

CLIMATE INVESTMENT FUNDS

CTF/TFC.11/5
April 11, 2013

Meeting of the CTF Trust Fund Committee
Washington D.C.
May 2-3, 2013

Agenda Item 6

UPDATE OF CTF INVESTMENT PLAN FOR KAZAKHSTAN

PROPOSED DECISION

Recalling its endorsement in March 2010 of the *CTF Investment Plan for Kazakhstan*, the Trust Fund Committee reviewed document CTF/TFC.11/5, *Update of CTF Investment Plan for Kazakhstan*, submitted by the Government of Kazakhstan, in collaboration with the Asian Development Bank, the European Bank for Reconstruction and Development, and the World Bank Group. The Committee takes note of the proposed changes to the *CTF Investment Plan for Kazakhstan* and the proposed reallocation of funding (see table below), including:

- a) reallocating USD 21 million indicative CTF allocation under the Renewable Energy Development Program for implementation from EBRD to IFC;
- b) increasing USD 21 million indicative CTF allocation under the Municipal Energy Efficiency and District Heating Modernization Program from the USD 63 million in the original plan to USD 84 million in the new plan;
- c) dropping the Energy Efficiency Financing through Financial Intermediaries Program, which had an indicative allocation of USD 21 million under the original plan for implementation by IFC; and
- d) under the Municipal Energy Efficiency and District Heating Modernization Program, increasing USD 50 million of CTF indicative allocation for implementation by ADB while decreasing from the same program USD 8 million for implementation by EBRD and USD 21 million for implementation by IFC (changed to EBRD in September 2012), and reallocating USD 21 million to this program from the dropped Energy Efficiency Financing through Financial Intermediaries Program.

The Trust Fund Committee endorses the revisions as a basis for the further development of the new activities for CTF funding, noting that the total indicative allocation after the changes to the plan remains at USD 200 million in CTF funding.

The Committee further takes note of the intention of the Government of Kazakhstan to submit all remaining programs to the Trust Fund Committee under the new plan for funding approval in the next 18 months and requests the MDBs to work closely with Kazakhstan to expedite the development of the programs for timely submission to the Committee.

Program	CTF Funding under the Investment Plan Endorsed in March 2010 (USD Million)	CTF Funding Reallocation (USD Million)			CTF Funding Proposed for Endorsement in May 2013 (USD Million)
		ADB	EBRD	IFC	
Renewable Energy Development	116	0	(-) 21	(+) 21	116
Municipal Energy Efficiency and District Heating Modernization	63	(+) 50	(-) 8	(-) 21*	84
Energy Efficiency Financing through Financial Intermediaries	21	0	0	(-) 21	0
Total	200	+50	-50	0	200

* Changed to EBRD in September 2012

MINISTRY OF ENVIRONMENT
PROTECTION OF THE
REPUBLIC OF KAZAKHSTAN



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**European Bank for
Reconstruction and Development**

Ministry of Environmental Protection of the Republic of Kazakhstan, having considered the updated and improved Investment Plan for the Clean Technology Fund (CTF) in Kazakhstan, and recognizing the need of concessional financing instrument for realization of projects and programs aimed at reducing carbon emissions, and for the implementation of the priority state tasks of Climate Change, informs that approves the final version of the Investment Plan for the Clean Technology Fund in Kazakhstan.

Sincerely,


Bektas Mukhamedjanov

Vice Minister of Environmental Protection



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**Европейский банк
Реконструкции и развития**

Министерство охраны окружающей среды Республики Казахстан, рассмотрев обновленный и доработанный Инвестиционный план для Фонда чистых технологий (ФЧТ) в Казахстане, и признавая необходимость в льготных финансовых инструментах для реализации проектов и программ, направленных на снижение углеродных выбросов, и для выполнения приоритетных задач государства, связанных с изменением климата сообщает, что одобряет финальный вариант Инвестиционного плана для Фонда чистых технологий в Казахстане.

С уважением,

Вице- министр

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**CLEAN TECHNOLOGY FUND
INVESTMENT PLAN FOR
KAZAKHSTAN**

Update Note

April 2013

KAZAKHSTAN

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EXECUTIVE SUMMARY

This note updates the Clean Technology Fund (CTF) Investment Plan for Kazakhstan. The CTF Plan for Kazakhstan was endorsed by the CTF Trust Fund Committee (TFC) in October 2010. Under this plan, the Government of Kazakhstan (GoK) would use US\$200 million from the CTF to catalyze USD 1 billion of investments in renewable energy, district heating, and energy efficiency, projects. As of March 2013, US\$102 million of CTF funding has been approved by the Trust Fund Committee, and USD23 million of projects had been signed with clients.

The areas of intervention of the original CTF Plan for Kazakhstan remain unchanged. However, the GoK proposes the reallocation of CTF resources among existing programs (see Table 1). The GoK's intention is to commit the remaining US\$98 million of CTF funding over the next 18 months. It is expected that the impact on CTF objectives resulting from the implementation of the revised programs will be comparable to the one envisioned in the original CTF Plan.

- *Program 1 - Renewable Energy Development (EBRD, IFC):* Three EBRD projects for a total of USD59 million (Kazakhstan Renewable Energy Financing Facility and Waste Management Modernization, as well as Kazakh Railways) have been approved by the TFC. The TFC has also approved US\$1 million for PPG. Due to the slower than expected pace of the adoption of a reformed renewable energy legislation, GoK proposes to bring in the IFC as an implementation partner for renewables projects, to increase MDB processing capacity. Once the renewable energy legislation is passed, EBRD will present its fourth project, support of a large windfarm, to TFC by the Q4 2013. The IFC project will also be presented for TFC approval by Q4 2013. MDB Board approval is expected to follow in Q2 2014.
- *Program 2 – Municipal Energy Efficiency and District Heating Modernization (EBRD, ADB):* The TFC has approved EBRD's District Heating Framework for USD 42 million, and has agreed to make all funds available through the EBRD. The GOK proposes to reallocate US\$29 million from the EBRD's District Heating Program to ADB's District Heating project in Karaganda. ADB will present its DH project to the TFC by Q4 2013. ADB Board approval is expected by Q2 2014.
- *Program 3 – Sustainable Energy Finance through Financial Institutions (IFC):* Due to the continued unfavorable situation with financial intermediaries in Kazakhstan, the GOK proposes to reallocate the US\$21 million from this program to ADB's District Heating project in Karaganda, bringing CTF funding to a total of USD50 million.

Table 1: Proposed Reallocation of CTF Resources (US\$ million)

CTF Program	CTF Funding (CTF Plan Endorsed October 2010)	CTF Funding Reallocation			CTF Funding (CTF Plan Update March 2013)
		ADB	EBRD	IFC	
Renewable Energy Development	116	0	(-) 21	(+) 21	116
Municipal Energy Efficiency and District Heating Modernization	63	(+) 50	(-) 29	0	84
Energy Efficiency Financing through Financial Intermediaries	21	0	0	(-) 21	0
Total	200	+50	-50	0	200

Table 2: Kazakhstan CTF Plan Update March 2013 - Indicative Financing Plan (US\$ million)

Program	CTF	Co-financing				Total	CTF Technical Assistance
		MDB	Kazakhstan Counterpart	Other Donors	Private Sector		
Renewable Energy Development	109	235	46	10	190	597	7
Municipal Energy Efficiency and District Heating Modernization	80	196	120	12	10	422	4
Total	189	431	166	22	200	1,019	11

INTRODUCTION

This note presents an update to the original CTF Investment Plan of Kazakhstan, which was endorsed by the CTF Trust Fund Committee in October 2010. Specifically, this note provides an update of the status of project implementation under the original investment plan, proposes reallocation of funds within priority sectors, and assesses the impact of the proposed changes on achieving objectives and targets of the initial investment plan.

The original CTF Plan for Kazakhstan was developed to support the priority areas outlined in the Energy Strategy of Kazakhstan through a combination of renewable energy and energy efficiency programs. The CTF Plan for Kazakhstan proposed CTF co-financing for reducing risks and overall costs of investing in renewable energy, demand side energy efficiency through banks and district heating.

The selected activities for CTF co-financing included the following:

- *Program 1 - Renewable Energy Development (EBRD):* to address policy, finance, business, and information barriers to renewable energy market developments as well as direct financing to private sector of 100 MW of large-scale wind power capacity and 20 MW of medium-sized renewable sources.
- *Program 2 – Municipal Energy Efficiency and District Heating Modernization (EBRD, IFC):* the proposed CTF-supported investments would cover municipal energy efficiency investments in transport, water, but put the overall focus on district heating modernization, where they would be restricted to the demand and transport side of systems, and include: (i) modernization of central heat exchanger substations (CHS) and/or installation of automated building-level substations (BLS) and liquidation of CHS; (ii) installation of heat and hot water meters at the building level; (iii) installation of modern variable flow pumps at boiler plants.
- *Program 3 – Sustainable Energy Finance through Financial Institutions (IFC):* addressing barriers preventing local financial institutions to provide finance for small scale EE/RE projects in SME, commercial, municipal and residential sectors by providing (i) funding where liquidity is an issue (ii) risk sharing to support on lending activities by reducing risk perceptions of lenders; and (iii) capacity building to help FIs develop financial products for EE/RE financing and to help them understand the risks associated with such projects.

STATUS OF ORIGINAL INVESTMENT PLAN IMPLEMENTATION

The commitment of CTF funding under the CTF Plan for Kazakhstan has been slower than anticipated. As of March 2013, the Trust Fund Committee has approved US\$102 million out of US\$200 million originally endorsed for Kazakhstan.

Table 3: Financing Allocation and Status of Project Approvals (CTF Plan - Endorsed October 2010)

CTF Program / Project Title	TFC Approval Date	MDB Board Approval Date	CTF Funding (US\$ million)	Leveraged Funding (US\$ million)
Program 1: Renewable Energy Development			116	480
Renewable Energy (EBRD)	Total TFC Approved		59	
- Kazakhstan Renewable Energy Financing Facility (KazREFF)	Oct-2012	Planned for Q4 2013	28.5	
- Modernization of Waste Management	Jun-2011	Dec-11	22.5	
- Kazakh Railways	Nov-2011	Planned for Q4 2013	7	
- Project Preparation Grant			1	
Program 2: Municipal Energy Efficiency and District Heating Modernization			63	250
District Heating Energy Efficiency (EBRD)	Total TFC Approved		42	
Kazakhstan District Heating Modernization Framework	Mar-2010	Dec-2010	42	100
District Heating Energy Efficiency (IFC)			21	Transferred to EBRD
Program 3: Sustainable Energy Finance through Financial Institutions			21	80
Energy Efficiency through Banks (IFC)			21	Cancelled and moved to DHEE

Program 1: Renewable Energy Development (EBRD)

Description: The programme is aimed at providing the Bank with an instrument to extend financing for renewable energy projects in Kazakhstan. The program will provide financing and technical assistance for the realization of early renewable energy projects, which will demonstrate the benefits of utilization of renewable energy sources. It also will encourage and support policy dialogue and institutional capacity building in respect of renewable energy, in order to foster the development of a favorable environment for the implementation of such projects in Kazakhstan. The program will consider all forms of renewable energy generation project including hydro, wind, biomass/biogas and solar.

Rationale: The programme was designed as a financing instrument in support of successful policy dialogue by the led by the EBRD, with the Government of Kazakhstan on renewable energy support policies. Its aim is to provide finance to project developers who lack equity, and cannot raise finance on a commercial basis. Through this offer, it is expected to create a cohort of first-mover renewable energy projects in Ukraine, which in turn will make the sector more attractive to commercial co-financing, due to the reduction of perceived risk. It is also expected that the developers who are being supported by the programme will continue to develop new renewable energy projects, either together with the MDBs, or independently of them.

Progress: On 15 March 2013 the situation of the programme was as follows:

1) EBRD KazREFF

The project has passed EBRD Concept Review in December 2011 for the total volume of EUR 100 million and up to EUR 30 million from CTF, of which USD28.5m was approved by the TFC. An additional USD 1m for a project preparation grant for renewables regulatory development was also approved, which have been contracted. After Concept review, the team has conducted pipeline study to review the market for potential local and foreign developers wishing to invest into renewable energy projects. The study identified 59 projects from 34 companies/developers. Out of this, 33 projects are considered as viable for further analysis and at least 5 projects are as bankable deals, with more to come once the legislation is in place. Team has also conducted Market Demand Study that looked at the big picture by studying the demand for the renewable based energy and the grid transmission capacity to absorb the intermittent energy. Based on these two studies, EBRD is now well equipped to proceed with the design and implementation of the KazREFF facility. However, the start has been delayed due to delays in adoption of the Renewable Energy Law by the parliament. EBRD has worked extensively with the government on extending technical assistance to prepare necessary draft norms and regulations into the Renewable Energy Law. The draft law has been submitted to Parliament in November 2012 and it is expected to be enacted by Q2 2013.

2) EBRD Waste Management Modernization Program

The project was approved in December 2011 with USD20m for investment, USD2.4m for technical assistance. First signing for USD 8m in Aktau took place in December 2012. The remainder is allocated in the pipeline for 2013 – 2014. The slow progress with the framework is mainly due to long preparatory period of feasibility studies and the long review and approval procedures in municipalities. There is currently a pipeline, which is aimed to be realized in 2013-14.

3) EBRD Kazakhstan Railways

The project has been prepared as part of the Kazakh Railway Energy Efficiency program with the renewable energy investments from CTF to be USD 7m. During the course of the project development, Kazakh Railway Company has changed its priority and delayed the start of the program. Thus, this project is not yet submitted for further internal approvals (expected Q3/2013). However, KTZ management and the EBRD have recently agreed on going ahead and pursuing this project for Q4 of 2013.

Program 2: Municipal Energy Efficiency and District Heating Modernization (EBRD/IFC)

Description: The EBRD project will provide up to USD 140 million of loans with support from the Clean Technology Fund (CTF) to district heating companies in Kazakhstan. The projects will finance priority investment programmes in district heating networks in several cities in Kazakhstan, aimed at rehabilitation and improving energy efficiency of existing heat distribution networks in these cities. The investments are expected to yield significant reductions in heat losses, CO2 emissions and coal savings, and contribute to market transformation towards sustainable energy use in the district heating sector in Kazakhstan. The CTF part is USD 42 million to address affordability constraints associated with tariff increases linked to these investments. This project is part of the Kazakhstan District Heating Programme, the EBRD/IFC joint initiative to address energy efficiency in privately and municipally owned district heating networks in Kazakhstan utilizing CTF Funds.

Rationale: The framework/sub-projects will address the issues of chronic underinvestment in district heating networks due to artificially low tariffs, largely unmetered consumption below actual use, substantial heat losses in distribution and quality of service provision. The project will also bring improvements in financial, operational and efficiency performance of the project companies, supported by technical assistance. Tariff increases, introduction of appropriate incentives for efficiency improvement at the operating level and increase in metering coverage will contribute towards improved frameworks for markets. The framework will have high demonstration effects, as the project cities could be seen as a model for other cities in Kazakhstan/ other central Asian countries with similar problems in the municipal infrastructure sector.

Progress: On 15 March 2013 the situation of the programme was as follows:

1) EBRD Kazakh District Heating Modernization Framework

USD 39m District Heating Modernization concessional loans and USD 2.4m for technical assistance approved. Of which projects signed are USD 10m for private company CAEPCO (Pavlodar, Petropavlovsk) and USD 4.3m for Aktau city municipal company, totaling the current utilization to USD14.3 million. The remainder is allocated in the pipeline for 2013 – 2014. The slow progress with the framework is due to long period of procuring technical experts and undertaking feasibility studies, coupled with cumbersome procedures for review, consideration and approval in municipalities.

2) IFC District Heating Modernization Framework

To facilitate quicker deployment of CTF funds, IFC has proposed to withdraw from the project, and EBRD has agreed that the remainder of the activities proposed for the District Heating project will be carried out by EBRD. There is no change of a strategic nature or reduction in co-

financing ratios. The only change is that all CTF financing for this project will be channeled through EBRD to facilitate the implementation of these activities.

Program 3: Sustainable Energy Finance through Financial Institutions (IFC)

Description: The objective of the intervention on EE/RE financing through FIs is to scale up and mainstream funding of EE products through financial intermediaries to various sectors of the economy, including corporates and SMEs and to deliver measurable economic, environmental and social benefits, linked with investments into energy efficient assets. The strategy of Program 3 is to work with local financial institutions, i.e. banks and leasing companies and to develop focused lending programs for investment into EE technologies and projects on end-users premises. Specifically, the program would: (i) build capacity in the local banking and leasing sectors to finance energy efficiency projects; (ii) develop energy efficiency investment projects across all sectors; and (iii) reduce the energy- and carbon intensity of the Kazakh industry.

Rationale: The Kazakh economy had long been characterized as having one of the highest energy intensities in the world. Its GDP energy intensity was among the highest even within the former USSR. Energy Efficiency in corporate, SME, commercial and residential sector is generally acknowledged as a cost-effective way to reduce energy intensity of the economies and it also reduces GHG emissions, with the added benefit of improving the whole economy by making industry more competitive. The use of financial intermediaries to promote private sector development and investment into EE/RE measures is a successful business model which has been applied by various IFIs in other emerging markets, but not yet at scale in Kazakhstan.

Progress: On 15 March 2013 the situation of the programme was as follows:

1) Sustainable Energy Finance through Financial Institutions (IFC)

Status: USD 20m for investment and USD 1 m for technical assistance not yet submitted for approval. IFC has faced challenges in developing projects—a key reason being the persistent structural difficulties in the Kazakh banking sector. The sector remains weak with non-performing loans (NPLs) estimated at about 30 per cent of total loans. Restoring the health of the banking system is a key priority for the government in 2013, however, to reduce the high level of NPLs, the authorities need to conduct a thorough assessment of asset quality and ensure proper valuation and accounting of restructured loans. Although necessary, these efforts will not restore confidence in the banking sector in the short-term, and therefore, development of new lending products for corporate and SME sectors including innovative financing for EE measures, will continue to lag. Given the interest of the Trust Fund Committee to use CTF funds in projects, GOK proposes to reallocate the US\$21 million from this Program 3 to ADB's District Heating project in Karaganda, to bring it to a total volume of USD50 million of CTF funding.

CIRCUMSTANCES AND RATIONALE FOR INVESTMENT PLAN UPDATE

The Republic of Kazakhstan is the largest economy in Central Asia. Kazakhstan's economic growth is based to a large degree on revenues from oil, the country's primary export commodity. Kazakhstan is also the largest emitter of greenhouse gases (GHG) in Central Asia. This is a combined result of high energy intensity, relatively high economic output, and a coal-dominated energy sector. In 2007, Kazakhstan's GHG emissions were about 246 million tons of CO2 equivalent.

Low tariffs and slow progress with enterprise restructuring mean that energy efficiency challenges remain huge, particularly in the industrial, municipal and residential sectors. Kazakhstan needs a system of financial incentives for rational energy use, through cost reflective tariff regulations for electricity and heat that include carbon and local emissions costs.

While the Kazakh economy has recovered well from the 2007-9 crisis, mostly driven by rising oil prices and government stimulus, the financial system, which was hit hard during the crisis, has still not recovered fully. While credit growth finally picked up in 2011, increasing from around 0 in early 2011 to over 16 per cent year-on-year in January 2012, this was driven mostly by state-sponsored subsidized loan programmes.

At the same time, the Green Economy is one of the key focal points of the Kazakh Policy Agenda and Minister Kapparov is leading this important initiative. Up to date the current regulatory framework and tariff methodologies need further strengthening and change to provide framework for efficient policy in energy efficiency.

The renewable energy agenda outlined in the original CTF Plan for Kazakhstan has been delayed due to delays in passing the legislation on the support of renewable energy. The process of drafting legislation and discussions among the government Ministries and the Parliament took much longer than anticipated, without which investment projects couldn't go ahead. However, the work is in progress, law is in the parliament and is expected to be adopted by summer of 2013. Therefore, the originally planned projects under the renewable energy allocation will go ahead, but with slight variations and re-allocation among the MDBs. Thus, the MDBs don't foresee strategic changes in this area.

The district heating agenda outlined in the original CTF plan for Kazakhstan has been relatively successful. Projects developed by EBRD took longer time than originally anticipated, but surely started to mature and funds committed started disbursements. In order to accelerate the project flow, IFC has decided to re-allocate its funds in this sector to EBRD. While EBRD is going to continue working with its program based on the existing pipeline, it is going to re-allocate part of these funds to ADB for Karaganda District Heating Network Rehabilitation project. The ADB project aims to enhance operational efficiency of district heating (DH) systems in Karaganda city, reduce emissions, and reduce coal consumption in combined heat and power plants. The project will demonstrate a viable and modern district heating system which has huge replication potential in Karaganda province and other major cities in Kazakhstan and will be showcased during Expo 2017. The Karaganda project will modernize city district heating network through rehabilitation of pumping stations, replacement of pipelines, and provision of advanced metering, instrumentation and controls, and a supervisory, control and data acquisition (SCADA) system.

Increasing Energy Efficiency has been a strategic priority for the GoK. Unfortunately, the Improving Energy Efficiency program proposed in the original CTF plan for Kazakhstan has evidenced limited progress, as existing conditions in the banking sector, coupled with low (subsidized) energy prices has

dampened the availability of finance for energy efficiency projects for the demand side through financial intermediaries. In this context, GOK has requested the IFIs to re-allocate funds from this program to District Heating program and this will be entirely absorbed by the project developed by ADB.

PROPOSED CHANGES TO THE INVESTMENT PLAN

The proposed changes would allow the GoK to commit the remaining balance of USD98million of the original US\$200 million of CTF funding over the next 18 months.

As already indicated in this update note, the areas of intervention of the original IP remain unchanged. However, the GoK proposes to reallocate CTF resources among existing programs as follows:

- **Program 1 - Renewable Energy Development:** overall CTF allocation of US\$116 million for this program remains.
 - EBRD's allocation decreases from US\$116 million to US\$89 million by reallocating US\$21 million of CTF funding to the IFC for renewable energy projects.

- **Program 2 – Municipal Energy Efficiency and District Heating Modernization:** overall CTF allocation of US\$63 million for this program increases to US\$84.
 - EBRD's original allocation of US\$42 million decreases to US\$34 million by reallocating US\$8 million to ADB's District Heating project.
 - IFC's allocation of CTF funding of US\$21 million which was re-allocated to EBRD in September 2012 is entirely allocated to ADB's District Heating project.
 - IFC's allocation for sustainable energy finance through financial institutions is entirely allocated to ADB's District Heating project.

- **Program 3 – Sustainable Energy Finance through Financial Institutions:** overall CTF allocation for this program of US\$21 million.
 - This project is removed and the funds are allocated to ADB's District Heating project under Program 2.

Table 4: Kazakhstan CTF Indicative Financing Plan Endorsed in October 2010 (\$ million)

Financing Source <u>Program</u>	Kazakhstan Counterpart	MDBs				Private Sector	CTF			CTF Grant Funds ¹	CTF Total	Grand Total
		EBRD	WB	IFC	Other		EBRD	WB	IFC			
Renewable Energy Development		280				200	110			6	116	596
Municipal Energy Efficiency and District Heating Modernization	100	100		50			39.6		20	3.4 ²	63	313
Sustainable Energy Finance through Financial Institutions				50		30			20	1	21	101
Total	100	380	0	100	0	230	149.6	0	40	10.4	200	1,010
		480					189.6					

¹ Included in total CTF funding

² 2.4 million for EBRD and 1 million for IFC

Table 5: Kazakhstan CTF Indicative Financing Plan after Reallocation (\$ million)

Financing Source <u>Program</u>	Kazakhstan Counterpart	MDBs				Private Sector	Others	CTF				CTF Grant Funds ³	CTF Total	Grand Total
		EBRD	WB	IFC	ADB			EBRD	WB	IFC	ADB			
Renewable Energy Development	46	200		35		EBRD:110 IFC: 80 Total: 190	10	89		20	0	7 ⁴	116	597
Municipal Energy Efficiency and District Heating Modernization	ADB: 90 EBRD: 30 Total: 120	86			110	EBRD: 10	12	30			50	4 ⁵	84	422
Total	166	286		35	110	200	22	119		20	50	11	200	1,019
		431						189						

³ Included in CTF total

⁴ EBRD 6 million and IFC 1 million

⁵ EBRD 2.4 and 1 million for ADB

Table 6: Financing Allocation and Status of Project Approvals (CTF Plan – Updated March 2013)

CTF Program / Project Title	TFC Approval Date	MDB Board Approval Date	CTF Funding (US\$ million)	Leveraged Funding (US\$ million)
Program 1: Renewable Energy Development			116	597
<u>Renewable Energy (EBRD)</u>				
- Kazakhstan Renewable Energy Financing Facility (KazREFF)	Oct-2012	Planned for Q4 2013	29.5	
- Modernization of Waste Management	June 2011	Dec-2012	22.5	
- Modernization of Waste Management Phase II	Planned for Q4-2013	Planned for Q2-2014	15	
- Large Wind	Planned for Q4 2013	Planned for Q4 2013	21	
- Kazakh Railways	Nov-2011	Planned for Q4 2013	7	
<u>Renewable Energy (IFC)</u>				
- 1-3 Renewable Energy Projects	Planned for Oct 2013	Planned for June 2014	21	
Program 2: Municipal Energy Efficiency and District Heating Modernization			84	422
District Heating Energy Efficiency (EBRD)	March 2010	Dec-2010	34	
District Heating Energy Efficiency (ADB)	Planned Nov-2013	Planned for Feb-2014	50	

POTENTIAL IMPACTS OF PROPOSED CHANGES ON INVESTMENT PLAN OBJECTIVES

The overall impact expected from the proposed CTF Plan update is comparable to the impact expected in the original CTF Plan. Table 7 compares impacts in either CTF Plans.

Table 7: Assessment of Proposed Changes

CTF Investment Criteria	CTF Plan (Endorsed October 2010)	CTF Plan (Update March 2013)
Transformational Impact	Programs in RE & EE intend to create enabling environment for future clean energy projects, reducing risks, removing barriers, and encouraging greater private sector participation in the nascent industry of clean energy investments in the country.	No impact. The overall installed capacity of projects will remain unchanged at approximately 200 MW. Transformational impact in the RE industry is expected to be the same (unchanged) since the CTF supported phase of the program will provide the models for replication and ensure that the renewable industry has a sound base to grow from, with the lessons learned widely disseminated in Kazakhstan and beyond. On the EE side, the more targeted concentration of funds on the DH sector is expected to bring significant demonstration and transformation effect to the municipal and private sectors.
Potential for GHG Emissions Savings	The original IP did not calculate potential savings at the Program level. The emissions savings potential of individual intervention areas are estimated at: RE-0.77mtCO ₂ e/yr DH-1.5mtCO ₂ e/yr EE-1.0mtCO ₂ e/yr. Total 3.2 mtCO ₂ e/yr.	The overall CO ₂ reduction potential of the updated IP per individual intervention area are now estimated at: RE-1.67mtCO ₂ e/yr, DH-1.0 mtCO ₂ e/yr Total 2.6 mtCO ₂ e/yr. More conservative assumptions about the mix of fuels in the refurbished DH networks have led to a decrease in emissions volume, while a better understanding of the impact of the renewables programme has led to a substantial increase.
Cost-effectiveness	Cost-effectiveness was not	Cost-effectiveness of the updated

	<p>estimated at the plan level. Cost-effectiveness for individual programs assumed lifetime of 20 years: RE - 20\$/tCO₂ DH -20\$/tCO₂ and EE at 20\$/tCO₂.</p>	<p>plan for individual projects is estimated at: RE - 27\$/tCO₂ DH - 21\$/tCO₂ More specific assumptions based on actual project experience in the DH and RE components result in slight changes in cost-effectiveness as compared with original plan.</p>
Demonstration Potential at Scale	<p>The CTF Plan envisions a systemic approach to the energy sector, targeting the most promising and currently most vulnerable areas. All proposed programs have potential to be applied at scale to similar sectors in other parts of the country.</p>	<p>Higher impact expected from stronger focus on areas with larger demonstration and transformation potential such as RE and DH sectors.</p>
Development Impact	<p>The CTF Plan is expected to have substantial impact on development via reduction of energy demand through EE demand and supply-side measures, increase in energy security, savings of foreign currency by decreasing reliance on energy imports, displacement of some coal power generation, creation of jobs, as well as other environmental and health co-benefits as a result of expected lower GHG emissions.</p>	<p>The development impact of the updated plan is expected to have similar results as the original plan.</p>
Implementation Potential	<p>Even though at the moment of CTF Plan preparation Kazakhstan lacked any experience in implementation of much of the proposed programs, it was considered that the implementation potential was sufficient as the GoK had clear energy strategy and established policies framework supporting clean technologies development.</p>	<p>Implementation potential is higher than in the original plan due to greater focus of investments in EE, more advanced dialogue and improvements in the regulatory environment (particularly relevant to EE and RE sectors), and TA work already carried out under RE program.</p>
CTF Additionality	<p>The CTF financing is an enabling factor for projects to materialize. Investor confidence and private sector participation in clean technology development in Kazakhstan is low since none of the clean energy projects was tested on the ground.</p>	<p>CTF financing remains essential factor for the projects to happen. It remains crucial in particular to facilitate private sector engagement in RE and EE investments.</p>

The **Overall Risk After Mitigation** for the proposed CTF Plan is considered **moderate** and remains unchanged from the original plan. The main risks are identified and mitigation measures discussed in Table 8 below.

Table 8: Risks and Mitigation Measures

Risk	Mitigation Measure	Residual Risk
Macroeconomic framework	<p>The Kazakh economy has recovered well from the 2007-9 crisis, mostly driven by rising oil prices and government stimulus. GDP growth reached 7.5 per cent in 2011, up from 7.3 per cent in 2010, on the back of continued strong commodity prices and exports but also by growth in services and trade. Higher oil prices also ensured that the external and fiscal positions improved, with a return to twin current account and fiscal surpluses and sustainable external and public debt levels, causing several rating agencies to upgrade Kazakhstan’s sovereign credit ratings in late 2011. Despite formally abolishing the exchange rate corridor in late February 2011, the National Bank continued to intervene heavily to keep the exchange rate broadly stable. End-2011 inflation remained within the national bank’s 6-8 per cent target range at 7.4 per cent and has decelerated significantly since then to 4.7 per cent in February 2012, driven by international food price developments and postponed tariff increases. GDP growth is expected to decelerate only slightly to 6.5 per cent in 2012, given Kazakhstan’s limited exposure to the Eurozone crisis. In the medium term, output growth is expected to remain relatively robust, supported by increased oil production and substantial infrastructure investment.</p> <p>The financial system, which was hit hard during the crisis, has still not recovered fully. While credit growth finally picked up in 2011, increasing from around 0 in early 2011 to over 16 per cent year-on-year in January 2012, this was driven mostly by state-sponsored subsidised loan programmes. At the same time, other banking sector indicators continued to deteriorate: non-performing loans increased further to over 30 per cent of total loans, provisioning remained insufficient, and the third largest bank, BTA bank, announced that it is seeking a second debt restructuring.</p>	Moderate
Country engagement with the IFIs	<p>All IFIs are closely engaged with the GoK on energy policies and program issues. The WB’s Country Partnership Strategy is with agreement with the Government’s development plan. EBRD and IFC have strong relationship with the GoK and the private sector, and their strategies are fully aligned with government priorities. The IFIs will maintain strong dialogue on issues pertaining to the achievement of the CTF objectives.</p>	Low

Country governance	Despite certain level of turbulence seen over the last decade, the likelihood of the country governance risk to substantially undermine the CTF-funded activities is low. However, engaging in continuous dialogue and consensus between donors and the Government is expected to mitigate this risk if it occurs.	Low
Systemic corruption	Close supervision and adherence to the IFIs procurement procedures represent the best measures to address it for the CTF-funded projects.	Moderate
Sector policies and institutions	Kazakhstan ranks among the most carbon intensive countries in the transition region. Low tariffs and slow progress with enterprise restructuring mean that energy efficiency challenges remain huge, particularly in the industrial, municipal and residential sectors. Kazakhstan needs a system of financial incentives for rational energy use, through cost reflective tariff regulations for electricity and heat that include carbon and local emissions costs. The regulatory framework is inadequate and regulation needs to become more independent, while private sector participation needs to be increased. Most water and district heating services are owned and operated by municipalities but without transparent contractual arrangements between the companies and the owners. While regulatory legislation is relatively good, political interference in the regulatory process remains significant. In the power sector, remaining challenges include strengthening the institutional capacity and political independence of the sector regulator, introducing an incentive-based distribution tariff methodology and establishing a competitive generation market. The latter could be attractive to new independent investors and could bring new capacity while rehabilitating old, inefficient and polluting plants. Continuous dialogue and technical assistance from donor community (the World Bank, ADB, USAID, EBRD, EU) will continue addressing sector issues.	Moderate
Implementing agencies	Local capacity to build and operate small-hydro and wind power facilities, and implement EE projects including building retrofits and construction are yet to be demonstrated. DH utilities have high technical skills. The skills of the domestic financial sector to assess and supervise RE projects through financial assessment of activities have not yet emerged. Technical assistance and external expertise will be sourced to support assessment of EE and RE opportunities.	Moderate
Technology	CTF will utilize commercially available biogas, hydro and EE technologies that have already been proven in the country. CTF will also utilize technologies with a proven track record outside Kazakhstan such as wind and building-level individual heat substations for DH projects.	Moderate
Safeguards	WB/IFC/EBRD/ADB safeguard policies will apply to all interventions. Many implementing agencies have experience applying these policies through previous and ongoing engagements with IFIs. Moreover, the GoK has its own robust and established safeguard policies and mechanisms.	Low

Overall risk after mitigation	Moderate
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MONITORING AND EVALUATION

Table 9 below presents the summary of the expected Results Indicators and their target values, comparing the expected results of the original and updated plans. For each project, the monitoring and evaluation will be carried out by the implementing agency (described below) as part of the monitoring process for the entire project, including co-financing and other contributions.

The GoK has assigned the Ministry of Environment Protection (MoEP) to coordinate the implementation of the CTF Plan and facilitate the exchange of information among the ministries responsible for projects preparation and implementation. The nominated Agency will consolidate results indicators into the CTF results framework, measuring the output, outcome and impact of the projects using the indicators specified in the table below.

Table 9: Results Framework

Results Indicator	Target Value (CTF Plan Endorsed March 2010)	Target Value (CTF Plan Update February 2013)
Co-financing of CTF funding (US\$ million)	810	819
- Public	580	597
- Private	230	222
GHG Emissions Savings (mtCO ₂ e/year)	3.2	2.6
Energy Savings (GWh/year)	n.a. ⁶	4,800
RE Installed Capacity (MW)	165	170
RE Production (GWh/year)	n.a. ⁷	500
CTF Cost Effectiveness (CTF US\$/tCO ₂ e reduction over 20 years)	n.a. ⁸	3.8
Jobs created	n.a. ⁹	200
Renewable businesses created	n.a. ¹⁰	10

⁶ Energy savings were not quantified

⁷ Renewable energy production was not quantified

⁸ Cost-effectiveness was not quantified at the plan-level

⁹ Not quantified in the original plan

¹⁰ Not quantified in the original plan

ANNEX I: UPDATED PROGRAMS CONCEPT NOTES

Program 1: Renewable Energy Development

- Kazakhstan Renewable Energy Financing Facility (EBRD)

Problem Statement: Although Kazakhstan is rich in renewable energy resources, apart from a small share of hydropower, these resources remained largely untapped. This is mainly due to, up until recently, absence of the appropriate regulatory framework supporting the development of renewable energy in the country. With the recent declaration by Kazakhstan to start green economic development, a number of government strategies have been accepted and renewable energy development has become one of the main development sectors in the country. The financial viability of renewable energy projects in Kazakhstan is directly linked to the renewable energy law and the level of feed-in tariff that will be provided to investors on the long term basis. The Bank's TC on developing the feed-in-tariff structure has come up with package of regulations and the recommended FiT for wind, hydro, solar and biogas projects. The upcoming feed-in-tariff mechanism for the development of renewable energy in Kazakhstan has triggered an interest from a significant number of investors, developers and equipment suppliers to enter the market. However it is also clear that developers continue to face significant obstacles compared to similar projects in countries with a more developed framework for renewables including permitting and licensing procedures, land rights and environmental assessments. Developers remain hesitant to commit equity to projects where development expenses and outcomes are uncertain. The Bank is in continuous dialogue with the MINT on the issues of non-tariff barriers and preparing further Technical Assistance support to remove non-tariff barriers within the proposed facility.

Proposed Transformation: EBRD's Kazakhstan Renewable Energy Facility will focus on mainly grid-connected renewable energy projects including hydro, wind, biogas, biomass, geothermal and solar, where project viability will be underpinned by the work done by the Bank's consultants on the primary and secondary legislation for renewables in Kazakhstan (including a feed-in tariff). The Bank has engaged consultants to identify renewable energy projects which may be considered by the Facility. The Facility will provide confidence in the market for other projects to follow thus having a substantial demonstrational and transformative impact on the sector.

Implementation Readiness: EBRD aims to target and apply CTF funds to support at least 5 private sector RE projects, primarily in wind and hydro power. EBRD's RE program will seek to retain flexibility (in terms of approach, project selection, and application of CTF funds) in structuring the best way to accelerate the implementation of these renewable energy investments with minimum concessionality on a project-by-project basis. The key risks of limited experience in RE development by sponsors in Kazakhstan and the lack of equity continue to be a problem. EBRD intends to mitigate these risks by engaging consultants for Technical Assistance for sponsors and by attracting Equity from external sponsors and funds.

Rationale for CTF Financing: Although, wind and hydro power is commercially proven in most places, it cannot compete with the lowest-cost forms of thermal power generation. Pioneer grid-scale projects in wind face higher costs and higher risks associated with first movers and concessional finance can help address these issues. For example, CTF funds blended with other commercial financing can provide a material concession to the overall financing package that will improve the risk-reward profile on a project so that it becomes attractive to first movers in the market.

Results Framework:

Results Indicator	Target Value (CTF Plan Endorsed October 2010)	Target Value (CTF Plan Update March 2013)
Co-financing of CTF funding (US\$ million)	28.5	28.5
GHG Emissions Savings (tCO ₂ e/year)	270,000	270,000
RE Installed Capacity (MW)	60	60
CTF Cost Effectiveness (CTF US\$/tCO ₂ e reduction over 20 years)	26	26

Financing Plan:

Financing Source	Amount (US\$ million)
CTF	25
CTF Grant funds	3.5
EBRD	55
Private Sector ¹	40
Total	125

¹ Sponsor, commercial bank and other co-financing

Project Preparation Timetable:

Milestone	Date
TFC Approval	Oct- 2012
Board Approval	Q4 2013

- Kazakhstan Waste Management Modernization Program (EBRD)

Problem Statement: Kazakhstan is well endowed with renewable energy resources, but only a small fraction of this potential is utilized. The most daunting challenge for renewable energy projects is thus to compete with the abundance of easily, domestically available cheap but carbon-intensive fuels such as coal and oil. Waste-to-energy has a great potential for economic operation and its contribution to climate change mitigation in Kazakhstan, and will in future be supported by the introduction of modern waste legislation, which EBRD and the EU are supporting. There is nevertheless already strong interest in energy recovery from waste for both electricity generation and heat production at the municipal level. Among the proposed instruments for renewable energy financing is thus a window for direct lending to municipal or private operators developing waste-to-energy projects, which this proposed framework will cover.

Proposed Transformation: The proposed EBRD’s project under this framework will help Kazakhstan to address its energy and climate change challenges by making a major contribution in three critical areas:

- (i) enhancing energy security by improving use of renewable energy sources and increasing reliability and stabilizing costs of municipal and private sector heat supply;
- (ii) supporting a clean energy transition by focusing on meeting energy needs in an environmentally sustainable manner and thereby reducing greenhouse gas emissions; and
- (iii) increasing private sector involvement by demonstrating the potential of private sector operations in waste management.

Implementation Readiness: Implementation risks relate to whether there will be an uptake of loans by borrowers and whether the performance of the underlying investments will succeed in improving waste services and produce the expected amounts of energy. These risks will be mitigated by CTF resources which offer an attractive incentive to borrowers to participate in the Project and the planned technical assistance. This will include comprehensive marketing and awareness raising which will ensure the development of a strong portfolio of initial projects able to demonstrate feasibility. Introducing a number of projects will ensure demonstration and transformation effects and will enhance the ability of future prospective investors to access funding and technical support.

Rationale for CTF Financing: Currently, financing for longer tenors such as those required by the Kazakh municipalities for these types of investment is not available/not affordable from commercial banks and the local bond market. Regional financing options have been limited since 2005, and the only form of debt available to Kazakh regions is central government loans which are very limited. CTF tenors are therefore of critical importance for enabling these investments. Additionally TC support will be needed to improve market frameworks and introduce sound management and governance principles. The EBRD’s detailed industry knowledge from its other countries of operation will help with its ability to evaluate and assess the risks related to the sector and also transfer this knowledge into the market for future projects.

Results Framework:

Results Indicator	Target Value (CTF Plan Endorsed October 2010)	Target Value (CTF Plan Update March 2013)
Co-financing of CTF funding (US\$ million)	22.5 (Phase I)	22.5 (Phase I) 15 (Phase II)
GHG Emissions Savings (tCO ₂ e/year)	430,000	1,200,000
RE Installed Capacity (MW)	5	10
CTF Cost Effectiveness (CTF US\$/tCO ₂ e reduction over 20 years)	2.3	1.5

Financing Plan:

Financing Source	Amount (US\$ million)
CTF	35
CTF grant funds	2.5

EBRD	175
Project Sponsor ¹	52
Total	262

¹ Private sector, municipality, commercial bank and other co-financing

Project Preparation Timetable:

Milestone	Date
TFC Approval	May- 2011
Board Approval	December 2012

- Large Wind Project (EBRD)

Problem Statement: Although Kazakhstan is rich in renewable energy resources, apart from a small share of hydropower, these resources remained largely untapped. This is mainly due to, up until recently, absence of the appropriate regulatory framework supporting the development of renewable energy in the country. With the recent declaration by Kazakhstan to start green economic development, a number of government strategies have been accepted and renewable energy development has become one of the main development sectors in the country. The financial viability of renewable energy projects in Kazakhstan is directly linked to the renewable energy law and the level of feed-in tariff that will be provided to investors on the long term basis. The Bank's TC on developing the feed-in-tariff structure has come up with package of regulations and the recommended FiT for wind, hydro, solar and biogas projects. The upcoming feed-in-tariff mechanism for the development of renewable energy in Kazakhstan has triggered an interest from a significant number of investors, developers and equipment suppliers to enter the market. However it is also clear that developers continue to face significant obstacles compared to similar projects in countries with a more developed framework for renewables including permitting and licensing procedures, land rights and environmental assessments. Developers remain hesitant to commit equity to projects where development expenses and outcomes are uncertain. The Bank is in continuous dialogue with the MINT on the issues of non-tariff barriers and preparing further Technical Assistance support to remove non-tariff barriers within the proposed facility.

Proposed Transformation: EBRD's Kazakhstan Large Wind project will focus on mainly the wind sector to complement the KazREFF facility financed by EBRD and CTF, thus creating a larger track record of wind power investments in the country. The program will finance roughly 50-100 MW of wind power which will create a 'critical mass' of wind power project financing in Kazakhstan and provide confidence in the market for other projects to follow thus having a substantial demonstrational and transformative impact on the sector.

Implementation Readiness: EBRD aims to target and apply CTF funds to support 1-2 private sector wind projects. EBRD's wind project will seek to retain flexibility (in terms of approach, project selection, and application of CTF funds) in structuring the best way to accelerate the implementation of these renewable energy investments with minimum concessionality on a project-by-project basis. The key risks of limited experience in wind development by sponsors in Kazakhstan and the perception of

payment risk related to the Green Energy Tariff continue to be a problem. EBRD intends to design its RE program to address these risks and expected to present proposals to the Trust Fund Committee approval by Q4-2013.

Rationale for CTF Financing: Although, wind power is commercially proven in most places, it cannot compete with the lowest-cost forms of thermal power generation. Pioneer grid-scale projects in wind face higher costs and higher risks associated with first movers and concessional finance can help address these issues. For example, CTF funds blended with other commercial financing can provide a material concession to the overall financing package that will improve the risk-reward profile on a project so that it becomes attractive to first movers in the market.

Results Framework:

Results Indicator	Target Value (CTF Plan Endorsed October 2010)	Target Value (CTF Plan Update March 2013)
Co-financing of CTF funding (US\$ million)	57	22
GHG Emissions Savings (tCO ₂ e/year)	n/a	150,000
RE Installed Capacity (MW)	100-150	50
CTF Cost Effectiveness (CTF US\$/tCO ₂ e reduction over 20 years)	n.a.	8.1

Financing Plan:

Financing Source	Amount (US\$ million)
CTF	22
EBRD	35
Private Sector ¹	46
Total	100

¹ Sponsor, commercial bank and other co-financing

Project Preparation Timetable:

Milestone	Date
TFC Approval	Q3- 2013
Board Approval	Q4 2013

- **Kazakh Railways (EBRD)**

Problem Statement: Kazakhstan has a very low market penetration of renewable energy technologies in the built environment. Furthermore, there is currently only very weak demand for both solar thermal and geothermal heat pumps in the country, due to a lack of supplier interest, and the additional cost of installing these uncommon technologies. The relatively low cost of local coal is another barrier to the introduction of renewable heat technologies. The solar energy resource potential is great for the vast territory of Kazakhstan. The number of sunny hours is 2,200-3,000 per year, and the energy of solar radiation is 1,300-1,800 kW/m²/year. Despite the very favourable conditions for solar energy, there is little use of the resource. In 2002, a demonstration solar water heating system was installed at an infant orphanage in Kyzylorda, Kazakhstan. As of June 2009, no other solar systems have been planned or installed. By 2011 two private companies installed solar collectors in their own operations. The market for the solar collectors requires a boost as there is at the moment low awareness of the technology and its benefits. Solar thermal technology are well known, well developed and established technologies with good market penetration in developed countries. The market penetration of solar collectors in Kazakhstan was estimated in 2010 at the level of 0.6 m²/1000 inhabitants which is 97% below the best practice in the Western Europe.

Proposed Transformation: This project aims to achieve sector transformation; the project scope goes far beyond the current practice in the Kazakh energy supply in the built environment. Concessional funds from the CTF will be instrumental in enabling investments in increased environmental standards, energy management standards and implementation of procurement rules within the existing constraints. The risk of creating subsidy dependence and distortion to competition will be mitigated by appropriate structuring. The project is an element of a larger corporate energy efficiency loan to KTZ, which will fund the energetic upgrading of buildings owned by KTZ. CTF funds would only be used to fund all elements of renewable projects within the larger energy efficiency projects. The CTF funds will be drawn down pari-passu with the EBRD loan, to fund 20% of all loan proceeds for KTZ provided under the EBRD KTX Energy Efficiency Investment Program related to renewable energy investments, and hence will only fund 20% of these investments at any given point in time.

Implementation Readiness: KTZ is an asset of enormous importance to the economy of Kazakhstan, and the Government also views KTZ as a key strategic asset. Kazakhstan Railways has a solid balance sheet with a high equity base and low to moderate level of debt. KTZ is rated as lower medium investment grade by S&P, Moody's and FITCH. While a priority for KTZ, the Energy Efficiency Programme presents a number of risks including: i) availability of finance and competition with other capital expenditure needs; ii) project preparation and identification of most appropriate technological solutions; and iii) the capacity of KTZ to develop, manage and execute a complex programme of installations across multiple sites.

Rationale for CTF Financing: In the absence of direct government support for renewable heat, additional costs have to be borne by the investors in markets with very low to no penetration of these technologies. The concessional terms of the CTF loan help to address these. The EBRD's detailed industry knowledge from its other countries of operation will help with its ability to evaluate and assess the risks related to the sector and also transfer this knowledge into the market for future projects.

Results Framework:

Results Indicator	Target Value (CTF Plan Endorsed October 2010)	Target Value (CTF Plan Update March 2013)
Co-financing of CTF funding (US\$ million)	7	7
GHG Emissions Savings (tCO ₂ e/year)	77,000	77,000
RE Installed Capacity (MW)	n.a.	n.a.
CTF Cost Effectiveness (CTF US\$/tCO ₂ e reduction over 20 years)	4.6	4.6

Financing Plan:

Financing Source	Amount (US\$ million)
CTF	7
EBRD	20
Private Sector ¹	8.4
Total	35.4

¹ Sponsor, commercial bank and other co-financing

Project Preparation Timetable:

Milestone	Date
TFC Approval	Q1- 2012
Board Approval	Q4 2013

- Renewable Energy Financing Program (IFC)

Problem Statement: Kazakhstan has significant renewable energy potential and the government has recently formulated a Renewable Energy Law and a new tariff regime to promote private sector investments in renewable energy, that is to be approved by parliament in the near future. date, Renewable energy resources remain largely untapped, because private sector investments in the Renewable Energy (RE) sector in Kazakhstan face a number of interrelated barriers including: (i) dominance of the public sector leaving limited role for private investors (ii) lack of experience in evaluating RE projects and complicated licensing/permitting process (iii) lack of access to long-term financing; and (iv) limited experience in RE development by sponsors in Kazakhstan. These barriers are exacerbated by the fact that RE projects typically suffer some diseconomies of scale, higher development and initial capital cost, and higher initial cost of power production.

Proposed Transformation: IFC's Renewable Energy Program will have a primary focus on small hydro, wind and solar investments with an objective to creating a track record of investments in the country. The first few projects will help demonstrate how regulatory and market barriers can be overcome and

lead to increased participation by the private sector, both domestic and foreign. IFC will also seek to provide advisory services and work with the government to create an enabling environment for such investments to take place.

Implementation Readiness: IFC aims to target and apply CTF funds to support 1-3 private sector RE projects, primarily in wind, solar, and small hydropower. IFC's RE program will seek to retain flexibility (in terms of approach, project selection, and application of CTF funds) in structuring the best way to accelerate the implementation of these renewable energy investments with minimum concessionality on a project-by-project basis. One of the key risks in the sector is terms of the Power Purchase Agreements (PPAs) that are negotiated by the project developers and the ability to secure long-term land lease. If IFC is able to address these issues in the project development phase, Program Proposals will be submitted to the Trust Fund Committee by October 2013.

Rationale for CTF Financing: Although, wind power is commercially proven in most places, it cannot compete with the lowest-cost forms of thermal power generation. Moreover, the market remains nascent, and long-term financing remains difficult for private project developers. CTF funds can be used to fill in these financing gaps. Blended with other commercial financing, CTF funds, can provide a concession to the overall financing package that will improve the risk-reward profile on a project so that it becomes attractive to first movers in the market

Results Framework:

Results Indicator	Target Value (CTF Plan Endorsed October? 2010)	Target Value (CTF Plan Update February 2013)
Co-financing of CTF funding (US\$ million)	0	19
GHG Emissions Savings (tCO ₂ e/year)	n.a.	150,000
RE Installed Capacity (MW)	n.a.	45-50 MW
CTF Cost Effectiveness (CTF US\$/tCO ₂ e reduction over 20 years)	n.a.	23

Financing Plan:

Financing Source	Amount (US\$ million)
CTF for investment projects	19.5
CTF for advisory services	1.5
IFC Financing	35
Other Private Sector ¹	80
Total	136

¹ Sponsor, commercial bank and other co-financing

Project Preparation Timetable:

Milestone	Date
TFC Approval	October 2013
MDB Board Approval	June 2014

Program 2: Municipal Energy Efficiency and District Heating Modernization

- Kazakhstan District Heating Framework Program(EBRD)

Problem Statement: Heating is an essential service in Kazakhstan’s climate, and most of Kazakhstan’s cities have district heating systems, often receiving heat from large cogeneration power plants. The installed power generating capacity of CHP (cogeneration) power plants is more than 6.7 GW (38 % of the capacity of all power plants in the country). Due to the climatic circumstances, district heating is a major component in Kazakhstan’s energy balance. Most of the systems are well beyond their design life-time, and are no longer appropriate to supply in the changed economic circumstances of Kazakhstan. Many systems are over-dimensioned, further decreasing system efficiency, which is already low due to the age of the components. DH systems are primarily supply-driven, and there is little to no metering, and consequently no consumption-based billing. Billing is based on floor space. Tariffs are relatively low, and even after recent increases not cost-reflective once replacement investment cost has been taken into account, due to the low affordability levels of many of Kazakhstan’s households.

Proposed Transformation: The Program is designed to enable EBRD to provide loans on its own account, together with Clean Technology Fund (CTF) concessional loan funds, to qualifying private and municipal companies for the rehabilitation of district heating networks in various cities of Kazakhstan. The program will be a key part of the EBRD initiative under the CTF Investment Plan for Kazakhstan approved by the CTF Trust Fund Committee. In the EBRD Kazakhstan District Heating Program, there is at present a pipeline of private sector and municipal sector clients for up to 4 projects and these are currently at the various review stages within the Bank. The project will improve the reliability and quality of heating services while reducing operational cost, and will through technical assistance (not funded by the CTF) support municipalities and companies in their efforts to reform municipal services. It will introduce and further develop the commercialization of DH service provision in the cities selected under the programme, and will help to ensure the long term-sustainability of heat supply by (i) helping to overcome the affordability gap faced by DH operators in the selected cities and (ii) bringing about the transformation of DH market in Kazakhstan to a more efficient and commercial future by demonstration and the introduction of modern technologies into the market in Kazakhstan, which can then be accessed by all DH providers.

Implementation Readiness: EBRD part-ownership of CAEPCO, as well as considerable efforts by EBRD in creating relationships with the Akimats (municipalities), together with high-level policy dialogue and technical assistance to the regulator and government ministries, will support the implementation of the programme. EBRD has a long history of supporting municipalities in Kazakhstan and in other countries, and this expertise will materially assist the implementation and replication of the programme.

Rationale for CTF Financing: The use of concessional funds can help overcome the investment cost barrier currently preventing modernization from going ahead, since it will enable the utility to invest at

lower cost. This will allow the utility to keep end-user tariffs stable, while reducing input cost. Concessional funds are therefore the key to unlocking the potential investment in modernization and increased efficiency in the first utilities to undertake such programmes. Once the beneficial effects of the programme have been demonstrated in the market, and investment costs have been brought down by supplier entry, other utilities will be able to undertake the same investments with increased confidence. Where required, the government could provide municipally owned utilities with low-cost funding to undertake similar investments.

Results Framework:

Results Indicator	Target Value (CTF Plan Endorsed March 2010)	Target Value (CTF Plan Update February 2013)
Co-financing of CTF funding (US\$ million)	39	32
GHG Emissions Savings (tCO ₂ e/year)	500,000	400,000
Energy Savings (GWh/year)	n.a.	1,200
CTF Cost Effectiveness (CTF US\$/tCO ₂ e reduction over 20 years)	3.9	4

Financing Plan:

Financing Source	Amount (US\$ million)
CTF	30
CTF Grant funds	2
EBRD	100
Private Sector ¹	10
Government	30
Total	172

¹ Sponsor, commercial bank and other co-financing

Project Preparation Timetable:

Milestone	Date
TFC Approval	March 2010
Board Approval	December 2010

- Karaganda District Heating Network Rehabilitation (ADB)

Problem Statement: Most of Kazakhstan's energy infrastructure is based on Soviet-era technology and is more than 30 years old. Given the country's harsh and long winters, with temperatures as low as minus 50 degrees Celsius, district heating (DH) systems are critically important for human survival. Low tariffs, years of underinvestment, and neglected operations and maintenance (O&M) have resulted in severe deterioration of DH systems, which is now approaching the level of a national disaster. During the past 5 or more years, Almaty and Astana received about 80% of the national development budget, while most of the intermediary cities in Kazakhstan, especially within economically depressed regions in the east and south of the country, have faced slow and inevitable decay of DH systems. Collapses of DH systems have left local population without heating and warm water at life-threatening temperatures. The Government of Kazakhstan (GOK) has intervened through a national emergency facility but DH system breakdowns have continued and these short-term interventions are no longer adequate. DH tariffs are inadequate to create retained earnings which could cover O&M costs and help fund system upgrades. Prioritizing investment and rehabilitation measures as well as institutional transformation in municipal DH systems is a major challenge to the Kazakhstan urban sector as a whole. The independence and efficiency of regulating DH tariffs at municipal level is problematic as many municipalities are *de facto* both owners and regulators, despite the Agency for Regulation of Natural Monopolies (ARNM) exercising a formal tariff control. Tariff regulation serves two basic aims in Kazakhstan: social protection and anti-inflationary control. It does not aim to set DH tariffs for full cost recovery. Unlike most of the developed world, where DH tariffs are structured on a metered usage basis (as a single-component tariff) or a sophisticated two-component tariff (reflecting fixed investment cost to networks and variable component cost such as fuel), Kazakhstan still holds on to a principle of a fixed price estimate or approximation, usually based on per capita charge or heated living space area. A two-component tariff reduces capital expenditure risk while improving liquidity in DH heating companies which can then reduce their working capital requirement and eventually cut overall tariffs. Further, two-component tariffs make it possible for customers to spread their monthly bills more evenly over the year, giving them more liquidity, especially during the winter months.

Proposed Transformation: The Karaganda DH Project will strengthen the DH heating sector where it matters most: focusing on the most critical investment requirements in key intermediary cities in Kazakhstan. Karaganda province has the second highest number of accidents nationwide (21.7% in 2010). The project will inject concessional financing to a critical yet often overlooked sector suffering from years of underinvestment due to artificially low tariffs and substantial distribution heat losses. The project will improve financial, operational and technical performance of the implementing agency with very high demonstration potential. The project will provide more reliable heat supply to about 800 buildings and benefitting approximately 56,000 households. Nationwide DH system rehabilitation will require more than \$4 billion of investment during the next 10-15 years¹¹; based on total cost for the Karaganda project, the replication potential is estimate as: \$4,300 Million / \$250 Million = 17.2. Technology transfer and international best practices will be demonstrated, building technical, financial and regulatory capacity to promote energy efficiency (EE) and support cost recovery through appropriate tariff increases and incentives. International best practices and modern designs will be deployed to enable Kazakhstan to leapfrog technological advancements and be at par with leading DH systems in the world.

¹¹ Table 4.2 of: Asian Development Bank. 2012. *An infrastructure Road Map for Kazakhstan*. ADB Staff Consultant's Report (July 2012). Manila.

Implementation Readiness: Kazakhstan's enabling policy framework for energy efficiency, particularly district heating efficiency, has rapidly strengthened in recent years, culminating in a reorganization to especially focus efforts in developing the entire country, not only the key cities. In January 2012 the Law "On energy saving and energy efficiency" (the EE Law) was adopted and came into effect in June 2012, with secondary legislation planned to be developed and introduced beyond this period. The government aims to reduce energy intensity by 10% compared to 2008 level by 2015, and by half by 2020. GHG emissions reductions target is 15% by 2020 and 25% by 2050 compared to 1992 levels. The EE law strengthens Kazakhstan's enabling policy framework for EE, particularly DH efficiency, and includes concrete targets for reduction in energy and carbon intensities. The Government's response and quick decisions in providing required approvals in project processing manifest their strong ownership and commitment to pursue the project. An aggressive processing schedule has been adopted and approved by Government, not only at the national level but also in the Akimat level. Crucial local government buy-in has been obtained and greatly enhanced project readiness given that the DH company is wholly owned by the Akimat. Request for proposals for the project preparation technical assistance consultants was issued on 15 March 2013 for mobilization in early May 2013.

Rationale for CTF Financing: Although EE interventions in DH present a cost-effective mitigation measure in the long-term, high up-front investment requirements and low tariffs have hindered the comprehensive rehabilitation of Kazakhstan's DH systems. DH has not been a priority for public investments, and limited budgets make DH companies resort to ineffective disintegrated approaches (in lay terms, band-aids are applied when major surgery is needed). The current situation of poor DH system efficiency and upfront capital cost barriers makes it impossible to raise tariffs as a starting point for system modernization. While the EE policy framework is supportive of project objectives, and EE in DH systems represents some of the best potential for GHG reductions in Kazakhstan, there are no readily available instruments to monetize the benefits of EE investments as upfront cofinancing. CTF will address the capital cost barrier by reducing the cost of financing and covering additional costs and risks associated with the project. The proposed project will modernize the oldest operating area of Karaganda's DH system. It will be the first large-scale DH modernization project in intermediary cities. The project design is consistent with international best-practice benchmarks, which translates into higher costs for automated controls, instrumentation, and metering. The upgraded DH system will be the first in Kazakhstan to achieve ISO 50001 compliance. The pioneering nature of the project imposes first-mover risks. Concessional finance is needed to cover the additional costs and risks, including technology transfer. The project will have a powerful demonstration effect, as the design can be replicated in the balance of Karaganda's DH system and in several other cities. The project will have a catalytic impact with respect to accelerating and deepening market penetration of advanced DH system design and operations.

Results Framework: The final scope and design of the project will be confirmed during the project preparation and feasibility study stage. The following results indicators are indicative and are based on conservative estimates of the share of the project in the overall system efficiency improvement and loss reduction. The energy savings are conservative estimates and as since the project will rehabilitate the oldest part of the DH system, the actual efficiency gains may be on the order of 35-40% or more. Heat production is based on 2008 data and no escalation has been assumed during the project lifetime. A 20 year economic life is assumed for consistency with other programs, although DH networks typically have longer lifetimes. Project-specific outcomes and indicators will be further described in the project documentation when presented to the TFC for approval, in accordance with the CTF Results Framework

approved in late 2012. This will include access to energy co-benefits, health co-benefits, and employment co-benefits.

Results Indicator	Target Value (CTF Plan Update February 2013)
Co-financing of CTF funding (US\$ million)	50
GHG Emissions Savings (tCO ₂ e/year)	500,000 ¹²
Energy Savings (GWh/year)	3,600 ¹³
CTF Cost Effectiveness (CTF US\$/tCO ₂ e reduction over 20 years)	5

Financing Plan:

Financing Source	Amount (US\$ million)
CTF	50
ADB	110
Government of Kazakhstan	90
Total	250

Project Preparation Timetable:

Milestone	Date
TFC Approval	November 2013
Board Approval	February 2014

¹² This figure is indicative at this stage and is based on the calculations made by EBRD based on similar project of CAEPCO in Kazakhstan. The more accurate figure will be calculated during the technical due diligence.

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ANNEX II: RESULTS FRAMEWORK

Table 10: Results Framework

Results Indicator	Target Value (CTF Plan Endorsed March 2010)	Target Value (CTF Plan Update February 2013)
Co-financing of CTF funding (US\$ million)	810	819
- Public/MDB	580	597
- Private	230	222
GHG Emissions Savings (mtCO ₂ e/year)	3.2	2.6
Energy Savings (GWh/year)	n.a.	4,800
RE Installed Capacity (MW)	165	170
RE Production (GWh/year)	n.a.	500
CTF Cost Effectiveness (CTF US\$/tCO ₂ e reduction over 20 years)	n.a.	3.8
Jobs created	n.a.	200
Renewable businesses created	n.a.	10

Annex III: Results from the Public Consultation on the Updated Investment Plan

Organized by the EBRD, and with co-operation from the ADB, IFC and IBRD, a consultation workshop with civil society organizations on the updated investment plan was held in Astana on 14 March 2012, chaired by the EBRD. Interested parties were also invited to provide feedback on the updated investment plan through email. The consultation period ran from 6 March to 22 March 2013.

Total of four organizations participated at the workshop and three comments were raised during the workshop.

Comments:

1. General agreement with the approach of updating the IP and canceling the Program 3 (energy efficiency through financial intermediaries).
2. Request to include small scale renewable energy projects in the renewables program.
3. Under the district heating discussion, raised an issue of legal organization of residential sector, especially the current structure in management of condominiums that doesn't help solving the real energy efficiency issues and the need to re-organize current legal structure into management companies on commercial basis. Requested if CTF is going to work at this level as well.

Responses:

1. No response is required.
2. Both EBRD and ADB elaborated on how each bank works in this sector and what their plans are for Kazakhstan utilizing the CTF funds. EBRD further elaborated on the KazREFF program under the renewable energy program within the CTF IP, which will target small scale renewables up to 10 MW. The law on the support for renewable energy in Kazakhstan is at its final stage of approvals and once it is adopted the program will start its operations. ADB also elaborated its renewable energy operations in other countries and that it would be interested in financing such projects in Kazakhstan, but they did not see small and medium scale projects in Kazakhstan so far.
3. It was explained that within the context of CTF this issue cannot be addressed. However, if the Kazakh government requests MDBs to look into this issue separately of CTF, it could be discussed.

Annex IV: Results from the Donor Coordination on the Updated Investment Plan

Organized by the EBRD, and with co-operation from the ADB, IFC and IBRD, a donor coordination was held on the updated investment plan, consisting of an invitation to provide feedback through e-mail, and a workshop held in Astana on 12 March 2013, chaired by the EBRD.

Total of 12 organizations have been invited for comments by e-mail and three organizations participated at the meeting – EU delegation, UNDP and JICA.

During the meeting, updated IP has been presented, followed by discussion on climate finance by various organizations for the purpose of information and coordination. In general, updated IP was well received by donor community.

Annex V: Gender Dimension in District Heating

Within the CTF's policy orientations, there has been growing interest in assessing the co-benefits of financing climate operations, where co-benefits could arise in areas such as employment, health, poverty, and gender equality. The EBRD ("the Bank") recognises equality of economic opportunity, where economic opportunities should be made available to people regardless of their gender, social background, ethnic origin etc., as a fundamental aspect of a modern, well-functioning market to be promoted in its countries of operation.

As part of the implementation of the Bank's new Municipal and Environmental Infrastructure Sector strategy, to be further built upon in the current draft Strategic Gender Initiative being prepared by the EBRD, the Bank will seek to address gender inequalities as regards access to certain services, including urban transport, provision of heating, water and management of solid waste. In this context, the Bank is looking to develop a pilot project approved under CTF frameworks in Kazakhstan with a gender component in the district heating (DH) sector. Issues which could be addressed through the EBRD's engagement with its clients might include:

- **Access to Employment**

Traditionally employment within the district heating sector has been male-dominated, much of which has arisen from the fact that historically the sector has not been attractive to the female population given the nature of the work involved. The introduction of more sophisticated automatic heating systems allows for there to be a targeted approach towards expanding employment opportunities to encompass both genders equally. As such, for those projects where the EBRD is engaged in financing such systems the Bank will seek to work with its clients to assess their Human Resource approach and to more effectively market employment opportunities so as to ensure equality of opportunity.

- **Customer Engagement and Service Delivery**

In addition to this, the Bank will seek to work with its clients with regards the customer orientation of their service delivery. There is data to show that weak customer orientation by heating companies can lead to lower tariff collection rates. Bill collection is the primary interface between service providers and customers. Given that, generally, in much of the EBRD's region women are responsible for settling the heating bills the promotion of female bill collectors could enhance customer engagement and provide for tangible improvements in service delivery.

- **Access and more efficient use of Services**

In the Bank's region a lack of awareness in the energy conservation of district heating can be an issue among heat users. Ultimately the provision of training, or the production of related marketing material, on energy conservation to women - the primary users of heat - could lead to quantifiable benefits both in terms of conservation and cost efficiency.

Similarly to EBRD, gender is mainstreamed in ADB projects and a gender analysis is always included in the poverty and social analysis of projects. Gender-inclusive core labor standards to promote female employment opportunities with non-discrimination, equal pay for work of equal value will be explored and included in the social development or gender action plan, if recommended. While reviewing tariffs, and cross sectoral subsidies, the technical assistance will assess the feasibility of tariffs based on pro-poor criteria such as size of home and/or level of usage. Depending on the results of the analysis, direct gender impact and alleviation of gender inequities such as multiple burden, subordination, stereotyping,

economic marginalization and cultural constraints will be systematically addressed, if required. CTF funds will enhance gender mainstreaming in the Karaganda district heating and ADB will ensure compliance with CTF requirements for processing and documentation.