEF		Within first two months of project start up
Inception Report	§ Project Team § UNDP CO	None	Immediately following IW
Measurement of Means of Verification for Project Purpose Indicators	§ Project Coordinator will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members	To be finalized in Inception Phase and Workshop. Indicative cost XXXX	Start, mid and end of project
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	§ Oversight by Project GEF Technical Advisor and Project Coordinator § Measurements by regional field officers and local IAs	To be determined as part of the Annual Work Plan's preparation. Indicative cost xxxx	Annually prior to APR/PIR and to the definition of annual work plans
APR and PIR	§ Project Team § UNDP-CO § UNDP-GEF	None	Annually
TPR and TPR report	§ Government Counterparts § UNDP CO § Project team § UNDP-GEF Regional Coordinating Unit	None	Every year, upon receipt of APR
Steering Committee Meetings	§ Project Coordinator § UNDP CO	None	Following Project IW and subsequently at least once a year
Periodic status reports	§ Project team	5,000	To be determined by Project team and UNDP CO
Technical reports	§ Project team § Hired consultants as needed	15,000	To be determined by Project Team and UNDP-CO
Mid-term External Evaluation	§ Project team § UNDP- CO § UNDP-GEF Regional Coordinating Unit § External Consultants (i.e. evaluation team)	20,000	At the mid-point of project implementation.
Final External Evaluation	§ Project team, § UNDP-CO § UNDP-GEF Regional Coordinating Unit § External Consultants (i.e. evaluation team)	30,000	At the end of project implementation
Terminal Report	§ Project team § UNDP-CO § External Consultant	None	At least one month before the end of the project
Lessons learned	§ Project team § UNDP-GEF Regional Coordinating Unit (suggested	15,000 (average 3,000 per year)	Yearly

	formats for documenting best practices, etc)		
Audit	§ UNDP-CO § Project team	4,000 (average \$1000 per year)	Yearly
Visits to field sites (UNDP staff travel costs to be charged to IA fees)	§ UNDP Country Office § UNDP-GEF Regional Coordinating Unit (as appropriate) § Government representatives	15,000 (average one visit per year)	Yearly
TOTAL INDICATIVE COST <i>Excluding project team staff time and UNDP staff and travel expenses</i>		US\$ 250,000 ¹⁰	

PART V: Legal Context

This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of Kazakhstan and the United Nations Development Programme, signed by the parties on 4 October 1994. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

The UNDP Resident Representative in Kazakhstan is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP -GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

- a) Revision of, or addition to, any of the annexes to the Project Document;
- b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;
- c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and
- d) Inclusion of additional annexes and attachments only as set out here in this Project Document

SECTION II: STRATEGIC RESULTS FRAMEWORK AND GEF INCREMENT

Part I: Incremental Cost Analysis

A. Project Background

The GHG emissions from meeting the basic heat and hot water supply needs of the population typically account for some 25 -35% of the total GHG emissions of the CIS countries. Taking into account that the overall energy losses of the existing heat and hot water supply systems in these countries easily reach 50% (compared to the losses of 20 -25% of modern, well-maintained heat and hot water supply systems), it is obvious that the greenhouse gas emission reduction potential of this sector is remarkable.

B. Incremental Cost Assessment

Baseline

The baseline scenario is that in the absence of supportive legal and regulatory framework and lack of adequate information, trained personnel and proven models, the key stakeholders both at the consumer and supplier level do not have the incentives, capacity, institutional basis and financial tools to facilitate and/or accelerate the sustainable development of the heat and hot water supply sector in Kazakhstan. Limited resources are continued to be used for covering the costs of different emergency investments and losses of DH companies, instead of using them in a more cost-efficient way to improve the overall efficiency, financial sustainability and creditworthiness of the heat and hot water supply sector and thereby also leverage additional financial resources for its sustainable development.

Global Environmental Objective

The objective of the project is to reduce greenhouse gas (GHG) emissions from the municipal heat and hot water supply systems in Kazakhstan and to lay the foundation for the sustainable development of these services taking into account local as well as global environmental considerations.

Alternative

The project proposes that: i) a supportive legal and regulatory framework will be set up to promote and provide incentives for further improvement of the energy efficiency of the heat and hot water supply services in Kazakhstan ; ii) new institutional and financing models will be created for local stakeholders to organize energy efficient heat and hot water supply services and enhancing their capacity to implement and leverage financing for the targeted energy efficiency investments; and iii) project experiences and lessons learnt compiled, analyzed and disseminated and their effective replication in Kazakhstan and other CIS countries/municipalities with comparable situation initiated. In terms of GHG reduction, it has been estimated that through effective replication of the project activities, the baseline emissions could be reduced by up to 4.6 million tons of CO₂ per year, or at approximately 46 million tons of CO₂ over the next 20 years, by gradually improving the system. The methodology for calculating this GHG emission reduction potential has been discussed in further detail in Section I, Part II in the draft project document "Replication". As a direct result of the proposed pilot activities, the GHG emissions reduction potential compared to the baseline has been estimated at 0,67 million tons of CO₂ over a 20 year period.

Systems Boundary

For estimating the GHG reduction potential of the project, only the direct emission resulting from burning fuels for heat and/or combined power and heat production have been taken into account. The indirect emissions from fuel production and transportation activities have not been considered.

Summary of Costs

Cost/Benefit	Baseline	Alternative	Increment
Domestic Benefits	High financial losses of the DH companies and relatively low service quality to the consumers	Improved financial performance of the heat supply companies Reduced need for public subsidies Improved service quality and/or lower costs of heating and hot water supply	Improved financial performance of the heat supply companies Reduced need for public subsidies Improved service quality and/or lower costs of heating and hot water supply
Global Benefits	Continuing the operation of the inefficient heat and hot water supply systems with the losses reaching 50%.	GHG reduction of the first pilot activities: 0,67 million tons of CO ₂ , over the next 20 years Cumulative GHG reduction potential through replications of the project: 46 million tons of CO ₂ over the next 20 years	GHG reduction of the first pilot activities: 0,67 million tons of CO ₂ , over the next 20 years Cumulative GHG reduction potential through replications of the project: 46 million tons of CO ₂ over the next 20 years
Costs:			
Outcome 1:	USD 50,000	USD 410,000	USD 360,000
Outcome 2:	USD 7,050,000	USD 9,030,000	USD 1,980,000
Outcome 3:	USD 80,000.	USD 1,030,000	USD 950,000
TOTAL COSTS	USD 7,180,000	USD 10,470,000	USD 3,290,000

PART II: Logical Framework Analysis

Project Goal: To improve energy efficiency and reduce the GHG emissions originating from heating and hot water supply in Kazakhstan

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Assumptions
<p>Objective: <i>To gain experience, to build the capacity and to create incentives for the implementation of new institutional and financing mechanisms for leveraging financing for the improvement of energy efficiency of the heat and hot water supply systems in Kazakhstan</i></p>	<p>Adoption and enforcement of the proposed legal and regulatory changes to overcome the identified key legal and regulatory barriers.</p> <p>Successful completion of the first pilot projects in Almaty and continuing operation of the supported institutional and financing mechanisms on a self-sustaining basis.</p> <p>Agreements signed on the implementation of new investments in other cities/ city districts</p>	<p>No major investments in energy efficiency taking place</p>	<p>Adoption and enforcement of the proposed legal and regulatory changes by the end of the project</p> <p>Successful completion and continuation of the financially sustainable operation of the first pilot activities at the end of the project with annual reduction of greenhouse gas emissions at about 30,000 tons of CO₂ per year</p> <p>New projects initiated and financing leveraged for them at the amount of at least USD 10 million by the end of the project</p>	<p>Official Gov't publications</p> <p>Project final evaluation</p> <p>Project's GHG monitoring and verification reports</p> <p>Project final evaluation</p>	<p>Continuing commitment of the key project partners, including the relevant Government agencies, to co-operate and work towards meeting the project objectives.</p>
<p>Outcome 1 <i>A supportive legal and regulatory framework in place to promote and provide incentives for the improvement of the energy efficiency of the heat and hot water supply services in Kazakhstan.</i></p>	<p>Adoption and enforcement of the proposed legal and regulatory changes.</p>	<p>Inadequate legal and regulatory framework to support EE investments</p>	<p>The proposed legal and regulatory changes (see outputs 1.1 – 1.4) formally adopted and enforced by the end of the project.</p>	<p>Project monitoring reports.</p>	<p>Continuing commitment of the Government of Kazakhstan to promote restructuring of the heat and hot water supply sector</p>

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Assumptions
<p>Output 1.1 A proposal for improved tariff and billing policy submitted for Government approval, addressing:</p> <ul style="list-style-type: none"> • heat metering and consumption based billing; • <i>reduction of non -payments and further development of the related social support scheme to support the most vulnerable group of the population;</i> • <i>other barriers hampering the introduction of new institutional and financing models for improving the energy efficiency of heating and hot water supply.</i> 	<p>Finalization and submission of the proposal for Government approval</p> <p>Consultations with key stakeholders completed</p>	<p>Some improvements of the tariff and billing policy adopted during the past few years to support EE investments</p>	<p>A comprehensive proposal for improved tariff and billing policy with related social support scheme submitted for Government approval by the end of the second year.</p> <p>Consultations with the key government stakeholders on the adoption and enforcement of the proposal successfully completed by the end of the project.</p>	<p>Project progress reports.</p>	<p>See above.</p>
<p>Output 1.2 Model master plans prepared for Almaty and Kokshetau and a proposal for legal and regulatory provisions to promote heat sector planning based on integrated resource planning principles at the municipal and national level submitted for Government approval, including a program for increasing the share co - generation.</p>	<p>Finalization of the model master plans</p> <p>Finalization and submission of the proposal for Government approval</p> <p>Consultations with key stakeholders completed</p>	<p>No heat sector planning based on integrated resource planning principles currently conducted for long term heat, power and gas sector development</p>	<p>Model master plans for Almaty and Kokshetau finalized by the end of the 2nd year</p> <p>A proposal for legal and regulatory changes to promote heat sector planning based on integrated resource planning principles submitted for Government approval by the end of the 2nd year and consultations on its adoption and enforcement successfully concluded by the end of the project.</p>	<p>Project progress reports.</p>	<p>See above</p>
<p>Output 1.3 A proposal for the revision of outdated technical standards submitted for</p>	<p>Finalization and submission of the proposal for Government approval</p>	<p>Several outdated technical standards in</p>	<p>A proposal for revising outdated technical standards submitted for Government</p>	<p>Project progress reports.</p>	<p>See above</p>

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Assumptions
Government approval	Consultations with key stakeholders completed	place hampering the introduction of new energy efficient technologies and measures	approval by the end of the 2 nd year and consultations on the adoption and enforcement of the proposal successfully completed by the end of the project		
Output 1.4 A proposal for the legal and regulatory changes to strengthen the role of the Associations of Apartment Owners (AAOs) a NGO in managing the building and the associated heat and hot water supply services submitted for Government approval.	Finalization and submission of the proposal for Government approval Consultations with key stakeholders completed	Inadequate legal and regulatory framework to support the role of the AAOs in managing the building and the associated heat and hot water supply services	A proposal for the legal and regulatory changes to provide incentives for and strengthen the role of the AAOs in managing the building and the associated heat and hot water supply services submitted for Gov't approval by the end of the 2 nd year; Consultations for its adoption and enforcement successfully completed by the end of the project	Project progress reports.	See above
Outcome 2: New institutional and financing models introduced for leveraging financing for EE investments and enhanced capacity of the local stakeholders to support their further implementation and replication	Successful completion and continuing operation of the first investment projects in Almaty and Kokshetau on a self-sustaining basis at the end of the project.	No major investments to improve the energy efficiency of the existing heat and hot water supply systems taking place.	The first pilot projects successfully completed and their operation and further development continued on a self-sustaining basis at the end of the project.	Project evaluation reports.	Continuing commitment of the key project partners to co-operate with the project.
Output 2.1 A finalized public awareness raising/marketing and capacity building strategy for the areas of the first pilot projects .	Public awareness raising/marketing and capacity building strategy finalized	Tentative public awareness raising/marketing and capacity building strategy	Final public awareness raising/ marketing and capacity building strategy developed and adopted by the key stakeholders by the end of the 1 st year	Project progress report	See above

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Assumptions
Output 2.2 Initial public awareness raising and marketing activities completed	The initial public awareness raising and marketing activities completed	No public awareness raising and marketing activities	The initial public awareness raising and marketing activities completed successfully by the end of the 2 nd year.	Project progress report	See above
Output 2.3 The buildings and AAOs participating the first pilot projects selected and trained.	The buildings and AAOs participating the first pilot projects selected and trained.	Buildings and AAOs to participate the first pilot projects not identified	The buildings and AAOs participating the first pilot projects selected and trained by the end of the 2 nd year	Project progress report	See above
Output 2.4 The key staff of the ESCO, participating heat supply companies, relevant Government agencies and other key stakeholders trained	The key staff of the ESCO, participating heat supply companies, relevant Government agencies and other key stakeholders trained.	Lack of capacity of the ESCO, participating heat supply companies, relevant Government agencies and other key stakeholders to implement the project	The key staff of the ESCO, participating heat supply companies, relevant Government agencies and other key stakeholders trained by the end of the 2 nd year.	Project progress report	See above
Output 2.5 The first pilot projects successfully under implementation, including the establishment and operationalization of the ESCO	The first pilot projects successfully under implementation, including the establishment and operationalization of the ESCO	Limited experience and lack of institutional and financing mechanisms for implementation of EE investment projects for heat and hot water supply systems	The first pilot projects successfully under implementation by the end of the 2 nd year, including the establishment and operationalization of the ESCO by the end of the 1 st year	Project progress report	See above
Outcome 3: Compilation,	The project experiences	Lack of	Projects initiated in other	Project final	Successful completion

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Assumptions
analysis and dissemination of the project experiences and lessons learnt and initiation of their effective replication in Kazakhstan and other CIS countries/municipalities with comparable situation.	and lessons learnt compiled, analyzed and disseminated. Agreements signed on the implementation of new investments in other cities/ city districts by building on the institutional and financing models introduced in the project	experience, information, institutional and financing models for implementation of EE measures for heat and hot water supply	cities or city districts by building on the experiences and models provided by the first pilot projects in Almaty and Kokshetau by the end of the project	report.	of the first pilot projects in Almaty and Kokshetau. Supportive legal and regulatory framework in place Improved availability of financing
Output 3.1 A system for monitoring/ recording the GHG emission reductions of the first pilot projects and the project as a whole.	A system for monitoring/ recording the GHG emission reductions of the project in place	No system to monitor/ record the GHG emission reductions of the project in place	GHG emission monitoring and verification protocol developed and the operating personnel of the projects trained for compiling the required information by the end of the 2 nd year. An assessment of the GHG reduction resulting from the project implementation completed by the end of the project.	Project reports.	
Output 3.2 Analyses of the experiences and lessons learnt under the project and recommendations for their effective replication	A report analyzing the experiences and lessons learnt finalized	No experiences and lessons learnt compiled and analyzed	Draft final project report documenting the results, experiences and lessons learnt and recommendations for their effective replication completed at least 3 months before the end of the project.	Project evaluation reports.	
Output 3.3 Training and other capacity building activities completed for the management and, as applicable, operating personnel of other municipalities and heat supply companies, including, as applicable,	Number of staff and the number of municipalities and other heat supply companies that have received training and other capacity building	No training and capacity building	At least 10 additional municipalities and/or heat supply companies contacted and trained by the end of the project	Project reports	

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Assumptions
establishment of an information exchange network.					
Output 3.4 Project overall results, experiences and lessons learnt discussed and disseminated at the national and regional level	Project results, experiences and lessons learnt disseminated at the national and regional level	No experiences and lessons learnt disseminated	The draft report disseminated to the key stakeholders at least 3 months before the end of the project. A regional seminar organized to present and discuss the results by the end of the project Other public outreach activities such as articles and TV programs initiated and completed by the end of the project.	Project reports.	Supportive institutional, legal and regulatory framework.
Output 3.5 Consultations for replicating the project experiences in other cities or city districts and leveraging financing for that completed	Number agreements / expressions of interest for replicating the project activities at the national and regional level Amount of financing leveraged for the actual investments	No replication and effective follow up of the results of the project	Five expressions of interests to replicate project activities at the national and/or regional level received by the end of the project. Financing leveraged at the amount of at least USD 10 million to expand and/or continue project activities by the end of the project.	Final evaluation	

SECTION III: TOTAL BUDGET AND WORKPLAN

Award ID: 00044007									
Award Title: PIMS 1281 CC FSP Kazakhstan Energy Efficiency									
Project ID: 00051578									
Project Title: PIMS 1281 CC FSP Kazakhstan Energy Efficiency									
Executing Agency: MEMR – NEX execution									
GEF Outcome/ Atlas Activity	Responsible party	Source of Funds	ERP/Atlas Budget Code	ERP/Atlas Budget Description	Amount US\$ Year 1	Amount US\$ Year 2	Amount US\$ Year 3	Amount US\$ Year 4	Total Amount
1.0 A supportive legal and regulatory framework in place	MEMR	GEF	71200	International Consultants	15,000	15,000	15,000	15,000	60,000
			71300	Local Consultants	15,000	15,000	15,000	15,000	60,000
			71400	Contractual Services – Comp.	90,000	90,000			180,000
			71600	Travel	10,000	10,000	10,000	10,000	40,000
			74500	Miscellaneous Expenses	5,000	5,000	5,000	5,000	20,000
TOTAL OUTCOME COST					135,000	135,000	45,000	45,000	360,000
2.0 New institutional and financing models introduced for leveraging financing for EE investments and enhanced capacity of the local stakeholders to support their further implementation and replication.	MEMR	GEF	71200	International Consultants	30,000	30,000	30,000	30,000	120,000
			71300	Local Consultants	40,000	40,000	40,000	20,000	140,000
			71400	Contractual Services – Comp.	80,000	220,000	220,000	20,000	540,000
			71600	Travel	20,000	20,000	20,000	20,000	80,000
			72200	Equipment and Furniture	0	220,000	200,000	100,000	520,000
			72600	Grants	0	500,000	0	0	500,000
74500	Miscellaneous Expenses	20,000	20,000	20,000	20,000	80,000			
TOTAL OUTCOME COST					190,000	1,050,000	530,000	210,000	1,980,000
3.0 Compilation, analysis and dissemination of the project experiences and lessons learnt and initiation of their effective replication in Kazakhstan and other CIS countries/ municipalities with comparable situation. ¹¹	MEMR	GEF	71200	International Consultants	150,000	130,000	130,000	150,000	560,000
			71300	Local Consultants	30,000	30,000	30,000	30,000	120,000
			71400	Contractual Services – Comp.	10,000	10,000	10,000	20,000	50,000
			71600	Travel	20,000	20,000	20,000	20,000	80,000
			72200	Equipment and Furniture	20,000	10,000	10,000	0	40,000
74500	Miscellaneous Expenses	20,000	20,000	20,000	40,000	100,000			
TOTAL OUTCOME COST					250,000	220,000	220,000	260,000	950,000
GEF					3,290,000				

¹¹ Including the costs of shared items across the different Outcomes such as Project Management and M&E Costs

SECTION IV: ADDITIONAL INFORMATION

Part I: Other agreements
LETTER OF ENDORSEMENT

FROM :

FAX NO. :

Nov. 05 2004 04:58PM P1

КАЗАКСТАН
РЕСПУБЛИКАСЫНЫҢ
КОРШАҒАН ОРТАНЫ
КОРҒАУ МИНИСТРЛІГІ



МИНИСТЕРСТВО
ОХРАНЫ
ОКРУЖАЮЩЕЙ СРЕДЫ
РЕСПУБЛИКИ КАЗАХСТАН

473000, Астана қаласы, Жетісайылы, 31 үй
Тел. 59-19-44, факс 59-19-73

473000, город Астана, проспект Победы, 31
Тел. 59-19-44, факс 59-19-73

2004 жылғы 05.11
1-3-2/2008

№ _____

И.о. Постоянного
представителя ПРООН в
Республике Казахстан
г-ну Гордону Джонсону

*Касательно проекта «Устранение барьеров
в повышении эффективности коммунального теплоснабжения»*

Министерство охраны окружающей среды Республики Казахстан в качестве национального координирующего органа Глобального экологического фонда (далее - ГЭФ), рассмотрев Проектное предложение проекта Правительства Казахстана и Программы развития ООН в Республике Казахстан «Устранение барьеров в повышении эффективности коммунального теплоснабжения», сообщает следующее.

Настоящим согласовываем заявку на финансирование из ГЭФ проекта «Устранение барьеров в повышении эффективности коммунального теплоснабжения», в размере 3,290,000 долларов США. Данная заявка направляется в Программу Развития ООН (ПРООН) для дальнейшего представления в ГЭФ. Вклады в реализацию проекта со стороны Казахстана определены в представляемом проектом документе и приложенных к нему письмах согласований.

Примите наши заверения в искреннем уважении

Министр
Национальный координатор
проектов ГЭФ в РК



А.Самакова

Бекеев А.
591935

018304 *



*Empowered lives.
Resilient nations.*

(Unofficial translation of Endorsement letter)

Ministry of Environment Protection of the Republic of Kazakhstan

UNDP Resident Representative, a.i.

Mr. Gordon Johnson

#1 -3-2/8088 dated 05.11.2004

Regarding the project “Removing barriers to Energy Efficiency in Municipal Heat and Hot Water Supply”

The Ministry of Environment Protection of the Republic of Kazakhstan as the National Coordinating Body of the Global Environment Fund (GEF), considering the Project Proposal for the joint project of Government of Kazakhstan and UNDP, communicates the following:

Hereby the Project Proposal “Removing barriers to Energy Efficiency in Municipal Heat and Hot Water Supply” has been approved for GEF financing in amount US\$ 3,290,000 US\$. The Project Proposal is being sent to UNDP for further submission to GEF. The Kazakhstan commitments have been clarified in the project document and supported by the letters of confirmation.

Sincerely yours,

Aitkul Samakova,
Minister and National Coordinator of GEF in the Republic of Kazakhstan

LETTERS OF COMMITMENT

АЛМАТЫ ҚАЛАСЫНЫҢ
Ә К І М І



А К И М
ГОРОДА АЛМАТЫ

2000 жылы _____ 480091, Алматы қаласы, Республика алаңы, 4
480091, г. Алматы, пол. Республика, 4 030 04 2004
№ _____ № 1-1630

RECEIVED

05 MAY 2004

Региональному Советнику ПРООН
по устойчивому развитию
г-ну Такенову Ж.А.

О сотрудничестве в проекте ПРООН
по созданию муниципальной энергосервисной
компании в г.Алматы

Уважаемый господин Жарас Абу-улы Такенов!

Акимат г.Алматы настоящим письмом заверяет Вас, что полностью поддерживает Проект ПРООН по повышению энергоэффективности и созданию муниципальной энергосервисной компании (ЭСКО) в городе Алматы.

Одновременно подтверждаем своё намерение выделить порядка 1 миллиона долларов США в капитал ЭСКО дополнительно к грантовой помощи в 0,5 миллионов долларов США со стороны ПРООН. Кроме того, окажем необходимую всемерную помощь в размещении ЭСКО и иной поддержке на начальном этапе её работы.

Считаем, что осуществление Проекта по созданию ЭСКО позволит внести немаловажный вклад в оздоровление экологической обстановки и в снижении выбросов парниковых газов в атмосферу.

С уважением,



В.Хранунов



*Empowered lives.
Resilient nations.*

Translation
of the Almaty Akim letter

30 April 2004

Subject: About cooperation in the UNDP energy efficiency project to set up ESCO in Almaty.

Dear Mr. Takenov

Hereby Akimat of Almaty confirms its support to the UNDP energy efficiency project and establishing the municipal ESCO in Almaty.

We confirm our intent to submit US\$ 1 million in a cash for the initial capitalization of the ESCO additionally to US\$ 0,5 million from UNDP side. Additionally the Akimat will submit all necessary support for providing a space for the ESCO and other support needed to the ESCO in the beginning.

We believe that the realization of the Project with the ESCO will bring valuable commitment for improving environment and reducing GHG emission.

Yours truly,

V. Khrapunov

Ақмола облысы
КОКШЕТАУ ҚАЛАСЫНЫҢ
ӘКІМІ



АКІМ *к: 27*
ГОРОДА КОКШЕТАУ *сс: 6D*
Ақмолинской области *AK*
OKL

RECEIVED

475000, Кокшетау қаласы, Фрузов көшесі, 141
телефон: 25-28-45, факс: 25-23-86

19 APR 2004

475000, г. Кокшетау, ул. Агулова, 141,
телефон: 25-28-45, факс: 25-23-86

15.04.2004 № 1-85-446

Представительство Программы
развития ООН в Казахстане
г-ну Жарасу Тахенову

Касательно проекта ПРООН
по теплоснабжению г.Кокшетау

Уважаемый господин Тахенов,

Акимат г.Кокшетау совместно с Компанией «Кокшетау Пауэр» рассмотрели Проектное Предложение ПРООН по совместному Проекту повышения эффективности теплоснабжения г.Кокшетау и подтверждают свою заинтересованность в продолжении работ по данному Проекту.

Акиматом г.Кокшетау и Компанией «Кокшетау Пауэр» уже осуществляются мероприятия по восстановлению теплоснабжения. К настоящему времени выполнены объемы работ на сумму 434 млн.тенге, которые можно рассматривать как софинансирование Проекта. Для завершения запланированных работ необходимо привлечение дополнительных инвестиций на сумму 511 млн.тенге в течении 2004-2006гг.

В этой связи Акимат г.Кокшетау выражает заинтересованность в скорейшем согласовании Проекта и начале его реализации с участием ПРООН.

Вопросы софинансирования Проекта со стороны Акимата и Компании «Кокшетау Пауэр» были рассмотрены на совещании 14.04.2004 года, протокол совещания прилагается.

С уважением,



Е. Баяхметов

Бюро по координации работы по проекту ПРООН «Восстановление теплоснабжения г.Кокшетау»

008190

Translation
of the letter of intent of Akimat of Kokshetau
to Mr. Zharas Takenov, UNDP.

15.04.04



*Empowered lives.
Resilient nations.*

Subject: Concerning the UNDP Project Proposal for the Kokshetau DH

Dear Mr. Takenov

Akimat of the Kokshetau city together with the DH company “Kokshetau Power” considered the UNDP Project Proposal for join project for energy efficiency of the DH of Kokshetau and confirmed their interest to the project implementation.

The Akimat and the DH company “Kokshetau Power” has started an implementation of the rehabilitation measures for the DH since 2003. To present the rehabilitation was made on a sum 434 mln. tg (US\$ 3,1 mln.). It can be considered as a contribution of the Akimat and the “Kokshetau Power” to the project. There is an additional financing on a sum 511 mln. tg (US\$ 3,65 mln) requested to finish the rehabilitation planned for the 2004 -2006 period.

In this regard the Akimat is interested in beginning realization of the project together with UNDP as soon as possible.

Cofinancing the Akimat and the “Kokshetau Power” to the project was considered on the meeting dated 14.04.04.

Resolution of the meeting attached.

With respect,
Mr. Bajakhmetov E.
Akim of Kokshetau.

APPROVED BY AKIM OF KOKSHETAU
Mr. BAJAKHMETOV
15.04.04



«Утверждаю»
Акима города Кокшетау
Баяхметов Е.Б.
2004г.

ПРОТОКОЛ
совещания по Проекту «Реабилитации систем
централизованного теплоснабжения в г.Кокшетау»

14.04.2004 года

Председательствующий:
Акима города Кокшетау

Баяхметов Е.Б.

Присутствующие:

Первый зам. акима г.Кокшетау
Президент ТОО «Кокшетау Пауэр»
Руководитель Проекта ПРООН/ГЭФ
Директор по экономике и
финансам ТОО «Кокшетау Пауэр»
Зам. директора по эксплуатации
т/сетей ТОО «Кокшетау Пауэр»

Мурзин А.Х.
Игнатущенко А.И.
Дорошин Г.А.
Шамбер А.В.
Ехласов А.С.

Дорошин Г.А. представил Проектное Предложение по реабилитации системы централизованного теплоснабжения г.Кокшетау.

Данное предложение было разработано в рамках Проекта Правительства Казахстан и Программы Развития ООН «Казахстан – устранение барьеров в повышении эффективности коммунального теплоснабжения».

Проект выполняется в соответствии с обязательствами Казахстана по Рамочной Конвенции ООН по изменению климата и направлен на повышение эффективности использования топлива и сокращения выбросов парниковых газов в Казахстане.

На основании Проектного Предложения, а также перспектив развития до 2006 года были выбраны приоритетные направления восстановления теплосистемы города, а именно:

- замена части магистральных тепловых сетей;
- замена части распределительных сетей;
- восстановление горячего водоснабжения в 96 жилых домах;
- замена изношенных насосов.

Стоимость мероприятий по восстановлению теплосистемы составляет 945 млн. тенге (6,75 млн. долларов США).

В настоящее время из запланированного объема выполнено работ на сумму 434 млн.тенге (3,1 млн.дол. США). Остальные средства будут освоены в течении 2004-2006гг.

Осуществление Проекта значительно повысит надёжность системы теплоснабжения города и снизит затраты электроэнергии и топлива. Ожидаемая экономия средств составит порядка 140 тыс. долларов США в год. Будет также достигнут экологический эффект снижения выбросов вредных веществ в атмосферу города, а также выбросов парниковых газов в размере 12000 тонн в год.

Снижение выбросов парниковых газов отвечает международным обязательствам Республики Казахстан по Рамочной Конвенции ООН по изменению климата.

Обсудив информацию присутствующие ПОСТАНОВИЛИ:

1. Признать реализацию Проекта остро необходимой для реабилитации системы теплоснабжения г.Кокшетау на 2004-2006гг. и актуальной с точки зрения выполнения международных обязательств Казахстана по Рамочной Конвенции ООН по изменению климата.

2. Затраты по финансированию Проекта в сумме 945 млн.тенге распределяются следующим образом:

– 343,0 млн.тенге выделяются Компанией «Кокшетау Пауэр», как собственные средства,

в том числе:

225 млн.тенге освоено в 2003 году;

118 млн.тенге на 2004-2006 годы

– 57,0 млн.тенге привлекаются Компанией «Кокшетау Пауэр» в виде товарного кредита компании ALSTOM/Дания.

Условия кредита:

- период выплаты 5 лет, процентная ставка 4,3% в год (дол.США);
- единовременная выплата банковского вознаграждения 8,5% от суммы кредита;
- гарантии по кредиту будут предоставлены Глобальным Экологическим Фондом;

– 447 млн.тенге привлекаемые бюджетные средства,

в том числе:

209 млн.тенге выделено в 2003 году;

238 млн.тенге на 2004-2006 годы

– 98,0 млн.тенге предоставляются Глобальным Экономическим Фондом в форме финансирования отдельных компонентов Программы и гарантий по инвестиционным кредитам.

3. Погашение заёмных средств будет обеспечено Компанией «Кокшетау Пауэр» за счёт экономии расходов топлива в количестве 22 000 Гкал/год и электроэнергии в объеме 3 056 МВт.ч/год с общим экономическим эффектом около 140 тыс.дол.США в год в результате реализации Программы.

Первый зам. акима
г.Кокшетау

A handwritten signature in black ink, appearing to be 'Murzin A.X.', written in a cursive style.

Мурзин А.Х.

Президент
ТОО «Кокшетау Пауэр»

A handwritten signature in black ink, appearing to be 'Игнатущенко А.И.', written in a cursive style.

Игнатущенко А.И.

Resolution of meeting
held at the Kokshetau Akimat on 14.04.04

1. The project is approved as urgent priority for rehabilitation of DH of Kokshetau for period 2004-2006 and the Kazakhstan contribution to fulfill obligations under UNFCCC.
2. Financing structure of the DH rehabilitation project in amount of 945 mln.tg. (US\$ 6,75 mln) is considered as the followings:
 - “Kokshetau Power” own contribution – 343 mln.tg. (US\$2,45 mln), including: 225 mln.tg (US\$1,6 mln) spent in 2003(rehabilitation of network); 118 mln.tg (US\$ 0,85 mln) planned for period 2004 -2006
 - Supplier credit in a sum 57 mln.tg (US\$ 0,41 mln) will be submitted by Alstom to “Kokshetau Power”. Condition of the credit: duration – 5 yers, interest rate – 4,3% per year, a one time reward of Danish Export -Credit Fund (DECF) – 8,5% of a sum of credit. Partly warranty to the credit is requested to be submitted by GEF.
 - Budget sources (Akimat of Kokshetau) – 447 mln.tg. (US\$3,19) , Including: 209 mln.tg (US\$1,49 mln) spent in 2003 (r ehabilitation of network and hot water supply); 238 mln.tg (US\$ 1,7 mln) planned for period 2004 -2006,
 - UNDP/GEF proposed cofinancing – 98 mln tg (US\$0,7 mln) for cofinancing selected components of the Kokshetau project and credit warranty.
3. Backpayment for the credit will be done by the “Kokshetau Power” as a result of fuel saving (22000 Gcal/ year), power saving (3 056 MWh/year) with a cost US\$ 0,14mln per year.

Mr. Mursin
Deputy of Akim

Mr. Ignatushenko
President of “Kokshetau Power” ltd.

ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ
ТАБИғИ МОНОПОЛИЯЛАРДЫ РЕТТЕУ
ЖӘНЕ БӘСКЕЛЕСТІКТІ ҚОРҒАУ
ЖОҢИҢДЫҒ АГЕНТТІГІ



АГЕНТСТВО РЕСПУБЛИКИ КАЗАХСТАН
ПО РЕГУЛИРОВАНИЮ
ЕСТЕСТВЕННЫХ МОНОПОЛИЙ И
ЗАЩИТЕ КОНКУРЕНЦИИ

473000, Астана қаласы,
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2004 ж. 23.10 № 66-П-14/11400

**Программа развития ООН
Руководителю отдела экологии и
устойчивого развития,
Региональному советнику
по устойчивому развитию
г-ну Ж. Такенову**

Агентство Республики Казахстан по регулированию естественных монополий (далее – Агентство), рассмотрев представленное Вами письмом от 7 сентября 2004 года, доработанное с учетом замечаний Агентства, Проектное Предложение по проекту Правительства Казахстана и ПРООН/ГЭФ «Устранение барьеров в энергоэффективности коммунального теплоснабжения» сообщает, что замечаний не имеет, и подтверждает готовность выступить исполнительным агентством по данному проекту.

Председатель

Б. Сагинтаев

Иснова А. 591-612

007434



Empowered lives.
Resilient nations.



*Empowered lives.
Resilient nations.*

(Unofficial Translation)

Agency for Regulation of Natural Monopolies
of the Republic of Kazakhstan

#6-11-14/11400 dated by 23 October 2004

Mr. Zharas Takenov,

Chief of Environment Management and
Sustainable Development Team of UNDP

Agency for Regulation of Natural Monopolies of the Republic of Kazakhstan agrees with the revised version of the Project Proposal “Removing barriers to Energy Efficiency in Municipal Heat and Hot Water Supply” which was received by the Agency on 7 September 2004 . The Agency confirms its willingness to be an implementing agency for the project.

Mr. Sagintayev B,
Chairmen of the Agency

The endorsement letter and other letters of intent/commitment are attached separately

Part II: Organigram (optional)

Part III: Terms of Reference for key project staff and main subcontracts

Project Management Committee

Status and Functions

1. The Project Management Committee (PMC) is a main coordinating body, which coordinates the implementation arrangements of the project referring to the objectives and the outcomes, reflected in the project document and in accordance with UNDP rules and regulations;
2. The main functions of the PMC are:
 - The general monitoring and control of the correctness to fulfill the project activities
 - Regulation of the current project activity with regard to the changing external environment
 - Approval of the changes, that are contributed in the project document, that arise due to the unexpected reasons after the careful analysis and discussion of the ways to solve problems
3. Members of the PMC work on a voluntary unpaid basis. The reimbursement of the travel expenses of Members PMC work is on a voluntary no -charge basis. Compensation of expenses for business trips, connected with the activities within the framework of the project is carried out upon submission of all confirming documents, according to procedures and standards of UNDP;
4. Members of the PMC have no right to participate in the realization of the project. Members of the PMC do not have the right to receive monetary compensation as experts or advisers in the project. Otherwise the Member will be obliged to leave from the PMC structure;
5. The PMC Structure is formed as agreed between UNDP and the involved national structures and, whenever possible, includes representatives of all interested parties for substantial and financial participation in coordination of the execution of the project;
6. PMC as body, as well as its individual members does not represent neither UNDP, nor GEF.

PMC Structure

1. The PMC structure should be as stable as possible for the complete duration of the realization of the project in order to adequately carry out both the supervision and coordination of performance of the project;
2. The mandatory PMC structure includes the following representatives: National Project Director from the government, equal representation from executive and supervising agencies, UNDP representatives and the representative from other donors if available,
3. The final list of PMC members must be reflected in the project documents but can be modified through official correspondence or following the report of a meeting.
4. UNDP along with supervising executive partners is responsible for any modification regarding the PMC structure;

Sessions

1. PMC sessions are held according to the working plan which includes a tentative schedule of the authorized sessions in accordance to signed project document. In case of a need for a convocation of an extraordinary PMC session, all representatives PMC should be notified in writing 14 days prior to prospective date of session;
2. The manager of the project is obliged to distribute all materials concerning the themes of the session to all PMC members, at least for 5 working days prior to any sessions with the purpose of maximizing effective participation of all participants and receptions of fruitful and substantial discussion. In turn, PMC members are obliged to familiarize themselves attentively with the submitted documents in order to be completely informed and competent on the themes of discussion of next PMC session;
3. PMC members should be present at all sessions. In the event where a situation would be interfering with the participation of a PMC member in the next session, the manager of the project must be notified 3 days prior to the session;
4. PMC sessions are to be held with a minimum attendance of 2/3 from PMC structure;
5. In a case where PMC partner's representative would not be present for 2 consecutive sessions, the member, following a PMC decision, would be removed from the structure of the committee;
6. During PMC sessions, PMC representatives must appoint a member who will be chairing the session. The basic function of the Chairman is the maintenance of the democratic character of the discussions and the achievement of a consensus in an operating time for the next and-or emergency PMC sessions;
7. The presence of independent observers with the right of a deliberative vote to PMC sessions is possible. The nomination of the observer should be at least 5 working days prior to the session and be coordinated with UNDP and supervising and partner agencies. No other accompanying persons can participate in executive PMC decisions.

Decision-making

1. PMC Decisions must be reached on the basis of a consensus;
2. PMC must appoint a session secretary among the employees from the designated personnel
3. All decisions are fixed by the session reports which must be signed by all participants of session and kept in the office of the project;
4. Copies of decisions in Russian and English languages must be distributed within 3 days to the corresponding PMC members involved in the performance of sessions and acceptance of decisions.

The conflict of interests

1. Representatives PMC are obliged to provide impartiality in the decision-making process reached by consensus, to exclude questions of personal character, the conflicts of interests, and possible external influences;
2. In the case of potential conflicts of interests between PMC representatives and the bearer of the application, the PMC member is obliged to notify PMC beforehand of the development of the situation and, under PMC decision, the member might not participate to the discussion of the concrete project, or will continue work in a usual mode.

The order of modification of the present rules.

1. The duties of PMC representatives are defined by the present document, the project document and the working plan.
2. Changes and additions in key rules of work of PMC representatives to be coordinated during PMC sessions and affirmed by a common decision of the session.

National Project Director

Duties and responsibilities .

- Represent the Government of Kazakhstan as the person responsible for the Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply implementation from the government side.
- Supervise implementation of the Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply project during the entire period, assuring that work is carried out in accordance with the Project Proposal.
- Ensure all required authority to the Project Manager required for successful project implementation.
- Ensure presentation of all project expenses to authorized officials, in accordance with operational principles of national implementation.
- Assure coordination between project activities and other governmental activities, as well as incentives related to the project.
- Provide other types of support to assure successful implementation of the project and further activities, including the sustainability and dissemination of the results.

Project Manager

Duties and responsibilities: Operational project management in accordance with project documents and procedures, presented in the official Operational Principles of National Implementation, to assure timely results.

Duration: 36 man/month

Main tasks:

- General coordination, management and supervision of project implementation to assure timely results and completion in accordance with project requirements;
- Project budget management under the direction of the Executing Agency and the UNDP to assure timely and cost effective involvement of experts, preparation of

workshops and purchase of equipment and data in accordance with UNDP rules and procedures;

- Submission of progress reports to the Executing Agency and the UNDP in accordance with section 1.4 of the project document, "Monitoring and assessment";
- Coordination of the efficient dissemination of information on project activities and results, as well as provisions for access by partners to any project information (including development and updating of the project website);
- Management and coordination of expert contracts;
- Communicating with international investors and financial organizations to define fields of cooperation and attracting additional financing in order to fulfill the project objectives.

Outputs: Successful completion of project in accordance with stated objectives, planned schedule and budget including:

- Proposal for improved tariff and billing policy submitted for Government approval;
- Model master plans prepared for Almaty and Kokshetau and a proposal for legal and regulatory provisions to promote heat sector planning;
- Proposal for the revision of outdated technical standards submitted for Government approval;
- Proposal for the legal and regulatory changes to strengthen the role of the Association of Apartment Owners;
- Finalized public awareness raising/marketing and capacity building strategy for the areas of the first pilot projects;
- Initial public awareness raising and marketing activities completed;
- Participation and training of the buildings and AAOS to the first pilot projects selected;
- Key staff of the ESCO relevant Government agencies and training for other key stakeholders;
- First project pilot successfully under implementation including the establishment and operational sufficiency of the ESCO;
- System for monitoring/recording the GHG emission reductions of the first pilot projects and the projects and the project as a whole;
- Analysis of the experience and lessons learned under the project and recommendation for their effective replication;
- Training and other capacity building activities completed for the management and operating personnel of other municipalities and heat supply companies and the establishment of an information exchange network;

- Project overall results, experiences and lessons learned discussed and disseminated at the national and regional level;
- Consultation for replicating the project experiences in other cities or city districts and leveraging financing for that completed.

Qualification and Experience required :

- background in natural sciences (energy, economy or environment management);
- work experience in heating supply and technical knowledge and skills in energy related sphere;
- experience in management and strategic planning, in research and alternative energy sources institutions;
- experience in management in ecological projects;
- experience in research and preparation of analytical reviews;
- knowledge in climate change issues, UN FCCC activities, Kyoto Protocol, and other environment protection conventions and commitments;
- experience with international organizations and consultants;
- knowledge of institutional framework of Kazakhstan;
- ability to work in teams, decision-making skills, communication and management skills;
- Computer skills;
- Knowledge of Russian and English.

Project Assistant

Duties and responsibilities: Work under project manager coordination, supporting project manager for successful project implementation in accordance with project objectives

Duration: 36 man/month

Main tasks

- Responsibility for logistics and administrative activities related to the project
- General administration of the project center in Almaty city, related to the UNDP Office
- Maintaining the business and financial documentation, according to requirements of the UNDP and donor organizations
- Preparation of internal reports and recording of meetings
- Organizing meetings, business correspondence, answering telephone calls
- Maintaining business documentation under the project
- Help in coordinating and executing workshops
- Assistance to project manager in preparation of financial and other reports

Outputs: Successful completion of project in accordance with stated objectives, planned schedule and budget

Qualification and Experience required :

- Fluent English and Russian, knowledge of Kazakh is desirable
- Experience of work at similar position
- Administration skills
- Ability to work effectively under pressure
- Perfect computer skills

International Project Adviser

Background:

The objective of this project is to reduce greenhouse gas (GHG) emissions from the municipal heat and hot water supply systems in Kazakhstan and to lay the foundation for the sustainable development of these services taking into account local as well as global environmental consideration.

Duration: 36 man/month

Main tasks:

The International Project Advisor (IPA) will report to the National Project Director (NPD) and advice the NPD and UNDP Country Office as needed. The CTS's daily work will be coordinated with the National Project Manager and other members of the project team.

As a member of the Project Implementation Unit, the Chief Technical Specialist (CTS) will support the following project activities:

- Supportive legal and regulatory framework in place;
- New institutional and financing models introduced for leveraging financing for EE investments and enhanced capacity of the local stakeholders to support their further implementation and replication;
- Compilation, analysis and dissemination of the project experiences and lessons learnt and initiation of their effective replication in Kazakhstan and other CIS countries in municipalities with comparable situation.

Expected Outputs:

The performance of the IPA will be assessed in successful achieving of the overall project outputs, according to the project work plan, set goals and within the allocated project budget, mainly:

- Proposal for improved tariff and billing policy submitted for Government approval;

- Model master plans prepared for Almaty and Kokshetau and a proposal for legal and regulatory provisions to promote heat sector planning;
- Proposal for the revision of outdated technical standards submitted for Government approval;
- Proposal for the legal and regulatory changes to strengthen the role of the Association of Apartment Owners;
- Finalized public awareness raising/marketing and capacity building strategy for the areas of the first pilot projects;
- Initial public awareness raising and marketing activities completed;
- Participation and training of the buildings and AAOS to the first pilot projects selected;
- Key staff of the ESCO relevant Government agencies and training for other key stakeholders;
- First project pilot successfully under implementation including the establishment and operationalization of the ESCO;
- System for monitoring/recording the GHG emission reductions of the first pilot projects and the projects and the project as a whole;
- Analysis of the experience and lessons learned under the project and recommendation for their effective replication;
- Training and other capacity building activities completed for the management and operating personnel of other municipalities and heat supply companies and the establishment of an information exchange network;
- Project overall results, experiences and lessons learned discussed and disseminated at the national and regional level;
- Consultation for replicating the project experiences in other cities or city districts and leveraging financing for that completed

Qualifications/Background:

- MSc in Engineering, Business Administration, Environment with substantive knowledge of energy and climate change issues;
- Good knowledge and experience in energy and heating supply in countries with economies in transition;
- Good knowledge of advanced energy technologies and international standards and requirements in the area of heating supply, lessons learned in other countries in promotion of energy efficiency projects;
- Experience in project development and financing for energy and heating supply related projects.

Competencies and Technical Skills:



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Resilient nations.*

- **Strong networking skills and demonstrated ability to liaise and involve partners** including government officials, scientific institutions, NGOs and private sector.
- Familiarity with UNDP and UN system desirable.
- Experience with international organizations/projects/programs.
- Effective communication with staff at all levels of the organization and competence in handling external relations at all levels.
- Excellent analytical skills.
- Capability to work under deadline pressure and to take on a range of tasks.
- Ability to work in a team, to motivate other team members and counterparts and to balance the inputs and work of team members.
- Self-motivation and ability to recommend options for resolutions of issues.
- Full working knowledge of spoken and written English, including the ability to draft and edit project documents, funding proposals, correspondence and briefings.
- Excellent computer skills, including full working knowledge of standard word processing, spreadsheet and presentation software packages.
- Fluency in spoken Russian/Kazakh is an asset
-

Remuneration and Special Conditions:

A contract for one year will be issued. Prolongation of the contract for the next two years will depend on a status of the project.

Part IV: Stakeholder Involvement Plan

The project is a result of a process that was started under the PDF B titled “Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply”. The project preparatory activities have been implemented and the proposal has been developed in close consultation with the representatives of the Ministry of Energy and Mineral Resources (MEMR), the Antimonopoly Agency and local Antimonopoly Committees, local city administrations (Akimats), local DH supply companies and expert institutions and the AAOs. The modalities for stakeholder participation have included direct consultations, seminars as well as meetings of the Project Advisory Committee. During this process, the key stakeholders and their role in the project have been elaborated as follows¹²:

Municipal heat supply companies and the municipal administrations . Although some heat supply companies have been privatized, organising adequate heat and hot water supply is still broadly perceived as the responsibility of the municipalities, which have a direct interest in reducing their current spendings by improving the energy efficiency of the system. While Almaty and Kokshetau have been selected as sites for the first pilot projects, other Kazak municipalities will be involved in the dissemination and, as applicable, replication of the results and lessons learnt.

The consumers and Associations of Apartment Owners (AAOs) are the direct counterparts for heat suppliers and the ones with the potential to initiate energy efficiency measures at the building level. As above, while the consumers and AAOs in Almaty and Kokshetau will be the first target group, AAOs in other cities will be involved in the dissemination and, as applicable, replication of the results and lessons learnt.

In order to successfully introduce a heat metering and consumption based billing system in the selected service areas of Almaty and Kokshetau, it will be crucial to demonstrate their economic and financial benefits to the key stakeholders both at the supply and demand side, including the tenants, AAOs and DH companies as well as other participating financing partners. To do that, a comprehensive public awareness raising program is included in the project activities.

The Republic Antimonopoly Agency (AMA), is responsible for the legal and regulatory matters in the area of tariffs. The cities Antimonopoly Committees (AMC) are responsible for consideration and adoption of tariffs for local monopolies. Both the AMA and the AMCs will be involved in the project implementation, especially as regards the components dealing with tariffs, heat metering and consumption based billing

The Ministry of Natural Resources and Environmental Protection, is responsible for environment related activities and matters. It also serves as the focal point of the Government of Kazakhstan to the GEF and the UN FCCC.

The *Ministry of Economy* is responsible for rational use of resources and attraction of investments to Kazakhstan, while the *Ministry of Finance* is managing the state budget as a whole and is dealing with issues related to taxation etc. Both ministries are envisaged to be involved in discussions concerning potential financial incentives and other financial and fiscal

¹² Please, see also section I, Part III: Project Management Arrangements

measures that could be applied to promote energy efficiency investments in the heat and hot water supply sector and to leverage both local and foreign financing for that.

The Ministry of Energy and Mineral Resources is the government body responsible for the energy sector strategy development and for regulatory functions, including issues related to the promotion of co-generation. It has been the formal Government counterpart for the PDF phase of the project as it is envisaged to continue as the executing agency also for the main project.

The Kazakhstan Institute of Environment Monitoring is involved in GHG emission monitoring and thereby will have a role in the proposed project on these aspects.

Local Technical Institutes such as *KazNIPIenergo* (JSC) – local designing institute of power; *KazNIIIE* (JSC) – local research institute of power engineering and *Santechproject* (JSC) – local utility designing institution of district heating are envisaged to be involved in technical aspects the project is dealing with;

Public organizations and NGOs dealing with the energy related issues such as KEA, Coordination Center on Climate Change, Green Action, Society of Consumers Right Protection are envisaged to be involved in activities dealing, in particular, with public awareness raising, consumer relations etc. as well as on general monitoring and evaluation of the project activities and its results.

Commercial private sector entities such as equipment suppliers, foreign DH companies, commercial banks etc. will be contacted and, as applicable, engaged as partners to promote energy efficiency technologies both in terms of general marketing and awareness raising and/or as a potential source of financing through supplier credits, leasing, third-party financing schemes, ESCO shareholders etc.

As regards the co-operation with and lessons learnt from the activities of other donors¹³, contacts have been established, for instance, with the UNECE energy efficiency project implemented in Almaty. Under the UNECE project, a small revolving fund has been established for financing energy efficiency investments in municipal buildings. Energy Performance Contracts (EPCs) have been used for repayment of the investment, secured by a guarantee provided by the Almaty Akimat. The first year of the project has shown positive results. Some experience has been gained about the introduction of Energy Service Companies (ESCOs) also in other transitional economies, such as Ukraine, which experiences have been taken into account in planning the project activities.

The USAID has supported an EE project in the city of Atyray, Western Kazakhstan. The objective of the project is to create incentives for energy savings by promoting heat metering and improved control of heat and hot water consumption. Among other findings, the conclusions of the project have highlighted the importance of carefully studying the actual heat consumption, current flat rate tariff and payment levels of the different type of buildings, so as to tailor the heat metering program and any tariff revisions to the specific characteristics of each sector and area

¹³ For more details about the lessons learnt from other GEF and non-GEF activities, see section IV, part V: Experiences and Lessons Learnt with Heat Sector Projects Up to Date

concerned. Shifting to consumption based billing system without any additional measures can increase significantly the heat bill for the small and heat extensive buildings, which are often occupied by people with lower than average income. In addition to social aid, a relevant energy-saving program needs to be developed for such buildings protecting the people from considerable increase of the heat charges. The share of small buildings consists about 10% of whole heating space

The experience of the UNECE energy efficiency demonstration zone project using Energy Performance Contracts (EPC) for implementing energy savings in public sector has highlighted the need to adjust the current regulations of financing utility services for public sector, so that the verified energy savings can be used for repayment of the investment.

The EBRD has provided support to the Antimonopoly Committee dealing with tariff regulation in the power and heat sector resulting, among others, in the recent amendments adopted for the promotion of the investments in the district heating systems. The Regional Energy Efficiency and Clean Production Programme funded by the Government of Norway in Kazakhstan and Kyrgyzstan started in 2002 and is currently under implementation. The objective of the programme is to train local experts to perform energy audits and to prepare technical and financing proposals for improving energy efficiency of buildings. As a part of the project activities, an energy efficiency and clean production center was established in Almaty.

The proposed UNDP/GEF project will complement the activities listed above, by taking account the results and lessons learnt and by building on the groundwork they have already partly laid out and cooperate with them whenever possible.

While UNDP/GEF funding is primarily requested for capacity building and other technical assistance type of activities, the financing of the actual investments is primarily covered by the contributions of the local partners and, as applicable, through supplier credits.

Part V: Experiences and Lessons Learnt with Heat Sector Projects Up to Date

During the first half of 2004, UNDP financed two studies in order to compile experiences and lessons learnt from both non-GEF and UNDP/GEF funded heat sector projects in order to find answers to questions such as:

- Do the experiences and lessons learnt encourage the continuation of the UNDP/GEF interventions in the heat sector; and
- What are the specific experiences and lessons learnt that can be used to improve the design and to enhance the impact of new heat sector projects ?

In general, both studies confirmed the rationality of maintaining the heat sector as a logical priority area for UNDP/GEF funded climate change projects in Europe and CIS countries with major greenhouse gas emissions reduction opportunities, while simultaneously contributing to the overall UNDP country strategies and cross-sectoral work dealing with good governance, poverty reduction and overall institutional strengthening and capacity building.

While the review of the UNDP/GEF heat sector projects (including a great variety of projects from biomass projects to general energy efficiency projects working only partially in heat sector) suffered from the fact that only one of 19 projects reviewed had actually been completed at the time of conducting the study, the initial findings of the study were in accordance with the conclusions of the review of non-UNDP/GEF projects, for which final results from most projects reviewed were available. Some key findings and conclusions that can be drawn from the studies, as well as from the continuing monitoring of the UNDP/GEF funded heat sector projects after that, are briefly discussed below:

Support to heat sector development strategies, institutional, legal and regulatory reforms should remain in the core of GEF funded heat sector activities. Typically, however, this has involved more work than originally anticipated, since energy efficiency is also directly affected by laws on municipal financing, laws on privatization, laws on ownership of property, laws on pricing and taxation etc. This is calling for a cross-sectoral approach, which does not only look the specific laws and regulations dealing with the heat sector, but the overall legal and regulatory framework affecting the implementation and financing of energy efficiency investments among different end user group. Reaching the targeted results typically requires time and continuing commitment of the key stakeholders of the project to systematically and patiently work through the necessary steps in terms of initiating, creating partnerships and lobbying for the changes needed - a process that has often been started already during the project preparatory (PDF B) phase. As stated also in the review of UNDP/GEF projects: "Timing of interventions can determine success or failure", which is particularly true with the legal and regulatory framework. For instance, with the recent changes in the tariff policy, combined with stronger measures adopted by the heat supply companies to enforce payments in Kazakhstan, it was concluded that a good enough basis for proceeding from the PDF B stage to the full size project currently exist, which was still not the case a few years ago. In that respect, it has also been considered as important to maintain enough flexibility and ensure the continuity of the project in changing circumstances, which sometimes can take place quite rapidly.

In general, the co-operation with the municipalities has shown positive results. Typically, the municipalities take the biggest burden on inefficient heat supply systems and as such have direct financial and political interest to improve the system. Municipal heat plans have proven to provide a good basis for strategic planning, for prioritising investments and for leveraging financing for them at the municipal level. One of the success stories of the recently completed UNDP/GEF funded energy efficiency project in Bulgaria is the creation of a network of municipalities, through which the results of the first demonstration projects in Gabrovo have been disseminated and which has encouraged other municipalities for similar investments with their own funding.

By building on the conclusions of selected non-GEF projects reviewed and confirmed also by the findings of some recently completed PDF B phases of UNDP/GEF funded heating sector projects, strengthening the Housing Associations and promoting the co-operation of the residents at the building level in general is emerging as one of the key vehicles to facilitate heat sector energy efficiency improvements both at the demand and supply side. While the problem with the lack of functioning management structures and initial reluctance of the residents towards co-operation with the other residents of the building is shared by practically all the transitional economies, there are also some success stories such as the “Energy Efficiency Housing Pilot Project” in Lithuania, in which, as a result of well designed public awareness raising activities and provision of proper incentives, the residents have got organised and started to initiate different energy efficiency measures at the building level. As a result of some private initiatives, some early experiences have emerged also in Kazakhstan about the success in organizing heat metering and consumption based billing collectively at the building level. The experiences from the UNDP/GEF funded Russia EE project have suggested that the apartment level heat metering, which sometimes has been categorically promoted by different donors in all circumstances, does not always provide the most cost-effective way to promote consumption based heat metering and billing.

As regards the solvency of the population to bear the full costs of heating, including the necessary investments for maintaining or improving the system and to facilitate the commercial operation of the heat supply companies, this has been an issue in all the projects reviewed. It is viewed as the direction the heating sector should be developed, including the consumption based metering and billing, but none of the non-GEF projects reviewed was able to provide really useful examples or lessons learned, how to sustainably address this issue in practice. Some work towards this direction was made in the projects reviewed, but in most cases both the meters and the related energy efficiency investments were financed 100% by the donor with somewhat limited value for effective replication.

On the question about the role of investments projects to support the public awareness raising and capacity building activities, a general conclusion that can be drawn from the studies is that linking the technical assistance activities to concrete investments has often been essential to the success of the project. As concluded by the review of the non-GEF projects:

- Capacity building might take place through specific training activities, but training activities should not stand-alone. Capacity building is more efficient, if the training activities are supplemented with daily or regular exchange with consultants and through networking with

similar consumer groups, utilities or municipalities. Training is also more effective, if it can be combined with the development and implementation of concrete investment projects. Obviously, the focus of these projects should not only be on technical peculiarities, but more importantly on the project cycle as a whole, including the structuring of co-financing for the projects, procurement and management of the actual construction phase. The role of capacity building to support the investments has in all the cases been crucial in terms of project prioritisation and preparation, building the negotiation skills of the clients with the targeted co-financiers and building their capacity to supervise and manage the actual procurement and construction phase;

- In most projects there have been both seminars and on-the-job training. Targeted seminars followed by practical use of the skills supplemented with current advice has worked successfully in the projects.
- Training the energy consultants on “bankable” project identification and development is not enough, but there is a need to combine it with assistance in creating a sustainable demand for their services, e.g. by cost-sharing energy audits;
- In many cases, concrete and visible demonstration projects are essential for raising public awareness and for supporting the strategy related work. Printed PR materials, studies and recommendations alone seldom do the job. Many beneficiaries have seen countless reports made by consultants and are very eager to act themselves or see visible results instead of studying reports. For instance, the experiences from the UNDP/GEF funded Bulgaria EE project show that demonstration projects, even when financed partially with grant resources, can lead to replication of similar measures in other municipalities with their own funding;
- Many of the institutional and regulatory barriers may emerge and can only be addressed when working with concrete investment projects.
- For a successful transfer of institutional and technical support to the recipient countries it is important to show a gradual development of the type of support from donor financed studies and demonstration projects, partly via donor financed projects to “commercial projects”, which can be financed by the recipient one way or the other, e.g. via loans from an international financial institution, via an ESCO, etc. For the time being, there is still a need in many countries for projects with donor co-financing. In general, however, it is concluded that the grant element should not be 100%, but the recipient should finance a considerable part. Only in cases where the investment is a prototype or there is a need to support small investments to gain more information for legal, regulative and institutional measures, a grant of 100% could be justified.

The fact that feasibility studies of investment projects often show that the project economy is very good, and that there is a reasonable pay-back time, indicates that new financial models should and could be created to at least partially replace the need for grants. While several Energy Service Companies (ESCOs) have been initiated in EU accession countries, examples of functioning ESCOs in CIS countries have still been rare. One of the forerunners is Ukraine,

In Ukraine, the company “UkrEsco” was established in 1998, as a result of negotiations between Ukraine and EBRD. The UkrEsco started real operation in 1999 and has since successfully



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implemented 14 projects of total investment volume amounting to USD 11 million. Its focus, however, has been mainly on the industrial sector. Another, municipal ESCO has been established in Ukraine in the frame of the UNDP/GEF project, which was started in 2002. Its activities focus mainly on the supply side, while the envisaged ESCO in Kazakhstan is at least initially envisaged to work mainly on the demand side. Common prerequisites that all the mentioned ESCOs, however, share is that: i) an adequate legal framework needs to be in place to facilitate effective operation of the ESCOs (enforcing, among others, the payments); and ii) there is a need for collaboration between the public authorities and private investors. At the initial stage, the public authorities can support energy saving measures, e.g., by establishing modern standards, norms and mechanisms.

An institutional model, which came up from the review of non-GEF projects as a possibly successful model to be replicated also in other countries is the public-private partnerships in the maintenance and management (PMMs) companies in the housing sector in Ukraine. There is some indication that at least some of these PMMs would be interested in including energy efficiency as a part of their activities, such as provision of maintenance services and installation of heat meters and thus could come close to the operation of an ESCO. Projects, which promote energy efficiency in the heat sector might also have a positive influence on the employment through the creation of new jobs.

Part VI: Results Framework

Intended Outcome as stated in the Country Results Framework: Livelihood opportunities for the poor are increased through expanded access to natural resources and sustainable energy.		
Partnership Strategy: Partnerships with local authorities, communities, private sector and the other donors strengthened .		
Project title and number: PIMS 1281 Improving the Energy Efficiency of Municipal Heating and Hot Water Supply		
Project Development Objective: Reduction of the greenhouse gas (GHG) emissions from the municipal heat and hot water supply systems in Kazakhstan and laying the foundation for the sustainable development of these services taking into account local as well as global environmental considerations		
Outcome 1: A supportive legal and regulatory framework in place to promote and provide incentives for the improvement of the energy efficiency of the heat and hot water supply services in Kazakhstan.		
Intended Outputs	Output targets for (years)	Indicative Activities
Output 1.1 A proposal for the revised tariff and billing policy, reflecting the full costs of the service and incorporating incentives for energy efficiency improvements, submitted for Government approval.	<p>a) A feasibility study (see the Activity section for the topics to be covered) for shifting from a flat fee based billing system into heat metering and consumption based billing reflecting the full cost of the service finalized by the end of the Year 1</p> <p>b) The dialogue and stakeholder consultations (see activity 1.1.10) finalized by the end of the Year 1</p> <p>c) Final proposal and recommendations for the legal and regulatory changes submitted for Government consideration by the end of the 18th month of project, including, as applicable, specific incentives (such as tax privileges) to encourage the tenants for organizing/procuring the heat and hot water supply and other communal services collectively at the building level.</p>	<p><u>Activity 1.1.1</u> Reviewing the existing legal and regulatory framework dealing with the heat sector tariffs, contracts and billing procedures.</p> <p><u>Activity 1.1.2</u> Evaluating the different possible concepts and approaches for organising the consumption based metering and billing in a most cost effective way, taking into account the solvency of the population as well as technical measures to allow the consumers to regulate their heat consumption.</p> <p><u>Activity 1.1.3</u> Evaluating the financial consequences for the different client groups and for the heat supplier, if switching from a flat fee tariff to consumption based billing that reflects the full costs of the service.</p> <p><u>Activity 1.1.4</u> Designing and conducting a social/market survey in order to determine people's willingness and ability to pay for the full market costs of heat and hot water supply services, assuming that the quality of the service can be secured and the people will have a possibility to regulate the amount of heat they wish to receive.</p> <p><u>Activity 1.1.5</u> Based on the outcome of the study, reviewing and, as applicable, conceptualizing a revised social support scheme to support the most vulnerable groups of the population, while at the same time allowing the heat supply companies to operate on a fully commercial basis.</p> <p><u>Activity 1.1.6</u> Evaluating the different options for heat supply contracts and for organizing the billing and payment collection with specific emphasis on the possible role of the AAOs as direct contracting partners for the heat supply companies.</p> <p><u>Activity 1.1.7</u> In the light of the preferred contracting modality and arrangements for payment collection, evaluating the different technical and legal options for enforcing the payments and for streamlining the legal proceedings for solving the eventual disputes and conflicts between the client and the heat supply company.</p>

		<p><u>Activity 1.1.8</u> Developing a proposal for determining the costs of heat from co-generation plants;</p> <p><u>Activity 1.1.9</u> Compiling the feasibility study and drafting a proposal for the consideration of the municipal and government authorities for a revised tariff and billing policy, reflecting the full costs of the service and incorporating incentives for energy efficiency improvements.</p> <p><u>Activity 1.1.10</u> Presenting, discussing and refining the recommendations with the responsible Government counterparts and other stakeholders in order to support the adoption of the proposed amendments through the legal/policy process applicable in Kazakhstan. The tools for facilitating this dialogue can include separate consultations, inter-agency working groups, seminars, workshops and distribution of public awareness raising material for targeted group of organizations and population, in which the results and experiences from the feasibility studies, from the first pilot projects and from the best practices and lessons learned in other countries dealing with similar problems can also be presented and discussed.</p>
<p>Output 1.2 A proposal for the legal and regulatory provisions to promote sustainable development of the heat and hot water supply services based on integrated resource planning principles, including a program for increasing the share co-generation.</p>	<p>a) A review of the current power sector development policies and strategies such as the Program of Development of Electricity System of Kazakhstan up to 2010 and 2015 years, Laws “On Electric Energy” and “On Energy Saving” finalized by the end of first 6 months of the project in order to identify the possibilities for increased use of co-generation as a heat source;</p> <p>b) A master plan for Almaty and Kokshetau finalized by the end of the first 12 months of the project so as to optimize the system development plans from the technical, economic, financing and environmental point of view, with a specific emphasis on GHG reduction aspects e.g. through co-generation;</p> <p>c) A draft strategy for promoting environmentally friendly development and reduction of GHG emission of the supply side based on integrated resource planning principles finalized by the end of 18 months</p> <p>d) The stakeholder consultations finalized by the end of 18 months</p> <p>e) A draft proposal for the legal and regulatory</p>	<p><u>Activity 1.2.1</u> Reviewing the current power sector development policies and strategies so as to identify the possibilities for increased use of co-generation as a heat source.</p> <p><u>Activity 1.2.2</u> By building on the work started under the PDF B phase of the project, updating and finalizing a master plan for the two demo cities (Almaty and Kokshetau) with an objective to define the areas feasible for continuing the centralized district heating services together, as applicable, with co-generation and the areas, in which a more decentralized approach should be encouraged;</p> <p><u>Activity 1.2.3</u> By building on the outcome of the two case studies discussed above, preparing a set of evaluation criteria, a draft strategy and, as applicable, recommendations for related legal and regulatory changes for the consideration of the Government and public authorities with an objective to promote economically and environmentally sustainable development and GHG emission reduction of different heat supply options taking into account climate change as well as other environmental considerations.</p> <p><u>Activity 1.2.4</u> Facilitate the adoption of the suggestions made through stakeholder consultations and other related measures.</p>

	<p>provisions to adopt and promote the objectives of the strategy submitted for Government consideration by the end of the first 24 months of the project, including, as applicable, a requirement for each municipality to develop a heat sector master plan based on integrated resource planning principles and a program for promoting increasing cogeneration. .</p>	
<p>Output 1.3 A proposal for revising outdated technical standards submitted for Government approval.</p>	<p>a) A review of the current technical standards and regulations governing the design and installation of heating systems finalized by the end of the first 6 months of the project.</p> <p>b) Draft proposal on the changes needed and stakeholder consultations finalized by the end of first 12 months.</p> <p>c) As applicable, a proposal for revising the outdated technical standards and regulations submitted for Government approval by the end of the first 18 months of the project.</p>	<p><u>Activity 1.3.1</u> Reviewing the current technical standards and regulations governing the design and installation of heating hot water supply systems and through stakeholder consultations and otherwise, identifying barriers to the introduction of new, state of the art technologies and approaches.</p> <p><u>Activity 1.3.2</u> Preparing a draft proposal on the changes needed and presenting, discussing and refining the recommendations with the responsible Government counterparts and other stakeholders in order to support the adoption of the proposed amendments.</p> <p><u>Activity 1.3.3</u> Finalizing and submitting for Government approval a proposal for revising the outdated technical standards and regulations and following up the processing of the proposal through stakeholder consultations, seminars etc. with an objective to facilitate the adoption of the suggestions made.</p>
<p>Output 1.4 A proposal for the legal and regulatory changes to strengthen the role of the Associations of Apartment Owners (AAOs) in managing the building and the associated heat and hot water supply services submitted for Government approval.</p>	<p>a) A review of the current legal and regulatory provisions governing establishment, management and operations of the Associations of Apartment Owners finalized by the end of the first 6 months of the project.</p> <p>b) A proposal for the legal and regulatory changes to provide incentives for and strengthen the role of the AAOs in managing the building and the associated heat and hot water supply services submitted for Government approval by the end of the first 18 months of the project</p> <p>c) Consultations for the adoption and enforcement of the proposal successfully completed by the end of the first 24 months of the project.</p>	<p><u>Activity 1.4.1</u> Reviewing the current legal and regulatory provisions governing establishment, management and operations of the Associations of Apartment Owners.</p> <p><u>Activity 1.4.2</u> Reviewing and analysing the experiences and building management practices in other countries involving AAOs or similar arrangements with a specific emphasis on organisation of the heat and hot water supply services and related cost recovery (through literature review and, as applicable, study tour including both transitional economies and other countries).</p> <p><u>Activity 1.4.3</u> Organizing public hearings, meetings and other forms of stakeholder consultations in buildings with operating and non-operating AAOs in order to familiarize the residents with the potential benefits of more close co-operation and to identify and elaborate the practical barriers to strengthening the role of the AAOs in managing the building operations, including heat and hot water supply.</p> <p><u>Activity 1.4.4</u> Identifying incentives for and eventual changes needed in the legal and regulatory framework to strengthen the role of the AAOs in managing the buildings and the associated heat and hot water supply services.</p>

		<p><u>Activity 1.4.5</u> Based on the findings, preparing a draft proposal for the eventual legal and regulatory changes and incentives to promote the more substantial role of AAOs in building management and through stakeholder consultations, seminars, awareness raising activities etc. facilitate the adoption of the proposed changes and additions.</p>
<p>Outcome 2: New institutional and financing models introduced for leveraging financing for EE investments and enhanced capacity of the local stakeholders to support their further implementation and replication</p>		
<p>Output 2.1 A public awareness raising/ marketing and capacity building strategy to promote the project objectives and activities among the residents of the multiapartment buildings within the areas of the first pilot projects.</p>	<p>a) An updated review and analysis of the current status and operation of the Associations of Apartment Owners (AAOs) or other management bodies of multi-apartment buildings within the areas of the first pilot projects finalized by the end of first 6 months of the project.</p> <p>b) A public awareness raising/marketing and capacity building strategy to promote the project objectives and activities among the residents of the multi-apartment buildings in Almaty and Kokshetau finalized by the end of the first 12 months of the project, including, as applicable, the establishment of specific advisory centers.</p>	<p><u>Activity 2.1.1</u> Review the current status of the heat and hot water supply services in the buildings under consideration and the situation in terms of the general management and maintenance of the buildings by organizing meetings with selected AAOs and organizations representing them.</p> <p><u>Activity 2.1.2</u> Continuing the consultations and, as applicable, organizing specific public hearings and/or other awareness raising events in order to present the project and to elaborate the perceptions, expectations and eventual capacity building needs for promoting the planned objectives and activities of the project.</p> <p><u>Activity 2.1.3</u> By building on the outcome of the consultations and meetings, define a public awareness raising, marketing and capacity building strategy for promoting the project objectives and activities among the Associations of Apartment Owners and their members within the area of the first pilot projects.</p>
<p>Output 2.2 Initial public awareness raising and marketing activities completed.</p>	<p>a) A brochure and related information material on the project completed by the end of the first 6 months of the project;</p> <p>b) The information material disseminated and a meeting/seminar organised with each apartment complex within the selected pilot areas by the end of the first 12 months of the project;</p> <p>c) As applicable, separate training sessions organised for interested apartment complexes / Association of Apartment Owners by the end of the first 18 months of the project.</p> <p>d) As applicable, the advisory centers established by the end of the first 18 months of the project.</p>	<p><u>Activity 2.2.1</u> Finalising a brochure and related information dissemination material elaborating the project objectives and targeted outcomes.</p> <p><u>Activity 2.2.2</u> Raising the awareness and building the capacity of the residents of the targeted pilot areas to participate in the project implementation and to deal with the heat and hot water supply related questions in general, including advice on technical, financial and legal matters and sharing of experiences from other countries with a specific emphasis on heat metering, consumption based billing and joint management of the building by conducting seminars, training sessions and other information activities. An option to be considered will also be the establishment of specific advisory centers as a “one -stop” source for support on technical, institutional and legal matters.</p>
<p>Output 2.3 The buildings and Associations of Apartment Owners participating in the first</p>	<p>a) Expressions of Interests from the Associations of Apartment Owners of the targeted buildings compiled by the end of the first 6 months of the project.</p> <p>b) Final selection of the buildings for the first pilot</p>	<p><u>Activity 2.3.1</u> Reviewing the Expressions of Interest received and conducting further consultations with the residents of interested apartment complexes and the representatives of the Association of Apartment Owners</p> <p><u>Activity 2.3.2</u> Finalizing the selection of the buildings and the Associations of</p>

<p>pilot projects selected and trained.</p>	<p>projects completed by the end of the first 12 months of the project.</p> <p>c) The capacity building and training of the residents and representatives of the participating buildings completed by the end of the first 24 months of the project.</p>	<p>Apartment Owners for the first pilot projects.</p> <p><u>Activity 2.3.3</u> Elaborating the capacity building and training needs of the residents and representatives of the participating buildings to effectively participate the project .</p> <p><u>Activity 2.3.4</u> Conducting the training and capacity building activities responding to the needs.</p>
<p>Output 2.4 Business plans finalized for the first pilot projects and their key staff, participating heat supply companies, relevant Government agencies and other key stakeholders trained, including, as applicable, partnerships with already operating ESCOs and heat supply companies in other countries. .</p>	<p>a) The training needs reviewed and the capacity building program designed by the end of the first 6 months of the project</p> <p>b) Business plans finalized for the first pilot projects by the end of the first 6 months of the project.</p> <p>c) The planned training activities (including, as applicable, twinning, internships etc.) completed by the end of the project.</p> <p>d) Web site organised for information exchange, dissemination project results and providing consultancy support for replication of the project results in other sites of Kazakhstan.</p>	<p><u>Activity 2.4.1</u> Organizing meetings and targeted awareness raising/fact finding seminars to present and discuss the objectives of the project and elaborating the capacity building needs of the management and operating personnel of the companies envisaged to participate the implementation of the project.</p> <p><u>Activity 2.4.2</u> By building on the outcome of the consultations, designing a training program for the management and operational personnel of the companies as well as for the local consultants and expert institutions to implement the first pilot projects and to lay the ground for effective replication of the activities in other municipalities and heat supply systems.</p> <p><u>Activity 2.4.3</u> Finalizing the business plans for the first pilot projects.</p> <p><u>Activity 2.4.4</u> Conducting the training in line with the program defined. Depending on the identified priority needs, this may include separate training seminars, study tours, partnerships, information exchange and networking as well as on the job training supporting the participants to develop master plans, rehabilitation strategies or specific EE projects from the initial project idea up to its financial closure as well as training provided for the operating personnel to properly install, operate and maintain the equipment.</p>
<p>Output 2.5 The first pilot projects successfully under implementation, including the establishment and operationalisation of the municipal ESCO in Almaty and training of its management .</p>	<p>a) The municipal ESCO in Almaty established by the end of the first 6 months of the project</p> <p>b) The detailed technical design, tender documents, implementation arrangements and financing structure for the first pilot projects finalized and agreed with the key stakeholders by the end of the first 18 months of the project.</p>	<p><u>Activity 2.5.1</u> Finalising the negotiations and legal proceedings for the establishment of the municipal ESCO in Almaty</p> <p><u>Activity 2.5.2</u> Preparatory assistance for the ESCO operation, including incorporation, management training, energy audit conducting, business plans preparation, model of energy performance contracting, legal and financial issues for repayment and other related issues</p> <p><u>Activity 2.5.3</u> Finalising the detailed technical design and tender documents for the pilot projects in Almaty and Kokshetau, including provisions for effective monitoring of the projects.</p> <p><u>Activity 2.5.4</u> Finalising the negotiations on the detailed implementation and financing arrangements of the first pilot projects in Almaty and Kokshetau, including consultations with the targeted customers, possible investors, equipment suppliers (incl. possible vendor financing schemes) etc.</p> <p><u>Activity 2.5.5</u> Finalising the procurement, installation and commissioning of the</p>

	<p>c) The first pilot projects successfully under implementation by the end of the first 24 months of the project</p>	<p>first pilot projects, including training and ongoing implementation support for the key personnel.</p>
<p>Outcome 3: Compilation, analysis and dissemination of the project experiences and lessons learnt and initiation of their effective replication in Kazakhstan and other Central Asian countries</p>		
<p>Output 3.1 A system for monitoring/recording the GHG emission reductions of the first pilot projects and the project as a whole.</p>	<p>(a) The GHG emission monitoring and verification protocol developed by the end of Year 1. (b) The operating personnel of the projects trained for compiling the information needed by the end of Year 2. (c) The required equipment for monitoring installed by the end of the Year 2 (d) Report presenting the verified GHG emission reductions achieved finalized by the end of the project</p>	<p><u>Activity 3.1.1</u> By building on the experiences with the other climate change projects in Kazakhstan and other countries and in cooperation with local Coordination Center for Climate Change, developing a Project Monitoring and Verification Protocol for monitoring/recording/ registering the GHG emission reductions achieved with the first pilot projects and the project as a whole. <u>Activity 3.1.2</u> Preparing the specifications for procuring and installing the required technical equipment, as needed, to facilitate proper monitoring of the projects. <u>Activity 3.1.3</u> Developing the report formats and training the project operating personnel to compile and report the necessary information. <u>Activity 3.1.4</u> In cooperation with the Coordination Center for Climate, verifying and reporting the GHG emission reductions achieved.</p>
<p>Output 3.2 Analyses of the experiences and lessons learnt under the project and recommendations for their effective replication</p>	<p>(a) Report summarising the results and lessons learnt from the construction, commissioning and the first year's operation of the pilot projects in Almaty and Kokshetau finalised by the end of the Year 3. (b) Midterm evaluation completed and the report made available by the end of the Year 2 . (c) Final evaluation completed and the final evaluation report made available at least 3 months before the anticipated closing date of the project. (d) Final project report made available at least one month before the end of the project</p>	<p><u>Activity 3.2.1</u> Monitoring the construction, commissioning and operation of the first pilot projects and reporting the results and lessons learnt, including the GHG emission reductions achieved. <u>Activity 3.2.2</u> Compiling and analyzing the experiences and lessons learnt from developing, commissioning and operating the first pilot projects. <u>Activity 3.2.3</u> Conducting an independent project midterm and final evaluation, including the evaluation of the effectiveness of the training and other capacity building activities in reaching their stated objectives (Note: the costs of this activity incorporated partly into the M&E budgets of the outputs and activities to be evaluated) <u>Activity 3.2.4</u> Depending on the outcome of the project, developing a proposal for facilitating the replication and/or continuing operation of the new institutional mechanisms created under the project without additional support from the GEF; <u>Activity 3.2.5</u> By building on the experiences of the first pilot projects, develop a proposal for the establishment of a contingent grant/partial guarantee facility to share the risks of similar projects in other municipalities or with other companies; <u>Activity 3.2.6</u> Compiling, publishing and disseminating the final evaluation report and the final project report, including recommendations for follow-up activities to advance the project objectives and, as applicable, replicate its outcomes.</p>

<p>Output 3.3 Training and other capacity building activities completed for the management and, as applicable, operating personnel of other municipalities and heat supply companies, including, as applicable, establishment of an information exchange network .</p>	<p>a) By building on the initial results of the first pilot projects, the training program and materials for other municipalities and heat supply companies finalized by the end of the first 3 years of the project.</p> <p>b) The training and other capacity building activities completed for the management and, as applicable, operating personnel of other municipalities and heat supply companies finalized by the end of the project.</p>	<p><u>Activity 3.3.1</u> Evaluating the feasibility for and, as applicable, establishing a network of Kazakh municipalities to be used as a channel for training, capacity building and information exchange;</p> <p><u>Activity 3.3.2</u> By building on the initial results of the first pilot projects, finalizing the training program and material for other municipalities and heat supply companies;</p> <p><u>Activity 3.3.3</u> Conducting the training and capacity building activities for other municipalities and heat supply companies.</p> <p><u>Activity 3.3.4</u> Evaluating the results of the training</p>
<p>Output 3.4 Project overall results, experiences and lessons learnt discussed and disseminated at the national and regional levels.</p>	<p>(a) The final report distributed to key institutions both within Kazakhstan and abroad by the end of the project.</p> <p>(b) Workshops and other public outreach activities organised at the national and regional level to discuss and disseminate the project results, conclusions and recommendations by the end of the project.</p>	<p><u>Activity 3.4.1</u> Publishing the final project report in English and Russian and distributing it to different key stakeholders in Kazakhstan and abroad.</p> <p><u>Activity 3.4.2</u> Organizing an end-of-the project seminar and, as applicable, regional workshops and other outreach activities to disseminate the project results, experiences and lessons learnt to further advance the project objectives at the national as well as the regional levels.</p>
<p>Output 3.5 Consultations for replicating the project experiences in other cities or city districts and leveraging financing for that completed</p>	<p>A report presenting the results of the consultations</p>	<p><u>Activity 3.5.1</u> Conducting follow-up consultations and negotiations for leveraging financing for effective replication and advancement of the project objectives.</p>



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SIGNATURE PAGE

Country: KAZAKHSTAN

UNDAF Outcome(s)/Indicator(s): Reduced (income and human) poverty at national and sub-national levels
(Link to UNDAF outcome., If no UNDAF, leave blank)

Expected Outcome(s)/Indicator (s): Country Program Outcome 2
(CP outcomes linked t the SRF/MYFF goal and service line) Livelihood opportunities for the poor are increased through expanded access to sustainable energy

Expected Output(s)/Indicator(s): Output 3.1. Integrated conservation and development polices based on GEF projects in energy (energy efficiency, renewable energy)
(CP outcomes linked t the SRF/MYFF goal and service line)

Implementing partner: Ministry of Energy and M ineral Resources RK
(designated institution/Executing agency)

Other Partners: Almaty City Akimat
Kokshetau City Akimat

Programme Period: 2006 -2009
 Programme Component: Climate Change
 Project Title: Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply
 Project PIMS No: 1281
 Project Atlas Award ID: 00044007
 Project Atlas ID: 00051578
 Project Duration: 4 years
 Management Arrangement: NEX

Total budget:	10,470,000
GEF (full scale):	3,290,000
Allocated resources:	
Government (in kind)	130,000
Almaty Municipality	1,000,000
Kokshetau Municipality	3,190,000
Private (Kokshetau Power)	2,860,000

Name Date

Agreed by Ministry of Economy and Budget Planning RK _____

Agreed by Ministry of Energy and Natural Resources RK

Mr. Vladimir Shkolnik, Minister _____

Agreed by UNDP: Ms. Yuriko Shoji, Resident Representative _____