
OPERATION EVALUATION

Mid-Size Sustainable Energy Financing Facility

Turkey

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EBRD EVALUATION DEPARTMENT



European Bank
for Reconstruction and Development



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Cover photo: © EBRD/Saeed Ibrahim
Pamukoren Geothermal Power Plant, Aydin Province, Turkey (see also page 5 and 28)
http://www.midseff.com/factsheets_eng/pamukoren.pdf

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Abbreviations

CO ₂	Carbon dioxide
EIB	European Investment Bank
€	European Currency Unit
EvD	Evaluation Department
GDP	Gross Domestic Product
GWh	Gigawatt hour - unit of electrical energy equal to one billion watt hours
IFI(s)	International Financial Institution(s)
IFRS	International Financial Reporting Standards
JBIC	Japan Bank for International Cooperation
KfW	Kreditanstalt für Wiederaufbau
kWh	Kilowatt hour – unit of electrical energy equal to one thousand watt hours
MidSEFF	Turkey Mid-size Sustainable Energy Financing facility (the “facility” or the “Framework”)
MSMEs	Micro, small and medium-sized enterprises
MW	Megawatt
OPA	Operation Performance Assessment
SEFF	Sustainable Energy Financing facility
SEI	Sustainable Energy Initiative
SME	Small and Medium Enterprise
TC	Technical Cooperation
TurSEFF	Turkey – Private Sector Sustainable Energy Financing facility

Defined terms

Diversified Payment Rights	A future flow securitisation used by financial institutions in economies where the sovereign rating is not fully investment grade to reduce risk to enable amenable lending terms based on the significant foreign exchange transactions of those financial institutions.
Export Credit Agency	Private or quasi-governmental institutions that act as intermediaries between national governments and exporters to issue export financing. The financing can take the form of credits (financial support) or credit insurance and guarantees (pure cover) or both, depending on the mandate the export credit agency has been given by its government
Measuring, reporting and verification	The structure and process of measuring, reporting and verification of carbon emissions/reductions.

framework

Operation Performance Assessment (OPA)

Self-assessment which is conducted for all EBRD projects after completion, and which covers the OECD DAC criteria of relevance, effectiveness, efficiency, Impact and sustainability

Rational Energy Utilization Plan

An ex-ante report prepared by the project consultant for potential subprojects under the facility which generally include but not limited to: an assessment of the prospective client, the investments which will result in energy savings and/or use of renewable energy source; a recommendation on the subproject and confirmation that it meets the eligibility criteria for the Facility and costs benefit analysis (financial and physical energy) of the subproject.

Sustainable Energy Action Plan

Agreed between the Bank and the Government of Turkey, the plan maps out the steps and joint efforts required for the Bank's future engagement in Turkey in the area of sustainable energy.

Verified Emission Reduction

Also sometimes referred to as Voluntary Emission Reductions, Verified Emissions Reductions are types of carbon offsets exchanged in the voluntary or over-the-counter market for carbon credits, usually certified through a voluntary certification process.

Waste to energy

A form of energy recovery which describes the process of generating energy in the form of electricity and/or heat from the incineration of waste.



Executive Summary

The purpose of the MidSize Sustainable Energy Financing Facility (MidSEFF) was to help finance mid-size sustainable energy projects of €10-40 million in Turkey through on-lending by commercial banks. Four participating banks on-lent nearly €300 million to 27 sustainable energy projects in renewable energy and energy efficiency.

MidSEFF's transition impact was to be achieved through three main channels, namely (i) demonstration of new products through acceleration and scale-up of sustainable energy investments, including diversification of technologies, (ii) demonstration of new financing mechanisms through the expansion and development of carbon markets, and (iii) transfer of skills through upgrade of environmental standards and capacity building for financing renewable energy investments. **Key operational and transition impact related outcomes were:**

- Increased lending/investment in sustainable energy
- Increased production of renewable energy particularly utilising technologies other than hydropower
- Increased CO₂ abatement
- Monetisation of carbon credits and development of carbon market services
- Improved project environmental and social standards

A basic outline of **MidSEFF's features and outputs** include:

- 27 subprojects with 11 confirmed fully operational, 10 with construction completed and operational status to be confirmed and 6 with expected completion in 2015
- 13 hydropower projects were financed; 9 wind, 3 energy efficiency, 1 geothermal and 1 waste-to-energy creating 494MW in additional capacity (an average of 20.6 MW capacity per renewable energy subproject)
- €300 million of finance was made available to participating banks of which 87 percent was disbursed by 1 June 2014 and €100 million was set aside for direct risk participation projects. €413.1 million was on-lent to subprojects including co-finance from EIB
- A carbon market services component that enlisted companies in the carbon registration process and raised awareness and knowledge although has yet to monetise carbon credits

EvD's overall rating for the project is “Highly Successful.” The project performed well in terms of financial performance, achievement of objectives and transition impact particularly in light of the circumstance which featured an incomplete regulatory framework and low carbon demand. MidSEFF was a major contributor to increased renewable energy capacity in Turkey, mobilised substantial finance from EIB, and delivered higher than projected IRR from the individual subprojects. Objectives were not yet achieved related to the monetisation of carbon credits and a direct risk participation facility was not utilised. A summary of the project ratings may be found in Section 2.

By financing projects in hydropower, wind, geothermal, waste to energy, and energy efficiency, MidSEFF actively contributed to developing Turkey's renewable energy capacity, helped build the capacity of participating banks and supported the Government of Turkey in its development of a Sustainable Energy Action Plan. MidSEFF was unique as it was the first mid-size lending facility for sustainable energy;

the first SEFF to require sub-project sponsors to comply with EBRD environmental and social requirements and to incorporate a carbon market services development component.

Key findings include:

- MidSEFF had a significant effect on the Turkish renewables market.
- More time and other specific products were needed for further market diversification of renewable energy technologies.
- Participating bank experience in project finance was important to subproject success.
- There is currently a limited market for Local Currency Lending in sustainable energy.
- Inclusion of energy efficiency projects in MidSEFF was of limited value
- Incentives were not needed for MidSEFF to succeed.
- Brand is important.
- An outreach and marketing project component could promote uptake and diversification.

Explanation of these findings and additional findings are located in Section 7.1 of this document. Section 7.2 offers EvD's recommendations related to MidSEFF. Many of the recommendations are specific to the context of the Turkish sustainable energy market.

The recommendations include:

- Given comparable circumstances, avoid allocating funds for direct risk participation.
- Introduce market/industry norms, benchmarks or standards for energy production and/or carbon reduction.
- Select energy efficiency projects for mid-size facilities such as MidSEFF with a clear and evident demonstration effect.
- Limit hydropower and wind projects, and when hydro and wind projects are undertaken, accompany them with enhanced environmental and social standards.
- Feature solar licensing as a focus of future policy dialogue.
- Focus carbon market policy dialogue on GHG management and Measuring, Reporting and Verifying.

Explanation of these recommendations and additional recommendations are located in Section 7.2.

1) Introduction

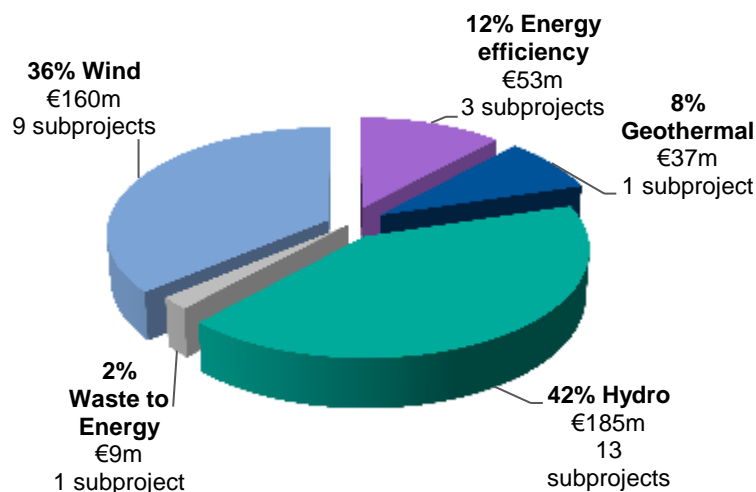
1.1 Description

Sustainable Energy Financing Facilities (SEFFs) provide lines of credit to financial intermediaries for on-lending to sustainable energy investment projects. They have proven to be a fast-growing and popular instrument for EBRD over the past decade and are an important element of EBRD's Sustainable Energy Initiative (SEI). The defining feature of the SEFF approach is combining capital infusion with technical support and incentives/subsidies where relevant to small and medium-sized energy efficiency and renewable energy projects in which both the participating banks and subproject sponsors may be potential beneficiaries.

The first Mid-Size Sustainable Energy Financing Facility (referred to as 'MidSEFF' and 'Facility'), approved in November 2010, provided financing to four participating banks in Turkey for €300 million, € 75 million per participating bank. The Facility set aside an additional €100 million (up to €25 million per bank) for direct risk participation in selected subprojects through funded risk participation agreements with the banks. MidSEFF differed from previous SEFFs by offering financing for mid-sized investments of €10-40 million in renewable energy, energy efficiency and waste to energy projects. Previous SEFFs loaned smaller amounts, typically up to €5 million per project, for energy efficiency projects and smaller renewable energy projects. MidSEFF loans outside this range were considered on a case-by-case basis. The maximum subproject size was set at €50 million. Unlike some other SEFFs, MidSEFF did not incorporate any incentive payments to participating banks or subproject sponsors. The four initial participating banks were to on-lend EBRD resources on market terms.

The first facility of MidSEFF funds has been on-lent to 27 subprojects, most of which have been wind (9) and hydro (13) projects, accounting for 36 and 42 percent respectively of total lending. Energy efficiency projects received about 12 per cent of total lending, while the single geothermal¹ and waste-to-energy subprojects received 8 per cent and 2 per cent respectively of the total loan funds disbursed to date. Figure 1 below shows the distribution of MidSEFF I loans by technology.²

Figure 1 MidSEFF I investment by technology (€ million)



1 An additional geothermal project was signed after the completion of the evaluation.

2 Unless stated otherwise, all quantitative data in this report relating to MidSEFF subprojects is derived from the most recently available portfolio / pipeline reporting spreadsheet provided by the project consultants

1.2 Distinguishing MidSEFF characteristics

In addition to the larger size of subprojects, MidSEFF also differs from other SEFFs in its financial structure. For MidSEFF, the Bank employed diversified payment rights, a future flow securitisation used in economies where the sovereign rating is not fully investment grade that reduces risk to enable amenable lending terms based on the significant foreign exchange transactions of participating banks. diversified payment rights enabled EBRD to extend financing to the participating banks on more attractive terms than indicated by Turkey's sovereign rating, thus reducing the cost and extending the tenor of the facility to the participating banks.

*Diversified
payment
rights*

Another difference from other SEFFs is MidSEFF's lack of subsidies. Many of the SEFF programmes involved subsidies to the sub-borrower such as an incentive payment for energy efficiency and/or greenhouse gas reduction. MidSEFF did not initially employ nor subsequently need subsidies to attract borrowers. Given the strong interest and support for renewable energy in Turkey combined with the size and bankability of the MidSEFF projects, incentives were not needed because sub-project sponsors sought finance to develop profitable energy generation projects. Often subsidies are needed to motivate smaller project sponsors to undertake energy efficiency improvements in residences or small businesses. In the case of MidSEFF, the subproject sponsors sought project finance to produce energy for sale or to reduce operating costs. The feed-in tariffs, guaranteed pricing for renewable energy purchased, were sufficiently attractive for sponsors to assume debt in order to complete the renewable energy projects. (See Section 4.1.1 for further explanation of the feed-in tariff.)

*Lack of
subsidies*

The Facility was complemented by a wide-ranging €2.5 million technical cooperation (TC) support programme funded by the European Union for a project consultant assignment to provide capacity building and implementation support to participating banks and sub-borrowers. The TC programme was organised to facilitate improved standards of subproject appraisal in participating banks. The project consultant was tasked with ensuring that the participating banks incorporated the EBRD's Environmental and Social Policy requirements into subproject appraisal and monitoring, with the anticipated impact of proliferating said appraisal and monitoring practices across the participating banks' similar operations. Moreover, the Facility benefitted from a TC programme of €1.95 million for a carbon market services consultant assignment, with the broad objective of aiding carbon market development in Turkey; the tasks under which included:

*Technical
cooperation*

- Advising the EBRD and the participating banks on potential carbon market activities and investments under the facility
- Working with sub-borrowers on the development and registration of subprojects as carbon projects
- Preparing carbon market studies
- Supporting the Bank's policy dialogue with the Government of Turkey (government of Turkey) to support the creation of a carbon market including assistance with the development of a Sustainable Energy Action Plan

Following the successful utilisation of the funds by the initial four participating banks, MidSEFF was augmented and extended in August 2011 by an additional €225 million and up to €75 million of direct risk participation for an additional three participating banks (up to €25 million per participating bank, the second facility). The participating banks have disbursed €294.5 million of the initial MidSEFF facility and €225 million of

*Second
facility*

the second facility thus far. No direct risk participation agreements have been undertaken to date. The European Investment Bank (EIB) was a co-financer for MidSEFF. EBRD was responsible for project origination, monitoring and reporting, and management including Technical Cooperation. EIB could participate on a project-by-project basis. Standard operating procedure was to utilise 50 per cent EBRD and 50 per cent EIB funds on co-funded projects.

The selection of MidSEFF for an operation evaluation resulted from discussions between EvD and the Banking team for its potential to contribute to EBRD corporate learning and accountability due but not limited to the following.

- The growing importance of sustainable energy and energy efficiency financing for the Bank set out in the Medium Term Priorities and the Capital Resources Review 4
- MidSEFF's focus on renewable energy development and diversification considering the EBRD's strategic focus on addressing climate change in its countries of operation
- MidSEFF's inclusion of carbon finance into SEFF subprojects and attracting subprojects without subsidies
- Co-financing with the European Investment Bank and linked TC with EU funding.
- MidSEFF was one of the early major approvals of the Bank in Turkey as a country of operation.

1.3 Evaluation scope and focus

Scope: first facility

The focus of this evaluation is the activities associated with the first facility of MidSEFF funding. Specifically, this evaluation examines the project operations of the initial four participating banks, the 27 relevant subprojects, and the combined technical cooperation programme (project consultant and carbon market services consultant). EvD, in agreement with the Banking team, confined the scope of the evaluation to the first MidSEFF facility because the subprojects were sufficiently mature to assess outcomes and impacts. Many of the projects associated with the second facility are at early stages and preclude assessment of indicators such as carbon abatement, energy produced or saved, or incorporation of environmental processes.

Focus: findings for accountability learning and strategy

Nonetheless, this MidSEFF evaluation seeks to provide findings that contribute to corporate accountability, learning and strategy of the Bank, in particular to the implementation of other mid-sized SEFFs, and to offer lessons germane to the second MidSEFF facility, a possible third MidSEFF facility, and the Turkey Residential Energy Efficiency Financing Facility (TUREEFF), a €282.5 million sustainable energy financing facility focused on smaller residential energy efficiency projects in Turkey approved by the Bank in February 2014. As a part of its 2014 Work Programme, EvD is also currently preparing a special study related to activities associated with all of the EBRD's SEFFs. The MidSEFF evaluation is relevant to the special study regarding issues such as understanding financing demands for smaller (€0-5+ million) and midsize (€10-40 million) sustainable energy projects as well as insights for a thematic evaluation of SEFF achievements.

2) Project ratings

Table 1: EvD ratings summary

Overall performance (Highly successful, successful, partly successful, unsuccessful)	Highly Successful
Project relevance	
Additionality (Fully verified, largely verified, partly verified, not verified)	Fully Verified
Project effectiveness	
Achievement of operation objectives (Excellent, good, satisfactory, marginal, unsatisfactory, highly unsatisfactory)	Good
Company/Project financial performance (Excellent, good, satisfactory, marginal, unsatisfactory, highly unsatisfactory)	Excellent
Project efficiency	
Bank handling (Excellent, good, satisfactory, marginal, unsatisfactory, highly unsatisfactory)	Excellent
Bank investment performance (Excellent, good, satisfactory, marginal, unsatisfactory, highly unsatisfactory)	Excellent/Good
Project impact and sustainability	
Transition impact (Excellent, good, satisfactory, marginal, unsatisfactory, negative)	Good
Environmental and social performance (Excellent, good, satisfactory, marginal, unsatisfactory, highly unsatisfactory)	Excellent
Extent of environmental and social change (Outstanding, substantial, some, none/negative)	Substantial

3) Relevance

Key points

- The rationale for MidSEFF was based on the project's conformity with the Bank's Strategy for Turkey which specified the promotion of favourable market conditions for the development of energy efficiency and renewable energy instruments as an operational priority during the period 2009-2012 and alignment with the Government of Turkey priorities at the time as well as the prevailing Bank Energy Operations Policy, Financial Sector Strategy and Strategic Energy Initiative.
- MidSEFF increased coverage of a broader range of the sustainable energy finance market, while the introduction of diversified payment rights financing tallied well with the SEI2 call for new instruments to help achieve the necessary scale up.
- The terms of the MidSEFF financing were said to be additional as limited long-term financing was available to companies wanting to invest in sustainable energy projects in Turkey.
- MidSEFF was the first mid-sized sustainable energy finance facility and offered financing to the EBRD's commercial bank clients unavailable from other sources. The funds made available by the EBRD enabled longer tenors and a more attractive set of terms not available to borrowers from commercial banks.
- MidSEFF was the first SEFF to require that subprojects (not only the participating banks) complied with the performance requirements of the Banks Environmental and Social policy thereby necessitating the monitoring and approval of each subproject by the Bank's Environment & Sustainability Department (ESD). It was also the first SEFF to target the environmental and social appraisal criteria of local financial institutions' for medium-sized projects as part of the investment risk mitigation strategy.
- Additionality is *Fully Verified*.

3.1 Rationale

3.1.1 Growing energy demand

MidSEFF was consistent with the Bank's Strategy for Turkey at the time, which specified the promotion of favourable market conditions for the development of energy efficiency and renewable energy instruments as an operational priority during the period 2009 to 2012. Turkey's GDP growth rate in recent years has led to a high and accelerating demand for energy, which continues to be primarily met through imports of fossil fuels (72 per cent of its total energy and 18.9 per cent of total imports³). Thus, the country relies heavily on fossil fuels despite huge renewable energy potential. At

³ <http://resourceirena.irena.org/gateway/dashboard/index.html>

the time of MidSEFF approval, renewable sources were largely untapped; totalling about 1GW of an estimated 110 GW potential renewable energy capacity in the country excluding hydropower according to the MidSEFF Board document. Though large hydropower had historically been exploited and accounted for about 33 per cent of total generating capacity in 2010, wind and other renewables comprised only around 1 per cent of total capacity. Consequently, MidSEFF's project rationale was strengthened by its intent to support renewable energy diversification when it established a non-hydropower renewable energy target of sixty percent or greater for subprojects and participating bank portfolios as part of the transition impact benchmarks.

MidSEFF's rationale was also reinforced by the project's alignment with the government of Turkey's priorities at the time. In line with the rapidly growing economy of Turkey, energy demand growth was estimated at 7 to 8 per cent per annum, with more than 75 per cent of the country's energy imported from Russia.⁴ This energy dependence contributed adversely to Turkey's current account deficits, and left the country vulnerable to external price volatility and greater pressure from continued domestic energy demand growth.

This context was reflected in the energy sector priorities set out by the government of Turkey in Turkey's Ninth Development Plan (2007 to 2013), which stated that "It is targeted that the share of domestic and renewable energy resources in the production system will be raised to the maximum extent ..." to increase supply security, diversify energy sources and reduce exposure to external market forces and the adverse environmental effects of the use of fossil fuels.

In the latest (Tenth) Development Plan (2014 to 2018), installed capacity in the country is targeted to increase further from 58 000 MW to 78 000 MW over the period with priority to be given to the further development and scaling up of domestic and renewable energy sources in order to improve the balance of payments.

3.1.2 Government seeks diversification sought through renewables growth

Turkey enacted a renewable energy law in 2005 (Law of Utilisation of Renewable Energy Resources in Electricity Generation) which sought to incentivize the utilization of domestic renewable sources with feed-in tariffs and additional bonus for power plants consisting of locally produced components. While on mission in Turkey, EvD was informed that the system has so far been functioning well, and has been tailored to incentivise diversification of the renewable energy production further with the lower feed-in tariff rates for hydro and wind power reflecting the higher current production levels of these technologies in Turkey.

The national target for 2023 (Energy Strategy Paper, 2009) is to generate 30 per cent of total electricity from renewables, of which 20GW would come from wind, 3GW from solar and 2.5GW from geothermal. The Ministry of Energy estimated that US\$50 billion of investment would be required to reach the national renewable energy target by 2030.⁵ According to the World Bank officials interviewed, this target will be difficult to reach because of the expected energy demand growth. EvD meetings with government of Turkey counterparts broadly confirmed that expected energy demand growth is around 7 to 8 per cent a year until 2023. A representative of the Ministry of Energy indicated that Turkey had added 5000 MW of renewable energy in the past year but the percentage of electricity generated by renewables had dropped by 1 percent (from 27 to 26 percent) because of the high growth in demand.

MidSEFF's project rationale was strengthened by the intent to support renewable energy diversification, with a target for non-hydropower renewables of 60 percent or more

MidSEFF was aligned with the government's priority to increase domestic production and reduce dependence on imports and polluting fossil fuels

Energy demand is growing fast by 7 to 8 percent per year until 2023,

High demand is resulting in a reduction in the overall percentage of renewable energy in Turkey

4 Board document

5 EvD interview with Ministry of Energy and Natural Resources of Turkey.

In line with the Bank's country strategy. The EBRD signed a 2011 Sustainable Energy Action Plan with Turkey, mapping out joint efforts to develop a national regulated voluntary carbon market

3.1.3 Carbon market development

The Bank's Turkey Country Strategy articulated the Bank's intention to pursue policy dialogue in the field of sustainable energy to improve the framework for renewable energy investments. MidSEFF included the services of a Carbon Market Services Consultant that would assist carbon market development in Turkey by helping the Bank organise consultations with stakeholders, including prospective buyers and sellers, sovereign stakeholders, participating banks and sub-borrowers. Accordingly, the Sustainable Energy Action Plan was signed on 15 March 2011 by the Bank with the Turkish government, which maps out joint Bank and government efforts to develop a national regulated voluntary carbon market.

MidSEFF also continues to be relevant to the country's ongoing needs with the EBRD's latest country strategy highlighting the development of sustainable energy as a continuing Bank priority. Explanation of policy dialogue and specific actions taken may be found in Section 5.1.4 Policy Dialogue.

3.1.4 Increasing available finance

Additionally, one specific goal of the Bank's Energy Operations Policy at the time, was to increase the financing of energy efficiency and renewable energy projects to a minimum of €1 billion during the period 2006 to 2010. MidSEFF as it was approved could contribute up to 40 per cent of the target on its own. The Energy Operations Policy also specified that one of the primary methods the Bank would achieve this target would be by:

“increasing funding through, as well as further develop funding techniques for, financial intermediaries (credit lines, equity funds) to allow the Bank to finance smaller projects, particularly in energy efficiency and renewable energy, on a cost effective basis.”

This provision of long-term funding to participating banks for on-lending, to targeted priority activities such as sustainable energy was also congruent with one of the five strategic priorities of the prevailing Financial Sector Strategy.

MidSEFF was also highly relevant to the Sustainable Energy Initiative (SEI) of the Bank. The second iteration of the initiative, SEI2, was launched in 2009 setting ambitious objectives for the period 2009 to 2011 including scaling up EBRD sustainable energy financing between €3 to €5 billion.

In turn, a substantial scaling up of SEFF operations was seen as a primary way of achieving this objective, and in particular expanding geographical coverage into new markets, while also developing new target sectors/sub-sectors and new products. Although the first expansion of the SEFFs into Turkey was achieved under TURSEFF, MidSEFF increased coverage of a broader range of the sustainable energy finance market, while the introduction of diversified payment rights financing tallied very well with the SEI2 call for new instruments to help achieve the necessary scale up. Thus, there is strong rationale for MidSEFF.

Link to the EBRD's Energy Operations Policy and Financial Sector Strategy

Link to the EBRD's Sustainable Energy Initiatives I & 2

Following the initial facility, TurSEFF, MidSEFF increased coverage of the sustainable energy finance market and introduced diversified payment rights

3.2 Additionality

Fully verified

Table 2: Additionality ratings

	OPA	EvD
Additionality (Fully verified, largely verified, partly verified, not verified)	Largely Verified	Fully Verified

MidSEFF's additionality emanated from a combination of long term financing and technical expertise beneficial to both participating banks and subprojects that accelerated investment in appropriate mid-sized sustainable energy projects and elevated the environmental and social performance of these projects than would otherwise have been the case without the Bank's involvement.

Below, EvD reviews the rationale given at approval for each of the EBRD's additionality dimensions (dimensions being 1/ reasonable terms of financing, 2/ EBRD attributes and 3/ conditionalities included to achieve transition impact).

3.2.1 Reasonable terms of financing

Two reasons were given in the Board document to explain how the project fit the dimension of reasonable terms of financing:

- a) Limited sources were available for long-term lending to private sector companies for investment financing. Such financing had become even scarcer due to the impact of the financial crisis.
- b) Various barriers to financing by local banks (such as lack of technical expertise for appraisal, lack of awareness of environmental risks, negative experiences with previous renewable energy investments or additional costs in loan appraisal)

EvD review of reason a) Limited available sources of long term funding

The terms of the MidSEFF financing were said to be additional as limited long-term financing was available to companies wanting to invest in sustainable energy projects in Turkey. At the time of approval, the problem of Turkish banks not being able to attract long-term funding from the market to finance long-term assets was cited by the Board document.

- This longstanding problem is primarily a result of the structure of the Turkish financial system, wherein the majority of bank deposits are short-term with a resultant shortening of average maturities in the Turkish loan market.
- This often renders renewable energy projects less suitable for financing as their payback profiles demands relatively long-term lending. The Bank extended a number of other credit lines in Turkey in 2009 to help address this issue but with a focus on the MSME sector.
- Therefore, considering renewable energy projects' typical repayment profile, the MidSEFF facility terms were considered to be additional as the proposed credit lines had 12 years tenor with 2 year grace periods.
- The risk-return trade off achieved through the diversified payment rights structures (See Section 1. Introduction) allowed the Bank to provide the long term funding without which the project would not have been economically viable to the participating banks.

MidSEFF could provide longer tenors for sustainable energy projects

Other funding sources including self-funding

EvD would note at this point that longer term financing for private sector renewable energy projects was also available from the World Bank with for example close to US\$ 1 billion being approved for its 'Private Sector Renewable Energy and Energy Efficiency' project in Turkey in total. However, the financing from the World Bank has been limited to state-owned banks. The EBRD together with the EIB and IFC are the only IFIs channelling finance for renewables to private sector companies through primarily private sector financial institutions.

Beneficiaries of MIDSEFF often large corporations with access to other forms of

In assessing terms, EvD noted many of the subproject sponsors were large corporations with significant financial holdings and able to self-fund these investments or borrow on the commercial markets. None of the subproject sponsors with whom EvD spoke indicated that they could not have obtained the capital necessary for these projects.

For example, one project, a loan to a company for a massive multipurpose entertainment/office/shopping venue, installed LED lighting, natural light spaces where possible and advanced lighting control systems to reduce lighting energy consumption by 10,330,490 kWh/year. During EvD's visit to the venue, the sponsor confirmed it to be on track to meet the targeted energy and cost savings. However, according to the Rational Energy Utilization Plan for the project, the parent of the sub-borrower for the project is a large company with substantial assets and revenues. EvD would question the financial additionality brought by the facility's loan to a company such as this. Similarly, the project sponsor for the energy efficiency project combining 9 smaller projects was one of the biggest petrochemicals producers in Turkey. EvD conducted a site visit wherein the team learned that all the other investments in energy efficiency and renewables were self-funded and part of a multiyear plan. The company decided to take advantage of the attractive financing offered and the reputational benefit of being associated with IFIs. Had MidSEFF funds not been available, the company would have self-funded the project.

EvD's assessment:

MidSEFF was additional as the first mid-sized sustainable energy finance facility providing longer tenors and more attractive terms than commercial banks

Nonetheless, EvD assesses the terms were indeed additional. MidSEFF was the first mid-sized sustainable energy finance facility and offered financing to the EBRD's commercial bank clients unavailable from other sources. In turn, the funds made available by the EBRD enabled longer tenors and a more attractive set of terms not available to borrowers from commercial banks. The attractive tenors and terms were able to speed investment in sustainable energy projects. In one of the aforementioned cases, the team mentioned that although they would have self-funded, the energy efficiency projects would have been completed later resulting in delayed energy savings and carbon reduction. In addition, the ability to self-fund notwithstanding, the long tenors and competitive rates offered by the EBRD were sufficiently attractive and unique to convince these companies to accept extra reporting requirements and higher environmental and social standards.

EvD review of reason b) Barriers to financing created by local banks

One of the core elements of the Facility's technical cooperation was to enhance the environmental and social appraisal skills of the participating banks when financing mid-size investments in renewable energy, industrial energy efficiency and waste-to-energy. This was to be achieved through the application of best practice environmental and social impact assessment of individual investments financed under the Facility and building capacity in the participating banks with the intention of facilitating a broader application of these appraisal procedures to other renewable energy projects.

Aimed to enhance environmental and social appraisal skills of participating banks

All of the relevant business units of participating banks that were interviewed for this evaluation reported the funds provided by EBRD in combination with the pre-investment assessment performed by the project consultant helped lower the barriers toward project lending. The participating banks praised the assistance received from the project consultant throughout the entire financing process from firstly confirming the eligibility of subprojects, thereafter in performing technical, financial and environmental

appraisal including gap analysis with respect to the EBRD environmental and social standards and reviewing potential subproject energy production assessments. Importantly, the majority of the knowledge transfer was achieved through on-the-job involvement of the project consultant with the participating banks rather than in formal training settings, such as when specific potential subprojects were rejected for various reasons.

The project consultant was also to assist the participating banks to develop systematic processes for the ex-post monitoring of the performance of subprojects, such that the participating banks will be able to continue to perform these activities after the end of the project consultant contract. Upon visiting the headquarters of one bank, the EvD team was informed that as a result of this participating bank's involvement with the MidSEFF project, it had instituted an Environmental and Social Impacts Assessment Team within the Project and Acquisition Finance department (who were the MidSEFF counterparts in this participating bank) as a demonstration of their improved capacity to undertake enhanced environmental and social appraisal and monitoring of potential renewable energy investment projects and is also to sign up to the Equator principles.⁶

3.2.2 EBRD attributes

The operations staff stated that the EBRD attributes of the MIDSEFF facility were the ability to package targeted long term finance with comprehensive capacity building technical assistance and to benefit from experience in financing energy efficiency and renewable energy using financial intermediaries in 12 countries of operation.

The Bank saw SEFFs as an effective implementation modality for building the capacity of the local financial sector and to motivate energy consumers towards more rational utilisation of energy in countries of operations. At approval of MidSEFF, the Bank had already approved 14 distinct SEFFs covering 16 countries of operation including the Turkish Private Sector Sustainable Energy Finance facility ("TurSEFF"), approved in 2010. TurSEFF was a US\$284 million framework (blending US\$217.3 million provided by EBRD, US\$46.7 million by CTF and US\$20 million by JBIC) deployed through five participating banks, for on-lending for small scale energy efficiency and renewable energy investments (sub-loans of up to €5 million).

Thus, it is clear that the EBRD's experience with SEFFs and with TurSEFF in particular, placed it in a unique position to develop a facility that merged the SEFF modality with the sustainable energy financing needs in Turkey at the time. Indeed, as noted in the Board document, the rationale for focusing on mid-sized renewables was directly derived from the knowledge gained by the Bank from implementing TurSEFF. Although the national investment pipeline for mid-sized renewables appeared to be strong, there was an opportunity for the Bank to expand into the market segment for mid-sized investments, that were too large for the €5 million project size cap of TurSEFF, yet too small for direct stand-alone project financing from the Bank.

3.2.3 Conditionalities

The final additionality dimension, conditionality, was addressed in the project design by including that projects in the private sector should comply with predefined eligibility criteria and EBRD environmental and social standards.

SEFFs, by virtue of being intermediated financing, normally result in the Bank delegating responsibility for subproject appraisal and monitoring to participating banks

Participating banks reported to EvD that the project consultant helped lower barriers through knowledge transfer

Aimed to improve ex-post project monitoring

Evidence of this found with one participating bank

EBRD's past experience in this area of SEFFs a key attribute

The EBRD's past experience with SEFFs, especially in Turkey placed it in a unique position to focus on mid-sized renewables

⁶ An international risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects and is primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making.

especially environmental and social risk management. Thus previous Bank facilities were normally required to comply with only Performance Requirement 9 under the Bank's Environmental and Social policy.⁷

MIDSEFF targeted the environmental and social criteria of participating banks.

MidSEFF was the first SEFF to require that subprojects (not only the participating banks) complied with the performance requirements of the Bank's Environmental and Social policy thereby necessitating the monitoring and approval of each subproject by the Bank's Environment & Sustainability Department (ESD). It was also the first SEFF to target the environmental and social appraisal criteria of local financial institutions' for medium-sized projects as part of the investment risk mitigation strategy. Through the support of the project consultant, the Facility has been able to ensure that all the MidSEFF subprojects meet the EBRD's eligibility criteria and environmental and social performance requirements.

It required that subprojects be approved by the Bank's

Environmental and Sustainability department

EvD was able to ascertain that the participating banks generally only required the environmental and social standards by the national regulations for projects unconnected to MidSEFF. If environmental assessment studies were not compulsory, project sponsors did not perform them because they did not want to incur costs for studies that were not legal requirements. One example is that Turkish regulations do not require preparation of an environmental impact assessment for many renewable energy projects, whereas EBRD policies specify that an environmental and social impact assessment must be carried out for all hydro and wind power projects. Preparation of stakeholder action plans is another example. However, all such conditions were fulfilled for all subprojects under MidSEFF.

EvD assesses:

- The terms, conditionalities and attributes of additionality as described in the Board document held true.
- EBRD's longer-term and attractive financing likely accelerated the implementation of some sustainable energy projects and the associated positive impact sooner than if MidSEFF had not been in place.
- EBRD mobilised additional funding from EIB. Since EBRD was responsible for all deal origination, these funds would not have been mobilised without MidSEFF.
- The review and monitoring of projects by EBRD's project consultant facilitated stronger project proposals to expedite project approval and lowered project risk.
- Higher environmental and social standards were implemented in the subprojects because of EBRD's requirements.
- Approval from EBRD's Environmental and Social Department was necessary for MidSEFF project approval.
- The finance and technical cooperation package combined with the EBRD TurSEFF experience provided a unique capability to help some of the participating banks undertake less familiar projects.

⁷ All Bank projects are expected to adhere to its policy concerning environmental and social sustainability. To help clients and/or projects achieve this, the Bank has defined 10 specific PRs (of which PR9 concerns financial intermediaries) for key areas of environmental and social sustainability as listed on page 6 of the policy, which can be found here: <http://www.ebrd.com/downloads/research/policies/esp-final.pdf>

- EBRD provided additional capital in a sustainable energy market requiring greater external finance. As the World Bank representative stated, “all renewables finance in Turkey is additional.”

Thus, the rating is *Fully Verified*.

4) Effectiveness

Key points

- EvD rates the Achievement of Objectives as Good. The first two objectives, accelerating renewable energy investments and upgrading environmental standards, were achieved and the third objective, monetising carbon credits has not yet been achieved although there has been progress.
- In terms of volume of investment, MidSEFF financed more than €413 million across 27 sustainable energy projects (3 industrial energy efficiency projects and 24 renewable energy projects, including 1 waste to energy). The total amount of renewable energy capacity added as a result of MidSEFF projects at the time of this evaluation was 494 MW, corresponding to about 1.6 TWh of renewable energy production per year and annual CO2 emission reductions of 930,000 tonnes.
- MidSEFF’s attractive financing accelerated the pace of investment in numerous subprojects, MidSEFF funds provided a significant percentage of increased spending toward wind and geothermal power generation, and in a larger context, MidSEFF added funds to an energy market which is estimated to require at least 50 billion USD in external financing over the next 10 years.
- All MidSEFF projects had upgraded environmental and social standards and there was also some demonstration effect on non-MidSEFF projects financed by the participating banks or implemented by the subproject sponsors.
- None of the MidSEFF projects has yet to successfully monetise carbon credits. This objective is not yet achieved due to three limiting factors: 1) The timing of the implementation of the carbon finance programme component; 2) The participating banks still being unable to monetise the credits themselves; and 3) The still nascent market including an incomplete Monitoring Reporting and Verification (MRV) Framework for carbon credits in Turkey.

Table 3: Effectiveness ratings

	OPA	EvD
Achievement of objectives (Excellent, good, satisfactory, marginal, unsatisfactory, highly unsatisfactory)	Excellent	Good
Project financial performance (Excellent, good, satisfactory, marginal, unsatisfactory, highly unsatisfactory)	Excellent	Excellent

4.1 Achievement of objectives

As specified in the Board document approved in 2010, the three specific objectives of MidSEFF were:

- 1) Accelerating the pace of investments in renewable energy technologies, supporting a clean energy transition by reducing reliance on fossil fuels and focusing on meeting energy needs in an environmentally sustainable manner, thereby reducing GHG emissions
- 2) Upgrading the local environmental standards for sustainable energy projects and aligning those with EBRD and EU standards
- 3) Increasing private sector involvement in the development and financing of mid-sized renewable energy, waste-to-energy and industrial energy efficiency investments by assisting project sponsors and participating banks to monetise the carbon credits arising from their sustainable energy investments, thereby aiding the development of the voluntary carbon markets

These objectives were designed to address the market barriers identified at the time of its approval, which were: a lack of long term financing for midsize renewable energy investments; a shortfall in technical, financial and environmental capacity of banks to appraise midsize renewable energy investments; and the predominance of lending toward hydro energy projects in the renewable electricity mix.

EvD rates the Achievement of Objectives as *Good* as the first two objectives were achieved and the third objective has not yet been achieved although there has been progress. Achievement of each objective will be discussed in depth below.

Achieved **Objective 1: Accelerating the pace of investments in renewable energy technologies**

Renewable energy investment and production

In terms of volume of investment, MidSEFF financed more than €413 million across 27 sustainable energy projects (3 industrial energy efficiency projects and 24 renewable energy projects, including 1 waste to energy project).⁸ The total amount of renewable energy capacity added as a result of MidSEFF projects at the time of this evaluation was 494 MW, corresponding to about 1.6 TWh of renewable energy production per year and annual CO₂ emission reductions of 930,000 tonnes⁹. In addition, the 3 industrial energy efficiency projects are estimated to result in annual electricity savings of 65 GWh and annual CO₂ savings of 85,000 tonnes. In terms of performance, MidSEFF has exceeded its targets of 350 MW of renewable energy installed capacity, 1TWh of renewable energy production per year, and 800,000 tonnes of CO₂ equivalent abated per year.

The period from 2010 to 2014 has seen a huge increase in renewable power generation capacity in Turkey: according to IRENA data reported in the OPA, this had reached 19.1GW in 2011, and 22.2GW by 2012. Based on the latest available data from 2012, the contribution of MidSEFF constituted 2 percent of the total renewable

⁸ About €261 million of this total was EBRD finance, the balance being EIB. [This is explained in more detail in Section 4.2 Financial Performance.]

⁹ The total additional renewable energy capacity, annual renewable energy production and annual CO₂ emission reductions for MIDSEFF are calculated by aggregating the figures presented in the Rational Energy Utilization Plans for each of the subprojects

*MIDSEFF
contributed to 2
per cent of all
renewable power
generation in
Turkey, with
significant
contributions in
wind farm and
geothermal power*

power generation capacity in Turkey, as shown in Table 4 below. MidSEFF has made a significant contribution to the development of two renewable energy technologies in particular, accounting for 9.3 per cent of the total installed wind capacity and 14 per cent of total geothermal power generating capacity in the country.

Table 4: Installed renewable energy capacity in Turkey by technology¹⁰

Technology	Country target by 2023 (GW)	Current total (GW)*	Financed by MidSEFF (MW)	MidSEFF per cent
Wind	20	2.80	261	9.3
Solar	3	0.02	0	0
Geothermal	0.6	0.32	45	14
Hydro (run of river)	36	**4.80	186	3.9
Hydro (dam)		**14.80	0	0
Total	approx. 60	22.74	494	2.2

For most of the participating banks, renewable energy investment has grown more quickly than other traditional energy projects over the past five years. To illustrate this trend, measured in terms of capacity, well over half of one bank's energy portfolio is renewable (1.2GW out of 2GW, with MidSEFF projects accounting for 100MW of this). In the case of another, half of their €8 billion of total energy investment is in renewables (€2 billion each for hydro projects and wind projects).

Although it is clear that there has been a significant acceleration in the pace of investments in renewable energy technologies, the causal relationship linking this with MidSEFF is difficult to establish. A strong factor contributing to the greatly increased rate of investment in renewable power generation has the establishment of the feed-in tariff. Even though the Turkish feed-in tariff system is less generous than that of many EU countries, it has undeniably boosted the market and has provided an incentive for local industries.

Renewable energy has grown quickly amongst participating banks

The feed-in tariff system in Turkey has contributed strongly to growth in investment

Market Dynamics – Feed-in tariffs

During the development of MidSEFF, the most significant change in Turkey's renewable energy marketplace was the introduction in December 2010 of a system of feed-in tariffs that are not only higher than those in place previously but also differentiated according to renewable energy type. The current feed-in tariff, launched at the end of 2010, provides a purchase guarantee for the electricity generated from renewables for a period of 10 years after the plant is commissioned. The basic rates depend on the technology employed, and an additional bonus is available when the local content exceeds a certain threshold. Table 5 provides a summary of the feed-in tariffs rates and local content bonuses by technology.

Table 5: Feed-in tariffs and local content bonus payments by technology

Technology	Basic feed-in tariffs (USD¢/kWh)	Local content bonus (USD¢/kWh)
Hydro	7.3	1.0 – 2.3
Wind	7.3	0.6 – 3.7
Geothermal	10.5	0.7 – 2.7
Solar PV	13.3	0.6 – 6.7

¹⁰ Source: * Derived from interviews with the Ministry of Energy and Natural Resources and Participating Banks; ** Taken directly from the OPA

When the local content bonus is included, the maximum rate payable under the feed-in tariff system is lowest for hydro projects (US\$96 per MWh), which receive less than half as much per kWh as solar projects (US\$200/MWh for PV and US\$225/MWh for CSP). However, at the time of this evaluation, the government had only recently begun the process of granting solar licences, so development of solar power projects larger than 1 MW capacity has been held back.¹¹ The feed-in tariff payable for geothermal plant is somewhat less generous than for solar (US\$132/MWh), and the development of geothermal is further constrained by a shortage of appropriate instruments for mitigating the high exploration risks. Several Government officials expressed the desire for EBRD financial backing for a risk insurance instrument for geothermal project but such an instrument does not yet exist. Given these constraints, the technology facing the most favourable environment was probably wind; even though the feed-in tariff was not particularly generous (US\$110/MWh including local content bonus), the technology is relatively risk-free.¹² It should be noted that the local content bonus is prescribed in the Turkish legislation but was not a feature of MidSEFF. In fact, most of the sub-project sponsors with whom EvD spoke elected to utilise equipment from EU countries and the United States which also made the sponsors eligible for export credit agency financing.

In the absence of of MIDSEFF most projects sponsors interviewed would have proceeded anyway with other financing

The subproject sponsors interviewed under this evaluation generally reported that they would have implemented their projects without MidSEFF but maybe at a later stage. According to most of the sponsors interviewed (and also the project consultant), in the absence of MidSEFF most of the projects would have been financed with the sponsors' own capital or commercial loans. The Turkish market has developed sufficiently to enable sponsors to 'shop' for loans financed by MIDSEFF, the World Bank, export credit agencies and commercial banks. Some sponsors had already implemented several wind projects before MidSEFF using premium financing structures such as export credit agencies. In both of these cases, the MidSEFF portfolio is small compared to their respective total installed renewable energy capacities. For one, MidSEFF accounts for 30MW out of 600MW total renewable capacity, while another has invested around €700 million on renewable energy projects of which MidSEFF projects represent €32 million.

Generally, sponsors reported that they chose MidSEFF because it offered the best financial conditions available at the time they were seeking loans. The interest rate and longer loan tenors provided by MidSEFF have been the main attraction to sponsors, and the fact that loans were in hard currency was also an argument in favour of MidSEFF (because revenues paid under the feed-in tariff system are tied to US dollars). According to sponsors, the higher project profitability that could be achieved as a result of the lower interest rate justified the extra tasks --- documentation, environmental standards, monitoring, and so forth -- required by MidSEFF.

Competition from other multi-lateral funding for sustainable energy leading to more diverse funding market

The discussions during the evaluation field mission touched on the World Bank renewable energy and energy efficiency credit lines to state-owned banks at rates often lower than the MidSEFF loans. Several participating banks reported losing projects to the participating banks supported through the World Bank projects. Similarly, the export credit agencies of countries manufacturing renewable energy plant equipment, Germany and Denmark for wind turbines especially, offered discount import financing, and several subproject sponsors mentioned utilising those funds also. Despite the numerous entrants in the sustainable energy marketplace, the participating

¹¹ Solar plant with a capacity smaller than 1 MW may be connected to the grid without a licence, but such plant falls well below the lower size threshold for MidSEFF

¹² In particular, mapping of the wind energy resource in Turkey has been extensive and accurate.

banks were able to disburse MIDSEFF funds. In fact, it may be posited that the differing rates and instruments available from commercial banks, state banks, IFIs and external agencies are creating more a diverse market for sustainable energy borrowing.

In conclusion, EvD views this objective as *Achieved* in the context that MidSEFF financing was one of several factors contributing to accelerated investment in renewables along with an improved policy context, acceptable feed-in tariff mechanism and growing interest in renewables. To summarise, MidSEFF's attractive financing accelerated the pace of investment in numerous subprojects, MidSEFF funds provided a significant percentage of increased spending toward wind and geothermal power generation, and in a larger context, MidSEFF added funds to an energy market which is estimated to require at least US\$50 billion in external financing over the next 10 years.¹³

Objective 2: Upgrading the local environmental standards for sustainable energy projects and aligning those with EBRD and EU standards *Achieved*

This objective was addressed by the project consultant working with participating banks to mainstream the application of EBRD/EU environmental and social standards in the appraisal of sustainable energy projects. The extent to which this objective has been achieved varies considerably between participating banks, with the most notable progress being in one in particular.

Case study 1

This leading private sector bank committed a portion of funds to energy projects involving renewables, generation and infrastructure.

After a yearlong development process, the bank established an environmental and social assessment team within the project finance department as a direct result of its experience with MidSEFF. During this development, MidSEFF processes served as a model. The environmental and social assessment team aims at increasing environmental compliance aspects, resulting in the bank becoming comparable to EU banks in terms of environmental requirements (conducting an Environmental Impact Assessment and in-depth social appraisal and stakeholder action plans). Customers are willing to accept stricter environmental and social conditions because in return the customers benefit from the bank's flexibility and willingness to work with customers to identify and mitigate risks, and propose solutions. The bank's experience in project finance and enhanced environmental and social conditionalities along with its overall size and strength enable it to offer competitive terms to borrowers including non-recourse loans for wind projects.

13 From interview with Mr. Ali Murat Becerikili, Head of EU and IFI's Dept, Ministry of Energy and Natural Resources (Annex 3)

Case study 2

Another participating bank had a history of applying the environmental and social standards required by their former parent company, which were tighter than those required by national regulations. Although no longer owned by the parent, the bank continue to apply similar standards to their renewable energy lending. There was little evidence to suggest that involvement in MidSEFF has affected the level of standards applied by the bank, but they did report that their staff received significant on-the-job training in the area of environmental and social action plans through MidSEFF.

Case studies 3 and 4

The other two participating banks have not formally incorporated specific environmental and social procedures for renewable energy projects, although interviews indicated that working with MidSEFF has changed the way they perform environmental and social assessment. In the case of one bank, the exposure to working with tighter environmental and social standards gained through MidSEFF now benefits them in their relationship with other IFIs. However, no clear evidence was found to suggest that either of these banks apply improved environmental and social standards to projects outside MidSEFF.

Subproject sponsors that had received both IFI and commercial loans, indicated that the environmental and social standards would normally comply with national regulations on subprojects and only apply higher standards if it was a required condition for receipt of better than market rates from the IFIs. Nonetheless, several of the subproject sponsors indicated that they maintained similar high standards because it was attractive to international partners and/or helpful in obtaining other IFI or export credit agency financing.

EvD views this objective as *Achieved* with the view that all MidSEFF projects had upgraded environmental and social standards and there was also some demonstration effect on non-MidSEFF projects financed by the participating banks or implemented by the subproject sponsors. The main driving force that will further raise the level of environmental standards in the country will be the EU accession process as Turkey will need to align its national regulations with EU standards.

Subproject sponsors comply with national regulations and

Not achieved

Objective 3: Increasing private sector involvement in the development and financing of mid-size renewable energy, municipal waste-to-energy and industrial energy efficiency investments by assisting project sponsors and the participating banks to monetise the carbon credits arising from their sustainable energy investments, thereby aiding the development of the voluntary carbon markets

None of the MidSEFF projects has yet to successfully monetise carbon credits. This objective is not yet achieved due to three limiting factors:

The timing of the implementation of the carbon finance programme component

The implementation of the carbon component coincided with a sharp decrease in international carbon prices both in the compliance and the voluntary markets. The drop in carbon prices was due to a combination of oversupply of carbon credits (mainly from China and India) and lack of international demand for carbon credits because of the absence of agreement on emission reduction targets at the international level.

Turkey is not entitled to sell regulated credits under the Kyoto protocol and has therefore been more active in the voluntary market. Until recently, the carbon price was higher in the regulated market than in the voluntary market. In the compliance market, the price was about €12 per tonne of CO₂eq in 2010, and less than €1 in 2013.¹⁴ Price estimates in the voluntary market are difficult to provide as transactions are often undisclosed and are highly dependent on project specifics. The structural issue in Turkey is the lack of market information. According to the carbon market services consultant, there is a general lack of knowledge by market players on demand and pricing of carbon, and some of them choose to speculate on the market price. Overall in recent years, it has become less attractive for project developers to engage in a carbon action as the estimated carbon revenue from the sale of carbon credits do not compensate for the cost of registration and verification. The process of registering and verifying is costly and long: the registration process of a project takes about 6 months, and once registered, the project has to be operational for a period of 6 to 12 months to verify the emission reductions and issue the carbon credits. Some sponsors interviewed said they registered non-MidSEFF projects at a more attractive rate previous to MidSEFF (i.e. Fina Enerji agreed on a rate of €6 per tonne for wind projects; Yilsan Holding has signed agreement of €4 per tonne for projects they had registered in the past).

Carbon prices dropped from highs of €12 per tonne to €2 or less for voluntary carbon credits. The result was that now buyers tend to buy on a spot market basis, thus monetisation generally occurs 3.5 to 4 years after project signing.¹⁵

In spite of the carbon price developments, a majority of the MidSEFF projects (22 of 27) are registered as carbon projects. Once a project is implemented it is no longer possible to claim and register a carbon project.

The participating banks still being unable to monetise the credits themselves

As indicated in the Board document and reported by the participating banks themselves, the participating banks cannot engage directly in any carbon finance transaction or most carbon market services because current banking regulations prohibit this. Although banks can engage in carbon trading through a separate special purpose vehicle (SPV), the size of the market is not sufficiently large for this to be of interest at present. Interviews with participating banks indicated that one bank had explored the possibility of setting up an SPV for involvement in the carbon market but decided it was too costly and complex to currently justify given the low carbon price. Another bank has held internal meetings to discuss the prospects for entering the carbon market but has decided to wait until the market is more mature. Although the participating banks expressed interest in receiving assistance in positioning themselves in the carbon market, none of the participating banks indicated plans to

Limited by sharp decrease in international carbon prices due to oversupply and lack of demand

Turkey is only active in the voluntary market where prices are difficult to determine.

The cost of registration and verification to sell carbon credits is high

14 Source: BlueNext

15 Source: Project team/ carbon market services consultant

engage in the carbon market in the near future. The project team reports the participating banks need to develop centres of excellence to help project sponsors understand and anticipate carbon pricing.

The still nascent market including an incomplete measuring, reporting and verification framework for carbon credits in Turkey

The key to the carbon market adoption and growth is a fully implemented and enforceable measuring, reporting and verification framework. Legislation for this was introduced in Turkey in 2012. The national regulation is compatible with the regulations under the EU Emissions Trading Scheme. Since its update in May 2014, all installations will have to report emissions to the Ministry of Environment by the end of September 2014. The Ministry of the Environment reported to the carbon market services consultant a lack of capacity to implement the framework, in particular in terms of greenhouse gas management and registry. A more comprehensive greenhouse gas management and registry system could potentially regulate trading, market governance and management of accounts. Building capacity in Turkey is the most crucial constraint for establishing a robust framework.

This project objective has not yet been achieved. In total, 22 projects funded by MidSEFF are engaged in carbon market actions (carbon contract, project information note/PDD development and registration), 19 projects independently of MidSEFF and 3 with the MidSEFF carbon market services consultant. None of these projects have yet verified their emission reduction. Most of the MidSEFF projects are not sufficiently far along the project lifecycle since initial registration to be verified for carbon credits. Once the projects are verified, in 6-12 months, this objective has the potential to be achieved.

Excellent

4.2 Project financial performance

MidSEFF is a framework facility which can complicate financial analysis since there are numerous subprojects in different stages of development with different reporting mechanisms that may not provide a coherent calculation of project performance. As a result, MidSEFF did not proclaim any forward projections in terms of either company or project financial performance which precluded the established method of evaluating company and/or project financial performance on the basis of variance analysis against projections. Thus, EvD employed a number of indicators related to disbursement, participating bank financial health, loan performance, and IRR to assess financial performance.

Under the first phase of the MidSEFF facility, three participating banks were each extended credit lines of by EBRD and EIB as co-financers, while a fourth bank was extended a credit line from EBRD alone. The Bank was able to scale-up the impact of MidSEFF through a co-financing structure with EIB which enabled the EIB to participate in the Facility on a project-by-project basis. For the three participating banks with co-financing from the EBRD and the EIB, the normal procedure was to utilise 50 percent EBRD and 50 percent EIB funds for each project.

In terms of the financial performance of MidSEFF subprojects, the eligibility criteria for renewable energy subprojects set out in the facility Policy Framework stated that:

‘The financial viability of all renewable energy projects, as calculated by the project consultant, shall result in a positive Net Present Value (calculated using a discount rate of 7 per cent), a simple pay-back period below 15 years and an IRR above 7 per cent at the time of the Subproject assessment and approval for financing by the participating bank.’

EvD is able to confirm the positive financial performance of the MidSEFF facility with respect to the financial viability of the subprojects. Table 6 shows the average IRR of the total 27 subprojects financed by the facility for each of the four participating banks ranged from a low of 11 per cent (for 7 projects) to a high of 23 per cent (for 5 projects).¹⁶ The average IRR of MidSEFF subprojects (as approved) as whole was over double the originally outlined hurdle rate of 7 per cent. In fact, over half of the renewable energy subprojects had IRRs in the range of 10 to 20 per cent, with four falling into the range of 20 to 30 per cent. Of the three energy efficiency subprojects financed under MidSEFF I, two had IRRs in excess of 25 per cent, while the IRR of the third was over 14 per cent, significantly above the threshold level, which was 10 per cent for energy efficiency subprojects. Furthermore the average payback period for the MidSEFF subprojects turned out to be almost half the originally accommodated period of 15 years. Within this shorter payback period the MidSEFF portfolio is estimated to produce a cumulative net present value of over € 400 million for the four participating banks.

During interviews with the four participating banks, EvD was able to confirm that the MidSEFF portfolios of each were performing well without a single instance of a non performing loan.

Table 6: Overview of the MidSEFF portfolios of the four participating banks

Participating bank	Number of subprojects	Average IRR
1	5	23 per cent
2	7	11 per cent
3	9	13 per cent
4	6	14 per cent
Grand Total	27	15 per cent

As part of the OPA exercise, the Banking team undertook updated financial analysis of the four participating banks documenting performance over the three years since approval. Based on the reported audited annual financial statements for 2011, 2012 and 2013, the Banking team was able to conclude that all the four participating banks remained profitable over MIDSEFF's implementation with continuing balance sheet growth driven by expanding lending portfolios financed largely by customer deposits and partially by borrowings.¹⁷ The team attributes this to increases in interest earning assets; increases in market related activities and customer bases as well as improving operation efficiencies noting also that the loan portfolio qualities of all four participating banks have remained healthy.

In summary, the following project financial performance factors have been recognised:

- All MidSEFF funds have been disbursed to the participating banks
- 87 per cent of EBRD-provided MidSEFF funds were disbursed to the subprojects by the participating banks despite three of four participating banks receiving their funding in Year 2 instead of Year 1 of the facility. Only one reported some difficulty disbursing funds because of an acquisition during the project cycle resulting in a change in the project approval process.

All MIDSEFF funds disbursed to participating banks

87 per cent of EBRD MIDSEFF funds were disbursed to subprojects

¹⁶ Although calculating a simple arithmetic mean of IRRs is not strictly correct (a more complex weighted mean would be more rigorous), it is used here to give an approximate picture of how the portfolios of the different participating banks compare

¹⁷ Audited IFRS for the participating banks except for one which reported Turkish regulatory standard figures.

- 79 per cent of all MidSEFF funds including EIB funds were disbursed to subprojects although one state bank had challenges disbursing all of its funds
- Subsequent to the evaluation field mission and data reports utilised for this evaluation, one bank issued a new loan for a geothermal project with 50 per cent EBRD and 50 per cent EIB funds. As of the completion date of this evaluation, 89.8 per cent of the EBRD funds were utilised with the combined Facility disbursement being 82.2 per cent disbursed.
- MidSEFF mobilised further funds from EIB that was disbursed by participating banks to sustainable energy projects
- There are no non-performing loans and one reported underperforming loan that is expected to perform shortly. There are no foreseeable non-performing loans in the MidSEFF portfolio. The portfolio is unseasoned and most of the subprojects are still within the grace period
- The average IRR of the 27 subprojects is 15 per cent. As prescribed in the Board document, minimum IRR for renewable and waste-to-energy projects was 7 per cent and 10 per cent for energy efficiency projects
- All four participating banks remained profitable over the Facility cycle.

EvD rates project financial performance as *Excellent*.



5) Efficiency

Key points

- The quality and frequency of monitoring, reporting and general follow-up for the facility has been cited by various stakeholders as one of its key success factors, and in particular the role of the project consultant.
- The major area of improvement in design rests with the allocation of €100 million to the direct risk participation facility. None of this facility was utilised.
- The collaboration between EBRD and EIB has been seen by the team as a key contributor to the success of MidSEFF because it doubled the project's size and market impact. More fundamentally, discussions with the EIB team by EvD also confirmed that utilizing the same Policy Statement was crucial in bringing the combined influence of the two IFIs to bear on the participating banks and subproject sponsors in adopting higher standards of environmental and social performance of their mid-size renewable energy investments.
- The overall effort and expertise extended by the Bank toward all the sustainable energy projects rather than solely MidSEFF may reflect a larger, more cohesive and integrated platform of policy dialogue supported by the leverage and access provided by projects across the sustainable energy marketplace.

Table 7: Efficiency ratings

	OPA	EvD
Bank handling (Excellent, good, satisfactory, marginal, unsatisfactory, highly unsatisfactory)	Excellent	Excellent
Bank investment performance (Excellent, good, satisfactory, marginal, unsatisfactory, highly unsatisfactory)	Good	Excellent/Good

5.1 Bank handling

Excellent

5.1.1 Design and structuring

MidSEFF evolved from the Bank's experience implementing TurSEFF and, accordingly, was devised as a facility to address the gap in financial intermediation for mid-sized renewable energy investments in Turkey. The Bank undertook a demand study to confirm the Facility's offer; namely, loans with longer term tenors to meet renewable energy projects' financing needs in the range of €10 to €40 million.

The funding structure of banks in Turkey meant that the Bank could not extend lines of credit using conventional methods. Recognising that securitisation of current and future hard currency diversified payment rights flows was the established market instrument for Turkish banks to raise long-tenor funding, the team proposed that the funding

Funding structure used participating banks' existing diversified payment rights securitisation programmes

structure for the facility accordingly be in the form of investments under the participating banks' existing diversified payment rights securitisation programmes. At a 14 December 2010 Board of Directors meeting, the Resident Office noted that diversified payment rights had been successfully employed in Turkey for more than ten years. The EBRD has employed diversified payment rights multiple times since MidSEFF.

Other indicators of strong design and structure were:

- An extensive policy statement and strict eligibility criteria to ensure quality subprojects were selected.
- Retention of the same participating banks from TurSEFF for the first funding phase of MidSEFF. This allowed the Bank to benefit from the client relationships established with the participating banks through the implementation of TurSEFF.
- Retention of the same project consultant from TurSEFF, the competitively selected MWH, for MidSEFF. The team was able to maximise the efficiency of the TA grant resources by retaining the same consultancy, which allowed the project to benefit from the established working relationships between the project consultant and participating banks.
- The project consultant's explanation of the program requirements to subproject sponsors and assisting with the concomitant paperwork. Thus, program participants were well aware of monitoring and reporting requirements as well as environmental and social standards.
- Active local management by the Bank. All the participating banks reported active involvement by the TurSEFF and MidSEFF manager resident in Turkey.
- Regular engagement with the Government of Turkey as emphasised by the Ministries of Energy and Environment.

Risk participation facility for EBRD direct funding to subprojects not used, but protected against market being unready

The major area of improvement in design rests with the allocation of €100 million to the direct risk participation facility. None of this facility was utilised. The direct risk participation funds were seen as a hedge against the market not being ready for MidSEFF. The EBRD would invest directly in projects in order to demonstrate the bankability and potential of sustainable energy projects to the participating banks. Conversely, the participating banks were eager to disburse the MidSEFF funds which featured attractive financial terms. This is evidenced by the high disbursement rate for both the first and second MidSEFF facilities encompassing seven Turkish commercial banks. Moreover, the subproject sponsors were able to work with familiar Turkish banks, often long-term partners, rather than the EBRD which requires significantly more in terms of due diligence and documentation. The €100 million allocated for direct risk participation could have been used to provide more funds to Turkish banks although the Bank did achieve its expected return through strong performance of the finance facility.

Consider addressing funding gaps in €5 to €10 million range

Another minor area of improvement in design flaw may be the gap between the upper size threshold for TurSEFF (€5 million) and the lower size threshold for MidSEFF (€10 million). This gap was created to reduce any confusion between TurSEFF and MidSEFF. Although MidSEFF was willing to consider projects on an individual basis that fell below the €10 million threshold, the stakeholders may not have been sufficiently aware of this, and relevant projects may not have been forwarded. One participating bank mentioned that a next phase should include funding for projects between €5 to €10 million.

5.1.2 Monitoring and reporting

The quality and frequency of monitoring, reporting and general follow-up for the facility has been cited by various stakeholders as one of its key success factors, and in particular the role of the project consultant. Specifically the project consultant was required to measure the energy efficiency improvements and to ensure that the objectives and requirements of the facility were met, monitored during implementation and reported to the Bank on a monthly and quarterly basis through cumulative pipeline and facility reports. The project consultant provided two specific monitoring missions at subproject sites as well as checking with sub-borrowers during various stages of implementation for each subproject to assess deviations from the implementation plan and to suggest corrective actions where possible. During the field mission, EvD attended a meeting at the EBRD Resident Office in Istanbul with the US Treasury Department and the African Development Bank. US Treasury, via the Overseas Private Investment Corporation, mentioned it had an unsuccessful sustainable energy finance project with one of the MidSEFF participating banks. EBRD representatives discussed the importance of a project consultant at said meeting. The Treasury representative discussed how difficult it was to manage the project from Washington and that a project consultant ala TurSEFF and MidSEFF should be employed in their future operations.

Use of project consultant to measure progress was a key success factor

Additionally, the project consultant has been active to assist the participating banks in integrating environmental and social impact monitoring procedures in the participating banks' standard subproject performance monitoring mechanisms, although at this juncture, EvD can confirm this was only the case for one participating bank. Nevertheless, the OPA informed that all of the participating banks have been submitting Annual Environmental and Social reports and reporting on subprojects to the Bank, which have been reviewed and found satisfactory by ESD.

5.1.3 IFI cooperation

The project also demonstrated a degree of IFI Cooperation as EBRD and EIB co-financed with respect to three of the MidSEFF I participating banks on an equal basis.¹⁸ The planned collaboration allowed EIB access to the project consultant and their reports, the subprojects' assessments and the subproject information received from the subproject Sponsors. This collaboration has been seen by the team as a key contributor to the success of MidSEFF because it doubled the project's size and market impact.

Collaboration between IFIs a key contributor to success of MidSEFF, as it doubled the size and market impact.

More fundamentally, discussions with the EIB team by EvD also confirmed that utilizing the same Policy Statement was crucial in bringing the combined influence of the two IFIs to bear on the participating banks and subproject sponsors in adopting higher standards of environmental and social performance of their mid-size renewable energy investments. In fact, the EIB felt that different eligibility criteria for the two IFI's, would have rendered the facility unworkable, as the project sponsors may have sought to induce IFI competition or simply reverted to seeking funding from those participating banks implementing IFI requirements seen as easier or cheaper to comply with, hence lessening the impact of the project. The EIB indicated that the development and monitoring of these requirements was led by the EBRD.

Utilising the same policy statement was crucial in bringing combined influences of IFIs on participating banks

¹⁸ To date, EIB has co-financed three banks under MidSEFF and a further one under the MidSEFF Extension.

5.1.4 Policy dialogue

Attribution of policy dialogue to MidSEFF is difficult because of the number of sustainable energy projects in Turkey. Three SEFFS, MidSEFF, TurSEFF, TuREEFF, and myriad of other sustainable energy related projects all obliged policy dialogue on the part of the EBRD. The operations team presented the following table of associated policy dialogue initiatives in Turkey on sustainable energy and their latest status:

Table 8: Status of EBRD policy dialogue initiatives in Turkey

Policy Dialogue Area	Description	Ministries/ Institutions	Status
Resource Efficiency			
ESCO Market Potential	Preparatory work to assess the public and private sector ESCO market potential	MoENR, MoEnv	Completed
Waste to Energy Scale-up	Market potential and financing approaches for waste to energy installations	MoENR, MoEnv, MoD	Completed
Glass recycling pilot project	Launch pilot project for glass recycling in 4 municipalities and develop a country-wide strategy for waste recycling	4 Municipalities., Private sect.	Launched
Renewable Energy			
Geothermal market assessment	Development of financial risk mitigation tools to support private sector geothermal investment	MTA, MoENR	Completed
Renewable Energy Action Plan	Develop a renewable energy action plan along the lines of the EU National renewable energy action plans	MoENR, MoEU	Launched
Climate Change			
EBRD/IFC Climate Change Adaptation Study	Assessment of the economic impact of climate change in the Turkish economy and development of sectoral strategies for adaptation	MoEU, TOBB	Completed
Carbon Emission Factor Modelling	Calculate, model and disseminate the grid emission factor of Turkey	MoENR, MoEnv	Launched
National Appropriate Mitigation Actions (NAMA)	Develop sectoral NAMA plans and portfolio of potential projects for Turkey	MoEnv, MoENR	To be launched
National Energy Efficiency Action Plan	Develop an energy efficiency action plan along the lines of the EU National energy efficiency action plans	MoENR	Proposed

It is difficult to disaggregate the efforts associated with numerous projects and attribute the dialogue solely to MidSEFF. Furthermore, this study's remit is not analysis of each individual policy dialogue effort. Accordingly, the MidSEFF Board document informed that at the time, E2C2 and the Istanbul Resident Office were in discussions with the government of Turkey on a Sustainable Energy Action Plan that would frame the

Bank's activities in Turkey in this sector and provide a roadmap for cooperation with the government of Turkey.¹⁹ Viewing policy dialogue solely from the MidSEFF perspective, all the actions may seem disparate or not connected. However, the overall effort and expertise extended by the Bank in this regard may reflect a larger, more cohesive and integrated platform of policy dialogue supported by the leverage and access provided by projects across the sustainable energy marketplace. Clearly, the Bank has been engaged with the Government of Turkey and value has been derived.

The Bank has signed a memorandum of understanding with the Ministry of Energy on the Sustainable Energy Action Plan in March 2012. In addition to the work on the larger Sustainable Energy Action Plan, the MidSEFF carbon market services consultant assisted the Bank in policy dialogue with the government of Turkey in the area of carbon market development and the creation of an enabling environment for carbon credit transactions between sub-borrowers, participating banks and buyers.

During EvD's MidSEFF-related mission to Turkey, the lack of a measuring, reporting and verification framework was cited as a major obstacle to the development of the carbon market in Turkey. Officials in the Ministries of Energy and Environment specifically cited EBRD's support, via its consultants, for the measuring, reporting and verification framework and for databases tracking carbon registration.

In addition, the government representatives suggested a variety of future programmes like a renewable investment fund and project risk insurance for which they would like to cooperate with EBRD because they view the Bank as an important partner.

EvD considers that bank handling should be rated as 'Excellent' due to the points above.

The lack of a measuring, reporting and verification framework a major obstacle to carbon market development in Turkey

5.2 The EBRD's investment performance

Excellent/Good

Table 9: Projected profitability for the Bank

	At appraisal		New estimate	
	Before risk adjustment	After risk adjustment (for debt only)	Before risk adjustment	After risk adjustment (for debt only)
Cumulative Project contribution (€ million)	35.67	32.25	42.19	34.44
Internal Rate of Return (per cent)	2.0	1.8	1.9	1.5

EvD rates the EBRD's investment performance *Excellent/Good* on the basis of the OPA's assessment that the total project contribution is higher than originally appraised and the IRR percentage is estimated to fall just short of initial projections. Several factors led to this, including, US\$ disbursements to two of the four participating banks in dollars resulting in slightly (2 per cent) less than planned total facility Euro equivalent, of €293.7 million disbursed vs €300 million planned. Furthermore the

19 The specific Sustainable Energy Action Plan areas targeted included: (a) Renewable Energy Action Plan, based on the EU model, which would develop the market potential for renewable in all sectors, and define desired policy outcomes; (b) policy development to encourage heat production from renewables; (c) monitoring and adjusting feed-in tariffs to promote sustainable energy projects in the agribusiness sector, where there was a lack of incentives despite the great potential; and (d) Strategic Environmental Assessments for the renewables sector.

interest margins and commitment fees increased and the facility period was extended by one year to 14 years from 13 years. The tenor expansion was precipitated by three out of the four MidSEFF participating banks receiving their loans in year two of the facility rather than year one as planned, and the different negotiated grace periods for each of the participating banks rather than the same 2 year grace period assumed for all at appraisal. It was this expansion in the facility tenors that also caused the slight decrease in IRR to 1.9 per cent from 2 per cent at approval.

The facility contributed €42.19 million, 15 per cent more than what was expected at appraisal.

EvD acknowledges the project's improved investment performance, with cumulative project contribution (before risk adjustment) of €42.19 million being around 15 per cent more than the expected contribution at appraisal of €35.67 million and a marginally smaller but explicable IRR.

There was no return related to the €100 million allocated to the direct risk participation facility. Despite receiving no return from this facility, EvD was able to surpass or nearly achieve its corporate financial objectives based on excellent performance of the on-lending from the participating banks. However, there were allocated funds under the MidSEFF umbrella which were not productive. Thus, EvD rates Bank's investment performance as *Excellent/Good*.



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Samurlu Wind Power Project, Izmir Province, Turkey
http://www.midseff.com/factsheets_eng/samurlu.jpg

Key points

- The realised transition impact is assessed as 'Good'. Although the transition impact objective relating to the development of carbon markets was not yet achieved (demonstration of new financing activities), the impacts in relation to the scale-up and diversification of investments (demonstration of new products) and the transfer of skills were both strong.
- The biggest impacts of MidSEFF have been in geothermal and wind technologies
- Given that MidSEFF was able to achieve a broad representation of technologies in sustainable energy projects across the participating banks, the technology diversification objective can be considered fully achieved.
- In general, the mainstreaming environmental procedures benchmark seems to have been achieved, although EvD would highlight the difficulty in using terms such as 'mainstreamed' which are open to interpretation.
- At the time of this evaluation, 313 projects in total were registered in Turkey on the Verified Carbon Standard (VCS) and Gold Standard. MidSEFF financed 22 projects which engaged in carbon market activities or 7 per cent of the total; therefore MidSEFF has augmented carbon market development in the country. While Carbon Market Services objectives have yet to be achieved, the potential for future achievement and impact exists in the near term.

MidSEFF's transition impact was to be achieved through three main channels, namely:

- (i) demonstration of new products through acceleration and scale-up of sustainable energy investments, including diversification of technologies,
- (ii) demonstration of new financing mechanisms through the expansion and development of carbon markets and through
- (iii) transfer of skills through upgrade of environmental standards and capacity building for financing renewable energy investments.

Good impact was achieved through scaling up and diversifying renewable energy investments and transfer of skills

EvD rates the realised transition impact thus far as *Good*, with a *Good* potential for further transition impacts which have *Medium associated risk*.

Table 10 below summarises the ratings for transition, environmental and social impacts, as assessed in the OPA and under this evaluation. The realised transition impact is assessed as 'Good'. Although the transition impact objective relating to the development of carbon markets was not yet achieved (demonstration of new financing activities), the impacts in relation to the scale-up and diversification of investments (demonstration of new products) and the transfer of skills were both strong.

The potential transition impact is also rated as 'Good'. The scale-up and diversification of future renewable energy investment appears set to continue but the extent to which this can be attributed to MidSEFF is somewhat limited. However, there is some potential for future impacts to result from MidSEFF's work in the carbon market, and strong potential for further impacts in respect of the skills and experience gained by participating banks and project sponsors in the area of elevated environmental and social standards in subprojects.

The overall risk to these potential impacts being realised is assessed as 'Medium'. This rating encompasses the medium-to-high risk to the potential impacts of expanded carbon markets combined with a lower risk to the impacts resulting from the skills and

experience gained in applying higher environmental and social standards to sustainable energy projects. While some subproject sponsors may elect not to apply beyond Turkish environmental and social standards for non-MidSEFF projects, the expected changes in Turkish energy legislation, increasing marketability of higher environmental and social standards, and greater access to IFIs and other sources of attractive finance mitigate the risk. The impending release of solar licenses and saturation in the hydropower market encourage continued diversification. Considering the realised and potential impacts along with the risk to potential impacts, the overall transition impact is rated as 'Good'.

The environmental and social performance of the MidSEFF project overall is rated as 'Excellent', and the extent of environmental and social change resulting from the project is assessed as 'Substantial'.

Table 10: Ratings of transition, environmental and social impacts

	OPA	EvD
Realised transition impact (Excellent, good, satisfactory, marginal, unsatisfactory, negative)	Good	Good
Potential transition impact (Excellent, good, satisfactory, marginal, unsatisfactory, highly unsatisfactory)	Excellent	Good
Risk to potential transition impact (Excessive, high, medium, negligible, low)	Medium	Medium
Overall transition impact (Excellent, good, satisfactory, marginal, unsatisfactory, highly unsatisfactory)	Excellent	Good
Environmental and social impact (Excellent, good, satisfactory, marginal, unsatisfactory, highly unsatisfactory)	Excellent	Excellent
Extent of environmental and social change (Outstanding, substantial, some, none/negative)	Substantial	Substantial

5.3 Expectations of transition at approval

The expected ex-ante transition impacts for MidSEFF were as follows:

- *Demonstration effects of new products through acceleration and scale-up of sustainable energy investments, including diversification of technologies.* The outcome of this transition impact objective was increased investment in sustainable energy, particularly renewables as opposed to energy efficiency, and to see greater investment in non-hydropower investments such as wind, solar, geothermal and biomass. Financing for large hydropower projects is available in Turkey and most of the impactful hydro projects are completed or underway. EBRD finance in other renewables, geothermal and solar in particular, was to demonstrate that these technologies are bankable in Turkey and will contribute to Turkey's energy supply.
- *Demonstration effects of new financing mechanisms through the expansion and development of carbon markets.* By encouraging registration of subprojects in the voluntary carbon market and providing training to participating banks in carbon finance, MidSEFF sought to demonstrate potential carbon market revenues for sustainable energy projects and carbon

financing opportunities to participating banks and other actors in the marketplace.

- *Transfer of skills through upgrade of environmental standards and capacity building for financing renewable energy sources investments.* MidSEFF aspired to achieve transition impact through the application of EBRD environmental standards and the capacity building process delivered by the Project Consultant to implement and monitor those standards.

Each of these transition impacts was associated with a set of monitoring benchmarks. The latest benchmark ratings on MidSEFF from the Transition Impact Monitoring System (TIMS) may be found in Annex 2 along with a link to the report in [Section 8](#) of this report. Not all of the TIMS objectives are relevant to this evaluation because the scope of several objectives includes both the first and second lending facilities of the MidSEFF facility. EvD concurs with the *Good* rating for transition impact from the Office of the Chief Economist.

The transition impact benchmarks are described in the following sub-sections, along with an analysis of the extent to which each impact was realised.

5.4 EvD’s assessment of transition impact objectives

5.4.1 Demonstration effects of new products through acceleration and scale-up of sustainable energy investments, including diversification of technologies

Acceleration and scale-up of sustainable energy investments

In terms of the transition impact benchmarks connected with the acceleration and scale-up of sustainable energy investments, MidSEFF has achieved this objective. The table below describes the transition impact benchmarks related to this objective and the results achieved.

Transition Impact benchmark	Results
350 MW electricity of renewable energy capacity installed under MidSEFF.	494 MW electricity installed at the time of this evaluation, with a further 100 MW electricity in the pipeline.
Actual 1.0 TWh of electricity generated annually from MidSEFF projects.	Annual generation of 1.6 TWh from the projects in the MidSEFF portfolio.
Annual reduction in CO2 emissions from MidSEFF projects of 800kt.	Annual emission reductions of 1,015kt CO2 as a result of MidSEFF projects.

The hydro subprojects financed under MidSEFF account for only about 3 per cent of the total run-of-river hydro capacity currently installed in Turkey, or about 5 per cent of the additional capacity installed over the period since MidSEFF started. Given the high level of familiarity and experience with hydro among the participating banks, it seems likely that the existence of MidSEFF has had little impact on the rate of investment in hydropower.

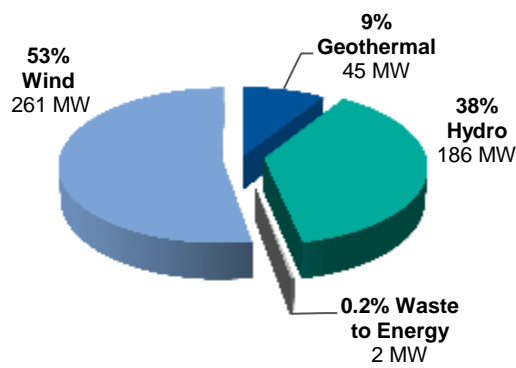
The total amount of renewable energy capacity added as a result of MidSEFF subprojects at the time of this evaluation was 494 MW, of which about 53 per cent was wind. Hydro and geothermal accounted for 38 per cent and 9 per cent respectively of

Hydro subprojects account for only about 3 per cent of river hydro capacity in Turkey

the total capacity added, with waste-to-energy making up the balance. Figure 2 shows the breakdown of renewable capacity added by technology.

Figure 2 Renewable capacity (MW) added as a result of MidSEFF I project portfolio, by technology

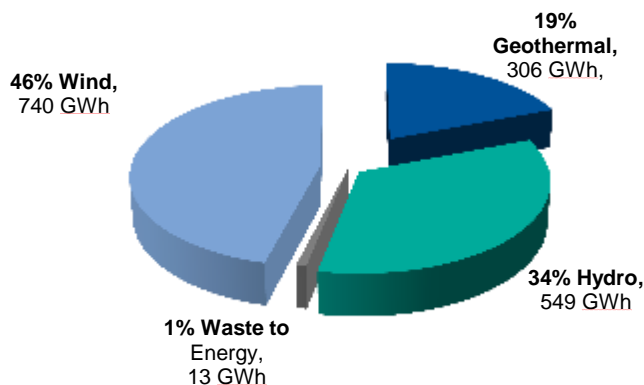
53 per cent of capacity added from MIDSEFF was in wind, with 38 percent in hydro and 9 per cent in geothermal



The transition impact monitoring benchmarks indicated an expected annual production of 1 TWh of electricity from renewable sources under MidSEFF, and an annual CO₂ emission reduction of 800 kt. In fact, the amount generated annually amounts to about 1.6 TWh, some 60 per cent above the benchmark

figure. Figure 3 shows the breakdown of annual renewable electricity generation by technology. Wind accounts for about 46 per cent of the total, with hydro producing 34 per cent, geothermal 19 per cent and waste-to-energy producing the balance.

Figure 3 Annual renewable electricity generated (GWh) from MidSEFF I portfolio, by technology



The transition impact monitoring benchmark implies that there was an expectation that the amount of CO₂ emission reduction per unit of electricity generated / saved would be 0.8 tonnes per MWh. However, the actual figures reported in the results are in the

region of 0.55 t/MWh for hydro and geothermal and also for two out of the three energy efficiency subprojects, 0.6 t/MWh for wind and 0.73 t/MWh for waste-to-energy. Only in one of the three energy efficiency projects does the CO₂ saving per unit of electricity saved exceed the level of 0.8 t/MWh implicit in the monitoring benchmarks. There would therefore appear to be a significant misalignment between the benchmark figure for electricity generation versus that for CO₂ emission reduction.

Figure 4 Annual reduction in CO₂ emissions (k tonne) from MidSEFF I portfolio, by technology

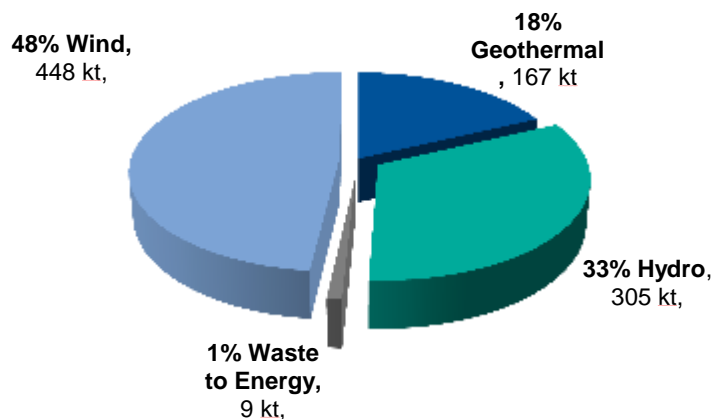


Figure 4 shows the breakdown of annual CO₂ emission reductions by technology. The total annual emission reduction resulting from renewable energy projects under MidSEFF I was 929,000 tonnes

(with a further 85,000 tonnes resulting from the energy efficiency subprojects financed). About 48 per cent of this total was accounted for by wind projects, with hydro and geothermal accounting for 33 per cent and 18 per cent respectively.

The extent to which MidSEFF has influenced the changes seen depends on the technology and participating bank in question. Two participating banks report that MidSEFF has helped them to maintain their level of renewable energy lending by providing more capital with long-term loans and lower interest rates. Without these benefits, they believe that they would have lost the projects (although it is not clear whether the project sponsors would have successfully obtained finance elsewhere). However, the larger participating banks have been able to offer more competitive loans anyway.

The biggest impacts of MidSEFF have been in geothermal and wind technologies. Wind power is seen by both project sponsors and participating banks as a relatively low risk investment, which explains why most of the MidSEFF non-hydro renewable energy projects are wind projects. As described in Section 3.1 above, the wind projects financed under MidSEFF constitute over 9 per cent of Turkey's currently installed wind power capacity. When compared with the total *additional* capacity installed since MidSEFF began, the fraction rises to about 21 per cent. However, eight out of the nine wind power projects financed under MidSEFF were through one participating bank who, as observed above, already had a very strong track record in wind power. It is therefore likely that the wind power capacity would have increased significantly even in the absence of MidSEFF.

At the time of the evaluation, only one geothermal project was financed under the first Facility, accounting for 14 per cent of the total installed capacity in this technology. A second geothermal project as noted in the Project Financial Performance section was more recently financed. Geothermal investment is still seen as a risky investment by sponsors and participating banks, particularly because of the exploration and testing costs, which can represent about 45 to 50 per cent of the total investment cost. MidSEFF does not address this major barrier directly, as it finances only the construction phase. However, one participating bank feels that MidSEFF gave them the opportunity to finance more risky technologies such as this geothermal project, so the influence of MidSEFF is more clearly apparent than in the case of hydro and wind. Furthermore, MidSEFF's contribution to encouraging this riskier technology is further evidenced by an additional geothermal power plant being financed through the second MidSEFF facility.

The biggest impacts of MIDSEFF have been in geothermal and wind technologies although it is likely that wind power capacity would have increased significantly anyway.

One participating bank feels that MIDSEFF gave them the opportunity to finance more risky geothermal projects

For solar technologies, licences for plants in excess of 1 MW have not yet been awarded, and projects of less than 1 MW would fall below the minimum size threshold for MidSEFF – hence there were no solar projects in MidSEFF portfolio. However, all participating banks are very keen to get involved in solar, and some have borrowers already approaching them in anticipation of the awarding of 600 MW of licences by the government of Turkey that is planned in the near future. Note that any solar capacity installed under future phases of MidSEFF is likely to be solar PV, since the minimum economically viable project size for concentrating solar power technology exceeds the upper threshold for MidSEFF eligibility.

There were no MidSEFF biomass or biogas projects. Biomass production in Turkey tends to be small-scale and the capital required is normally below the MidSEFF threshold. Larger biomass energy producers often act as integrators and purchase biomass from smaller suppliers.

Diversification of technologies

Prior to MidSEFF, although all of the participating banks had sustainable energy projects in their portfolios, these were predominantly hydro projects. One of the objectives of MidSEFF was therefore to promote a diversification in the technology mix of renewable energy investments. The table below describes the three transition impact benchmarks related to the technology diversification objective, and the results achieved.

Transition Impact benchmark	Results
At least 40 per cent of the subprojects will be non-hydro renewable energy technologies (such as wind, geothermal, biomass, biogas, solar or waste to energy).	Out of the 27 MidSEFF projects in the participating banks' portfolios, 11 (41 per cent) were non-hydro renewable energy. If projects are included that are still in the pipeline but with a reasonably high probability of proceeding, this fraction increases to 48 per cent (16 out of 33).
Each participating bank to further develop their portfolio of non-hydro renewable energy investments (including non-MidSEFF) to include at least two investments from wind, geothermal, biomass, biogas, solar or waste to energy.	Apart from one bank, all the participating banks achieved this from MidSEFF projects alone. The one that did not reported during the interview conducted for this evaluation that they have added both wind and geothermal projects to their portfolio since MidSEFF.
Co-financing of at least one waste-to-energy subproject under the facility.	One bank has financed a waste-to-energy project using MidSEFF funds.

A broad representation of technologies was achieved although the mix of technologies depended on the projects submitted to participating banks

Figure 5 Number of subprojects in MidSEFF I portfolio by technology type

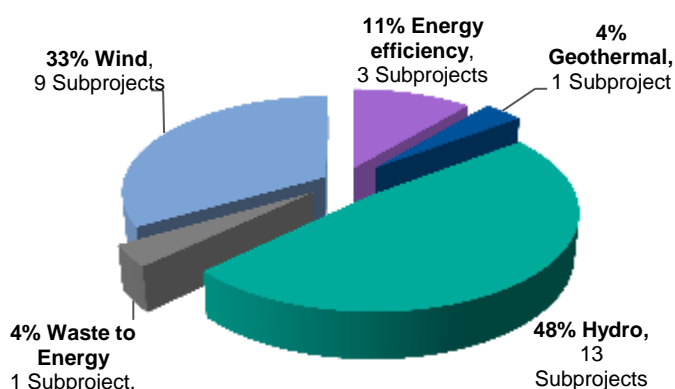


Figure 5 shows the distribution of technologies receiving MidSEFF loans by number of projects. The total number of subprojects is 27, of which 24 were renewable energy projects, with eleven of these being non-hydro.

Table 11 below shows the distribution of technology types receiving MidSEFF I loans by participating bank. This table shows subprojects already in the portfolio as well as subprojects that are either in the pipeline, or are on hold but with a realistic chance of proceeding. Two participating banks have reached the monitoring benchmark of making at least two loans to non-hydro renewable energy technologies taking into account only MidSEFF subprojects. Although one participating bank has only one non-hydro energy efficiency project within MidSEFF, they report having expanded their wind and geothermal energy portfolio outside of MidSEFF. Meanwhile, another has a new geothermal project and potentially another two.

Table 11: Number of MidSEFF I projects by technology and by participating bank

Participating bank	A	B	C	D	Total
Energy efficiency	3**				3
Geothermal		(3)		1	1(3)
Hydro	1	7(1)	1	4	13(1)
Waste-to-Energy	1				1
Wind			8(1)	1(1)	9(2)
Total	5	7(4)	9(1)	6(1)	27(6)

Source:* Main figures are portfolio subprojects, while figures in parentheses are projects that are either in the pipeline, or are on hold but with a reasonable chance of proceeding, ** One of the energy efficiency subprojects in on participating bank portfolio was associated with their waste-to-energy project, and was covered by the same loan agreement. Since the energy saving from the energy efficiency component was small relative to the energy produced from the waste-to-energy component, the whole project is regarded here as being a waste-to-energy project.

Given that MidSEFF was able to achieve a broad representation of technologies in sustainable energy projects across the participating banks, the technology diversification objective can be considered *fully achieved*. From the participating bank's perspective, the Policy Statement "requested" each participating bank "on a best effort basis" to finance at least one project from *each* of the four technology categories. Clearly the Policy Statement could not have made this a *requirement*, as the participating banks have no direct control over the mix of bankable projects being submitted to them. Presumably the intention was that the participating banks would respond to this request by seeking projects in each technology category from their clients but none of the participating banks succeeded in fulfilling this request. The participating banks approved the submitted bankable projects. The project consultant's terms of reference did not require them to push more strongly for some technologies over others – their brief was to assess the technical and financial feasibility of projects presented to them.

One clear positive example is one participating bank which financed one wind power and one geothermal project under MidSEFF – in both cases, the first time they had been involved with that technology. Although the bank reported that these projects would have been attractive to them anyway, the respective project sponsors approached the bank specifically because of MidSEFF. For the other participating banks, the role played by MidSEFF in diversifying their renewable energy portfolios is less apparent.

Ultimately, the prevailing market and regulatory conditions described above appear to have been the strongest driver for the observed trends, and it seems likely that some diversification would have occurred regardless of MidSEFF. For example, during the field mission, both bankers and subproject sponsors mentioned that the vast majority

Whilst the subprojects represented a substantial fraction of total renewable energy capacity installed during the period, future significant diversification and growth of the renewable energy market could be attributed to various other factors

of the good hydropower projects in the MidSEFF market segment had already been completed.

Even though MidSEFF was operating in an environment where a considerable amount of scale-up and diversification could be expected anyway, the subprojects supported represent a substantial fraction of the total additional renewable energy capacity installed during the period that the facility has been operating and the realised transition impact can be considered *good*. However, it may not be justifiable to attribute a significant amount of any future diversification and growth in the renewable energy market to the influence of MidSEFF.

5.4.2 Demonstration effects of new financing mechanisms through the expansion and development of carbon markets.

The table below describes the benchmarks associated with this transition impact objective, and the results obtained.

Transition Impact benchmark	Results
4 to 8 subprojects registered in the voluntary carbon market, and Verified Emissions Reduction transactions initiated.	3 subprojects registered in the voluntary carbon market through MidSEFF. No Verified Emissions Reduction transactions initiated.
Initiate the preparation of at least one carbon transaction per participating bank.	A carbon transaction was initiated with one bank from the first facility, and two were initiated with another bank from the second MidSEFF facility.

Carbon project registrations

Because MidSEFF was to target mid-sized projects, the potential for generating carbon revenues was thought to be much greater. MidSEFF is the first integrated SEFF project implemented by the EBRD involving financing projects, technical cooperation, carbon registration and carbon market services.

At the subproject level, the carbon market services consultant had regular meetings with the project consultant to identify which subprojects in the pipeline had the potential for generating carbon revenues. Three subprojects were registered in the voluntary carbon market through MidSEFF. Notably, of the twenty-seven subprojects funded under MidSEFF, twenty-two were engaged in carbon actions. Nineteen projects were engaged in some stage of the carbon registration process (carbon contract, project information note/PDD development and registration) independently of MidSEFF by utilising local or European carbon consulting companies. The internationally oriented sponsors with European investors or customers opined that carbon registration was good for business either through carbon credits or reputation enhancement. Utilising outside consultants for carbon services may be partly attributable to the existing relationships sponsors had with carbon consultants for previous projects. The Bank was careful not to distort the marketplace by attempting to recruit carbon market projects engaged with other consultants. As a result, only three projects were contracted with the carbon market services consultant with only one participating bank being from the first Facility. The carbon team reports that four more projects are currently in the pipeline.

At the time of this evaluation, 313 projects in total were registered in Turkey on the Verified Carbon Standard (VCS) and Gold Standard²⁰. MidSEFF financed 22 projects which engaged in carbon market activities or 7 per cent of the total; therefore MidSEFF has augmented carbon market development in the country.

Turkish carbon market

The carbon market is challenging in Turkey. The level of expertise among participating banks and market actors was lower than expected. A great deal of education on the part of the carbon market services consultant was necessary. At the policy level, the carbon market services consultant organised meetings with government counterparts to identify options for supporting the carbon market. The key barrier to further development of the carbon market is the unclear and low demand for carbon credits. The current relatively small demand for voluntary carbon credits is mainly driven by international demand (such as Northern West European companies buying Verified Emissions Reductions for social responsibility or carbon neutrality reasons) which is expected to remain small without international agreement on an emission reductions target.

In the case of MidSEFF, many of the projects that contracted outside consultants for carbon registration likely did so when carbon prices were significantly higher. When the carbon market services consultant began their work, the incentive for sponsors to register their projects was greatly reduced because carbon prices had fallen sharply. The long timeline involved in carbon registration engendered price speculation on the part of the sponsor.

The carbon market services consultant looked at different options that would create Turkish demand for carbon credits. One option, being developed by the consultant to stimulate demand, was the institution of Turkish Climate Certificates (TCCs). The TCC option is a voluntary scheme under which Turkish companies measure and report their carbon footprint and commit to emission reductions. Emission reductions are subsequently realized through in-house investments in energy efficiency measures and renewable energy generation. The remaining greenhouse gas emissions are offset by the company through domestic Verified Emission Reductions, making such companies carbon neutral. The carbon market services consultant conducted a face-to-face survey of 50 companies, which revealed interest in the tool (particularly among companies with EU clients and logistics companies, both of which are under pressure to reduce their carbon footprint). The carbon market services consultant also reported a general increase of awareness and climate-friendly attitudes within the private sector.

Hence although this transition impact objective has not been met, some potential exists for future impacts. The realisation of potential impacts would require: a recovery of the price of carbon to its pre-2010 levels, a significant effort at government level to create the right regulatory conditions with potential capacity building support from IFIs; and the establishment of regulations on emissions. No decisions as to emission reduction targets have been taken at the national level, and this will likely remain until 2015 when there is a new international agreement under consideration in Paris. According to the IFI and civil society interviewees, Turkey is not quite ready for a carbon trading market and the topic is not a high priority on the government's agenda. The risks of these potential transition impacts not being realised should therefore be considered high.

The key barrier to development of the carbon market is the unclear and low demand for carbon credits

A tool being explored to stimulate demand is introducing Turkish Climate Certificates for companies to report on and reduce their emissions through in-house energy efficiency measures

20 Source: <http://www.vcsprojectdatabase.org/> and <http://www.goldstandard.org/about-us/project-registry>

5.4.3 Transfer of skills through upgrade of environmental standards and capacity building for financing renewable energy investments

The table below describes the benchmarks associated with this transition impact objective, and the results obtained.

Transition Impact benchmark	Results
1. Mainstream environmental procedures in 4 participating banks.	All four participating banks have significant experience of assessing projects against environmental and social standards that are stricter than those required by national legislation. However, two banks already had significant in-house expertise in this area.
2. Carbon Market Services developed for at least one participating bank.	Limited development of Carbon Market Services in the participating banks

1/ Mainstreaming environmental procedures

The main benchmark associated with this transition impact objective was that environmental procedures would be mainstreamed in four participating banks. In general, this benchmark seems to have been achieved, although EvD would highlight the difficulty in using terms such as 'mainstreamed' which are open to interpretation. One missing element for the benchmark is a specific indicator related to mainstreaming environmental procedures. The project consultant supported the participating banks in integrating EBRD environmental procedures into their operations; although no specific formal training in this area was provided.

The field mission interviews elicited the following conclusions regarding the participating banks. For one participating bank, working with MidSEFF improved their capacity to undertake enhanced environmental and social appraisal and monitoring of potential renewable energy investment projects. For another, the support provided under MidSEFF brought added value, because their project finance departments already had some in-house expertise in renewable energy / energy efficiency projects. In the case of a third participating bank, the support was seen as being very valuable, as they do not have an in-house technical team with experience of renewable energy projects and working with subcontractors. A fourth bank was also positive about the project consultant co-operation (particularly with regard to the initial technical assessment of subprojects) and reported that involvement in MidSEFF had changed the way that they approach the assessment of environmental and social aspects of projects. Note that there was no benchmark under this transition impact objective relating to the transfer of skills to project sponsors. Yet the project achieved considerable impact in this area also.

In fact, the main recipients of the support provided by the project consultant were the subproject sponsors. The project consultant screened subprojects against the Facility eligibility criteria, prepared the environmental and social gap analysis for approval by the EBRD, supported the sponsors in the technical, financial and environmental assessment of projects (through the preparation of Rational Energy Utilization Plans), and for their environmental and social monitoring (through the ESAP). The project consultant also assisted in the stakeholder consultation process and monitored the implementation of the ESAP during the construction phase.

In general all sponsors found the project consultant's support very beneficial and were satisfied with the interaction. Regular feedback and communication between sponsors and the project consultant helped many sponsors to improve their capacity in terms of

The project consultant's support was very beneficial according to project sponsors, helping them to improve capacity

technical, financial and environmental assessment of renewable energy projects. However, for larger sponsors, the contribution was less significant because they already have substantial in-house expertise in applying environmental standards and in the identification and monitoring of risks.

2/ Carbon market services

In terms of participating banks' development of carbon market services, the participating banks have so far not been directly involved in carbon market transactions that are taking place in their portfolio and are unable to do so. Turkish banking regulation prohibits banks from engaging directly in carbon trading. Although the possibility exists for them to create special purpose vehicles for carbon trading, the costs are too great to justify given the current low carbon price.

Turkish banking regulation prohibits banks from engaging directly in carbon trading.

In discussions with the carbon market services consultant, the consultants described a process to derive relevant carbon market services for Turkey. The carbon market services consultant sponsored a two-part brainstorming session – one part with Turkish banks, the other with European banks to look at the carbon services provided and compare the profiles. According to the carbon market services consultant, carbon market services in European banks include:

- 'green' credit cards which purchase carbon offsets
- developing projects that have carbon credits via origination and project finance
- client trading via the bank making contacts to trade credits among its clients
- proprietary trading where the bank buys and sells the credits on its own account
- brokering where the bank serves as a middleman and charges a fee
- centres of excellence with knowledge to pass on to and help banking customers and the larger market

Banks participating in MidSEFF provide carbon market services by developing projects that can result in carbon registration.

By participating in MidSEFF, the participating banks, in a sense, are involved in carbon market services by virtue of developing projects that will participate in carbon registration. Looking faithfully at the objective of advancing the monetising and trading credits and other 'green' services, one participating bank was also the only bank that received formalised training to develop and operationalise their carbon market services and has developed a centre of excellence. Another, a participant in the second MidSEFF facility also received training. An attempt was made to develop a green credit card with a participating bank but was discontinued for fear of market confusion with an existing credit card affiliated with the World Wildlife Fund. Guidance documentation is being developed for participating banks to help their clients in the calculation of their carbon footprints and to have a more carbon friendly portfolio.

The potential for future impact under this objective is *good*. Although there is a tendency for some subproject sponsors and participating banks to apply only those environmental and social standards required by legislation unless particular circumstances dictate otherwise, there appears to be a genuine commitment among many key players to achieve higher standards. Optimistically, the experience gained under MidSEFF of operating at more stringent standards means that those involved will be better prepared when higher standards likely become mandatory in the future.

5.5 Environmental and social impacts

5.5.1 Environmental and social performance

Subproject sponsors under MidSEFF were required to comply with EBRD environmental and social standards, which in the case of MidSEFF were stricter than required by national regulations particularly the obligation to conduct a pre-investment environmental impact assessment and to implement a stakeholder consultation plan.

As part of MidSEFF process, the project consultant was required to conduct monitoring site visits to verify the implementation of the issues outlined in the ESAP and Rational Energy Utilization Plan, and to report on projects' progress. During the construction phase, project consultant monitors the implementation of the Environmental and Social Requirements under the MidSEFF and the measures put in place to discharge the ESAP. The potential existed for the loan to be withdrawn if this was not satisfactory (although this sanction never had to be applied). In the monitoring reports, the project consultant defined the necessary project improvements and the main deficiencies identified in relation to the ESAP requirements which were to:

- Implement a HSE management system including a/an:
 - Labour, health, and safety and working conditions plan
 - Environmental Management System
 - Emergency action plan
 - Occupational health and safety procedure
 - Risk management plan
- Obtain all permits and licenses required for the construction and operation phases of the project (such as a forestry permit for energy transmission line)
- Develop and implement a stakeholder consultation plan
- Conduct an environmental impact assessment based on international standards to assess all potential impacts on air quality, flora, fauna, water quality, landscape, and waste; and to define consequent mitigation measures.

One of MidSEFF's key impacts was to ensure subprojects meet international environmental, social, health and safety standards.

One of MidSEFF's key impacts has been to ensure that the subprojects meet international environmental, social, health and safety standards. The close cooperation between the project consultant and the subproject sponsors has brought knowledge of these international standards to sponsors, raised their awareness and built their capacity to operate to these stricter requirements. The project consultant's monitoring role has been a key part of this impact, as it involved not only checking compliance but also explaining good practices and training stakeholders.

Subprojects financed under MidSEFF are estimated to have resulted in avoidance of CO₂ worth the equivalent of 0.85 per cent of Turkey's entire energy sector emissions

The enforcement of international practices and the associated additional administrative load was not seen by sponsors as a barrier to applying for MidSEFF. The additional cost and burden were more than offset by the attractive financing rates.

5.5.2 Environmental and social change

The 27 subprojects financed under MidSEFF are estimated to result in annual avoided CO₂ emissions of 1,015 thousand tonnes, equivalent to about 0.85 per cent of Turkey's entire energy sector emissions. Reductions in the emissions of other pollutants are more difficult to estimate, as the environmental performance of Turkey's fossil-fuel generating plant varies so widely. Although Turkey has adopted environmental legislation in line with the EU Large Combustion Plant Directive, several of its lignite-fired power plants have not yet been fitted with flue-gas desulphurisation. It is therefore

likely that the MidSEFF subprojects have resulted in significant avoided emissions of SO₂, although quantification of this impact is not possible.

As outlined in Section 6.3.1 above, the impact of MidSEFF relative to the country-wide changes taking place in the renewable energy sector has been considerable. Since MidSEFF began, it has accounted for about 20 per cent of the total wind and geothermal capacity added over that period. About 14 per cent of the country's entire current geothermal energy capacity is attributable to MidSEFF. Hence MidSEFF has contributed strongly towards building the momentum needed if Turkey is to achieve its ambitious renewable energy targets.

In addition to the direct environmental changes resulting from reduced dependence on fossil fuel based power generation, MidSEFF has brought about long-lasting environmental change through the experience and improved capacity of key actors. For more advanced organisations which were familiar with carbon trading and international investors, MidSEFF has had a significant impact on their knowledge and experience and they have replicated these good practices, using some part of international standards in other projects (as well as requiring higher environmental standards from their suppliers). All of one international company's wind projects are Gold Standard Carbon Certified and another has at least one project registered for Gold Standard.

For other subproject sponsors, there has been a general increased awareness of environmental, social and health & safety issues. Several project sponsors indicated that they already had the desire to ensure high standards of environmental and social performance, but involvement in MidSEFF (specifically, the availability of the project consultant) provided them with the capability to do so. For others, there is no direct evidence that they will continue to apply higher standards more generally, and in fact some project sponsors indicated that, outside of MidSEFF, they will apply only those standards required by national legislation. However, even in these cases the experience of working within MidSEFF means that these project sponsors are better equipped to respond positively when higher standards are required in the future.

About 14 per cent of the country's entire current geothermal energy capacity is attributable to MidSEFF

MidSeff brought about long lasting environmental change through improved capacity of stakeholders to deal with environmental social and health and safety issues and increased awareness

6) Conclusions

6.1 Findings

Significant effect on Turkish renewables market

The subprojects financed under MidSEFF (in particular, the non-hydro subprojects) constitute a significant fraction of the renewable power generation capacity added in Turkey over the period of the facility. MidSEFF is responsible for about 20 per cent of the geothermal and wind capacity added since the facility has been in operation, and approximately 7 per cent of the total additional renewable power capacity. Although prevailing market forces (in particular the feed-in tariffs) were an important driver of this trend, MidSEFF nevertheless appears to have provided a significant boost to sustainable energy investments in Turkey.

More time and specific products needed for further diversification of renewable technologies

Although diversification of renewable energy technologies was a transition impact objective, there was no specific program instrument to influence the choice of renewable energy technologies other than a limitation on the percentage of hydropower projects. The majority of MidSEFF funds were allocated to hydropower and wind energy as they were the most bankable and mature renewables in the Turkish market. One participating bank specifically mentioned how comfortable they were to lend to wind projects. Financing less prevalent technologies with circumstantial limitations such as irregular issuance of licenses necessitates a more cautious approach. In order to increase deal flow for more geothermal, solar or biomass projects, a longer period for disbursement to enable greater understanding of the market, more domestically produced inputs and new financial products such as risk insurance might be necessary.

Participating bank experience in project finance is important

One of the most successful MidSEFF banks has a large project finance department with specific knowledge in renewables and significant independence to grant loans at the departmental level. Two other banks however had more difficulty disbursing funds sent projects through a central committee which hindered project approval.

Limited participating bank interest in facilitating direct risk participation

There was not one successful direct risk participation transaction and only one reported application. With a direct risk transaction limit of €10 million, the sizable participating banks would be more likely to augment MidSEFF loans with their own commercial loans rather than refer the loans to the EBRD. The direct commercial loan would be more profitable for the participating bank and require less procedures and conditions for the sub-borrower. MidSEFF's unused direct risk participation facility could be redirected to the MidSEFF on-lending facility.

Currently a limited market for local currency lending in sustainable energy

At the outset, since MidSEFF involved Turkish companies borrowing from Turkish banks to undertake projects in Turkey, EvD sought to understand if there might be a market for loans in Turkish Lira. The evaluators were consistently told: a.) most of the project equipment was imported and foreign currency was needed; b) the Feed in Tariff (feed-in tariffs) payments are calculated in US dollars and project sponsors preferred to take loans in foreign currency; and c) since most of the projects were longer in duration, the project sponsors did not want to be subject to the volatility of the Lira.

Presence and role of project consultant is critical.

The quality of the project consultant, including their thorough understanding of the local context, was a key element of success. This was a finding in the recent SLOVSEFF evaluation also. The free technical assistance provided to both sponsors and participating banks, coupled with regular communication and a good working relationship, all contributed to increasing the participating banks' comfort in lending to renewable energy projects. The participating banks appreciated the work the project consultant undertook to pre-screen subproject sponsors and to prepare the sponsors for the loan application process. The sponsors appreciated the guidance in the preparation of documents and the monitoring visits which were generally not viewed as invasions or inspections but as opportunities to exchange knowledge.

Timing of the carbon market component precluded fulfilment of project objectives.

To date, the carbon component has yet to fulfil the objectives established at project origination. This is mainly due to circumstances external to MidSEFF and has its origins in the collapse in carbon prices and the length of the registration process. The carbon market services consultant's work on the policy level was useful and well-received by the Ministry of Environment. The creation of a Turkish Climate Certificate is an inventive tool to create carbon market demand and may attract companies engaged in international trade. In the words of the local carbon consultant, when emissions/ greenhouse gas management becomes more important in Turkey either through adoption of EU regulations or other regulatory instrument, the market demand for carbon credits will grow.

Inclusion of energy efficiency was of limited additionality

In most cases, the capital needed for energy efficiency projects is below the MidSEFF threshold. The MidSEFF energy efficiency projects were undertaken by well-financed companies who acknowledged that they would have been able to finance these projects comfortably from their own resources, and the energy saving per unit of investment was relatively modest compared with the renewable energy subprojects²¹. In two sponsor energy efficiency projects, companies decided to take advantage of attractive financing offered by their banks to complete long-planned projects. Although an interesting aside is that one of the subsidiaries manufactures household electrical appliances. The manufacturer branched into the production of LED lighting around the same time period as the Property Group procured the energy efficient LED lighting for the MidSEFF shopping centre project. Thus, MidSEFF may have played an indirect role in spurring local production of LED lighting in Turkey.

21 See Annex 1

Importance of brand

The visibility and reputation of the MidSEFF 'brand' is considered very high among the participating banks. During interviews, the participating banks and subprojects talked of requesting a 'MidSEFF loan.' All the participating banks regarded their involvement with MidSEFF very positively, and there was no significant dissatisfaction with the design or operation of the facility. The EBRD brand was also quite important. All the participating banks expressed that being associated with EBRD was an important motivator to participate in MidSEFF as well as a desire to be involved in any future phases of the facility. Moreover, several of the larger subproject sponsors, Petkim in particular, who were able to self-finance the projects mentioned that part of the motivation of taking the MidSEFF loan was to be associated with EBRD which might prove useful for future transactions.

Incentives not needed for MidSEFF to succeed.

MidSEFF did not include any system of incentive payments, and none of the stakeholders interviewed indicated that incentive payments would have been desirable or necessary. The nature of these larger projects conducted by well-capitalised sponsors with an aim at ongoing revenues and profits is much different than small businesses or a group of individuals investing essential funds into small-scale energy efficiency projects. The impetus to invest in renewable energy provided by the feed-in tariffs's price guarantee was probably stronger than could have been achieved by any feasible system of incentive payments. However, EvD was able to ascertain that the government of Turkey offers a number of incentives for investments in sustainable energy projects. One grant programme offers reimbursement of the cost of energy efficiency audits and 30 per cent of the investments upon verification of targets being met after one year. In general, the MidSEFF participants did not apply for these incentives. Perhaps in future programmes, the TC could include marketing the government programmes and assisting projects with applications.

An outreach and marketing component could promote uptake and diversification

The quality of the project consultant and their strong local knowledge proved to be critical to the success of MidSEFF. However, in the case of other SEFF frameworks (such as SlovSEFF, BEERECL, REECL, EE-EEFF and RoSEFF.), the scope of work for the respective project consultants included outreach and marketing efforts that appear to have been valuable for informing potential sub-borrowers about the facility, and driving the process of generating a project pipeline. While the project consultant did act as a de facto outreach and marketing consultant, including an outreach and marketing component in the project consultant's scope of work, as it was the case in other SEFFs, could have assisted in uptake of the funds by the subprojects more quickly, and attraction of more non-hydro, non-wind projects.

Finally, while not a specific MidSEFF finding, an additional observation is that the MidSEFF evaluation may be somewhat premature. When deciding the candidate projects for evaluation, EvD and the relevant Banking team mutually agree on projects after discussions regarding matters such as timing, workload, balance, potential interest and strategic relevance. MidSEFF is an excellent project choice but waiting one more year would have enabled EvD to evaluate the lending to all seven MidSEFF participating banks and a further developed carbon market component likely including monetisation.

6.2 Recommendations

The recommendations aiming at improving the performance of ongoing and future midsize sustainable energy lending projects in Turkey are summarized below:

6.2.1 Project structuring

1. Avoid allocating funds for direct risk participation given comparable circumstances.

In addition to MidSEFF, the Bank allocated funds for direct risk participation in other projects in Turkey including the second MIDSEFF facility. However, as at the time of this evaluation, not only had the MidSEFF participating banks not signed a risk participation agreement but only one risk participation agreement was signed with the Industrial Development Bank of Turkey (TSKB) under the Turkey Agribusiness SME Financing Facility (TurAFF). In retrospect, where opportunities to co-finance with the EBRD have existed, the MidSEFF participating banks have been predisposed to finance with their own funds rather than refer to EBRD to assist through direct participation and its associated financial and time costs. Thus considering the MidSEFF experience and the Bank's larger experience in Turkey as a COO over the past few years, EvD posits that greater circumspection should be applied before including direct risk participation components in similar sustainable energy finance facilities in Turkey given comparable circumstances. There may be changes to the current sustainable energy market conditions, financing terms, counterparties, technologies, etc. that would warrant future direct risk participation in some form.

2. Introduce market/industry benchmarks, norms or standards related to energy production and/or carbon reduction.

MidSEFF successfully achieved its stated objectives related to the production of renewable energy capacity and carbon reduction. Comparison of project outputs and outcomes to norms is an essential component of project evaluations and enhances evaluability; and in the case of MidSEFF, facilitates assessment of value for money and the ambition of output objectives. In future projects, a MidSEFF III in particular, it would be important to understand if the resultant output reflects the level of financial input and technical expertise invested such as renewable capacity added per unit of investment. As each project varies, this recommendation does not seek to advocate specific standards. Rather, a future project should strive to introduce appropriate indicators based on norms, standards or benchmarks from the local market, previous transaction history, other IFIs, established organizations like the EU, etc.

6.2.2 Additionality and transition impact

3. Select energy efficiency projects with clear and evident additionality and demonstration effect.

MidSEFF was conceived as a way of filling the gap between the upper threshold for TurSEFF and the lowest threshold for direct lending by the EBRD. While a great many renewable energy projects fall within the MidSEFF size range, only the largest energy efficiency projects were eligible for MidSEFF financing. The MidSEFF energy efficiency sub-projects at the time of evaluation were not highly additional and offered limited potential transition impact with large, well-resourced sponsors. The project team reports the Batisoke energy efficiency project from the second MidSEFF phase achieves higher levels of additionality and transition impact. Thus, in order to assure that funding energy efficiency projects over renewable energy projects brings sufficient additionality and transition impact, the potential eligibility of large-scale energy efficiency projects should be specifically assessed on a case-by-case basis for additionality and demonstration effect.

-
- 4. Limit hydropower and wind projects, and when hydro and wind projects are undertaken, be accompanied by enhanced environmental and social standards.**

The Turkish markets for hydropower and wind appeared to be relatively mature yet these two technologies comprised 78 per cent of lending under MIDSEFF I. In discussions with banks and project sponsors, EvD recognised a growing belief that the hydropower market was reaching saturation plus commercial financing is clearly available. Regarding wind power projects, the more effective regulatory environment, predictability of energy outputs, bank experience with wind projects, suitable feed-in tariffs, and deals offered by wind power equipment manufacturers facilitate finance of wind projects. In one Board document and Directors' Advisers' Questions for Turkey: Mid-Size Sustainable Energy Financing Facility, limits on future hydropower and wind projects were mentioned. Greater project focus on geothermal and other technologies may facilitate greater additionality, bankability of riskier technologies, and diversification of energy sources. Nonetheless, considering Turkey's rapidly increasing demand for energy and the uncertainty regarding the market size of renewable alternatives to hydro and wind power, a recommendation to exclude hydro or wind projects is unjustified. A future project in Turkey might limit a percentage of both hydro and wind projects to ensure the promotion of projects for which commercial financing is less available. Enhanced environmental and social standards would serve to maximise the additionality and transition impact of the hydro and wind projects, and aim to widen the acceptance of higher standards for such projects at participating banks. Market research would be needed to identify the amount of funding to be made available with the pipeline of geothermal, solar, waste-to-energy, biomass or other projects.

6.2.3 Policy dialogue opportunities

- 5. Feature solar licensing as a focus of future policy dialogue.**

According to one of the subproject sponsors, the Government of Turkey is accepting bids for solar power operating licenses totalling 600 MW but the bids total 8000 MW. The license application grant process is irregular and lengthy. Since Turkey seeks additional renewable energy and there are licensing fees associated with the solar power projects, the Government should have incentives to grant solar power licenses. EBRD efforts to facilitate additional solar licenses could enable greater diversification of technologies and enhance utilisation of consolidated solar power.

- 6. Focus carbon market policy dialogue on greenhouse gas management and a measuring, reporting and verification framework.**

The current context of the carbon market is unstable not only in Turkey but worldwide. It will hopefully stabilize in the future, in particular after the COP21 in 2015, but in the meantime, EBRD support on the carbon area should focus on capacity building at the policy level. Monetisation of carbon credits will be catalysed by emphasis on carbon reduction in Turkey. Public servants from the Ministry of Environment clearly requested more capacity building on carbon aspects such as the GHG management and registry and to increase their capacity to implement a measuring, reporting and verification framework.

7) Sources

Internal bank documents including: Operation Performance Assessment (self-assessment), Board minutes, Board reports, Directors' Advisors' Questions, Operations Committee minutes, Credit department notes, Office of the Chief Economist comments, credit review summaries, monitoring reports and transition impact monitoring system reports.

MidSEFF webpages: <http://www.midseff.com/index.php>



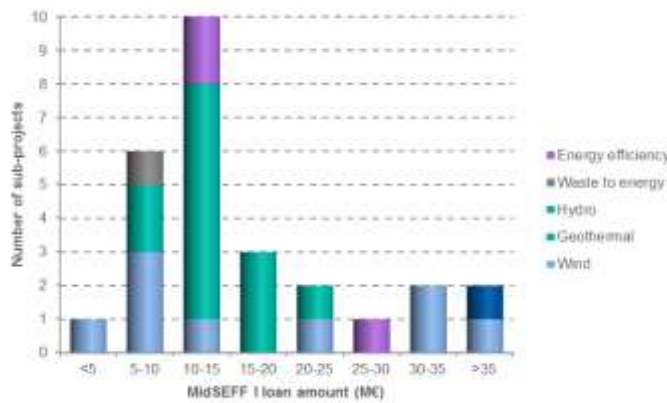
© EBRD/Volker Ahlemeyer
Soma Wind Farm, Manisa Province, Turkey

Annex 1 Additional analysis of MidSEFF subprojects

Annex 1 provides additional analysis on how MidSEFF funds were spent and results related to capacity added, electricity saved, and CO2 reduction. This information is not specific to the project objectives but provides insight into the relative efficiency of MidSEFF investments.

Figure 6 below shows the distribution of MidSEFF I loan sizes by technology. Over one-third of sub-loans are in the range of €10 to €15 million, but a significant number (7 loans in total, of which 4 were for wind subprojects) were below the original lower loan size threshold of €10 million. Loan sizes for hydro projects tend to be clustered in the €10-20 million range, while loans for wind projects have covered a very wide range of amounts from €4.5 million almost up to the upper threshold for MidSEFF of €40 million.

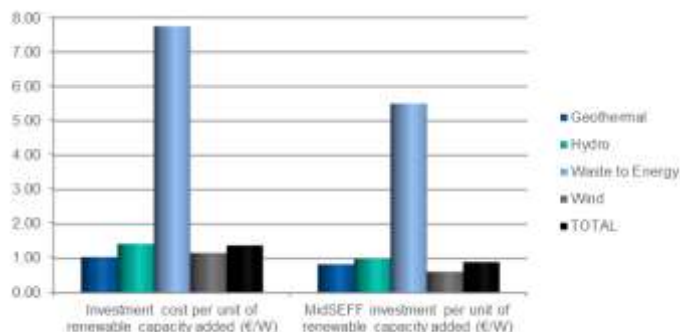
Figure 6 Distribution of MidSEFF I subproject loan amounts by technology



In terms of investment cost per unit of capacity, waste-to-energy is by far the most expensive of the technologies invested in under MidSEFF. The single waste-to-energy project cost almost € 8 per watt of capacity in total investment cost, and used about €5.5 of MidSEFF finance per

watt. All of the other technologies cost between €1-1.5 per watt of capacity, and used between €0.6 and €1.05 of MidSEFF investment per watt of capacity. Figure 7 shows the total and MidSEFF investment cost per unit of new renewable capacity.

Figure 7 Total investment cost and MidSEFF investment per unit of renewable capacity added



The single geothermal project currently in the MidSEFF I portfolio produced by far the biggest impact in terms of annual electricity generation and annual avoided CO₂ emissions per unit of investment.

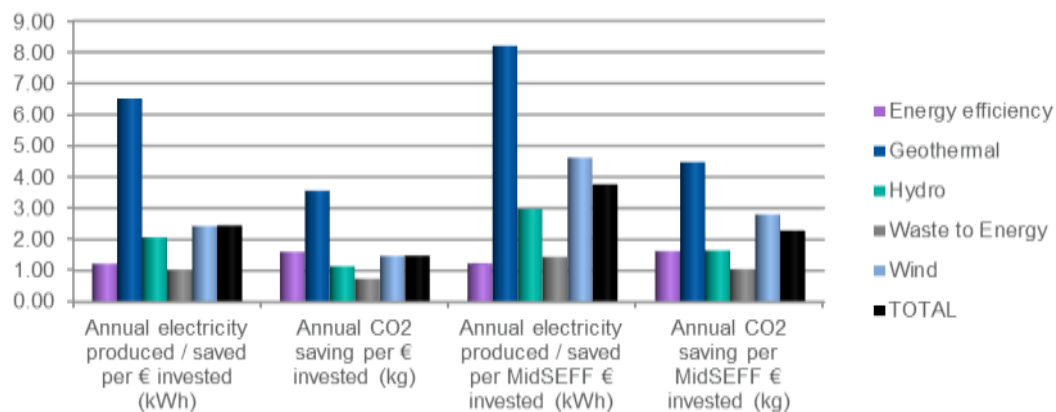
This project produces about 6.5 kWh annually for every Euro invested, which is about 2.7 times higher than wind, the next highest technology. When measured in terms of electricity generated per unit of MidSEFF finance, its position is somewhat less dominant, a reflection of the fact that fraction of the total geothermal subproject cost met with MidSEFF finance was greater than was typical for other subprojects. Table A-

1 and Figure 8 below show the impact per Euro invested in terms of electricity produced / saved and CO₂ emission reduction, broken down by technology.

Table 12: Electricity produced / saved and CO₂ emission reduction per unit of investment

	Electricity produced / saved annually (kWh)		Annual CO ₂ emission reduction (kg)	
	per total € invested	per MidSEFF € invested	per total € invested	per MidSEFF € invested
Energy efficiency	1.23	1.24	1.61	1.62
Geothermal	6.51	8.20	3.56	4.48
Hydro	2.07	2.97	1.15	1.65
Waste-to-Energy	1.02	1.44	0.75	1.05
Wind	2.43	4.62	1.47	2.80
Total	2.45	3.77	1.49	2.29

Figure 8 Annual electricity production / saving (kWh) and annual CO₂ emissions reduction (kg) per Euro of total investment and per Euro of MidSEFF I investment, by technology



Annex 2 Transition impact monitoring system for MidSEFF

Table 12 displays the most recent TIMS update from October 2013, where MidSEFF's transition impact overall was rated *Good*. In the "Monitoring Indicators" section, the "Status" comes directly from the TIMS report, and where relevant "Comments" are furnished by EvD to provide an updated status. Most of the transition impact benchmarks were achieved with the most success in the area of the performance related to diversification of renewable technologies.

Table 13: Transition impact benchmarks - 15 October 2013 TIMS Ratings by the Office of the Chief Economist

TIMS ratings				
	Original	Previous	New	
Transition impact potential rating	Good	Good	Good	
Transition impact risk	Medium	Medium	Medium	
Monitoring indicators				
Objective	Benchmark	Implementation timing	Status	Comment
1 Demonstration effects of new products	1.1-1.5 Apply to both of MidSEFF's funding phases and are out of scope. Benchmarks 1.6-1.9 are within scope.			
	1.6 At least 40 per cent of the subprojects will be from non- Hydro Electric Power Plant renewable energy source technologies (such as wind, geothermal, biomass, biogas, solar or waste-to-energy projects)	End of 2013	Achieved	As of the first half of 2013, 15 out of the 27 subprojects were non- Hydro Electric Power Plant renewable energy source (55.5 per cent): 3 energy efficiency, 1 waste to energy, 9 wind, 2 geothermal
	1.7 Each participating bank to further develop their portfolio of non- Hydro Electric Power Plant renewable energy source investments, including from financing sources other than the Facility, such portfolio to include at least two investments from the following non- Hydro Electric Power Plant technologies: wind, geothermal, biomass, biogas, solar or waste-to-energy projects.	2014 onwards	On Track	Three out of first 4 participating banks have at least two non-Hydro Electric Power Plant project in their portfolio

Continued..

Monitoring indicators				
Objective	Benchmark	Implementation timing	Status	Comment
	1.8 Co-financing of at least 1 waste to energy Subproject under the Facility	End of 2012	Achieved	One project financed two waste-to-energy plants where biogas is produced from waste water coming from treatment of agricultural products.
	1.9 Expected renewable energy produced and CO2 emissions savings: 1) 350 MW electricity of renewable energy installed capacity; 2) 1.0 TWh of renewable energy production per year; 3) 800,000 tonnes of CO2 equivalent abated per annum	2012 onwards	Achieved	- 464 MW electricity of renewable energy installed capacity - 1557 TWh of renewable energy production/ year - 906 kilo tonnes of CO2/ year
2 Demonstration effects of new financing activities	2.1-2.2 Apply to both of MidSEFF's funding phases and are out of scope. Benchmarks 2.3-2.4 are within scope.			
	2.3 4 - 8 projects registered in the voluntary carbon market and Verified Emissions Reduction transactions initiated	2012 onwards	Achieved	17 projects at different level of carbon development (1 in prep. under MidSEFF)
	2.4 Initiate the preparation of at least 1 carbon transaction per participating bank	End of 2011	N/A	There was no entry for this item.
3 Transfer of skills	3.1-3.2 Apply to both of MidSEFF's funding phases and are out of scope. Benchmarks 3.3-3.4 are within scope.			

Continued..

Monitoring indicators				
Objective	Benchmark	Implementation timing	Status	Comment
	3.3 Mainstream environmental procedures in 4 participating banks	End of 2011	Achieved	The relationship with participating banks is solid and well-established. The participating bank teams are frequently contacting the Consultant and often do a pre-selection of eligible projects. The participating banks show a good comprehension of EU-EBRD environmental criteria and of the Mid-SEFF process.
	3.4 Carbon Market Services developed for at least 1 participating bank	End of 2011	Achieved (Note: For purposes of this evaluation, this would be <i>Partly Achieved</i> . One participating bank is not in the scope of this evaluation and another two have yet to develop Carbon Market Services though they have explored them and the Carbon Market Services Consultants have provided training and or support services)	One participating bank and possibly two others. (Note: In EvD's discussions with Climate Focus, it was indicated that a further two banks had already received training related to Carbon Market Services and a further two are slated to do so).

Annex 3 MidSEFF evaluation meeting participants

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Annex 4 Map of MIDSEFF I subprojects



Annex 5 Management comments

	Recommendation	Management response	Management Comment
1	<i>Avoid allocating funds for direct risk participation given comparable circumstances.</i>	Agree	No Action Plan is required as this recommendation will be incorporated in the design of a new MidSEFF.
2	<i>Introduce market/industry benchmarks, norms or standards related to energy production and/or carbon reduction.</i>	Agree	No Action Plan is required as this recommendation will be incorporated in the design of a new MidSEFF.
3	<i>Select energy efficiency projects with clear and evident additionality and demonstration effect.</i>	Agree	No Action Plan is required as this recommendation will be incorporated in the design of a new MidSEFF.
4	<i>Limit hydropower and wind projects, and when hydro and wind projects are undertaken, be accompanied by enhanced environmental and social standards.</i>	Agree	No Action Plan is required as this recommendation will be incorporated in the design of a new MidSEFF.
5	<i>Feature solar licensing as a focus of policy dialogue.</i>	Agree	No Action Plan is required as the Bank has supported the government of Turkey in developing a National Renewable Energy Action Plan which includes an increase in the maximum size for unlicensed projects to 5 MW (from 1 MW). The Turkish regulator granted 242 MW of solar licences in February 2015.
6	<i>Focus carbon market policy dialogue on greenhouse gas management and a measuring, reporting and verification framework.</i>	Agree	No Action Plan is required as the current policy dialogue includes the development of a Turkish Carbon Certificate to support an increase in demand for local carbon credits. The Bank is collaborating with key stakeholders to design such mechanism and mainstream it across the Turkish industry as a certificate of environmental excellence.

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