

## CTF PRIVATE SECTOR PROPOSAL

<i>Name of Project or Program</i>	Commercializing Sustainable Energy Finance Program for Turkey (CSEF)
<i>Country targeted</i>	Turkey
<i>Indicate if proposal is a Project or Program</i>	The Program proposal represents the first comprehensive initiative to help develop Turkey's Sustainable Energy <sup>1</sup> (SE) private financing by supporting local financial institutions on programmatic base. Turkey is currently at the bottom of the development curve regarding energy efficiency activities and programmatic approach is needed to boost banking and leasing sectors and to support its affinity towards specialized financial products for financing sustainable energy applications.

### DETAILED DESCRIPTION OF PROGRAM

#### **Fit with Turkey Country Investment Plan (CIP)**

On January 29, 2009 Turkey's Country Investment Plan (CIP) was endorsed by the CTF Trust Fund Committee. Turkey's CIP described the country's GHG emissions profile and indicated that energy efficiency was one of three key strategic areas to apply CTF resources, including through direct private sector initiatives.

At the 7th Conference of Parties to the UNFCCC in Marrakech (2001) Turkey was deleted from the list of Annex II countries and the parties were invited to recognize the special circumstances of the country. Following the recognition of these special circumstances, Turkey acceded to the UNFCCC in 2004 (as the 189th party to UNFCCC). Today Turkey remains an Annex I Party of the UNFCCC, in a position that is different than the other Annex-I countries

With respect to its commitment to submit reports, national communications and GHG inventories on a regular basis, Turkey submitted its first National Communication on Climate Change (NCCC) in January 2007. The document provides a useful inventory of GHG emissions as well as mitigation and adaptation activities.

Turkey recently finalized the national procedures for the ratification of the Kyoto Protocol. The country officially became a party to the Kyoto Protocol on August 26, 2009 (after ninety days following the date of deposit of the ratification instrument). Since Turkey is not included in Annex B of the Kyoto Protocol, the country has not adopted any target for limitation or stabilization of GHG emissions in the first commitment period (2008-2012).

According to Turkey's CIP, CTF resources will specifically be used for the following:

- **Renewable Energy:** private sector investment in renewable energy (other than large-scale hydro), including wind, biomass, geothermal and solar, as well as small-scale hydro (up to 10 MW);
- **SmartGrid:** (improved grid management) for intermittent renewable energy in particular wind and solar;
- **Energy efficiency** in industries (large and SMEs), commercial, residential and the public sectors.

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<sup>1</sup> Sustainable Energy refers to projects that implement energy efficient measures and technologies and small scale renewable energy projects that reduce fossil fuel consumption.

## Overview of the Commercializing Sustainable Energy Finance Program for Turkey (CSEF):

The program proposed here will be a part of an IFC/EBRD joint initiative to address energy efficiency for the commercial, residential and municipal sectors with a particular focus on the SME sector and smaller-scale energy efficiency projects. IFC's program will target two to three financial leasing companies and/or commercial private banks as a means of promoting energy efficiency projects while the EBRD's program will implement a similar program in parallel.

The proposed initiative will fully complement the IBRD Private Sector Renewable Energy and Energy Efficiency Project, which was approved by the CTF Trust Fund Committee in March 2009 and the IBRD Board on May 18, 2009. The IBRD project will lend US\$100 million of CTF funds and US\$500M of IBRD funds to two Turkish development banks to increase the availability of appropriate financing mechanisms for renewable energy projects and to promote energy efficiency projects, primarily in larger industries. The IBRD program targeted two development banks in Turkey – TKB (Turkiye Kalkinma Bankasi) and TSKB (Industrial Development Bank of Turkey). Those two banks, in turn, are to use the money for credit line financing of renewable energy and energy efficiency investments in large industries, such as iron and steel, cement, ceramics, chemicals and textiles. The IBRD loan will help to increase privately owned and operated large-scale renewable energy sources and enhance energy efficiency in large industries.

In contrast to the IBRD program, IFC/EBRD's private sector initiative is addressing the support needed by SMEs and the commercial and municipal sectors in the scale up of smaller EE projects in Turkey. The proposed program will catalyze local FIs to develop lending programs for small sized carbon mitigating investments and to reach market segments and market niches, which are not covered by IBRD's program. To reach SMEs the Program is proposing to work with 2 to 3 banks and/or leasing companies and utilize their outreach into the SME sector. Commercial and municipal sectors will also be targeted based on each FI's internal strategy.

The chart below shows the target markets for IBRD and IFC/EBRD's activities:

	Renewable Energy Projects	energy efficiency
<b>Project Finance/SPVs</b>	Wind farms, hydro power projects, solar PV projects, CSPs	N/A
<b>Large Corporates</b>	The same as above	Steel, chemical industry, cement process related EE etc.
<b>SMEs</b>	Biomass boilers, small PV/thermal solar installations	Energy efficient production lines, EE motors, heat systems upgrades, EE compressors, peak-controls, EE measures in buildings etc.
<b>Commercial sector</b>	Small PV/thermal solar installations	Boilers, HVAC systems, EE lighting, EE measures in buildings
<b>Municipalities</b>	Small PV/thermal solar installations, DH systems using biomass	Street lighting, building EE, fuel switching to natural gas

IBRD Project Coverage

IFC/EBRD Program Coverage

## Turkey's GHG emissions profile

Turkey's growth in total Greenhouse Gas (GHG) emissions was among the highest of all Annex 1 parties from 1990-2006, having grown from 126 to 256 million tons of CO<sub>2</sub>eq. Turkey's emissions are now the 12th highest among Annex 1 countries and 23rd highest in the world at 0.8% of global emissions.

The growth in emissions is **caused by strong economic growth and rising living standards** which have resulted in a growing energy demand (3.2%/annum between 1995 and 2005) and even stronger electricity demand (6.5%/annum).

Energy demand has been **met primarily by fossil fuels** which were 88% of total supply in 2005 with renewables (hydro and biomass) making up the balance. Growth has been met in particular by the increasing use of natural gas.

The **energy sector (energy production and use) is the largest contributor to emissions** with 227.4 Mt CO<sub>2</sub>e or 77% of total emissions. Waste disposal and industries (non-energy emissions) have the next largest shares at 9.3% and 8.9% respectively. In 2004, CO<sub>2</sub> made the largest contribution to total emissions (81.6 percent) with methane having the next largest share (15.6 percent).

### **Energy Efficiency Market Description**

The industrial sector (including commercial and SMEs) accounted for 40% of total final energy consumption and 54% of electricity consumption in 2007, while the agriculture, household and services sectors together accounted for 40% of final energy consumption and 46% of electricity consumption. Although all four sectors have important potential for energy conservation, SMEs have been targeted as a priority area for energy conservation programs given the projected rapid expansion of industrial energy demand.

On February 23, 2007, a Draft Law on energy efficiency was adopted by the Turkish Grand National Assembly. The energy efficiency Law outlines the principles and procedures regarding the implementation of energy efficiency practices for all phases of the energy generation and utilization process, and promotes awareness of energy efficiency among the public at large, and for commercial and industrial customers, for buildings, and transmission and distribution networks in transportation. It also aims to promote energy efficiency as an energy resource which must be tapped into among energy users. Among several priorities, Turkey's energy efficiency strategy highlights the importance of developing financing instruments and establishing innovative financing models to effectively implement the envisaged activities in the energy efficiency strategy.

### **Barriers to market transformation**

Energy efficiency investments typically have attractive economic rates of return and often also financial rates of returns and seem attractive but fail to meet the investment thresholds of investors. While energy related policies have become priorities for the Turkish Government, sustainable energy has not yet become a priority for the Turkish private sector for several reasons. Barriers include:

#### **➤ Company related barriers**

1. Companies are often inadequately informed about the energy savings potential and energy saving options when making new investments. Capital expenditures are typically made to replace old technology, to increase capacity and to upgrade technology from a quality perspective. Most companies are not aware, and do not base their investment decisions on the potential energy savings that can be achieved from each new investment. Generally the level of awareness about potential energy efficiency improvements is low in Turkey, despite the fact that the government has announced energy efficiency as one of the country's priorities.
2. For non-energy intensive industries, energy efficiency projects that are independent of larger capital investment programs are often small in nature. As a result, the attractive returns from such projects do not warrant management attention given their limited impact on the overall bottom line of the company.

3. There is a lack of suitable financing arrangements. Typically financial institutions assess companies on their past financial performance and do not consider the expected improvement in financial performance (reduced costs) which results from the new energy efficient equipment. As a result, financing terms have been restrictive and unattractive for customers. In addition, companies with limited investment funds are often seeking off-balance sheet solutions which are not currently available in the market.

The barriers noted above are especially prevalent among small and medium sized enterprises.

➤ **Financial institution related barriers**

1. Financial institutions in Turkey are hesitant to provide energy efficiency financing as a specific product line since they associate such funding with higher transactional costs as a result of their lack of experience with EE/RE technologies and market opportunities, and the need for a more specialized approach. FIs have noted complicated reporting requirements with technical details as one component of the increased costs for them and their clients. Additionally, banks do not typically have internal resources to evaluate such reporting from their clients and don't have scoring systems adjusted to the additional requirements; nor are their marketing staff trained to provide detailed product information or identify clients that are appropriate for energy efficiency projects. As a result of these hurdles, real and perceived, financing on fully market rates do not provide banks a sufficient return to venture into the "energy efficiency" line of business.
2. In the context of the global financial crisis, financial institutions have limited access to long term funding. In Turkey, funding with maturities of more than one year is almost nonexistent from commercial banks. Therefore, Turkish financial institutions face a major maturity mismatch. Energy efficiency financing requires generally long term funding, which is not available to the financial institutions, and therefore is not marketed to the clients. Energy efficiency is also still relatively untested in Turkey and is perceived to carry significant risks (described earlier). The Government has ambitious plans for renewable energy and energy efficiency, but implementation is being constrained by the limited extent of financing available. Despite the fact that Turkey is an EU pre-accession country, there are no specific funds for investment into EE/RE available, most of the EU funding is dedicated to institutional programs and pre-accession activities and there is no clear timeline for the accession process right now. Therefore it is not realistic to expect any large scale funding to become available for EE/RE projects beyond CTF catalyzed funding any time soon.

**Summary of the Program and use of CTF funds**

The proposed Program will comprise both an Investment and Advisory Services (formerly known as Technical Assistance) component to support the scale up of energy efficiency projects in Turkey's SME, commercial, residential and municipal sectors. The investment component aims to transform Turkey's financial sector towards low-carbon, climate-sensitive behavior, and in doing so, support the economic development and social well being of people. The proposed Program will encourage local FIs to develop lending programs for small sized carbon mitigating investments such as energy efficiency projects and small-scale renewable energy investments in the sectors noted above. Financial institutions can be very effective in educating their clients and enabling wide scale uptake of new product lines such as energy efficiency technologies. Working through local financial institutions is particularly appealing in these instances given the scale required to have a climate change impact; through this structure scale is achieved via the local FIs' network and client relationships. Leasing companies have also proven to be an effective way of reaching SMEs, as evidenced by both the average contract size (US\$100,000), and the number of contracts. Leasing is an effective way of keeping energy efficiency investments off-balance sheet and

makes smaller investments more attractive. Leasing companies finance a variety of technologies including cogeneration units, boilers, compressors, chillers, control systems, EE motors and VSDs and other EE/RE technologies. The Program's advisory services component will support the investment component by addressing many of the knowledge and capacity barriers outlined above.

The use of financial intermediaries to promote private sector development is a successful business model which has been applied by IFC in other emerging markets, but not yet at scale in Turkey. In 2007 IFC began to explore the potential of introducing energy efficiency as a product concept with one of Turkey's financial leasing companies. IFC ultimately provided this leasing company with an investment and institutional capacity building/technical training in 2008. While the project is performing well, it has been operating independently, without market support and, on its own, does not have the ability to catalyze enough of the market to effect momentum and ultimate transformation of the market.

Now, thanks to CTF support and a strategic approach, this investment can be used as a model for other major financial institutions and be expanded through a more programmatic approach with significant market transformation potential. It is an extended, innovative approach for the Turkish market and without CTF, IFC would not be able to provide resources with the terms and in the quantity needed to achieve transformation.

In Turkey, local financial institutions are typically owned by local conglomerates which have control of the leading industrial establishments. Therefore, a sustainable energy initiative with the participation of these groups can cause a domino effect and have industry wide impact. IFC's experience in other similar markets like Central Europe, Ukraine, Russia and China clearly shows that demonstrating success with a few financial institution market leaders quickly spurs other institutions to follow suit as they recognize the value sustainable energy financing products can bring to their own operations, ie. once there are first mover financial institutions, and market awareness increases, EE/RE investment become more popular and market opportunities grow exponentially. At the same time, the availability of financing for sustainable energy technologies brings additional benefits, such as the development of the necessary systemic infrastructure, including energy auditors, project developers and sustainable energy technology providers. The combined IFC/EBRD initiatives aim to achieve such an effect by: i) targeting strategic financial institutions with wide outreach in a sustainable manner, ii) building the necessary capacity within FIs, iii) raising end-user awareness, and iv) establishing financial and technical structures and mechanisms adjusted for the Turkish markets and its specifics.

### ➤ **The Investment Component**

Through the Program, IFC will provide a combination of its own and CTF financing to two or three private financial leasing companies and/or commercial private banks on terms necessary to address the barriers outlined earlier and to catalyze uptake and scale-up of energy efficiency projects in Turkey. The funds would be used to on-lend to individual projects varying between US\$0.3-2.0 million of loans/leases, targeting investments in energy efficiency and small-scale renewable energy primarily in private industrial companies/SMEs. The expected life of the proposed sub-projects will be up to 15 years. The Program will also support financing provided to the commercial, residential and public sectors.

Sample energy efficiency investments under the Program can include production technology upgrades, lighting, motors, space conditioning (heating and cooling), and automated control systems, as well as cogeneration systems that produce electricity from waste heat generated for industrial uses, among other projects which help to deliver energy services more efficiently.

The Program's financing will be structured to incentivize financial institutions to undertake the perceived risks and learning curve necessary to create energy efficiency financing into a viable business. Once the

first few leasing companies and/or banks are operating successfully and a track record is established for the new products, the financial attractiveness of energy efficiency projects is expected to create sufficient incentive to entice additional financial institutions to undertake the learning curve without further CTF support.

### ➤ **The Advisory Services Component**

The Program will include an advisory component which will be designed based on IFC's previous experience in other markets as well as in Turkey. The advisory component of the Program will be structured to support both the financial institutions and the end-users, including energy efficiency equipment vendors and energy efficiency service companies (ESCOs). This feature will aim to make the Program attractive to financial institutions, particularly since most of them have not had extensive experience in the area of energy efficiency financing. At the same time the advisory component will strengthen the long-term impact of market transformation by solidifying local capacity, awareness and know-how.

The objective of the advisory services component is to support the implementation and scale-up of energy efficiency projects on several levels:

1. By reducing the learning curve for financial institutions so they can become active in energy efficiency financing. The capacity building component of the Program will comprise training on energy efficiency finance techniques, credit analysis, marketing, support with financial product development, and reporting methodologies.
2. By helping financial institutions to identify relevant target markets and demonstrating how to promote investments to end-users.
3. By supporting end-users to evaluate different technical alternatives for energy efficiency improvements and their implications; and
4. By supporting general market promotion, such as conferences, seminars and workshops, as well as by energy efficiency promotional campaigns. Links will be made with relevant industry associations and market players with credibility who can further promote energy efficiency uptake in Turkey.
5. By supporting ESCOs and energy efficiency businesses in managing and expanding their operations, including assistance in obtaining funding and structuring projects.

Strong coordination with other market development activities, including the IBRD CTF public sector program's advisory services component and the advisory services component of EBRD's CTF projects will be critical for true market transformation. There is clear complementarity between this private sector Program and the IBRD program which targets the private sector through public banks. IBRD's advisory component has a strong focus on institutional development in Turkey while this Program will focus on the development of the private sector market players and strengthening of the market. Establishment of a coordination committee is envisioned, which will ensure coordination among the above mentioned parties in terms of market awareness actions and roles, and will prevent overlaps and ensure maximum reach to all relevant market segments.

### ***FI Capacity Building***

For participating FIs, the advisory services program will offer a broad range of activities on capacity building, starting by training in energy efficiency finance through close support during the energy efficiency project evaluation process and ending in publication of a "best practice manual in financing of energy efficiency" which would be used for other market stakeholders. Training will include an

introduction to energy efficiency technologies, economics and end-user savings benefits and will be layered in order to address several target groups, starting with management through credit risk analyst/managers, and ending with loan officers. Special features of energy efficiency transaction structuring, including ESCO lending and project finance techniques relevant for energy efficiency projects, will be taught. These techniques will vary and must be applied to specific end-user sectors. Training will also focus on marketing energy efficiency finance services and one-on-one consultations with each financial institution to establish an energy efficiency finance unit within an appropriate department of the financial institution. Part of the effort to encourage FI's to internally structure an EE related lending unit also is an incentive scheme for loan officers/internal staff. This would encourage faster uptake of the Program through the proactive development of EE/RE deals by relationship officers and other related bank employees.

Each financial institution program must insure that, within the institution, energy efficiency finance knowledge is broadly understood. This knowledge must be developed among financial institution staff involved in finance, origination, credit and structuring decisions, and then promoted within the institution's branch network. Because energy efficiency finance can address a range of end-user sectors and project types, it is important to take a "financial product" approach to development of various financing structures. A financial institution's selection of the financial products to be offered will be based on their finance appetites and capabilities and market opportunities. The advisory services program will assist each financial institution to develop and adapt energy efficiency finance products to target sectors.

Despite the fact that advisory services will be provided directly to participating financial institutions, there is also expected to be a public good component of the capacity building exercise. Best practices from development of specialized lines of business will be summarized and will be presented to other market participants to reach wider potential of energy efficiency finance providers.

### ***Market Awareness Raising***

Targeted market awareness raising activities will be organized in order to build sufficient pipeline for potential investments as well as to develop sufficient levels of understanding of the energy efficiency and renewable energy market in Turkey. Thus activities will cover conferences, seminars and trainings for SMEs/commercial entities (both management and energy professionals). Other tools used will be focused on direct marketing activities, work with industrial associations and other professional bodies. Light versions of the joint promotional campaign including road shows will be prepared to help disseminate information about energy efficiency technologies and financing options from Turkish FIs.

### ***End-user support/ESCO development***

The advisory services program will include specific initiatives targeting SMEs. SMEs will participate in the Program in two ways. First, as energy users, SMEs will receive financing supported by the Program for energy efficiency investments in their facilities. Second, as energy efficiency businesses SMEs are involved in delivering energy efficiency equipment, projects and services. With training, these businesses can expand their product and service offerings and their sales. Training curriculums may include: efficient technologies and equipment, energy auditing techniques, financing energy efficiency projects, fundamentals of project development, marketing efficiency services, and will work with specific partners organized through the Program (eg. financial institutions, district heating companies, ESCOs, etc.) and business management. The Program can help create sales for these businesses by organizing markets, supporting energy audits for potential customers, and providing access to customer financing.

The advisory services program will also work at the project level and will support development of projects. Performing an energy audit for a prospective energy efficiency customer is the beginning of the project sales cycle. By supporting energy audits, the Program will assist in building a pipeline of projects for financing. Participating financial institutions and energy efficiency businesses can then identify prospective customers.

### **Market Transformation**

The combined IFC/EBRD Programs are expected to result in a transformed financial sector which views energy efficiency financing as a standard business practice, as well as transformed SME, commercial and municipal sectors, which view energy efficient technologies as standard ways of operating an efficient business and competing in the market. The Program is a long-term effort to build on the momentum in Turkey's business community and society in general, which recently adopted energy efficiency as the natural behavior to achieve greater and sustainable growth while keeping resource requirements low. The current financial crisis may soften this rational behavior and therefore it is especially important to start the Program now, as it can support financial institutions in the long term. Without CTF participation it would be much harder, even impossible, to establish market acceptable conditions for such a Program.

## **FIT WITH INVESTMENT CRITERIA**

### ***i) Potential GHG Emissions Savings:***

Since the Program is structured as an intermediary operation, the precise composition of the FI's loan portfolio cannot be exactly predetermined. Therefore, it is necessary to provide a broad range estimate of the emissions reduction that is likely to result from the project.

The total costs of the energy efficiency/small scale renewable energy projects directly facilitated by the Program are estimated at between US\$150 million (under best case assumptions) and US\$130 million (a very conservative scenario in which only energy efficiency investments are made) (there is a basic assumption, that for each US dollar financed through the Program, sponsors will invest between US\$0.3-0.5 of their own equity/other resources into the project). We therefore expect an average scenario to be US\$140 million of investment into EE/RE measures directly triggered by the Program. The Program will support implementation of energy efficiency projects which would likely not otherwise be implemented due to institutional and financial barriers and the incremental risks perceived by financial institutions. On the technology side the projects implemented will use technically viable, proven technologies which represent low risk and allow large scale-up and replication potential.

Taking into account that the average direct cost of GHG abatement from energy efficiency investments in Turkish industries is expected to be US\$20/t of CO<sub>2e</sub> (assuming a technology lifetime of 25 years)<sup>2</sup>, the Program's direct emission savings are expected to reach approximately 0.28 million t/ CO<sub>2e</sub>/year by the end of the investment cycle (when all projects are fully implemented) in the average scenario. Total emissions for the lifetime of the Program (15 years life of the technology financed) are expected to be approx. 4.2 million t/ CO<sub>2e</sub>.

The indirect impact from the awareness raising and market replication can very conservatively be estimated at an additional \$100 million US dollars of investment (above the direct CTF supported projects) based on IFC's experience in Eastern Europe and Russia. Assuming the same investment to

<sup>2</sup> Turkey National Communication on CC, UNFCCC



emissions ratios used above, the Program's direct and indirect emission savings are expected to reach approximately 0.48 million t/ CO<sub>2e</sub>/year by the end of the investment cycle (when all projects are fully implemented). Total emissions for the lifetime of the Program (15 years life of the technology financed) are expected to be approx. 7.2 million t/ CO<sub>2e</sub>.

## **ii) Demonstration Potential at Scale:**

There is tremendous potential for demonstration at scale, especially within the SME market. SMEs are the main drivers of the Turkish economy. According to the most recent statistics published by OECD 99.8% of all Turkish enterprises are SMEs generating 25% of the country's GDP and 10% of the country's exports. According to the Turkish Statistical Institute (SIS) the manufacturing sector consumed more than 212 TWh in 2005 and is therefore responsible for 74% of total final energy consumption in industry as well as commercial and public services in Turkey. The main energy consumers in this sector are energy intensive industries such as cement (20%) and steel (20%) production as well as chemical and petrochemical industries (11%) which mainly belong to big corporations. However, energy consumption of SMEs in the manufacturing sector is significant at approximately 29%. Within SMEs in the manufacturing sector the main energy consumers are textile, clothing and leather production followed by food, paper and metallic goods industries. The high fuel consumption in the textile industry is caused by energy intensive washing, bleaching, coloring and drying processes.

The typical energy efficiency projects for the relevant industrial/SME sub-sectors can be roughly divided into two main parts: the improvement of auxiliary equipment and the improvement of sub-sector specific technologies. Both types of technology will be eligible under energy efficiency dedicated financing. The energy saving potential for above mentioned sub-sectors is listed in table below and can be tapped easily by standard measures. Auxiliary technologies are used in various industrial sectors.

### *Energy saving potential in the manufacturing sector in Turkey:*

<b>Sub-sector</b>	<b>Energy saving potential (GWh/a)</b>		<b>GHG saving potential (kt of CO<sub>2e</sub>)</b>
Textile, clothing and leather	12-15%	3,768 – 4,710	1,613-2,006
Food and beverage	8-18%	1,310 – 2,947	558 1,255
Paper	10-15%	486 – 729	207 311
Metallic goods	10-20%	398 – 796	170 -339
Total		5,962 – 9,182	2,547 -3,912

[Source: Promotion of energy efficiency finance in Turkey, KfW, 2008]

Currently the technology used by SMEs is outdated and the production processes are highly inefficient. This is also due to limited access to finance in the past. After overcoming the financial crisis in 2001 Turkish banks recognized SMEs as an important investment market and therefore facilitated their access to loans. By the end of September 2007 lending to SMEs amounted to almost 28% of the banking sector's loan portfolio. This means that financial institutions have significant potential to reach a wide range of SMEs which are already considered "bankable". However, because the typical product offering to SMES have been overdraft accounts and credit cards, neither of which are appropriate for energy efficiency investments, there is still the need to develop this Program so that financial institutions can access and catalyze energy efficiency projects among their large SME client base. The increasing interest of private financial institutions regarding the provision of loans to SME, growing experiences in this business area, and the disposition of SMEs to borrow funds, establish a solid basis for the Program and its potential for catalyzing further uptake and replication of energy efficiency financing by other private financial institutions. The track record to be created through this Program, is the best way to attract additional EE/RE financing for other market stakeholders. In the same way there will be mechanisms and

knowledge management structures, like training the trainers component, which will solidify the long-term effect of the Program.

**iii) Development Impact:**

The Program is expected to generate a range of environmental and economic benefits related to the development of the energy efficiency industry and stream of energy efficiency project investments. Specifically, the Program would: (i) build capacity in the local banking and leasing sectors to finance energy efficiency projects; (ii) support the development of energy service companies by securing financing for them; (iii) develop energy efficiency investment projects across all sectors; (iv) improve the competitiveness of the Turkish economy by increasing the energy efficiency of their operations; and (v) improve the local as well as the global environment through reduced emissions of greenhouse gases and other conventional pollutants. A detailed development impacts summary is written below:

**Replication Potential:** The Program is expected to have a large spillover effect to the companies through the on-lending of financial institutions. The Program can be replicated with financial institutions in other developing countries.

**Access to Finance:** Increasing the importance of energy efficiency and efforts to decrease pollution in Turkey will require development of new innovative financial mechanisms to support access to finance of target sectors, which will need to implement energy efficient projects and measures. The Program's support in the development of financial products for energy efficient and renewable energy equipment will help the end users to find proper financial instruments and to raise awareness about the availability of finance among industries and other end users. Long term funding that will be provided to financial institutions through the Program will enable them to on lend to SMEs with longer tenors, so that the SMEs can undertake the necessary energy efficiency investments, which require longer term financing. Currently, banks in Turkey do not have access to external funding of more than one year, which is deteriorating their maturity position, and preventing them from extending longer term funding to companies, especially the SMEs.

**Improved Competitiveness of the Sub-borrowers:** The implementation of energy efficiency projects for the underlying borrowers (lessees) will increase long-term sustainability of operations, improve competitiveness, and bring financial benefits through lower costs and improved process efficiencies.

**v) Implementation Potential:**

Under the energy efficiency legislation and recent and forthcoming regulations, the Turkish Government is promoting the efficient use of energy in all sectors, including large industries and SMEs. In addition to creating the secondary regulation to carry out energy management, and monitoring and analysis of the energy efficiency market, the Turkish Government is planning to support implementations through: i) a 20% cost subsidy for industrial implementations of energy efficiency, ii) an up to 20% energy costs subsidy for those who commit to voluntary energy intensity reductions iii) subsidies for R&D projects, and iv) subsidized training and audit services for SMEs. The proposed Program will use the financial leasing companies to promote the energy efficiency investments of these companies. Leasing is one of key elements of financial mix for energy efficiency, especially in the areas of energy efficient equipment financing, like financing of cogeneration units, boilers, turbines, more energy efficient production lines and equipment for renewable energy use (e.g. wind turbines, small hydro turbines and solar PV and thermo panels). Generally, energy efficiency has been proven to be one of the "cleanest" and most cost

effective approaches to directly reduce energy consumption and GHG emission. In Turkey, there is a significant funding gap in this area because financial institutions view this sector as highly risky due to the lack of technical capacity to evaluate such projects and potential borrowers being not able to prove bankability of their projects. The Program will play an important role catalyzing these investments in Turkey through the combination of funding and advisory services.

The proposed Program is expected to be implemented together with EBRD. Turkey is a well known market for IFC, where EBRD is about to enter the market and the Program is structured to support their effort. CTF and IFC's own funding is expected to be leveraged by the funding from EBRD.

***vi) Additional Costs & Risk Premium:***

The interest rate, tenor and amount of the CTF senior loan to be provided under the Program will reflect the need for subsidies but also market conditions and the current financial crisis. CTF funding will help overcome barriers to market transformation for the Program.

***vii) Financial Sustainability***

The Program reflects the current situation in the market, where there is very low activity among leasing companies and banks in developing specialized loan products or entering new markets such as energy efficiency project financing. By offering concessionary priced funding with longer maturity and capacity building, the Program will establish a track-record for the viability of commercial financing for energy efficiency projects and will play a significant role in accelerating market development. Once the initial partner FIs have developed their internal capacity and see that energy efficiency finance is profitable without concessional interest rates, they are expected to continue the line of business without the need for further subsidies.

Sustainability within the market (market proliferation), is expected because primary participants in the Program will be role models for other market participants. IFC's experience in Eastern Europe shows that once it is proven that the energy efficiency projects can generate additional income for FIs, other banks will follow suit using their own funds to develop the new products. It should be noted as well that the barriers for new entrants will be significantly reduced as much of the learning from the initial banks will be captured and shared with new market entrants through the Program's knowledge management component (especially the "best practice manual").

***viii) Effective Utilization of Concessional Finance***

As mentioned earlier, a lack of funding resources, their costs and maturity are currently barriers in the Turkish market to develop dedicated financial products for areas like energy efficiency finance. Together with other key barriers, like certain levels of internal capacity and specialization needed for energy efficiency financing as well as lack of specialized skills in marketing and product development, the market lacks activity and need to be stimulated by incentives, also in the form of concessional finance. The proposed projects would not be accepted by the Turkish financial institutions, if the concessional finance portion was missing. While discussing energy efficiency financing with a number of financial institutions, the reaction was not fully positive due to the perceived need for FIs to develop special skills and reporting requirements as well as the fact that they could not price these loans higher to compensate for such costs. Therefore, the concessional element of the CTF loan is an important tool for the financial institutions to be incentivized to receive and on lend energy efficiency financing. To maximize the

effectiveness of the concessional portion of the loans, IFC will encourage FIs to create internal incentives for officers to catalyze loan development at a faster rate.

Financial institutions that receive funds from the Program must fully comply with IFC standard financial covenants and reporting requirements, in addition to other covenants and requirements that would be determined during the due diligence performed at these institutions.

#### *ix) Mitigation of Market Distortions*

The proposed Program will not distort the market, since it will not be displacing any private sector investment. The financing provided by the leasing companies and/or banks will be used by SMEs. The SME segment in Turkey is not receiving any carbon financing. Also, the Program will be open to all participants, especially on the end-users side and will not prefer any entity against another.

#### *x) Risks*

**Macroeconomic Risk:** The profitability of all financial institutions in Turkey is sensitive to macroeconomic developments in Turkey. Turkey is still vulnerable to external and internal shocks mainly due to the level of external debt of the private sector and current account deficit. The ongoing crisis in the global financial markets may also adversely affect Turkey's financial markets and financial institutions.

*Mitigant:* This risk is mitigated to a certain extent due to the current performance of the Turkish economy, its high level of foreign reserves and its improved banking regulatory environment.

**Market Awareness:** Turkey still lacks a sufficient level of market awareness for energy efficiency investments and support is limited both on governmental as well as private level. Therefore, companies and SMEs have low level of motivation to undertake such investments.

*Mitigant:* The new electricity strategy and related legislative and regulatory measures provide stronger support for Renewable Energy and energy efficiency initiatives. Turkey's electricity market provides a functioning market place for trading renewable electricity. Especially during the financial crisis, companies will be attracted to the monetary savings, in addition to energy savings that will be provided by energy efficiency investments. Program itself will provide basic market awareness activities and will work with FIs and end-users to motivate them.

**Entry into EE Market:** Energy efficiency is a new market segment in Turkey, and the legislation governing this sector was implemented recently. The Banks and non-bank FIs are hesitant to take a leadership role in financing this untapped market need for financial products that promote energy efficiency. Therefore, the participating FIs need to actively market this new EE product.

*Mitigant:* The advisory services component, in particular, the EE training, is expected to assist in mitigating this risk by supporting the FIs in developing the EE products for this new market segment. Furthermore, the combined offer from development banks and CTF will trigger the participating FIs to leverage their existing relationships with their client bases to successfully deliver EE financing product to its clients in the SME segment.

**xii) Performance Indicators**

*The performance indicators outlined below are derived from the CTF Results Measurement Framework and Turkey's Country Investment Plan. These indicators will be tracked at least annually*

**1) CTF related Performance Indicators**

<b>Indicator</b>	<b>Baseline</b>	<b>Anticipated Results by December 2014 (5 years)</b>
<b>Program</b>		
GHG emissions directly avoided by <u>the Program</u>	N/A	0.28 MtCO <sub>2e</sub> /year at the end of the five-year period 2010 to 2014
CTF financial leverage for <u>the Program</u>	N/A	1 : 4 (CTF : IFC) 1 : 6 (CTF : IFC and private sector)
CTF cost effectiveness for <u>the Program</u>	N/A	0.2t CO <sub>2e</sub> /1US\$ invested from CTF at the end of the five-year period 2010 to 2014

**2) Performance Indicators on the participating FIs level:**

<b>Impact</b>	<b>Performance Indicator</b>	<b>Frequency of Monitoring</b>	<b>Source</b>
Reduced Energy Consumption	Energy reduction (kWh and/or % of initial consumption) for each sub-borrower, aggregate savings in total kWh for the Program	Annual	Portfolio Report
Growth of energy efficiency loan/lease portfolio in volume (outstanding and disbursed amount) and number of leases	IFC Loan is expected to finance at least 120 new energy efficiency loan/lease projects for \$100 million by 2012	Annual	Portfolio Report
Number of FIs providing finance to EE/RE	IFC loan is expected to be provided to 2-3 FIs, another 2-3 FIs we expect will grab the market opportunity to finance EE/RE independently of the Program	Annual	Market Survey