
Evaluation

Şekerbank, Turkey

Short-Version

*Prepared for OeEB and KfW by Rainer Fitz and Klaus Haars
April 2014*

Evaluation Report – Şekerbank, Turkey

April 2014

General information:		
Region	Southeast Europe	
Country	Turkey	
Partner	Şekerbank	
Sector	Financial Sector	

Project details of evaluated loan project:	
Project Nr.	57/IF/1
Type	Debt – Unfunded risk participation (loan by KfW)
Participating institution(s)	Kreditanstalt für Wiederaufbau (KfW)
Investment of OeEB	10.8 Mio. EUR
Maturity	5 years

Project details of evaluated technical assistance (TA) project:	
Project Nr.	57/AP/1
Type	Capacity Building
Participating institution(s)	Kreditanstalt für Wiederaufbau (KfW)
TA funds (grants)	0.3 Mio. EUR (OeEB), 0.3 Mio. EUR (KfW)

Evaluation details:	
Project Nr.	57/AP/2
Timeframe	October 2013 – February 2014
Participating institution(s)	Kreditanstalt für Wiederaufbau (KfW)
Evaluators	Rainer Fitz, Klaus Haars (Technical Expert)

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1. List of abbreviations

AFD	Agence Française de Développement - French Development Agency
BEP	Building Energy Performance
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung = The German Federal Ministry for Economic Cooperation and Development
CNC	Computerized Numerical Control
CO ₂	Carbon Dioxide
CS	Consultancy Services
DFI	Development Finance Institution
EBRD	European Bank for Reconstruction and Development
EE	Energy Efficiency
EFSE	European Fund for Southern Europe
EPC	Energy Performance Certification
FMO	Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden N.V. - Dutch Development Bank
FX	Foreign Exchange
GCPF	Global Climate Partnership Fund
GDP	Gross domestic product
GGF	Green for Growth Fund
HDI	Human Development Index
IFC	International Finance Corporation
IFI	International Financial Institution
IPC	Internationale Projekt Consult GmbH
IZODER	Association of Thermal Insulation, Waterproofing, Sound Insulation and Fireproofing Material Producers, Suppliers and Applicators
KfW	Kreditanstalt für Wiederaufbau
KfW FZ E	KfW Finanzielle Zusammenarbeit Abteilung für Evaluierung = KfW Financial Cooperation Evaluation Department
MWh	Megawatt Hour
MSME	Micro, small and medium sized enterprise
Mt	Million tons
NPL	Non-performing Loans
OECD	Organisation for Economic Co-operation and Development
OeEB	Oesterreichische Entwicklungsbank AG = Development Bank of Austria
RE	Renewable Energies
SME	Small and medium sized enterprise
TL	Turkish Lira
TOE	Tonne of Oil Equivalent
USD	US Dollar (National currency of the United States of America)

2. Executive Summary

Short project description													
<p>The loan under evaluation aimed at promoting energy efficiency (EE) investments of households and micro-, small and medium enterprises (MSMEs) with a volume of up to EUR 250.000 each. The loan was financed by Kreditanstalt für Wiederaufbau (KfW) under risk participation of Oesterreichische Entwicklungsbank (OeEB). As a financial intermediary (Şekerbank) was acting as implementing agency and EE knowledge multiplier, the investments to be financed were standardised measures with sufficiently large demand from the targeted bank customers. The implementing bank was supported by expert advice on EE financing. The cost of these consultancy services (CS) were equally shared between OeEB and the German Ministry of Economic Cooperation and Development (BMZ) through KfW.</p>													
Objective of the project													
<p>The project objective was to contribute to EE investments of MSMEs and households by supplying the implementing bank with a line of credit and support for the development of products and a credit methodology suited to facilitate EE-loans. The overall development objectives were, first, to contribute to increasing EE-investments by private households and MSMEs in Turkey inducing energy reductions of at least 20% and correspondingly reducing CO2 emissions, and, second, to deepen the financial sector towards more EE lending and further green innovations.</p> <p>Target Group: MSMEs (also in the agricultural sector) and private households.</p>													
Overall assessment	Assessment based on DAC Criteria ¹												
<p>Şekerbank introduced innovative EE-finance-products in the Turkish market. The bank is highly likely to continue occupying EE-financing as its market niche and even extending this in the future. Factors slightly diminishing the developmental results were encountered in the monitoring tool measuring CO2 reductions and in some EE loan products, which show limited additional impact.</p> <p><u>Remarkable:</u> Şekerbank entered an innovative cooperation with the association of companies in the insulation sector (“IZODER”). A package going far beyond cross-selling, including (i) a technical check of the planned project by IZODER’s engineers, (ii) a quality guarantee for the project’s execution and (iii) a commission paid by the installer to the bank that allows the latter to offer attractive „0% interest“ loans for housing insulation encouraged numerous owners to invest in insulation.</p>	<table border="1"> <tbody> <tr> <td>Relevance</td> <td>2</td> </tr> <tr> <td>Effectiveness</td> <td>2</td> </tr> <tr> <td>Efficiency</td> <td>3</td> </tr> <tr> <td>Impact</td> <td>2</td> </tr> <tr> <td>Sustainability</td> <td>1</td> </tr> <tr> <td>Overall assessment</td> <td>2</td> </tr> </tbody> </table>	Relevance	2	Effectiveness	2	Efficiency	3	Impact	2	Sustainability	1	Overall assessment	2
Relevance	2												
Effectiveness	2												
Efficiency	3												
Impact	2												
Sustainability	1												
Overall assessment	2												

¹For further information on the DAC evaluation criteria, please refer to Annex 1.

3. General information

From 4th – 8th November 2013 the evaluation team consisting of Mr Rainer Fitz (Evaluator), Mr Klaus Haars (Technical Expert), Dr Jan Schrader (KfW FZ E), Mr Marcel Spechtler and Mr Reinhard Wagner (both OeEB) visited Istanbul and Bursa, Turkey. The evaluation team met with management, staff and clients of Şekerbank in Istanbul and Bursa as well as with representatives of IZODER. The mission was excellently prepared by KfW and Şekerbank. For further information on the evaluation methodology, please refer to Annex 2.

4. Project objective and objective of the evaluation

The project objective was to contribute to EE investments by MSMEs and private households through making available a line of credit, support for product development and a suitable credit methodology that aim at facilitating EE-loans with client oriented lending features.

The overall development objective of the project was twofold: (i) contributing to an increase in EE-investments inducing energy savings of more than 20% by private households and MSMEs and, as a consequence, reducing CO2 emissions and (ii) deepening of the Turkish financial sector towards loans for EE lending and “green” innovations.

The main objective of the evaluation was to verify whether the project has made a difference in the sense that it has contributed to additional developments that would not have occurred without the implementation of the project.

As OeEB intends to increase its activities in the EE sector, an evaluation of the first dedicated EE credit line thus promised to provide valuable insights into context, design and impact of energy efficiency projects in the financial sector.

5. Assessment based on the DAC criteria

Overall assessment

Supported by the loan under evaluation and the consultancy service accompanying it Şekerbank conquered the position of market leader in eco-finance for standard EE investments of households and small enterprise in the Turkish market. Without doubt, EE finance by Şekerbank is a shining example of how these new financial products can be established in a sustainable way, serving the bank and their customers as well as the global goal of climate protection. Nevertheless, there is room for improvement in the selection of eligible products (short list).

Result: Grade 2

Relevance

The efficient use of energy is gaining importance in Turkey as energy intensities and CO₂-emissions of existing industries are currently on a rather high level, which will not be conducive to the intended future industrial growth. Accordingly, Turkey introduced laws and regulations on EE and the use of renewable energies (RE) such as the obligation to insulate new buildings and to obtain energy certificates for all existing buildings. The country's dependency on energy imports has reached a level of over 80% during the last years. The gross electricity consumer tariff more than doubled since 2007. However, prices still are considerable lower than in Western Europe, with the exception of petrol (gasoline). Here, Turkish consumers are paying one of the highest prices in the world.

Due to Turkey's low energy efficiency levels, there is a range of investments in measures to improve energy efficiency that are cost-effective and offer attractive rates of return although tariffs for electricity are still rather low. The slow progress in reaching energy efficiency levels of Western standard is largely due to

- (i) little information on EE technologies and corresponding payback periods of an investment in such technologies on the end-borrowers' side,
- (ii) high search costs for end-borrowers when choosing a suitable supplier and/or a bank that is ready to finance the EE investment,
- (iii) and, closely connected, insufficient supply of financing for EE investments.

Therefore very little consideration is given to such investments in the general public and many favourable investment opportunities are missed.

This setting seems to offer rather favourable circumstances for the project to be evaluated here as the loan aimed at reducing both information and transaction costs on the level of the end-borrowers. Choosing a commercial bank as the project implementer, supported by a consultant providing technological expertise on EE-products and defining standard investments eligible for the credit line, is considered an adequate institutional approach. The bank is well suited as a knowledge multiplier because it regularly interacts with many SMEs and private households anyway. A new credit product for EE-investments with slightly lower interest rates than the normal credit lines, accompanied by special advertising for eligible EE measures in cooperation with installer firms, is considered a suitable medium to provide new information to end-borrowers as well as additional incentives to invest.

Şekerbank as the project implementing intermediary was well chosen: the bank serves households and small enterprises as its main client groups, and, due to a former project with another International Finance Institution (IFI), it had considerable experience with loans for energy efficiency already. As a rather small bank in the Turkish market it is focused on finding new market niches and therefore is open for innovations. Furthermore, it has a long-term successful cooperation with KfW, the European Fund for Southern Europe (EFSE), the European Bank for Reconstruction and Development (EBRD), the International Finance Corporation (IFC), the French Development Agency (AFD) and other IFIs to secure medium and long term refinancing at

attractive conditions in order to promote financial access for SMEs. KfW experienced in previous projects that the bank is able to implement new products and structures quickly, not least due to a high degree of commitment of management and staff.

Additional to the KfW/OeEB Loan for EE-finance, Şekerbank obtained loans from the Green for Growth Fund (GGF) and the Global Climate Partnership Fund (GCPF) for EE/RE on-lending at about the same time. The different institutions agreed to use the same tool (eSave) for reporting and monitoring energy savings and CO2 reduction, thereby reducing transaction costs on the bank's side. However, eligibility criteria and standards for EE-investments were not harmonized.

To sum up, the situation in Turkey provided the perfect rationale for the implementation of such a project: (i) the banking sector was stable, profitable and well diversified, with innovative banks that aimed to find new market niches, even during the financial crisis, (ii) rising energy prices and tighter regulation had increased awareness and necessity of EE-investment in the general public, (iii) due to the high inefficiencies in terms of energy efficiency there was and there is a huge potential for improvements in all levels of the economy and (iv) there is a range of highly qualified installer and supplier firms in the EE-sector.

Partial Result: Grade 2

Effectiveness

The project objective as defined in the terms of reference for the consultant was to contribute to EE investments by MSMEs and households through supplying the implementing bank with a line of credit and support for the development of suitable EE-products and a corresponding credit methodology.

Already before starting the project, the bank had introduced a new loan for EE measures called 'EKOkredi'. When implementing the GGF-credit line for EE, it had put in place the tool eSave for reporting and monitoring energy savings and CO2 reductions. Prior to the project, Şekerbank had also established a very innovative cooperation model with IZODER, an association of insulation enterprises. With the help of this cooperation, Şekerbank is able to provide a service package of loans for the insulation of buildings at an interest rate of 0% and a special insulation counselling through certified insulation consultants. These will answer basic questions concerning insulation firms, loans and procedures. For more technical questions the customer is transferred to the IZODER call centre. If the client decides to follow up on an insulation project, he can ask for a written proposal from one of a choice of certified installation firms. If customer and installation firm agree on a contract, the insulation firm transfers the client back to a bank recommended by and cooperating with IZODER. If Şekerbank provides the loan, the insulation firm pays it a commission, depending on the maturity of the loan, enabling the bank to offer really attractive loan conditions to the customer. IZODER engineers approve each project from a technical point of view, and in case of a customer complaining about poor construction work, IZODER will check the quality. If claims are confirmed, IZODER urges the installation firm to remedy the deficiencies identified. Through this cooperation, Şekerbank reduces transaction and information costs for the

end-borrowers and gives an additional incentive by offering an interest free loan. Although the cooperation was established prior to the KfW/OeEB-project, it contributed nevertheless to the high effectiveness of the project under evaluation here as it provided the funds that allowed the bank to increase its portfolio rapidly in the aftermath of the global financial crisis and it helped to improve on the process of providing insulation loans.

Furthermore, Şekerbank in cooperation with the project's consultant IPC aimed at identifying similar market niches for EE-investments in the SME sector during the course of the project. Based on discussions with the different business lines of the bank, the consultant prepared a preliminary list of predefined standard measures in the retail, SME and agribusiness segment. This preliminary list was reduced to a shortlist based on criteria such as potential market volume, expected average loan size and the potential for energy savings/CO2 reductions. For the short-listed products (tractors, CNC-machines, air conditioning systems, heat pumps, refrigerators, solar heaters etc.), Şekerbank undertook campaigns (advertising, special staff training) to promote corresponding loans, and the bank tried to establish cooperations with suppliers. Among those campaigns the most successful were the campaigns for housing insulation, tractors and household appliances. For some standard measures (air conditioning systems, heat pumps) campaigns were still ongoing during the evaluation. Only insulation loans, due to the cooperation with IZODER, can be offered as zero-interest-loans. Nevertheless, all other EKO kredi-loans are offered with a small fixed reduction on the interest rate compared to normal consumer credit products or with a variable discount for agricultural and small business loans.

With the exception of the IZODER cooperation, the normal collaboration model consists of mutual recommendation and advertising of Şekerbank and an installer firm (cross-selling). Up to now, several of such cooperations with suppliers (e.g. SER-GÜN/solar water heaters) have been established. It is difficult to quantify the number of cooperations since they are mostly established on a regional or branch level. The bank is constantly looking for new firms that might be suitable for cooperation.

Even if some campaigns are still on going, it can be safely concluded that the effectiveness of the project was very satisfactory: The credit line was fully disbursed with 996 EE-loans to final borrowers summing up to EUR 10,811.010. Loans for insulation (ca. 5.4 Mio. EUR) and tractors (ca. 4.2 Mio. EUR) accounted for the largest share of the total credit volume. Solar water heaters, household appliances (refrigerator, washing machines) and other measures together generated a loan volume of around 1.2 Mio. EUR. This gives evidence of the high demand for EE-loans stimulated by the implementing bank's campaigns, all the more as it could be verified that the short-list for the project under evaluation included some measures that were supported as well by the bank's other EE/RE refinancing lines from GGF and GCPF.

Figures calculated with eSave – most of them being verified by an impact study of the consultant – prove that on average, the KfW/OeEB-credit line's eligibility criteria of at least 20% CO2 savings was exceeded not only for the whole portfolio but also for every sub-category of loans. However, not all single loans did comply with the benchmark.

The portfolio quality of the EE-portfolio is good as the share of non-performing loans is below 2%.

Even if some campaigns have not been successful and a CO₂ saving of 20% has not been achieved in every single loan case, we rate the effectiveness of the project as good because some of the EE-product innovations introduced by Şekerbank can certainly serve as a role model for promoting EE-investments via the financial sector.

Partial Result: Grade 2

Efficiency

Production efficiency of the project can be rated as good: The same consultant was appointed for the first and the second tranche of the loan.² This was cost effective for KfW/OeEB with regard to procurement and monitoring and also for the bank that could deal with one counterpart for both tranches.

The assignment of the consultant included the implementation of a tool to allow the bank to account for energy savings and the reduction of CO₂ emissions to be reported to KfW/OeEB. GGF, GCPF and KfW/OeEB agreed on using the same tool (eSave), which recently was also accepted by the EU in its new cooperation with Şekerbank. Using just one tool reduces the bank's workload and staff training requirements considerably.

The KfW/OeEB eligibility criterion of a 20% energy/CO₂ reduction induced by every single loan forces the bank to consider technical aspects of all investments to be financed through the line. In order to minimize the technical knowledge that has to be built up within the bank standard measures suited to fulfil the criterion were specified upfront by the consultant. This certainly saved on costs and can be rated as an appropriate mechanism when using a financial intermediary as knowledge-multiplier, although it also reduces the flexibility of the bank. Technical training of loan officers could be kept on a basic level; for more detailed technological questions, the bank could connect the client with a specialist from supplier firms.

Some doubts with respect to efficiency have to be raised concerning the parallel use of a short-list of standard measures and a check with a calculation tool:

- Standard measures are defined in order to avoid the complex and troublesome calculation of reductions. Banking staff can check the compliance of a loan application by comparing it to the list of predefined standard measures but the staff is not trained to conduct technical calculations or energy audits. Deciding on loan applications for non-standard measure requires considerable time and effort. For smaller loan amounts this is not justified and especially in Turkey clients do not accept delays when they can get a loan from another bank more easily. Accordingly, short-lists have been rated as an adequate procedure.

² The first tranche (9,2 mio EUR) of the loan was directed towards improving energy efficiency in larger firms. It was financed by KfW and the Council of Europe Development Bank. The first tranche does not constitute part of this evaluation.

- The main purpose of a tool is to provide monitoring data by calculating reductions for every single loan relying on a standardised and accordingly imprecise approximation method. Additional to the imprecision caused by the calculation method, faults occur due to data entry mistakes. An analysis of 20 other credit lines prepared for KfW recently confirms that this is a general problem which concerns not only this credit line or the tool applied here.

Tools come at a cost for the bank as the staff has to be trained, internal procedures have to be developed or adapted and additional data requirements and control procedures have to be introduced into loan negotiations with clients. Considering these costs, it has to be questioned whether the benefits of the standardised information that can be produced by a tool additionally to the information already inherent in the short-list is worthwhile.

Using a list of standard measures and calculating reductions by an ex-post analysis for a sample of loans may provide more reliable data and reduce efforts and costs. However, there is little experience with such an approach up to now.

As it was the aim of the credit line to promote CO₂ savings, the efficiency of the allocation of funds rises with the amount of CO₂ tons saved per unit of funds. From this perspective, the allocation efficiency (loan amount/tons CO₂ reduction) is highest for the installation of solar water heaters (23 EUR/t CO₂) and building insulation (36 EUR/t CO₂). Considerably lower allocation efficiency is observed for tractor loans (242 EUR/t CO₂). Household appliances show the lowest allocation efficiency (10,579 EUR/t CO₂).³ CO₂ tons saved are calculated in comparison to a standard alternative, e.g. an electric heater or a used tractor (also see explanations under impact). The reasons for the figures of tractor loans or loans for household appliances being considerably less favourable are straightforward: The major part of the price of these items is paid for features of the product that are unrelated to energy savings.

In view of these findings, we rate efficiency overall as satisfactory. Despite the high costs of the monitoring tool and the limited allocative efficiency of some subcategories of loans, positive results clearly dominate.

Partial Result: Grade 3

Impact

The developmental objective of the project was twofold: On the environmental side, the project aimed at reducing CO₂ emissions by financing EE investments that result in at least 20% energy savings. In the financial sector, the objective was to contribute to the deepening of the financial sector with regard to EE-loans.

The target of 20% energy savings was exceeded for the whole credit portfolio. Primary Energy savings reached 50,324 MWh/a, CO₂ emissions were reduced by 11,649 t/a, and average energy

³ These figures are based on the loan amount and therefore have to be used with care. The actual investment for the measures is not known. When clients have used own resources additionally to the loan the actual allocation efficiency is lower. Furthermore, the precision of the data on individual loans is rather low.

savings for the whole loan portfolio came up to almost 50%, all calculations being based on data from eSave. According to the consultant's impact study for a sample of 19 insulation loans the annual CO2 emission was reduced by 41.4% on average. The outcome for 23 tractor loans was an annual CO2 emission reduction of 22.4%. Here, individual results showed high variations from the average. The actual fuel consumption of tractors depends very much on the purpose for which it is actually used, on the availability of adequate tools and farming equipment and, last but not least, on the behaviour of the driver.

CO2 emission reduction figures are based on a calculation that compares the situation before implementing a certain measure with the situation afterwards. However, the situation before is not analysed individually. Instead average efficiencies of old devices typically used by the target group are applied.

The figures do not answer the question whether financed investments are additional in the sense that they would not have been undertaken without the credit line under evaluation. It is impossible to answer this question with precision. However, the evaluation mission tried to collect some evidence during the mission, e.g. in client interviews, which allows some conclusions on whether the supply of the loan by Şekerbank was a deciding factor for the investment decision.

For building insulation loans, we consider the role of Şekerbank as pivotal. The bank provided additional incentives to invest in building insulation, which clients reported as having a main influence on their decision to undertake the investment. Furthermore, the bank played an important coordination role for owners of apartments in their decision to have the commonly owned building insulated. For solar heaters, we also rate the influence of advertising efforts complemented by cooperation with installation companies as high. The bank seems to have had an important influence on spreading the knowledge that the investment in solar heaters actually pays off. For tractors and to a lesser degree for household appliances, however, we consider the impetus of the bank's activities as lower. Although advertising, regional cooperations with companies selling tractors and the offer of slightly more favourable loan terms provide some additional incentives, the decision to buy a new tractor or to buy new household appliances is largely governed by other motives than that to save on energy. Interviewed clients of tractor loans indicated that advice on which models to buy comes more from neighbours and friends than from the bank, and the incentive to choose a petrol-saving model is given by the very high Turkish fuel prices anyhow.

As to financial sector development, Şekerbank's cooperation with IZODER served as a role model and successively other banks started to offer similar products. Five other banks signed a cooperation agreement with IZODER up to date. The loan and the consultancy service going along with it helped the bank to extend its green portfolio and to strengthen its image as the innovator and market leader in green financial products. Consequently, we rate the impact of the project as good.

Partial result: Note 2

Sustainability

The fact that the bank already started with “green” lending before the project and that it managed to grant favourable loan terms to borrowers through innovative cooperation models is an indicator for the high commitment of the bank and the economic viability of the product.

There is no doubt that Şekerbank has adopted the EKO kredi business as a permanent business line. In addition to those loans extended under green refinancing lines from IFIs like KfW/OeEB the bank is even financing EE/RE investments under the EKO kredi brand from their own sources. In developing this business, the bank largely benefitted from the experience gained under IFI funded schemes and from the technical assistance provided by the evaluated project. The EKO kredi loan product clearly helps the bank to compete against other banks by offering preferential conditions to the final borrowers. We are therefore confident that the bank will continue to be active in EE/RE loans if and when IFI funding would be ceased.

There is evidence as well that the necessary knowledge for providing qualified EE-lending is being safeguarded by the bank’s management. A high number of staff was trained (on average nearly one per branch and business line), and there is an introduction to EE/RE lending for all new hires. Accordingly, clients are able to receive adequate advice in every branch, even if the usual fluctuation of staff is taken into account.

To sum up: There is high commitment to green finance in the bank, the EKO kredi loans are well embedded in the business lines and in the branches, and the product is strengthening the market position of the bank. The bank is obviously willing and able to further extend this business segment through constant innovations in the future. Consequently, we rate the sustainability of the results as very good.

Partial Result: Grade 1

Additionality of the Loan

From a financial point of view, the support of the bank with this loan for EE had a clear additional effect to any commercial refinance on the market: the loan supported Şekerbank in the growth of its EE-portfolio also in the years 2010/2011, when after the financial crisis other banks in Turkey were still refraining from lending to MSME. Furthermore, the KfW/OeEB refinancing was made available conditional to being lent on for EE-investments; and such conditionality in support of a non-financial, global aim certainly is not a feature of any commercial refinancing. Last not least, technical assistance came along with the loan, which benefitted the bank, and the establishment of EE-financing in the market, in numerous ways. Accordingly, the loan under evaluation certainly did not crowd out any commercial finance on the market, which could have served a similar purpose. Additionality therefore is rated as good.

Partial Result: Grade 2

Notes on the methods used to evaluate project success (project rating)

Projects (and programmes) are evaluated on a six-point scale, the criteria being relevance, effectiveness, efficiency and overarching developmental impact. The ratings are also used to arrive at a final assessment of a project's overall developmental efficacy. The scale is as follows:

- 1 Very good result that clearly exceeds expectations
- 2 Good result, fully in line with expectations and without any significant shortcomings
- 3 Satisfactory result – project falls short of expectations but the positive results dominate
- 4 Unsatisfactory result – significantly below expectations, with negative results dominating despite discernible positive results
- 5 Clearly inadequate result – despite some positive partial results, the negative results clearly dominate
- 6 The project has no impact or the situation has actually deteriorated

Ratings 1-3 denote a positive or successful assessment while ratings 4-6 denote a not positive or unsuccessful assessment

Sustainability is evaluated according to the following four-point scale:

Sustainability level 1 (very good sustainability): The developmental efficacy of the project (positive to date) is very likely to continue undiminished or even increase.

Sustainability level 2 (good sustainability): The developmental efficacy of the project (positive to date) is very likely to decline only minimally but remain positive overall. (This is what can normally be expected).

Sustainability level 3 (satisfactory sustainability): The developmental efficacy of the project (positive to date) is very likely to decline significantly but remain positive overall. This rating is also assigned if the sustainability of a project is considered inadequate up to the time of the ex post evaluation but is very likely to evolve positively so that the project will ultimately achieve positive developmental efficacy.

Sustainability level 4 (inadequate sustainability): The developmental efficacy of the project is inadequate up to the time of the ex post evaluation and is very unlikely to improve. This rating is also assigned if the sustainability that has been positively evaluated to date is very likely to deteriorate severely and no longer meet the level 3 criteria.

The overall rating on the six-point scale is compiled from a weighting of all five individual criteria as appropriate to the project in question. Ratings 1-3 of the overall rating denote a "successful" project while ratings 4-6 denote an "unsuccessful" project. It should be noted that a project can generally be considered developmentally "successful" only if the achievement of the project objective ("effectiveness"), the impact on the overall objective ("overarching developmental impact") and the sustainability are rated at least "satisfactory" (rating 3).

6. Project background

Turkey at a glance

Turkey's macroeconomic policies and structural reforms over the past decade have led to robust economic growth. GDP increased by more than 50% between 2001 and 2010 and the average growth rate was nearly 7% during 2003-07, up from an average of 4% during the 1990s. Growth resumed rapidly after the 2008-2009 global crisis, at 9.2% in 2010 and 8.5% in 2011. However, the ongoing crises of the most important import markets in the EU yielded to a slowdown in 2012 (2.2%). For 2013 a level of over 4% is expected. Per capita income now stands at 10,444 USD. General Government primary surpluses averaged about 4.6% of GDP over 2004-10, and gross public debt as a percentage of GDP fell from 73.4% in 2002 to 42.2% in 2011, in spite of an increase during the 2008-09 global crisis. Inflation came down from a high of around 70% in 2002 to fewer than 10% (7.88% in September 2013). Turkey's Human Development Index (HDI) value is 0.758 for 2012, positioning the country at 90 out of 187 countries. At the time of project appraisal in 2010, the HDI-value was 0.755, rank 92.

Turkey's economy is increasingly dominated by the service sector, which currently contributes about 68% of GDP, followed by industry (23%) and agriculture (9%). These figures differ slightly from the Euro-area (72% service sector, 26% industry, and less than 2% agriculture). Further movement towards expansion of services and industries at the expense of agriculture would presumably result in the recovery of some intensely-used resources (land), but as well in increased emissions (pollutions and waste) and energy use.⁴ As Turkey is highly dependent on energy imports and the energy intensity of its economy is rather high, energy efficiency increases are crucial for Turkey's competitiveness and long-run sustainable economic growth. Inefficient energy use means higher private and public energy expenditures, increasing firms' and private households' costs and taking a bigger bite out of the national budget as well.⁵ Another major and closely linked challenge of the Turkish economy will be to curtail the rapid emission growth as the economy continues to expand.

Energy Efficiency in Turkey

Turkey is an important energy market both as a regional energy transit hub and as a growing consumer. In the last 10 years gas consumption has increased by 190% and electricity consumption by more than 70%. Almost 80% of Turkey's energy consumption is covered by imports.

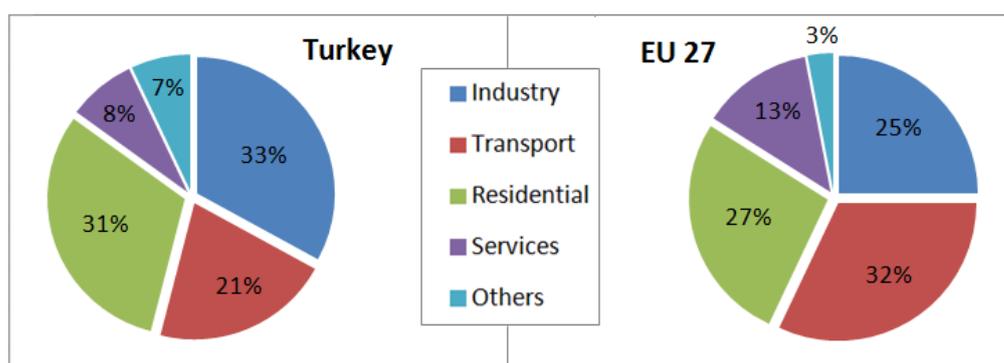
In 2010 Turkey had a total electricity generating capacity of 49,500 MW. Total net electricity generation amounted to 217 million MWh in 2011. Electricity generation mostly relies on

⁴ The World Bank (2013): "Turkey Green Growth Policy Paper: Towards a Greener Economy", Washington.

⁵ The World Bank (2011): "Tapping the Potential for Energy Reductions in Turkey, Sustainable Development Department (ECSSD) Europe and Central Asia Region (ECA).

conventional thermal power plants. Natural gas accounts for 45%, coal for 29% and hydro power for 23% of electricity generation. Currently no nuclear power plants are installed but the government advocates nuclear power utilization. The most important energy consumer is the industrial sector with 33% followed by the residential sector with 31% and the transport sector with 21%.

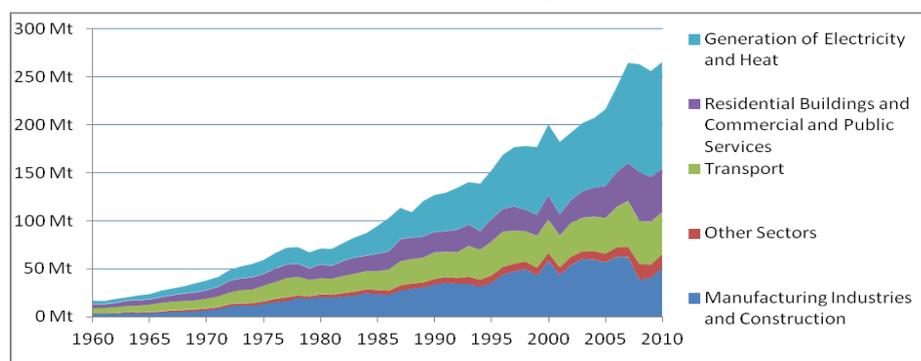
Figure 1: Share of final energy consumption according to sectors in 2011



Source: European Commission, 2013⁶

The energy intensity of the Turkish economy is fairly high at 0.18 TOE/thousand USD. This figure has been fairly stable throughout the strong economic growth during the last two decades. In comparison, energy intensities of Germany and Austria are both 0.10 TOE/thousand USD. This indicates the low energy efficiency in Turkey which consumes 80% more energy for an equivalent share of GDP than Western European countries.

Figure 2⁷: Development of CO₂ emissions according to sector



Source: EIA, 2011

In 2011 energy consumption in Turkey generated 286 million tons (Mt) of CO₂ emissions. The generation of electricity and heat, with 113 Mt CO₂ in 2010, has the greatest share of the total CO₂ emissions (265 Mt). The remaining CO₂ sources in 2010 are: manufacturing industries and

⁶ European Commission (2013): Analyses of the energy consumption data for EU candidate and neighbouring countries, http://iet.jrc.ec.europa.eu/energyefficiency/sites/energyefficiency/files/files/documents/events/presentation_strahil_panev_ws_b_elgarde_18-19june2013.pdf

⁷ U.S. Energy Information Administration (EIA) (2011), www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=90&pid=44&aid=8

construction (51 Mt), residential buildings and commercial and public services (42 Mt) and transport (40 Mt). CO₂ emissions per capita amounted to 2.54 tons. The corresponding figures for Germany are 745 million tons resp. 9.14 tons/capita and for Austria 68 million tons resp. 8.13 tons/capita.

Among private households and SMEs, the residential sector probably has the largest energy saving potential. In various studies in Turkey, EIE has estimated a saving potential in the range of 20% to 50%. Heating accounts for 75% of energy used in buildings, with natural gas as the primary energy source (30%)⁸ (GEKA, 2012). The heating season usually lasts 5 months (November to March). Because of the high share of energy used for heating, most energy saving potential is associated with an increased use of thermal insulation to avoid heat loss. Many of Turkey's new buildings (built post-2000) are energy inefficient compared with new buildings in EU countries with similar degree-days. Turkey's new buildings constructed in accordance to the national Standard of Thermal Insulation Requirements for Buildings need at least 50% more energy for heating than their EU counterparts. In order to improve energy efficiency in residential buildings, in 2009 the government enacted the Regulation on Building Energy Performance (BEP). It states that from 2011 onwards all new buildings need to have an Energy Performance Certification (EPC) of Class C or even higher; existing buildings need to be certified by 2017. Although prices for natural gas as the main heating source in Turkey are still rather low (with 0,029 EUR/kWh almost half of the price in Germany and less than half of the price in Austria), payback periods for energy measures like housing insulation can be as short as under 2 years⁹ due to the low energy efficiency. However, depending on the climate zone, pay back periods can also be longer than in other European countries (8-10 years), since the climate is comparatively mild, especially in Western Turkey.¹⁰

Awareness on energy efficiency is still low but growing rapidly. Reasons for that development are government campaigns (e.g. since 2008, every year, the second week of January is celebrated as the "Energy Efficiency Week") and new regulations like the one on energy performance of buildings. However, by far the most important factor is the huge increase in energy prices during the last years. The gross electricity consumer tariff in 2012 was 0.36 TL/kWh (0.13 EUR/kWh). The price more than doubled since 2007. The corresponding tariff for gas in the same year was 0.093 TL/kWh (0,034 EUR/kWh) with an increase of 40% in one year. Despite these huge price increases the current tariffs are still well below Western European price levels. Turkish prices for fuel are one exception to this rule as they belong to the highest in the world.

The Turkish market of energy efficiency related equipment and material is well developed and relatively mature with the exception of a few technologies. Due to Turkey's close trade relations with the Far East, Europe, the USA, and recently with China, a wide variety of products from these countries are easily available in Turkish markets, even in sectors in which Turkey is a main

⁸ Southern Aegean Development Agency (GEKA) (2012): Energy Sector Report, www.geka.org.tr/yukleme/planlama/Sekt%C3%B6rel%20Ara%C5%9Ft%C4%B1rmalar/Enerji%20Sekt%C3%B6r%C3%BC%20Raporu.pdf

⁹ Bolattürk, A. (2006). Determination of optimum insulation thickness for building walls with respect to various fuels and climate zones in Turkey. *Applied thermal engineering*, 26(11), 1301-1309.

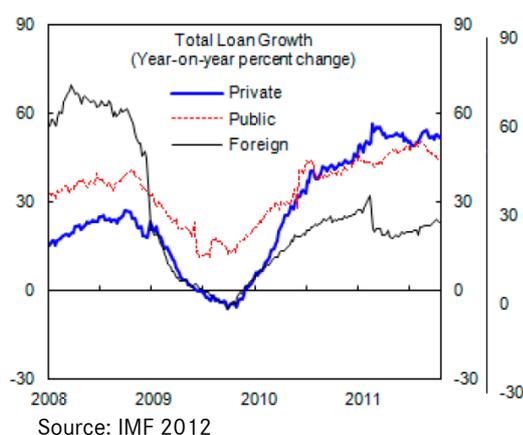
¹⁰ UNDP Project Homepage: Promoting Energy Efficiency in Buildings in Turkey, <http://www.surdurulebilirbinalar.net/index.php/en/energy-performance-certificate>.

producer. This leads to a wide variety of equipment and materials (with a high variation of models, efficiency levels and prices) available to consumers.¹¹

The Turkish Banking Sector

Turkey's financial system has deepened since the 2000-01 crisis with banks still playing the dominant role. As of June 2013 there were 45 banks operating in Turkey. Total assets of the banking system increased from 63 percent of GDP in 2005 to over 90 percent of GDP by 2011. Domestic credit to the Private Sector increased from 32.6% of GDP in 2008 to 54.4% in 2012.¹² Despite a relatively large number and variety of non-bank financial institutions, the role of banks in the financial system, which was already significant, has even increased in importance during the last years. Concentration of the banking sector is high: The share of the largest 10 (5) banks in total assets is 86% (59%), in loans 87% (61%) and in deposits 91% (57%). Public banks continue to play an important role, with the largest bank being state-owned and the three state-owned banks in aggregate accounting for close to a third of total banks' assets. Foreign banks have been able to slightly increase market share at the expense of other private banks. Despite of the expansion of financial services in the last years, Turkey is still relatively under-banked compared to other emerging market economies.¹³

Figure 3: Total Loan Growth in Turkey



Bank lending initially contracted sharply during the 2008/09 financial crisis. It rebounded strongly, however, beginning in mid-2009 and growth eased only recently. The loan contraction was sharpest in foreign and private banks, as state-owned banks continued lending (mainly in TL) and gained market share. Albeit these developments, Turkey overcame the financial crisis rather well: It was the only OECD-country that did not have to capitalise private banks during the financial crisis. Very low FX exposure, primarily deposit-based funding, and strong liquidity allowed banks to weather the global financial crisis. During the period 2010 Q4–2011 Q2, loans to the private sector

¹¹ Oesterreichische Entwicklungsbank 2013: Energy Efficiency in the Financial Sector. Country Report Turkey.

¹² Source: <http://data.worldbank.org/indicator/FS.AST.PRVT.GD.ZS>.

¹³ International Monetary Fund (IMF) 2012: "Turkey: Financial System Stability Assessment", IMF Country Report No. 12/261.

grew at an annualized rate of around 40%, driven in part by easy global monetary conditions, large capital inflows and strong domestic demand. While non-performing loans (NPLs) deteriorated during the crisis, most markedly in manufacturing (SME) and consumer loans, loan performance substantially improved in the post-crisis economic rebound.¹⁴

The credit boom after the crisis was particular strong in the consumer and the SME sector. Turkey experienced the strongest rise of outstanding SME-loans among all OECD-countries after 2010.¹⁵ Due to the increasing competitive pressure in the banking sector and particularly in these lending sectors, the FMI Financial System Stability Assessment of 2012 warns of an erosion of lending standards and increases in non-performing loans in case the economy came to a slow-down.

A new approach: Energy Efficiency through the Banking Sector

There are various barriers that impede investments into energy efficient technologies that are economically viable (see Annex 5 for a general and Turkish-specific overview). Projects and programmes that aim to foster these investments through the banking sector try to tackle three different kinds of these obstacles: (i) lack of finance for these kind of investments, e.g. banks might not have sufficient refinance for the required maturities, (ii) lack of information on alternative technologies and corresponding payback periods on the end-borrower's side and (iii) high search costs for end-borrowers when choosing a suitable supplier or a bank. The target group of such projects typically are the clients of a partner bank that acts as the project implementing agency.

In order to remove the investment barriers named above, the partner bank is supposed to introduce a new “green lending technology” affecting different levels of the bank: First, a “green” loan product is to be created with the intention to raising the awareness for energy efficiency (EE)-investments in the general public as well as of the bank's own staff. At the same time, the “green” product might increase the bank's reputation in the general public. Depending on the overall strategy of the bank, it might be beneficial to offer slightly lower interest rates for this new loan product in order to increase the advertising effect and to compete successfully with other banks targeting the same segment. Second, the bank has to train its loan officers to actively find and convince clients that might be interested to invest into economically viable energy efficient technologies. Third, the bank should forge cooperation with supplier firms and sector-specific associations in order to optimise its marketing and cross-selling of energy efficient technologies by reducing transaction costs for clients who are looking for supplier firms and financing at the same time.

Since a bank does not have specific technological knowledge on energy efficiency technologies, projects to promote EE-investments through the banking sector usually should be combined with (technological and financial) consulting services. The predominant task of these services is to define adequate EE-investments which promise to reduce a) energy consumption in the magnitude required by the donor or Development Finance Institution (DFI) (20 percent reduction in the case of

¹⁴ The NPL rate of MSME loans over the last years were 4.8% in 2008, 7.6% in 2009, 4.5% in 2010 3.1% in 2011 and 3.2% in 2012.

¹⁵ OECD (2013): “Financing SMEs and Entrepreneurs 2013. An OECD Scorecard”.

the credit line evaluated here) and b) at the same time are attractive to the bank's clients because the EE-investment induces sufficient cost savings to make it economically viable or because the new technology promises other advantages worth the extra cost like a higher quality of living or the adherence to new regulation. Based on the identification of investments fulfilling these conditions, the consultant firm, in consultation with the partner bank and the project financiers, defines a list of suitable standard measures (short list)¹⁶ and elaborates training material containing information on these EE-investments that can be used by the bank to optimise its lending and advertising strategies. The consultant will normally also implement a tool that serves to estimate the CO2 reductions achieved by every EE-investment the bank is financing, enabling the bank to report to external creditors like OeEB and KfW.

To sum up: This type of project intends to use the banking sector as a multiplier for EE-investments as the bank is supposed to provide knowledge and finance to its (potential) clients. As the investments are not supported through direct subsidies and as a bank is no engineering firm, this concept will only work if standard EE-investments can be identified, which are attractive for a sufficiently large group of bank customers, and if the bank is motivated to use a "green" loan product to strengthen its market position. The situation in Turkey provided the perfect rationale for the implementation of such an approach: (i) the banking sector was stable, profitable and well diversified, with innovative banks that aimed to find new market niches, even during the financial crisis, (ii) rising energy prices and tighter regulation have increased awareness and necessity of EE-investments in the general public, (iii) due to the high inefficiencies in terms of energy efficiency there was and still is a huge potential for improvements in all levels of the economy and (iv) the range of qualified installer and supplier firms in the EE-sector is quite large and on a high level.

¹⁶ The evaluation mission prefers the term "short list" over the more often used term "positive list" because "positive list" might imply that the bank cherry picks loans related to energy efficiency into the EE-portfolio, whereas "short list" clearly defines the group of investments that have environmental and economic potential and therefore should be targeted by the bank.

7. Annex 1: DAC Criteria for evaluating development assistance¹⁷

Relevance: The extent to which the aid activity is suited to the priorities and policies of the target group, recipient and donor.

In evaluating the relevance of a programme or a project, it is useful to consider the following questions:

- To what extent are the objectives of the programme still valid?
- Are the activities and outputs of the programme consistent with the overall goal and the attainment of its objectives?
- Are the activities and outputs of the programme consistent with the intended impacts and effects?

Effectiveness: A measure of the extent to which an aid activity attains its objectives.

In evaluating the effectiveness of a programme or a project, it is useful to consider the following questions:

- To what extent were the objectives achieved / are likely to be achieved?
- What were the major factors influencing the achievement or non-achievement of the objectives?

Efficiency: Efficiency measures the outputs – qualitative and quantitative – in relation to the inputs. It is an economic term which signifies that the aid uses the least costly resources possible in order to achieve the desired results. This generally requires comparing alternative approaches to achieving the same outputs, to see whether the most efficient process has been adopted.

When evaluating the efficiency of a programme or a project, it is useful to consider the following questions:

- Were activities cost-efficient?
- Were objectives achieved on time?
- Was the programme or project implemented in the most efficient way compared to alternatives?

Impact: The positive and negative changes produced by a development intervention, directly or indirectly, intended or unintended. This involves the main impacts and effects resulting from the activity on the local social, economic, environmental and other development indicators. The examination should be concerned with both intended and unintended results and must also include the positive and negative impact of external factors, such as changes in terms of trade and financial conditions.

¹⁷ Source: <http://www.oecd.org/dataoecd/42/6/49756382.pdf>

When evaluating the impact of a programme or a project, it is useful to consider the following questions:

- What has happened as a result of the programme or project?
- What real difference has the activity made to the beneficiaries?
- How many people have been affected?

Sustainability: Sustainability is concerned with measuring whether the benefits of an activity are likely to continue after donor funding has been withdrawn. Projects need to be environmentally as well as financially sustainable.

When evaluating the sustainability of a programme or a project, it is useful to consider the following questions:

- To what extent did the benefits of a programme or project continue after donor funding ceased?
- What were the major factors which influenced the achievement or non-achievement of sustainability of the programme or project?

8. Annex 2: Evaluation Methodology

The evaluation was conducted in three-steps. The first step of the evaluation was a desk-study by Mr Rainer Fitz of project documents provided by KFW as well as data provided by Şekerbank.

The second step of the evaluation was the visit by the evaluation team to Turkey from 04th until 08th November 2013. In this on-site evaluation the preliminary analysis from the desk-study was validated through interviews with Şekerbank management and staff as well as with selected clients in Istanbul and Bursa. The on-site evaluation mission was concluded with the signing of minutes of meetings by Şekerbank management and the evaluation team.

The third step of the evaluation involved analysis of further data and material gathered during the onsite evaluation. Together with the desk-study research and the minutes of meetings of the on-site evaluation this analysis was comprised to a first draft of this evaluation report. The draft report was presented to the OeEB on January 7th 2014 in Vienna. Following that presentation the report was finalized.



Oesterreichische Entwicklungsbank AG

1011 Vienna, Austria
Strauchgasse 3
Tel. +43 1 533 12 00-0
Fax +43 1 533 12 00-5252
office@oe-eb.at
www.oe-eb.at

