

TUNISIA  
EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR

**GEF Project Document**

Middle East and North Africa Region  
MNSIF

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**Project Financing Data**

Loan       Credit       Grant       Guarantee       Other: GEF pilot phase for energy efficiency and partial guarantee fund

**For Loans/Credits/Others:**

**Amount (US\$m):**

Financing Plan (US\$m):	Source	Local	Foreign	Total
BORROWER/RECIPIENT		4.90	0.00	4.90
GLOBAL ENVIRONMENT FACILITY		0.00	8.50	8.50
LOCAL SOURCES OF BORROWING COUNTRY		18.40	0.00	18.40
<b>Total:</b>		23.30	8.50	31.80

**Borrower/Recipient:** GOVERNMENT OF TUNISIA (GOT)

**Responsible agency:** AGENCE NATIONALE POUR LA MAITRISE DE L'ENER(ANME)/STE TUN DE GARANTIE (SOTUGAR)

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**Estimated Disbursements ( Bank FY/US\$m):**

FY	2005	2006	2007	2008	2009				
<b>Annual</b>	1.02	1.55	1.85	2.03	2.05				
<b>Cumulative</b>	1.02	2.57	4.42	6.45	8.50				

**Project implementation period:** 2005-2009

**Expected effectiveness date:** 11/30/2004      **Expected closing date:** 12/31/2009

## A. Project Development Objective

### 1. Project development objective: (see Annex 1)

The main objective of the proposed project is to overcome barriers to the development of a sustainable market for energy efficiency products. In addition to the removal of institutional and capacity-related barriers, the project aims to establish energy services companies (ESCOs) as the main vehicle to guarantee a sustainable energy efficiency market. Based on current levels of energy consumption, energy efficiency measures would be evenly split between heavy and light industries. The single biggest energy consumer is the cement production sector, which would provide the largest reduction potential.

The proposed project consists of three main components: (a) a dedicated GEF pilot phase for energy efficiency investments; (b) a GEF Partial Guarantee Fund, aimed at enabling the establishment of ESCOs; and (c) technical assistance for building the capacity of ESCO candidates and financial institutions, and for testing newly introduced energy efficiency products. Institutional participants in the capacity building program would include the Ministry of Industry and Energy (MOIE); the Tunisian National Agency for Rational Use of Energy (ANME); the *Bureau de Mise à Niveau* (BMN); and *La Société Tunisienne de Garantie* (SOTUGAR). Technical centers would assist in training and awareness building activities. The three components are described in more detail below. Figure 1 summarizes the overall structure of the project.

### 2. Key performance indicators: (see Annex 1)

Key outcome-level performance indicators, used as the basis for Development Objective (DO) ratings, would be monitored during supervision. These indicators would include:

- Establishment of a sustainable energy efficiency market for Tunisian industry; and
- Increased gross investment in energy efficiency in Tunisian industry, totaling US\$25 million equivalent over the five-year implementation period.

Key output-level performance indicators, used as the basis of Implementation Progress (IP) ratings, would also be monitored during supervision. These indicators would include:

- Greenhouse gas emissions are reduced by 127,284 tons of CO<sub>2</sub> per year and 636,422 tons of CO<sub>2</sub> over the project lifetime, as result of energy-efficiency investments;
- Quantified energy savings reach at least 10 ktoe per year (average yearly savings of 33 ktoe are expected);
- At least 125 demonstration investments are generated and/or are reaching financial closure;
- At least 3 ESCOs are operational;
- At least 30 companies have ESCO-mediated projects;
- At least 90 percent of the Partial Guarantee Fund has been committed;
- A minimum of 20 percent of energy efficiency projects in the industrial sector are using the Partial Guarantee Facility;
- Energy efficiency programs established in MOIE and/or BMN and/or ANME are adopted by industry;
- At least two Technical Centers develop a monitoring and verification procedure for energy efficiency investments;

- Levels of co-financing for ESCOs and industry by commercial banks exceed 5 percent of all energy efficiency investments under the project.

These indicators would be further developed and agreed upon with MOIE and other stakeholders.

## **B. Strategic Context**

### **1. Sector-related Country Assistance Strategy (CAS) goal supported by the project: (see Annex 1)**

**Document number:** 20161-TN **Date of latest CAS discussion:** 04/27/2000

The project is fully in line with the latest Tunisian Country Assistance Strategy (CAS), which emphasizes the need to support the Government's efforts in the energy sector, with a focus on energy efficiency and renewable energies. The CAS refers to energy efficiency as one of the tools to meet increasing energy demand in Tunisia, while improving quality of life and protecting the environment (CAS Annex B9a, page 18).

#### **1a. Global Operational strategy/Program objective addressed by the project:**

The project's global environmental objective is to achieve a deeper penetration of sustainable commercial energy-efficiency investment activities in Tunisia's industrial sector, by removing barriers and lowering transaction costs. The project is consistent with the objective of the GEF's Operational Program (OP) 5, "Removal of Barriers to Energy Efficiency and Energy Conservation." Section 5.7 of GEF's OP includes support for activities that demonstrate local, national, and global benefits through the removal of barriers, leading to sustainable, "win-win" results.

### **2. Main sector issues and Government strategy:**

#### **Energy balance and intensity**

With an energy intensity of 0.4 toe/US\$1,000 in 2002, the Tunisian economy is less energy efficient than its neighbor, Morocco (0.29 toe/US\$1,000), and almost equivalent in efficiency to its oil-producing neighbors, Algeria (0.37 toe/US\$1,000) and Libya (0.52 toe/US\$1,000). However, Tunisia is highly inefficient when compared with the European countries, with which it would be directly competing once the free-trade zone becomes effective in 2010. For example, Germany has an energy intensity of 0.18 toe/US\$1,000, and France has an energy intensity of 0.19 toe/US\$1,000.

Nevertheless, energy intensity in the Tunisian industrial, electricity, and construction sectors decreased overall by 20 percent over the last 12 years, due mainly to: (a) the trend toward new industries that are less energy intensive; (b) the construction of more efficient electricity generating stations (combined cycle and bigger natural gas turbine units); and (c) the introduction of more efficient technologies in the construction sector (cement and brick manufacturing plants). Based on the assumption of a 3 to 5 percent annual reduction of energy use in the industrial sector in the 10 years to come, the potential savings within the sector would be around US\$140 million annually (ANME, 2002). Elsewhere, Tunisia's potential market for energy-efficient technologies in the industrial sector has been estimated at US\$76 to 182 million per year in investment value (Econoler, 2002).

Tunisia has 100 percent electrification in urban areas and 91 percent in rural areas, with good quality of service and unsubsidized yet affordable electricity prices. In the Tunisian context, rising energy prices and the affordability of energy services, combined with the desire to comply with international environmental standards, provide inherent incentives to promote and implement energy-efficiency investments and enhance

their sustainability once the barriers to energy efficiency have been removed. Current electricity tariffs in Tunisia are about average for the MENA region. Prices are higher in Tunisia than in Algeria, Egypt, Iran, Saudi Arabia, and Syria, which provide substantial subsidies; but lower than in Morocco, Lebanon and Yemen. In 2002, large industry in Tunisia was paying around 4.6 US cents per kWh, and households were paying around 6.5 US cents per kWh.

### **Government strategy**

In anticipation of a deficit in the country's energy balance and a more competitive environment with the opening of the European Free-Trade Zone, the Government of Tunisia has set energy efficiency as one of its most important national development priorities. On May 3, 2001, the president announced 20 far-reaching decisions aimed at improving energy efficiency throughout the economy. Among these decisions, Directive No. 8 addresses the development of an ESCO market, which is identified as key to facilitating energy efficiency projects in the industrial and commercial sectors. The industrial sector has been given priority because of its large potential for reducing energy consumption and CO<sub>2</sub> emissions. The proposed project would support the Government's efforts in that sector.

### **Lessons learned from previous initiatives and need for action**

Public responsibilities for energy efficiency in the industrial sector have shifted over the past few years. In general, energy efficiency initiatives in Tunisia are the responsibility of Tunisia's National Agency for the Rational Use of Energy (ANME), whose predecessor, the Tunisian National Agency for Renewable Energy (ANER), was created in 1985 as a public company under the authority of the Ministry of National Economy, with a mandate to promote renewable energies and the rational use of energy. In this regard, it should be noted that on August 2, 2004, the Government decided to rename ANER to ANME through Law 2004-72 because it would reflect better the agency's present mandate and activities. In early December 1998, ANME (ex-ANER) was transferred to the Ministry of Environment and Regional Planning, and its responsibilities in the industrial sector were reduced. Energy efficiency activities were reorganized in March 2001, and responsibility for the industrial sector was moved to the *Bureau de Mise à Niveau* (BMN), which became a unit in the MOIE. After the reorganization was completed in September 2002, ANME was also brought back under the responsibility of the MOIE, where it regain responsibility for energy efficiency. The agency now has three branch offices, in addition to its headquarters in Tunis, and more than 100 employees.

Prior to 2001, ANME had been working on energy efficiency in all sectors for 15 years. During this period, it subsidized 50 percent of the cost of energy efficiency audits for all sectors, up to 10,000 dinars. It also contributed 5 percent of the total cost of energy efficient investments, up to 100,000 dinars per investment. Although this assistance led to the identification of many viable energy efficiency projects, fewer than 25 percent have been implemented, due to that fact that the assistance was not sufficient for realizing projects.

Following the presidential rulings of May 3, 2001 in support of energy conservation, better financial incentives were adopted in order to encourage industrial, energy, and construction companies to improve their energy conservation programs. Within this framework, the following measures were put in place:

- assistance with the realization of energy audits, covering 50 percent of the cost of the audit up to a maximum to 20,000 dinars;
- assistance with the investment cost of projects contributing to energy efficiency, set at 20 percent of the amount of the investment, with a ceiling of 100,000 dinars;

- assistance with the realization of demonstration projects contributing to energy efficiency, corresponding to 50 percent of the cost of the project, with a ceiling of 100,000 dinars.

As of June 2002, more than 340 preliminary audits had been submitted to ANME, 148 of which were from the industrial sector. Only 64 of those audits benefited from a small share of the subsidy and have reached a partial implementation stage. Do you mean implement recommendations of the audit?

Even before energy efficiency became a priority concern, the Government of Tunisia had created a program for upgrading industry (*Programme de Mise à Niveau*, PMN), under the MOIE. The objectives of this program, initiated in 1996, have been to help the private industrial sector improve its competitiveness within the context of a deregulated European Community market. The PMN through the BMN unit (*Bureau de Mise à Niveau*) administers the Fund for Enhancing Competitiveness (*Fonds de Développement de la Compétitivité*, FODEC), which currently subsidizes 70 percent of the cost of audits up to 30,000 dinars; 20 percent of the cost of implementation activities; 10 percent of all elements of the investment financed through commercial loans; and 20 percent of the cost of all elements financed through the company's own resources. FODEC's budget is funded by a 1 percent levy on the revenue of companies in the industrial sector. FODEC finances the operations of eight professional associations for the eight main industrial sectors. PMN has not specifically targeted energy efficiency measures or analyzed any energy efficiency projects, but FODEC presents an institutional structure that could lend itself to energy efficiency activities.

Despite the Government's commitment to energy conservation and its creation of ANME, energy efficiency investments in the industrial sector have been limited. Obtaining financial support from ANME for audits and implementation entails lengthy and bureaucratic processes. In addition, the program's registered auditing consultants have insufficient expertise in energy auditing, resulting in energy audits that are largely incomplete and/or of marginal quality, and that fail to identify possible energy efficiency projects that could replace more conventional projects. Further, none of the existing programs has focused specifically on the industrial sectors. Nor have the financial incentives been sufficient to generate any significant energy efficiency activities in those sectors.

To date, all energy efficiency projects implemented in Tunisia have been financed through traditional commercial lending, which requires collateral guarantees. So far, no bank has developed a specialized approach for financing energy efficiency projects. Even *La Société Tunisienne de Garantie* (SOTUGAR), a private guarantee facility created in May 2003 to enhance access to credit for medium-size industrial and service enterprises, does not provide dedicated guarantees for energy efficiency projects. SOTUGAR manages funds on the order of 52 million dinars, of which 40 million are state funds, and issues credit guarantees of up to 75 percent via the Tunisian banking sector. Its lack of dedicated credit for such projects is due:

- The relatively small size of investments in energy efficiency projects, which makes them uninteresting for commercial lending (up US\$300,000);
- The lack of experience of commercial banks with financing energy efficiency projects; and
- The lack of demonstration projects.

The only entity that promotes energy efficiency projects is the energy services company *Société Tunisienne de Gérance de l'Énergie* (STGE), which uses the guaranteed savings concept and energy performance contracting (EPC). About half of STGE's projects have been for private companies in the industrial sector.

However, its activities have been limited by the current regulatory framework, so it has been able to carry out only initial demonstration projects in some industry sectors.

To date, no comprehensive program exists in Tunisia to: (a) support the development of a sustainable ESCO market for industrial clients, through information dissemination, project development support, or any other means; (b) provide access to project financing for energy efficiency investments; or (c) raise awareness in the industrial sector about the ESCO concept and its benefits. As a result, there has been limited interest in the creation of ESCOs, and little demand for such services.

### **Compliance with the United Nations Framework Convention on Climate Change**

In 1997, Tunisia's greenhouse gas emissions were 31 million tCO<sub>2</sub> equivalent. This level is expected to increase to close to 55 million tCO<sub>2</sub> equivalent by 2010, and to 78 million tCO<sub>2</sub> equivalent by 2020. The proposed project would help the Government to reduce these emissions through implementation of its National Action Plan on climate change, as detailed in Tunisia's national communication to the United Nations Framework Convention on Climate Change (UNFCCC) of October 2001. (Tunisia ratified the UNFCCC on July 15, 1993, and ratified the Kyoto Protocol in January 2003.) In that communication, Tunisia announced a national greenhouse gas emissions reduction target for the 2001-2020 period of more than 240 million tCO<sub>2</sub> equivalent, to be achieved through the implementation of 47 mitigation projects. Sixty percent of the reduction (145 million tCO<sub>2</sub> equivalent) would come from the energy sector, which offers some of the most cost-effective mitigation options. The project would assist in meeting these goals by supporting energy efficiency measures that reduce greenhouse gas emissions. The project would also be in line with a project identified by UNDP-GEF (RAB 94/G31) in January 2002. That project, Development of ESCOs in Tunisia, is part of a program to strengthen capacity in the Maghreb region in matters pertaining to climate change.

### **3. Sector issues to be addressed by the project and strategic choices:**

The global energy savings potential in Tunisia's industrial sector has been estimated at 636,422 ktoe per year. Despite the large potential market for energy efficiency investments in the industrial sector, however, only a small number of investments are being undertaken. Stated another way, the energy efficiency market is not functioning due to barriers to both financing and implementation of efficiency improvements. The four major barriers are:

*Lack of a consistent institutional framework for energy efficiency projects.* Although, in theory, both ANME and BMN provide some assistance, the changes in institutional responsibilities over the past few years, combined with insufficient technical and financial tools and high administrative barriers, have hindered the development of an energy efficiency market.

*Lack of financing for energy efficiency investments.* Energy efficiency investments require new financing tools, since the return on investment is based on cost savings, not on increased revenue. Moreover, given the relatively small investment size and high transaction costs, the banking sector has limited interest in becoming involved with energy efficiency projects. Further, energy efficiency investments do entail certain types of financial risks that other loans may not. Because projects usually involve a mix of specialized equipment and materials, as well as significant design and installation costs, the collateral value of assets purchased with loans are often well below loan amounts. Even if commercial banks are interested in reducing the energy-related expenses of customers, in order to improve their ability to repay other loans, banks do not want to reduce collateral requirements for energy efficiency measures.

*Inadequate information in the industrial sector.* Many industries are not aware of the potential benefits of energy efficiency investments, due in part to the widespread use of the ANME audit model, which analyzes energy consumption but does not identify specific energy efficiency measures. Thus the emphasis continues to be on enhancing operations through improved production and productivity rather than on reducing operational costs. Another informational barrier, especially for small and medium-sized enterprises (SMEs), comes from their reliance on guidance by a mother company for process management. Finally, the potential for efficiency improvements is not generally known to companies that have not had to compete outside of the Tunisian context.

*Lack of expertise to develop energy efficiency projects.* The unwillingness of Tunisian industrial companies to work on production issues with other than their traditional partners in the Technical Centers, has resulted in a lack of expertise in the sector. Even when ANME has made some specialized consultants available to work in the area of energy efficiency, very few have been able to make proposed energy efficiency projects acceptable to potential investors because they cannot guarantee results. Moreover, as soon as local experts have identified energy efficiency projects, international companies are consulted, but their higher transaction costs generally dissuade companies from undertaking such measures. ANME's efforts to develop pilot projects to disseminate new technologies have not been sufficient to sustain local expertise.

### **Strategic choices**

The proposed project would address all four types of barriers in a comprehensive manner, through the following strategic choices:

*Choice of institutional framework.* The project would involve both of the institutions that been responsible for promoting energy efficiency in the industrial sector: ANME and BMN. During project preparation, it has become apparent that these organizations must be given clear responsibilities for projects to be sustainable and thus eligible for GEF funding. As a result of the project preparation process, ANME and BMN have agreed on a way to share responsibilities in the area of energy efficiency in industry. Their agreement is reflected in Decree N° 2004-1239 of May 31, 2004,\* which gave ANME responsibility for managing all energy efficiency investment programs; and made BMN the sole window, at the project level, for receiving investment applications pertaining to energy efficiency and competitiveness. During project implementation, ANME would host the Project Management Unit (PMU); and BMN would pass on the applications for energy efficiency to the PMU.

Footnote \*This decree modified Decree N° 94-537 of March 10, 1994, which set the conditions for granting the premium for energy efficiency investments.

*Choices affecting financing.* To enhance the financial viability of energy efficiency projects, a subsidy of 10 percent of the investment cost would be administered jointly by PMN and ANME. In addition, in order to stimulate the emergence of a private sector market for financing energy efficiency investments, a guarantee fund would be established to support the operations of ESCOs. The ESCOs would, in turn, enhance the energy efficiency market by putting together a portfolio of small investments, isolating project cash flows, and bearing the performance risks of the entire project, thus addressing in part, all of the barriers mentioned above.

*Choices affecting information.* By supporting ESCOs, the project would facilitate the emergence of markets that provide more information to industry. The ESCOs would bring improved technical expertise

and facilitate access to more energy-efficient modern technologies. They could also help to lower the costs of small projects by putting together a number of similar investments and buying larger quantities of energy-efficient equipment.

*Choices affecting expertise.* To assist in developing a favorable environment for energy efficiency investment and for the creation of new ESCOs, the project would focus on building the capacity of the relevant entities. Training would focus on: (a) the possibilities of enhancing project financing, given the unfamiliarity of commercial banks with assessing energy efficiency investments and performance contracting of ESCOs; (b) improving the information flow from ESCOs and joint venture ESCO partners; (c) increasing information about opportunities in the industrial sector, and about experiences with contracting ESCOs to improve energy performance; (d) clarifying the legal framework, to balance the perceived risks associated with energy service contracts, for both ESCOs and their potential clients.

*Choice of GEF support.* Tunisia is an optimal case for a GEF investment financing operation. There is a strong need for GEF to play a catalytic role, and (based on PMN's recent operations), it is likely that the FODEC fund in place at PMN could be leveraged by GEF, and refocused from enhancing competitiveness to promoting energy efficiency. Ongoing discussions with various international financial institutions (IFIs) and donors indicate that GEF's participation could help to leverage additional funds. GEF's participation is critical for the project, since without GEF's involvement, neither the Fund FODEC nor the project could proceed within a reasonable time frame.

Further, without GEF's involvement: (a) the perceived high risks and transaction costs of energy efficiency investments within the currently undeveloped market would continue to cause lenders to pursue other opportunities and agendas; (b) there would be only minor progress toward energy efficiency, based on ANME's audits and its small contribution to the investments; and (c) meaningful market-based energy efficiency investments would remain suppressed, as the basic problems that have impeded investments would remain unsolved. (The incremental cost analysis is presented in Annex 15.)

The Tunisian experience is expected to be replicable in neighboring countries such as Algeria, Morocco, Egypt, and Lebanon, which have a similar potential for energy savings and GHG emission reductions, and which also have only scant domestic commercial financing for energy efficiency projects, for similar reasons as in Tunisia. Tunisia would serve as demonstration project to encourage energy efficiency investments in other countries.

## **C. Project Description Summary**

### **1. Project components** (see Annex 2 for a detailed description and Annex 3 for a detailed cost breakdown):

The proposed project would consist of three main components: (a) a dedicated GEF pilot phase to promote energy efficiency investments; (b) a GEF Partial Guarantee Fund to facilitate the emergence of ESCOs; and (c) technical assistance to (i) build the capacity of financial institutions and test new energy efficiency lending products; (ii) build the capacity of the institutional program participants (MOIE, ANME, BMN, SOTUGAR, Technical Centers); and (iii) build the awareness of potential beneficiaries in the industrial sector. All components are discussed below. Figure 1 summarizes the overall structure of the project.

#### **(a) Component 1 - GEF Pilot Phase for Energy Efficiency**

This component envisages the development and implementation of a pilot phase for energy efficiency that would be administered by a PMU located at ANME, in parallel with existing incentives implemented by



BMN, which now target industrial competitiveness. The pilot phase, through the GEF fund, would increase the incentive funding by a maximum of 10 percent and target those funds specifically to energy efficiency, in order to increase the interest of restructured/privatized industries in energy efficiency projects. This approach would aim to overcome the perception on the part of industry that energy efficiency measures have high opportunity costs. Currently, none of the 1,202 files (projects) reviewed by FODEC contains an energy efficiency component.

The additional 10 percent subsidy was set in response to the fact that the present subsidy under PMN (13 percent average) has not been sufficient to attract any energy efficiency projects. The additional subsidy would raise the financial incentive to approximately 23 percent. Given that PMN's funding has been successful in attracting other kinds of projects, this level should be sufficient to redirect interest toward energy efficiency. A higher GEF subsidy such as 15 percent would bring the total subsidy closer to 30 percent in total. This was the subsidy granted under Tunisia's solar water heating project, which might have been somewhat high as the subsidy was disbursed a year ahead of schedule.

As the program advances, the 10 percent could be adjusted according to how the market responds to the subsidy. If the program turns out to be oversubscribed, or in order to phase out the subsidy more smoothly, it may be lowered over time. A structured assessment would be conducted at midterm review.

It is anticipated that GEF funds of US\$2.5 million would be sufficient to generate about 125 demonstration projects -- about 50 projects of US\$300,000 each (medium-size projects) and about 75 projects of US\$125,000 each (small-size projects). This would correspond to a total energy efficiency investments of about US\$25 million, with an average of 15 projects per Technical Center, or between 3 and 5 projects per industrial branch. Thus, 125 projects are the minimum number needed to serve as sufficiently diverse demonstration projects across the industrial sector. The main energy efficiency technologies that meet these criteria are energy-efficient burners and boilers, variable speed drives (VSDs), high efficiency motors, power factor improvements, compressors, controls, steam traps, and heat recovery devices.

To prevent double dipping from components 1 and 2, only industrial enterprises without ESCOs or ESCO contracts are eligible to apply for these funds (see Figure 1). Projects eligible for GEF funds would have to meet certain criteria, to ensure that market distortions are minimized and benefits are passed on to investors. In particular:

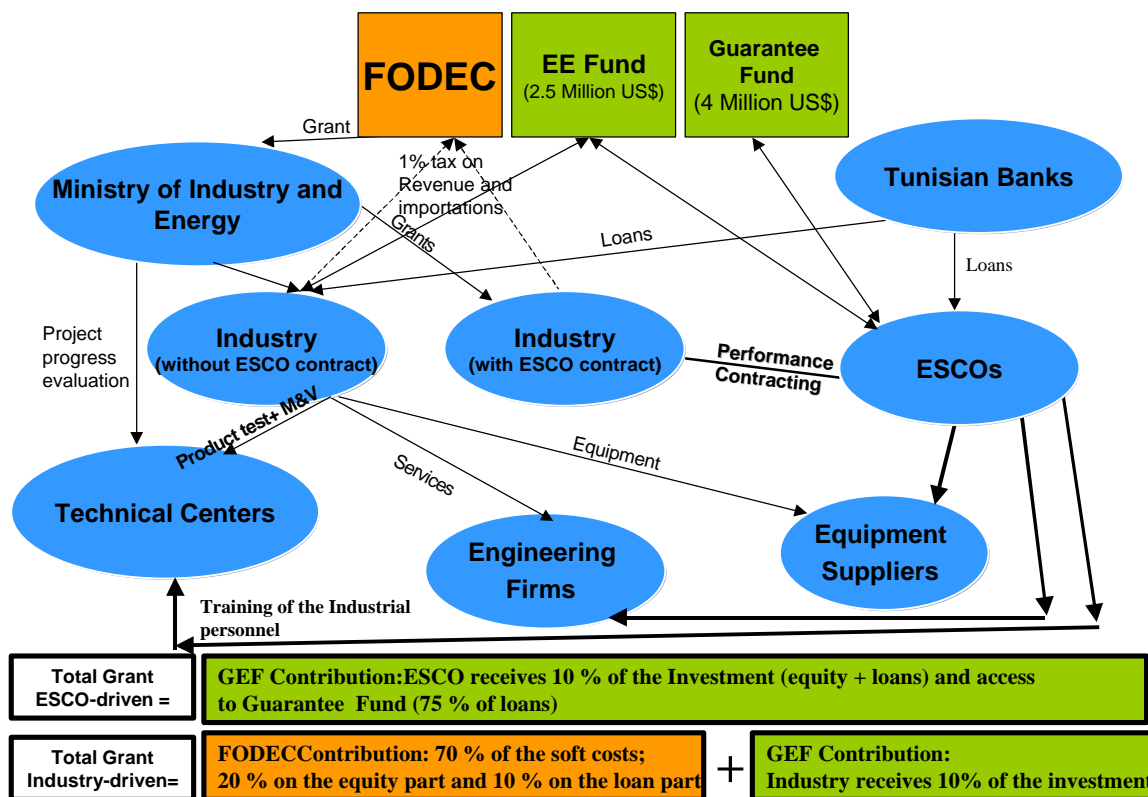
- The project must have a maximum payback period of 3 years;
- To minimize both the transaction costs of small projects and the high exposure of only a few large projects, the investment should be in the range of US\$50,000 to US\$1,000,000;
- The maximum GEF subsidy would be US\$100,000;
- At least 50 percent of all project benefits would have to result directly from energy savings (process or capacity improvements that would have ancillary energy savings benefits would not be eligible); and
- To avoid technological risks, proof of the technology's effectiveness must be provided as part of the application for funds.

Beyond the eligibility criteria, MOIE/GEF funds would be allocated on the basis of two underlying principles: (a) the size of the reduction of investment costs for industrial enterprises (based on current perceived risks and transaction costs) relative to market costs (based on actual project risks, determined over time); and (b) the extent to which MOIE/GEF funds would be replaced by contributions by FODEC at the end of the project, as banks and clients become increasingly familiar with energy efficiency financing

instruments, including those offered by ESCOs. In addition, criteria would be developed to guarantee the diversity of projects during the pilot phase.

MOIE/GEF funds would not be used to support investments that could be financed through normal commercial sources, or those that are not creditworthy. During program preparation, the operational mechanisms of the proposed financing program would be established, ownership of the GEF funds would be defined, an exit strategy for the GEF funds not used during the project would be developed, and repayment terms for FODEC's revolving funds would be determined and agreed upon. In addition, a detailed market assessment and demand survey would be conducted under the Technical Assistance component, to identify the size and scope of the financing program.

**Figure 1: Structure of the Program**



**(b) Component 2 - GEF Partial Guarantee Fund**

The second component of the project would create a Partial Guarantee Fund within Tunisia's private guarantee facility, SOTUGAR, in order to increase the capacity of commercial project financing. The fund would aim at establishing a commercially viable and sustainable financial market for energy efficiency investments, by giving ESCOs access to guarantees covering up to 75 percent of the bank loans required for an investment in energy efficiency. Thus, ESCOs would gain an additional advantage in financing energy efficiency projects, and would become more attractive partners for investors. ESCOs are well positioned to be the recipients of such GEF guarantees, as they always retain an incentive to repay the loan -- unlike the industrial enterprises themselves. The fund would also provide partial guarantees to the banks

participating in the financing of the ESCO project to reduce the collateral amounts. The partial guarantee mechanism implies that financing would be made available to industrial enterprises on the basis of proven results of their project in the industrial sector.

The selection of SOTUGAR as manager of the guarantee facility is a natural choice, as all 20 commercial banks operating in Tunisia are contributing shareholders. The choice of SOTUGAR would enable energy efficiency guarantees to have an immediate access to the future project finances. Moreover, guarantees issued by SOTUGAR would benefit from SOTUGAR's credibility and standing vis-à-vis the banking sector.

A 75 percent loan guarantee (up to a maximum of US\$200,000) is considered large enough to support energy efficiency projects, while still ensuring sufficient entrepreneurial interest from the ESCO. In order to avoid double dipping, enterprises involved in ESCO contracts may not also apply for funds from the Pilot Phase (See Figure 1).

The share of the loan that would be covered by the guarantee was agreed upon following long discussions with Tunisian banks, leasing companies, the Association of Tunisian Banks and Leasing Companies, Tunisia's Central Bank, and SOTUGAR. The 75 percent level was set in line with the level of guarantees that SOTUGAR administers for small and medium-size enterprises, in order to minimize any possible competition among the existing SOTUGAR funds and the project energy efficiency fund. Commercial banks felt that in the Tunisian context, 75 percent coverage would sufficiently protect them from risk, especially if the fund were to be administered through SOTUGAR. The maximum level of coverage guarantee would be US\$200,000. The guarantee-level may be adjusted over time if the level turns out to be too low or too high. In any case, at project mid-term, the guarantee coverage level will be reviewed to suit market response. If it is optimistic and high, the guarantee level will be reduced.

The GEF's Partial Guarantee Fund would be administered by SOTUGAR, which would need to have the capacity to offer financial, legal and technical support to ESCOs throughout the lifetime of the fund. SOTUGAR would be paid fixed fees plus success-based bonuses. Among the criteria for measuring success would be speed and efficiency in answering requests, the number of demand and complaint files treated, and the actual rate of losses incurred.

The proportion of risks assumed would be determined by the nature of each project and the creditworthiness of the customer, which could be mitigated through:

- The provision of project financing by commercial banks, using GEF's partial guarantee mechanism for ESCOs or other intermediaries (such as consultants, Technical Centers, or suppliers who intend to start a new ESCO activity);
- Reliance on commercial banks to extend credit to customers directly for the remaining portion of project financing.

Risk mitigation provisions for these banks could consist of one or more of the following options:

- A contingent grant from GEF to create a loan-loss reserve and/or guarantee, to provide for the risk of customer default;
- The commercial bank's own internal guarantee (without collateral) on any MOIE fund and/or contribution that is properly priced and is paid for by the customer, or subsidized by the MOIE/GEF, where appropriate.

- Guarantees by an insurance company, paid by the customer or MOIE/GEF.

At midterm, the level of the guarantee would be reviewed, and an exit strategy for the GEF Partial Guarantee Fund would be finalized. To ensure the sustainability of the energy efficiency program following project exit, various strategies could be pursued. One possibility would be to use remaining resources as a partial guarantee fund for the benefit of ESCOs under SOTUGAR's management.

### **(c) Component 3 - GEF Technical Assistance**

The project would provide technical assistance to the many stakeholders involved in creating an energy efficiency market. Under this component, the focus would be on building the capacity of organizations that are candidates for becoming ESCOs. (Existing candidates include Technical Centers, engineering firms, and consultants.) The project would provide training on when to use certain types of energy efficiency measures, and on how to operate ESCOs as a sustainable business. This component would include awareness raising and energy efficiency training activities for industry. It would also provide business development assistance, including the facilitation of risk-sharing partnerships between Tunisian and international ESCOs. This component would also train Technical Centers in Monitoring and Verification of energy efficiency project performance. Another element of the training would be to raise awareness among banks and other financial institutions about options for financing energy efficiency measures. The following elements are envisaged under this component:

- Development and implementation of detailed operational rules and procedures;
- Strengthening of the institutional and regulatory framework for energy conservation;
- Awareness raising;
- Training of Technical Centers in monitoring and verification;
- Specialized training for ESCOs, including development of performance contracting;
- Technical training in energy efficiency projects for ESCOs, engineering firms, and consultants;
- Training of commercial financial institutions (commercial banks, leasing companies, SOTUGAR, etc.);
- Dissemination of results;
- Program management, including:
  - Assistance to the PMU in the development of administrative and financial procedures, procurement and training in World Bank procedures;
  - Monitoring and evaluation of environmental indicators.

Technical assistance would take the form of training and workshops. Targeted training and promotional material would be prepared by the PMU. To ensure smooth implementation of the project, all aspects of capacity building and training would be open to PMU and ANME staff. Table 1 breaks down the budget allocation for each of the activities envisaged under this component, and shows which of the other components they support.

**Table 1: Elements of Technical Assistance**  
(amounts in US\$)

TA Components		GEF Financing	Total Budget*	Component Supported**
1	Development and implementation of program procedures	300,000	400,000	1, 2
2	Strengthening of institutional and regulatory framework	200,000	300,000	1, 2
3	Training of Technical Centers in monitoring and verification	300,000	400,000	1, 2
4	Specialized training for ESCOs	200,000	300,000	2
5	Technical training for energy efficiency projects	300,000	400,000	1, 2
6	Training of commercial financial institutions, including SOTUGAR	200,000	300,000	2
7	Training in the dissemination of results	100,000	200,000	1, 2
8	Training in program management**	400,000	500,000	1, 2
<b>Total</b>		<b>2,000,000</b>	<b>2,800,000</b>	
* Includes self-financing.				
** Refer to components 1 and 2 of the project respectively				
*** Including training in monitoring and evaluation (see Annex 14 of the PAD and Annex 6 of the Project Brief) and in reviewing environmental and social performance (Annex 12 of the PAD and Annex 4 of the Project Brief).				

Under the Technical Assistance component, US\$100,000 would be set aside (under item 8 in table 1 above) to conduct monitoring and evaluation (M&E) of the project. The M&E would build on methodologies developed for similar World Bank/GEF activities, with a particular focus on: (a) confirming the baseline during the first year of implementation; (b) monitoring the achievement of market development objectives against benchmarks (see Annex 1, Project Design Summary); (c) assessing implementation progress during a midterm review, and taking corrective action, if necessary, to stimulate the market; (d) disseminating results in order to demonstrate the global and local environmental benefits of energy efficiency measures in the industrial sector.

A more detailed description of the Technical Assistance component can be found in Annex 16 of the PAD and Annex 8 of the Project Brief, which contains responses to the Scientific and Technical Advisory Panel (STAP) reviewer. More information about the monitoring and evaluation process of the project can be found in Additional Annex 14 of the PAD.

Component	Indicative Costs (US\$M)	% of Total	Bank financing (US\$M)	% of Bank financing	GEF financing (US\$M)	% of GEF financing
(1) GEF Pilot Phase for Energy Efficiency	25.00	78.6	0.00	0.0	2.50	29.4
(2) GEF Partial Guarantee Fund	4.00	12.6	0.00	0.0	4.00	47.1
(3) GEF Technical Assistance	2.80	8.8	0.00	0.0	2.00	23.5
<b>Total Project Costs</b>	<b>31.80</b>	<b>100.0</b>	<b>0.00</b>	<b>0.0</b>	<b>8.50</b>	<b>100.0</b>
<b>Total Financing Required</b>	<b>31.80</b>	<b>100.0</b>	<b>0.00</b>	<b>0.0</b>	<b>8.50</b>	<b>100.0</b>

## **2. Key policy and institutional reforms supported by the project:**

*Institutional reform:* The main objective of this project is to establish a sustainable market for Tunisian industry (see Annex 1). To achieve this goal, institutional reform would be needed to: (a) clarify the responsibilities of institutional actors regarding energy efficiency in the industrial sector; and (b) build the capacity of MOIE to: (i) develop rules and procedures that would encourage enhanced levels of energy efficiency in industry; (ii) study, approve, and evaluate energy efficiency measures in the sector; and (iii) review existing legislation relevant to banking loans, and ensure their compliance with off-balance sheet projects, which is one of the main avenues for new ESCO projects.

As a result of project preparation, the responsibilities of institutional actors are already being clarified. ANME and PMN have agreed on a way to share responsibilities in the areas of energy efficiency and industry on July 2003. They have also established a means of cooperation during the lifetime of the project. For the establishment of the Partial Guarantee Fund, no legal changes are required. In addition, the Law 2004-72 of August 2, 2004, concerning energy efficiency states that electricity consumers could contract ESCOs with the objective of realising energy savings. However, a legal text was approved to provide a clear operating framework for the operation of ESCOs. The text defines the minimum conditions and procedures for ESCOs, and thereby establish quality control for ESCO services. The legal text also discusses financing possibilities and performance guarantee contracting.

*Partnerships with emerging ESCOs:* At the institutional level, the program would create public-private partnerships with the new ESCOs in order to ensure their sustainability and thus strengthen the ESCO concept. Such partnerships could eventually scale up to extend energy efficiency activities to the commercial sector.

*Banking reform:* Equity financing is difficult to access in Tunisia because banks are prohibited from making a new loan to a client until the client reimburses the first loan. As part of the GEF program, financial sector and regulatory issues relative to ESCO projects and/or the management of credits would be addressed.

## **3. Benefits and target population:**

*Benefits:* The project would have both economic and environmental benefits.

The main benefits relating to *economic development* would include:

- The creation of *new technological sectors* to manufacture efficient motors, waste energy recovery exchangers, electricity load modules, etc.;
- Reduced production costs, which would help to maintain *employment*;
- Reduced in energy demand, which would relieve pressure on energy supply during peak hours;
- Development of the energy management skills of local engineers and contractors;
- Entry of new energy efficiency technologies into the marketplace, and expansion of their uses (e.g., recovering energy from the condensing system of a central HVAC, for use as a pre-heating device for thermal applications);
- Dissemination of the ESCO concept, energy efficiency procedures, and enhanced commercial financing for energy conservation;
- Joint ventures with ESCOs, which would be able to offer expertise and resources to support energy efficiency projects in other regions of Maghreb and the Middle East;
- Shorter repayment periods for commercial bank loans (2 to 5 years, as compared to 7 years for

- most commercial loans), which would enable banks to improve the receivables of their clients and their reimbursement capacity (not clear).
- Replication of their experience with ESCOs and energy efficiency in other areas such as water savings or maintenance cost reductions.

The main *environmental benefit* of the project would be a reduction in greenhouse gas emissions. In addition, a reduction in local air and noise pollution would have a beneficial effect on health in communities adjacent to the industries.

*Target population:* The program would target Tunisian companies in the industrial sector that spend more than US\$150,000 per year on energy costs. Participation would not be restricted by size or for any other reason. Companies that propose a project financing scheme with a larger amount of equity would receive a larger supporting grant, independent of their size and structure, in order to limit development costs to a reasonable ratio for the ESCOs. However, this element may be revised at mid-term if company participation is lower than expected.

Public companies would be limited by the official tender procedures, and would not be able to participate unless they could overcome this barrier through their own efforts. Public companies generally are required to follow a bidding procedure that starts at about 15,000 dinars (US\$12,000) for services and 30,000 dinars (US\$24,000) for immobilization investments (equipment and construction). This bidding procedure would not be in line with ESCO projects, since ESCOs develop measures and evaluate associated risks according to their own rules.

#### **4. Institutional and implementation arrangements:**

##### *Institutional arrangements*

ANME, as a government entity created to promote renewable energies and the rational use of energy, is well positioned to host the PMU for this project. Its Department for Rational Use of Energy and its Department of the Renewable Energies would both provide important resources for the project, as would its three branch offices and more than 100 employees. ANME would therefore be the project beneficiary and act as the implementation agency for the GEF grant, with responsibility for implementation, supervision, and monitoring of the overall project, including its Technical Assistance component. ANME would receive applications for the 10 percent energy efficiency subsidy, either from BMN or directly from industrial enterprises whose proposals do not meet FODEC's eligibility conditions. Projects accepted for funding would be implemented through ANME. The activities of the Partial Guarantee Fund would be monitored regularly, as would the environmental and social impacts of the project. ANME would also prepare and issue reports as required by the institutional and implementation arrangements.

*The project management unit (PMU)* would be located within ANME, under direct responsibility of its General Director. The PMU would consist of a project manager (who has already been appointed) and several engineers. For procurement, financial management, legal aspects, and awareness raising and dissemination of information, the relevant dedicated units within ANME would be involved.

A *project steering committee* has been formed and would continue to give guidance to ANME at once or twice-yearly meetings. The steering committee includes all relevant potential stakeholders – Technical Centers, industry federations, bank associations, representatives from other ministries, etc. The committee would help to proactively seek investment opportunities and facilitate negotiations among customers, auditors, ESCOs and banks. Additional activities could include a detailed policy and procedure review of

project implementation strategies, information dissemination, and capacity building for all other relevant institutions (government agencies, professional associations, equipment providers, consumer associations, etc.). Figure 2 provides an overview of institutional arrangements.

The *Partial Guarantee Fund* would be under the responsibility of SOTUGAR. The selection of SOTUGAR as the guarantee facility is a natural choice, as all 20 commercial banks operating in Tunisia are contributing members. The choice of SOTUGAR would enable the energy efficiency guarantees to have an immediate access to future project finances. Moreover, guarantees issued by SOTUGAR would benefit from the credibility and standing that SOTUGAR already has vis-à-vis the banking sector.

#### *Guidance for interaction of energy efficiency market participants*

ANME would develop guidelines governing the relationship between the industrial sector and the ESCO, to provide a set of clear rules for both groups. These guidelines would require that: (a) ESCOs implement their activities, including the financing of projects, through participating banks; (ii) industries reimburse the proportional savings achieved during the payback period, and enter into an agreement with MOIE for the partial financing (grants) of the project; and (iii) MOIE monitor, through the Technical Centers, the ESCOs' performance in terms of disbursing project funds for eligible expenditures, and their capacity to reimburse these expenditures through its revenues. Similar guidelines would be developed for the relationship of ESCOs and the guarantee fund.

Enterprises in the industrial sector would apply for and sign an agreement with the BMN on the basis of its agreement with the ESCO, which would that: (a) the companies would respect the program's criteria and disbursement rules; and (b) MOIE would disburse the agreed amounts after the relevant Technical Center conducts the monitoring and verification process.

#### *Implementation arrangements for ESCOs*

ESCOs, to be eligible for the partial guarantee mechanism Partial Guarantee Fund, should be established as private entities, in order to: (a) minimize regulatory interference with investment and pricing; (b) allow for management flexibility to respond to a new and untapped market, and to establish strategic alliances and seek private international ESCO participation; and (c) provide autonomy to ESCO management through its independent corporate governance structure.

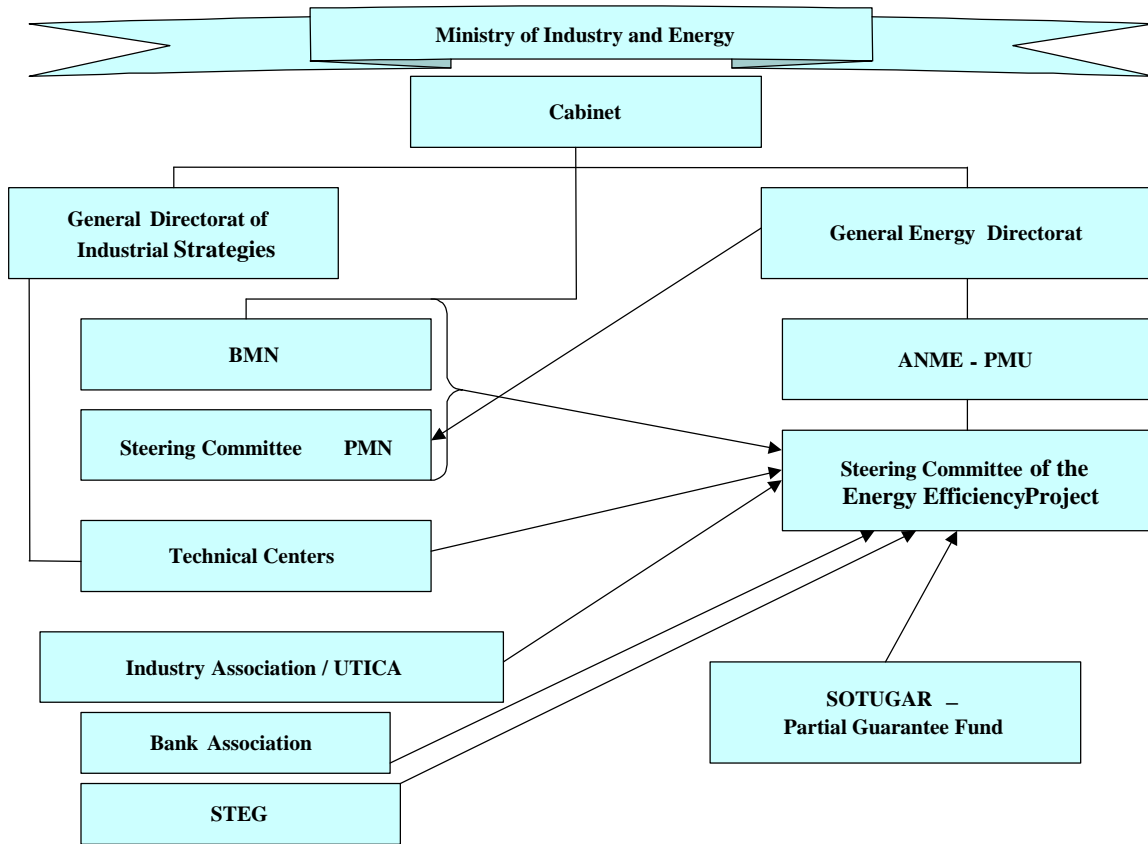
#### *Involvement of local banks*

A request for expressions of interest in participating in the project would be sent to all Tunisian banks and risk capital companies. Banks generally make loans with a maturity of up to 10 years, at market rate (generally negotiable on a case-by-case basis), with loan financing of up to 70 percent of individual project costs. The financing ratio between the program and the bank would be between 50:50 and 80:20, thereby leveraging the commercial bank's involvement. Local banks view the involvement of GEF and the World Bank as critical in alleviating the level of risk involved in individual ESCO projects.

The operational structure of the program is shown Figure 2 below. Figure 3 shows where the PMU would be housed inside ANME, and Figure 4 illustrates the structure of the PMU.

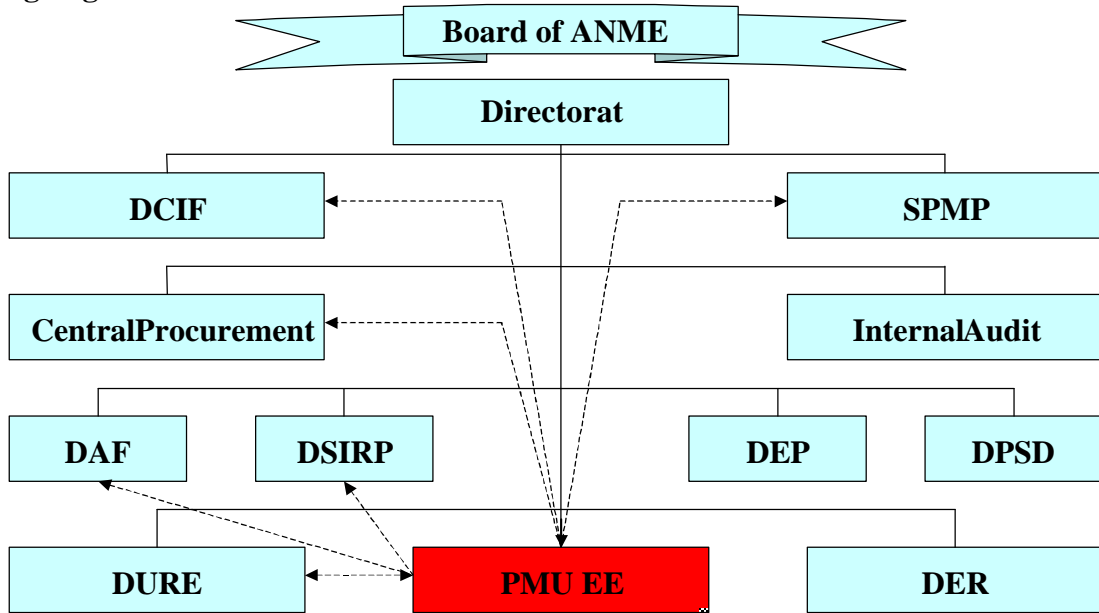


**Figure 2: Institutional Structure of the Project**



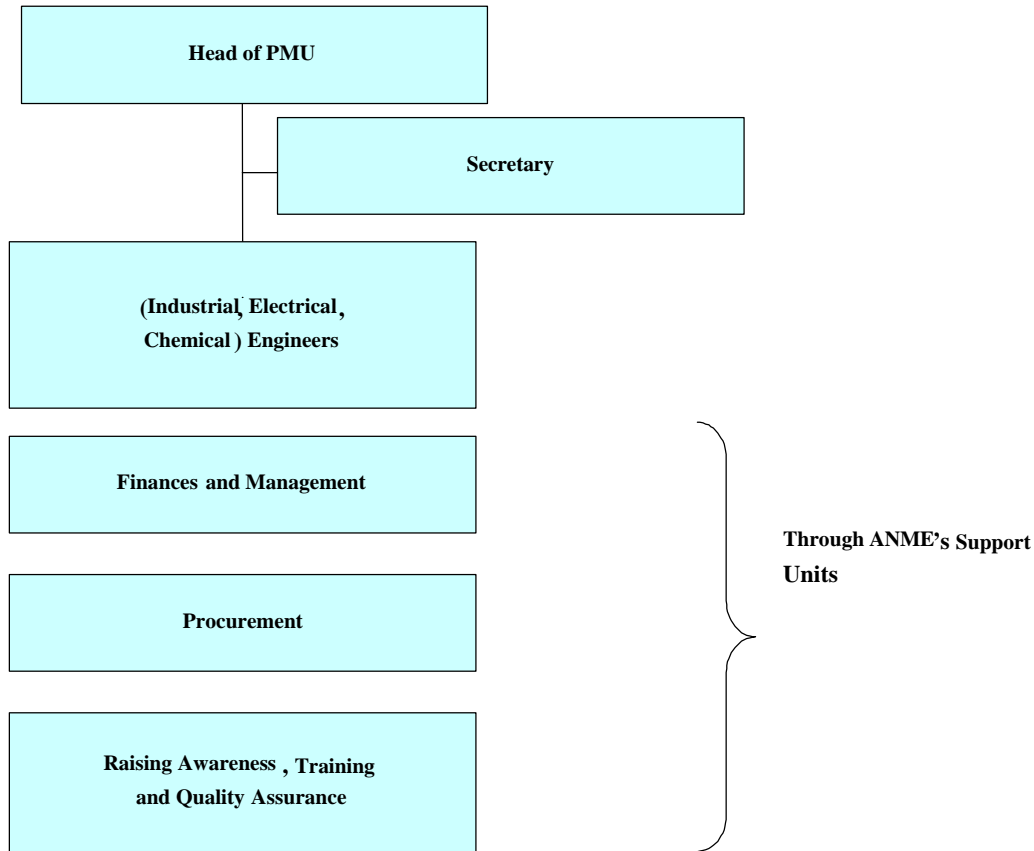
**Figure 3: Organigram of ANME with the PMU**

**Organigramme of ANME**



DAF – Administrative and Finance Department; DCIF – International Cooperation and Training Department; SPMP – Procurement Department; DPSD – Planning, Monitoring and Development Department; DURE – Energy Efficiency Department; DER – Renewable Energy Department; DEP – Studies and Planning Department; DSIRP – Awareness Raising, Information and Public Relations Department

**Figure 4: Structure of the PMU**



## **D. Project Rationale**

### **1. Project alternatives considered and reasons for rejection:**

*Alternative GEF Pilot Phase for Energy Efficiency:* An alternative to the envisaged structure for the pilot phase would be a pilot phase that is separate from the existing competitiveness fund. In order to generate sufficient interest from industry in that case, a higher subsidy would have to be put forward, or the number of anticipated pilot projects reduced. Thus there would be no leverage effect from FODEC. Moreover, FODEC is a fund with a great deal ownership by industry, as its revenues come from a one percent tax on industry's turnover. FODEC has a captive industry audience, to which it can easily communicate new investment opportunities, such as those that would be created through GEF's Pilot Phase.

Yet another alternative project design would have been a program for highly energy-intensive industries only. Studies have found such an alternative to be unfeasible, since most of these industries are in the public sector. This would have limited the project to a few large investments. In addition, the complicated tendering procedure for public companies would have been a significant barrier to establishing an energy efficiency market.

**Alternative focus on ESCOs and a private energy efficiency market:** Three alternative approaches were considered:

- *The concept of promoting energy conservation through Tunisia's electric utility, Société Tunisienne de l'Electricité et du Gaz (STEG), by means of consumer rebates or subsidies, as practiced in North American demand-side management (DSM) programs. This idea was rejected due to the difficult financial situation of STEG over the past three years, and to a desire to avoid consumer subsidies without first structuring the energy efficiency market.*
- *The development of a line-of-credit operation through financial intermediaries to support energy efficiency investments. Although such an operation might have been simpler to develop and implement, the lack of interest in energy efficiency investments in the industrial sector would remain. In addition, past experience of World Bank projects involving credit lines, including in energy conservation projects, has been mediocre. In the past, this approach has resulted in slow disbursements or cancellation of funds, which clearly indicates that the availability of financing *per se* does not reduce barriers to the participation of commercial banks in energy efficiency investment. In the current project, a more promising approach is envisaged through GEF's Partial Guarantee Facility, which would be used to capture an identified project pipeline within the industrial sector.*
- *Development of a favorable environment for energy efficiency without the promotion of ESCOs. This approach would fail to address many barriers, including: (a) inadequate information/expertise on the part of industry about potential efficiency improvements, actual performance of efficiency measures, low-cost measures, access to new technologies and practices, etc; (b) lack of interest in energy efficiency projects on the part of customers, because of a lack of knowledge about the potential benefits of such projects compared to other investments; (c) high project development costs, which could involve extensive auditing, resulting in a small number of implemented projects; and (d) lack of expertise on the part of consultants.*

**Alternative for the size of the investment volume envisaged:** The currently envisaged investment volume could be limited to a smaller number of projects (20 to 50 projects instead of the 125 currently planned). However, considering the number of projects already approved by the PMN (1,194 over 6 years), with a total investment of US\$1,542 million, the proposed demonstration phase, corresponding to US\$25 million, appears realistic.

**Alternative for the level of GEF subsidy:** The idea of the GEF-funded pilot phase is to increase the existing FODEC subsidy, which aims at enhancing industrial competitiveness, by a maximum of 10 percent. The 10 percent subsidy was determined to be the correct amount because a lower subsidy would not be sufficient to attract energy efficiency projects, and a higher subsidy would run the risk of disbursing too quickly.

**Alternative for the level of guarantee coverage provided from GEF's Partial Guarantee Fund:** The level of this fund is not fixed and would have to be tested in the market. The standard is set at 75 percent of the loans, which splits the risks from GEF Fund from one part and the ESCO, client and the commercial banks from the other part. This level would be adjusted depending on how the Tunisian market develops.

## **2. Major related projects financed by the Bank and/or other development agencies (completed, ongoing and planned).**

Related World Bank activities have been focused on both the energy and industrial sectors. A solar water heating project is being successfully implemented by ANME. In the industrial sector, projects have focused mainly on rendering the industrial sector more competitive. This project would be able to build on the Industry Support Institutions Upgrading Project, under which Technical Centers were privatized.

On November 15, 2003, the German GTZ launched a technical assistance project that aims at promoting both renewable energy sources and energy efficiency measures, with the objective of contributing to Tunisia's sustainable development. The project would take place in three phases over period of 9 years. The first phase – with a budget of €3 million, would last three years and targets its support at ANME. In the area of energy efficiency, the GTZ project initially aims to support legislation for creating ESCOs and energy efficiency measures beyond the industrial sector. There would be no direct overlap with the GEF project. However, during pre-appraisal it was agreed that the projects would establish an informal coordination mechanism in order to avoid duplication and enhance synergies.

In 1996, Spanish bilateral aid financed a number of studies for the development of small cogeneration projects. None of these projects facilitated the implementation of energy efficiency projects in the industrial sector as a whole.

The Canadian Cooperation financed the following projects in 1999-2003:

- Transfer of the ESCO concept to interested Tunisian counterparts. The project supported preliminary studies that served as a basis for the President's ESCO Development Directive.
- Development of cogeneration in Tunisia in two phases: (a) identification of barriers to the development of cogeneration, including a component for institutional strengthening; and (b) a contractual and application phase involving two industrial case studies.
- Climate Development Mechanism (CDM) institutional strengthening, and identification of a national strategy regarding the energy efficiency field.

Sector Issue	Project	Latest Supervision (PSR) Ratings (Bank-financed projects only)	
		Implementation Progress (IP)	Development Objective (DO)
<b>Bank-financed</b>			
Energy	GEF Solar Water Heating (P005589)	S	S
Industry	Small-Scale Industries Project (P005639)	S	S
Industry	Industry Support Institutions Upgrading Project (incl. technical centers) (P040208)	S	S
<b>Other development agencies</b>			
Gesellschaft fuer Technische Zusammenarbeit (GTZ). Kreditanstalt fuer Wiederaufbau (KfW). SIDA, Canadian Cooperation. Spanish Cooperation.	Promotion of ESCOs through technical assistance, Long-term credit facility for measures that enhance competitiveness of the industry. Several ESCO and CDM related projects (1999-2003). Development of small cogeneration projects.		

IP/DO Ratings: HS (Highly Satisfactory), S (Satisfactory), U (Unsatisfactory), HU (Highly Unsatisfactory)

### 3. Lessons learned and reflected in the project design:

*Project design and implementation* was informed by the lessons of similar financing projects in other countries (Canada, Poland, Hungary, Romania, etc.), and by experience gained within Tunisia through ANME, PMN, other GEF projects. Since the success of individual projects in Tunisia varied considerably, MOIE and ANME staff have gained valuable insight into the technical, managerial and business factors that contribute to successful energy efficiency projects. Actual cost and implementation performance data are available and would be used to confirm that the proposed rehabilitation investments are economically viable, and that the associated implementation and procurement arrangements are efficient.

*The project's approach to promoting an ESCO market* benefits from the lessons of the pilot from the GTZ and Canadian experiences with ESCOs in Tunisia..

Some of the most important lessons learned from energy efficiency experiences worldwide, which have been largely confirmed by experiences with Environmental Funds, are as follows:

- Maximize the transparency of procedures; minimize government interference in financing decisions. Establish and operate the program as a business, not a technology deployment system; profit-making should be an objective of the program.
- Use existing market players (e.g., banks) for functions (e.g. collections) where possible. Ensure that financial and technical-economic appraisals are of high quality. Due diligence must be practiced by professional staff, and there should be incentives for good performance.

- The financing institution must be very proactive in developing a project pipeline. Marketing, particularly to senior management, is critical for the success of the program. Use third parties such as ESCOs or Technical Centers to market and develop projects, thus avoiding high transaction costs.
- Focus on short-term loans for projects with high rates of return. Avoid placing funds in a few large projects; spread the risk throughout many projects. Financing should cover only a portion of the project costs; the borrower should have equity in the project.
- Small projects have high transaction costs, and need to be packaged by partners, such as ESCOs. Alternatively, very simple mechanisms should be designed that would lessen the need for costly audits and feasibility studies. One such mechanism could be a list of standard energy efficiency measures that could be easily implemented by small projects.
- Monitor thoroughly to ensure that funds are being spent on the project, and that the project is being implemented properly and operated as designed. Monitoring provides an early warning for any problems.
- Some experts believe that energy efficiency funds require lower than market interest rates to attract clients, as well as other incentives for potential customers, such as project development support.

The first six lessons listed here are reflected in the design of this project. However, the project team believes that subsidized interest rates are not conducive to the creation of a sustainable market for energy efficiency financing. The project intends to price the financial products based on terms that are generally consistent with the nascent corporate finance market in Tunisia.

*Lessons for the design of the Partial Guarantee Fund* were drawn from several programs currently or recently in operation under the International Finance Corporation (IFC), which have demonstrated an innovative approach to incremental risks and the leveraging of GEF funds. The Small and Medium Scale Enterprise (SME) Program, and the Hungary Energy Efficiency Co-Financing Program (HEECP) administered by IFC, are useful examples of what can be achieved with non-grant mechanisms. Some of the key lessons learned from the experiences of the IFC programs are that:

- Strong capabilities in financial flow management and administration should be the key characteristic of the primary and secondary executing agencies;
- Risk-sharing arrangements among project stakeholders (ESCOs, end-users, and commercial banks) are critical to the sustainability and replicability of energy efficiency projects; and
- Risk coverage by GEF guarantee facilities should be adopted whenever possible, and a fee should be assessed for the services provided, to ensure that market incentives guide decision making.

The energy efficiency project in Hungary has accumulated significant experience in the operation of a guarantee facility in that country, including identification and commitment of intermediaries; management of risk exposure; and innovative portfolio management, such as co-financing arrangements and leveraging. Other projects lessons that were taken into account came from three GEF/World Bank energy efficiency projects in Romania, Croatia, and Thailand.

#### **4. Indications of borrower and recipient commitment and ownership:**

MOIE is fully endorsing and supporting the project, for which an autonomous steering committee has been set up. All stakeholders are represented on that committee, which has guided project preparation since early 2003. In order to ensure that GEF funding could be attracted for the project, BMN and ANME have agreed on a mode for cooperation on energy efficiency in the industrial sector. ANME has been instrumental in designing the project and in providing background data and information. The endorsement of and support for this project extends to the Tunisian Government at large, which sees the project as a key tool for enabling the implementation of its directives on energy efficiency as they apply to the industrial sector.

#### **5. Value added of Bank and Global support in this project:**

Industry, local commercial financing institutions, and other potential investors are reluctant to move forward in the absence of demonstrable success in developing energy efficiency projects. GEF/World Bank involvement is essential to add credibility to the efforts of local authorities to increase energy efficiency. GEF/World Bank's involvement would enable the creation of an economically and environmentally sustainable market for energy efficiency services in the industrial sector.

GEF's leading role in the project is critical to overcoming barriers to the efficient use of energy resources in commercially sustainable activities. Without GEF's participation, ESCOs would not be able to establish themselves as core developers of investments that would benefit project partners and industry. Without GEF's participation, there would be no significant resources with which to build knowledge about energy efficiency in the industrial sector; or to address the lack of energy efficiency business experience among entities interested in becoming ESCOs or commercial lenders.

Moreover, the GEF's involvement is essential to address the incremental credit risks of energy efficiency investments. The proposed GEF Partial Guarantee Fund would remove barriers to energy efficiency and conservation at the ESCO level, as well as reduce long-term implementation costs.

Finally, GEF support would lead to sustainable, long-term reductions in greenhouse gas emissions, and help Tunisia to join industrialized countries in efforts to reduce climate change.

### **E. Summary Project Analysis** (Detailed assessments are in the project file, see Annex 8)

#### **1. Economic (see Annex 4):**

Cost benefit      NPV=US\$ million; ERR = % (see Annex 4)

Cost effectiveness

Incremental Cost

Other (specify)

(See Annex 15 for the incremental cost analysis in the PAD and Annex 7 of the Project Brief)

#### **2. Financial (see Annex 4 and Annex 5):**

NPV=US\$ million; FRR = % (see Annex 4)

The need for reporting and control of the financial subsidy and the Partial Guarantee Fund resources has been agreed and included in the Operational Manual. GEF funds would be disbursed to the PMU at ANME and SOTUGAR in accordance with normal World Bank procedures (see Annex 6B of the PAD and section E 4.4).

The administration of the 10 percent subsidy would follow the PMN scheme, which has had significant



success with Tunisian industries.

A business plan would be developed for the Partial Guarantee Fund, which would include specific project cash flows and accounting treatments. The management of the Partial Guarantee Fund would be financed through the project. The fund manager (SOTUGAR) would be paid on a performance basis. The fund's finances would be audited by a third party, and would be under the final responsibility of ANME.

ESCO projects would be financed with equity, the GEF subsidy, and debt. Equity would come from industry, the ESCOs, and banks. Debt would involve mainly domestic commercial loans, for which ESCOs may receive a 75 percent GEF guarantee.

#### **Fiscal Impact:**

The project poses no negative fiscal impacts for the Government.

### **3. Technical:**

This project would use proven, commercially viable energy efficiency technologies. Energy audits undertaken or commissioned by ANME to date, as well as the development of some ESCO pilot projects, provide an important indication of which technologies and/or measures are expected to be adopted in the industrial sector:

- Reduction of compressed air leakage;
- Use of high-efficiency motors;
- Use of variable speed drives on pumping, ventilation, and compressor systems;
- Recovery of energy from HVAC condensers;
- Installation of new heat nodes;
- Installation of thermostatic control valves on steam and hot water systems;
- Replacement of steam traps and maximizing the recovery of condensate;
- Improvement of the thermal performance of building shells through air circulation and other efficient HVAC measures; and
- Installation of timers and other automation systems for stopping machines when they are empty.

Aided by the project's technical assistance component, ESCOs would be encouraged to initially focus on methods proven in the Tunisian context to maximize savings for each client, without trying leading-edge technologies. The successful use of these conventional energy efficiency technologies would be judged by the speed with which the projects pay back their loans. Following the successful integration of conventional technology skills, the ESCO may then undertake the application of new technologies that have been proven elsewhere.

### **4. Institutional:**

#### **4.1 Executing agencies:**

The Executing Agency would be Tunisia's renewable energy agency, ANME, which is under the authority of the MOIE. The Partial Guarantee Fund would be hosted and administered by SOTUGAR.

#### **4.2 Project management:**

Management of all project components would be undertaken by the PMU, to be hosted by ANME. The PMU would report to a project steering committee for guidance on approval procedures for projects to be

submitted for GEF subsidy approval. The project steering committee would include all relevant stakeholders. Administration of the GEF subsidy would take place in close cooperation with BMN. The Partial Guarantee Fund would be hosted and administered by SOTUGAR. It would be subject to monitoring and verification by ANME. All technical assistance would be planned, contracted, and/or executed by the PMU.

#### 4.3 Procurement issues:

Procurement would follow standard World Bank Procurement Guidelines. The technical assistance activities would be procured by the PMU, according to Bank Procurement Guidelines for Consultancy Services. However, the Partial Guarantee Fund (Component 2), which would be administered by SOTUGAR based on fixed and performance fees, would follow commercial practices acceptable to the Bank. In addition, the procurement of goods under subprojects (Component 1) shall be carried out in accordance with established commercial practices acceptable to the Bank, pursuant to paragraph 3.12 of the Guidelines for Procurement Under IBRD Loans and IDA Credits. The last country procurement assessment review (CPAR) for Tunisia took place in 1993. A new CPAR is planned for 2004. A procurement plan is included in Annex 6A.

#### 4.4 Financial management issues:

Financial management would be governed by standard World Bank rules. Details regarding the financial management of the GEF Partial Guarantee Fund would be elaborated in the Fund's business plan.

An assessment of the project's financial management system has been performed to determine whether it would be in line with the Bank requirements regarding OP/BP10.02. This assessment was conducted for ANME and SOTUGAR, both executing agencies for the project, and focused on: (a) the accounting system, internal and external oversight mechanisms, budgetary system, and information system in place in these agencies; and (b) the financial reporting capacity of the PMU, including its capacity to produce the financial monitoring reports (FMR) to be submitted to the Bank and to follow-up on audit procedures.

The PMU would be in charge of the project's financial management. However, the Partial Guarantee Fund would be managed by SOTUGAR in coordination with ANME, according to an agreement to be signed between two institutions. Payments would be made from the two Special Accounts opened at the Central Bank of Tunisia for the portion of the project financed by the Bank. ANME has experience in the financial management of Bank financed projects. ANME would consolidate the project's accounting and reporting, which requires close financial and accounting coordination with SOTUGAR for Component 2. The financial management system to be used during project execution is satisfactory to the Bank. However, a set of actions to improve the capacity of the executing agencies needs to be implemented (the action plan is detailed in Technical Annex 6B).

Potential risks have been identified as follows: (a) given that there are two executing agencies, good coordination is needed for the project's financial management; and (b) the PMU needs to develop the capacity to produce FMRs on time and according to the agreed-upon sample. Mitigating measures to counter these risks would include: (a) the detailed description of project financial management procedures (b) allocation of sufficient resources to ensure adequate financial project monitoring within the PMU, in terms of qualified human resources and software; and (c) strengthening of SOTUGAR's human resources, and the purchase of application software to monitor the projects it guarantees.

## 5. Environmental:

Environmental Category: C (Not Required)

### 5.1 Summarize the steps undertaken for environmental assessment and EMP preparation (including

consultation and disclosure) and the significant issues and their treatment emerging from this analysis.

Overall, the project is anticipated to have *beneficial environmental effects*, in terms of both local and global (greenhouse gases) pollution, as a consequence of reduced energy consumption.

The project would provide funds and technical assistance for energy efficiency measures in the industrial sector. Energy efficiency measures typically involve the replacement of equipment with more efficient equipment. As a result of project eligibility criteria (requirement for payback in less than three years), the energy efficiency measures would be limited to medium-size projects within an existing industrial plant.

Major local and global environmental benefits are expected from the project: the enhancement of energy efficiency in the Tunisian industrial sector would reduce both local air pollution and greenhouse gas emissions. Through the reduction of local air pollution and noise (more efficient motors are generally less noisy), the health of the local population would benefit from the project. The 125 demonstration projects targeted by the proposed project would reduce emissions by about 1.2 million tons of CO<sub>2</sub> equivalent.

Replacement of materials and equipment may lead to limited temporary dust and noise emissions during the replacement/construction period. None of these potential impacts is expected to be significant. Other potential construction impacts may involve disposal and de-contamination issues, and these potential issues would be screened and monitored by the PMU.

None of the investments supported by this project is expected to have any large-scale, significant, and/or irreversible negative impacts.

#### 5.2 What are the main features of the EMP and are they adequate?

Not applicable.

#### 5.3 For Category A and B projects, timeline and status of EA:

Date of receipt of final draft: N/A

#### 5.4 How have stakeholders been consulted at the stage of (a) environmental screening and (b) draft EA report on the environmental impacts and proposed environment management plan? Describe mechanisms of consultation that were used and which groups were consulted?

Not applicable.

#### 5.5 What mechanisms have been established to monitor and evaluate the impact of the project on the environment? Do the indicators reflect the objectives and results of the EMP?

Part of the technical assistance would be used to assist in screening and monitoring issues related to environmental and/or social aspects, at the time that applications for the energy efficiency subsidy are made for a specific activity. All screening of environmental or social effects would be carried out by PMU staff, and would be part of the reporting obligation to the Bank. To ensure consistency of environmental monitoring and screening, Annex 12 includes some guidance on what aspects should be screened and monitored.

PMU staff would be trained in environmental and social screening and monitoring, to enable them to identify appropriate mitigation measures for environmental and social issues. The training would focus on

the potential environmental and social effects of individual subprojects. The training would ensure that environmental and social issues are addressed appropriately, under rules in place in Tunisia and at the World Bank.

In accordance with standards of environmental and social reporting set by PMU, all emerging ESCOs would monitor the project's environmental and social impacts. Reports would be confirmed through spot checks conducted by the PMU.

The project would also report on the reduction of CO<sub>2</sub> emissions.

## **6. Social:**

### **6.1 Summarize key social issues relevant to the project objectives, and specify the project's social development outcomes.**

No negative social effects are anticipated. By investing in energy efficiency, participating companies would be able to reduce their operating costs, increase their productivity and product quality, and improve competitiveness in domestic and international markets. This is particularly important to maintain existing jobs, in view of the gradual opening of the Tunisian market vis-à-vis the European Union.

The development of ESCOs would lead to additional employment in the areas of energy efficiency auditing, financing, and engineering, as new economic activity is generated in these areas. For example, some industrial companies may create an energy efficiency position to manage energy consumption – a task that has until now been managed by maintenance or production departments. In engineering offices, ESCOs, and Technical Centers, entire new teams of energy efficiency specialists may be recruited.

Overall, the Tunisian population would benefit through an increase in employment. None of the investments supported by this project is expected to have any large-scale, significant and/or irreversible negative impacts. There would be no land acquisition, and no displacement of people or economic activities as a result of the project.

### **6.2 Participatory Approach: How are key stakeholders participating in the project?**

From the project's initial stages, ANME under the Ministry of Industry and Energy has made a concerted effort to inform all stakeholders about the potential benefits of this initiative, and encourage their participation in the debate. Three plenary meetings were held involving stakeholders from government, the private sector, and NGOs, all of which are members of a *comité de pilotage* (steering committee) created specifically to follow the preparation of this project. The Tunisian entrepreneur's association, UTICA, is a permanent member of the steering committee for the project. The project's steering committee would be converted into a permanent committee that would also follow the project's implementation and provide advice a minimum of once or twice a year. In addition, meetings were held with Tunisia's association of banks, SOTUGAR, and with numerous other Tunisian banks and leasing companies. During the preparation phase, a high degree of motivation has been observed among industrial enterprises, consultants, engineers, manufacturers, installers, and existing and potential ESCOs.

Stakeholder involvement is a key instrument in the proposed project, because of the project's long-term goal of sustainability and replication of the project model throughout the entire industrial sector – well beyond the 125 projects that can be co-financed directly through the project.

### **6.3 How does the project involve consultations or collaboration with NGOs or other civil society**

organizations?

Through the project's steering committee (see sections C.4 and E.4.2).

6.4 What institutional arrangements have been provided to ensure the project achieves its social development outcomes?

See section C.4 and Additional Annexes 12 and 14 of the PAD.

6.5 How will the project monitor performance in terms of social development outcomes?

See section E.6.1 and Additional Annexes 12 and 14 of the PAD.

## 7. Safeguard Policies:

7.1 Are any of the following safeguard policies triggered by the project?

Policy	Triggered
Environmental Assessment (OP 4.01, BP 4.01, GP 4.01)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Natural Habitats (OP 4.04, BP 4.04, GP 4.04)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Forestry (OP 4.36, GP 4.36)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Pest Management (OP 4.09)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Cultural Property (OPN 11.03)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Indigenous Peoples (OD 4.20)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Involuntary Resettlement (OP/BP 4.12)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Safety of Dams (OP 4.37, BP 4.37)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Projects in International Waters (OP 7.50, BP 7.50, GP 7.50)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Projects in Disputed Areas (OP 7.60, BP 7.60, GP 7.60)*	<input type="radio"/> Yes <input checked="" type="radio"/> No

7.2 Describe provisions made by the project to ensure compliance with applicable safeguard policies.

## F. Sustainability and Risks

### 1. Sustainability:

The project would contribute to the sustainability of energy efficiency in Tunisia's industrial sector by removing the barriers currently in place (section B.3). Based on an assumed 3 to 5 percent annual reduction of energy use in the industrial sector over the next decade, the potential savings in the sector would be around US\$140 million annually (ANME, 2002). Elsewhere, Tunisia's potential market in the industrial sector has been estimated at US\$76 to 182 million a year in investment value (Econoler, 2002).

The removal of institutional and administrative barriers, as well as the development of technical tools, would be addressed through the Technical Assistance component. Technical assistance would also address the lack of information in the industrial sector, through the provision of adequate training and awareness raising, and by enhancing the expertise of all potential market participants, including financial intermediaries.

The GEF Pilot Phase would help to demonstrate that shorter paybacks, financial sustainability, and replication can be achieved through the ESCO model, and in particular, that market aggregation for bulk

purchasing is an integral part of a package of efficiency services that could lead to economy and efficiency. The GEF pilot phase would enable industries to properly evaluate the opportunities created by energy efficiency, and would provide incentives for industries to undertake energy efficiency investments.

The removal of the 10 percent subsidy at the end of the pilot phase would not present a significant risk for the continuity of the energy efficiency investments in the industrial sector, as FODEC's subsidy of about 13 percent would be maintained. At that time, sufficient information should be available in the market for industry to propose energy efficiency measures for funding through FODEC. Also, FODEC may by that time include more explicit criteria to evaluate energy efficiency projects.

GEF's Partial Guarantee Fund would address the lack of financing for energy efficiency investments through the provision of guarantee-back finance for energy efficiency projects. In addition, the fund would assist in the creation of ESCOs, which would function as intermediaries in the development of projects. The ESCOs would be key to ensuring a sustainable energy efficiency market.

The Partial Guarantee Fund is expected to have a sustained market transformation effect, by lowering the perception of risk on the part of commercial banks and end-users regarding energy performance contracting and end-user financing models. Any remaining funds would be used to continue the guarantee facility beyond the lifetime of the project. By the end of the project, FODEC may be interested in assuming part of the role of the guarantee fund, or may be ready to extend funds to the Partial Guarantee Fund.

In the Tunisian context, rising energy prices and the affordability of energy services, combined with the need to comply with international environmental standards, provide inherent incentives to promote and implement energy efficiency investments, and would enhance project sustainability once the barriers to energy efficiency have been removed through the proposed project.

### **1a. Replicability:**

The project's elements may be replicable as follows:

- Following project completion, the project would be immediately replicable in the remainder of the industrial sector. The program ensures that the necessary technical knowledge is available in the market, and that adequate market actors have been developed. The axes for replication are the different industry sectors, the technologies, the ESCOs, and the financial intermediaries. The level of leveraged resources are discussed in the section on Financial Modality and Cost Effectiveness of the GEF Project Executive Summary. The leveraging potential is 14 times the GEF contribution, assuming a 70 percent rate of market penetration.
- The project uses a feature quite unique to the Tunisian context, the Tunisian competitiveness fund (FODEC), which is administered by the PMN. This vehicle creates substantial leverage for the GEF project. While a unique feature in the project, the principle of using an existing fund and refocusing its purpose to suit purposes of a specific project may well be suitable for replicability in another context.
- If successful replication of market-based solutions to energy efficiency can be extended to sectors other than industry, the project can also be applied to other economic sectors such as the commercial, institutional and services sectors. The creation of ESCOs would motivate these sectors to apply the same concept.

- The same type of project can be used as a showcase for other countries in the same region as Tunisia, for example Morocco and Egypt.
- The proposed project would be designed to include features and approaches that could be replicable, training program for other ESCOs, and program for wider dissemination of project information, ESCO performance and saving results and associated environmental benefits. Successful implementation of the ESCO approach in Tunisia would provide a very useful demonstration effect for other countries.

**2. Critical Risks** (reflecting the failure of critical assumptions found in the fourth column of Annex 1):

Risk	Risk Rating	Risk Mitigation Measure
<b>From Outputs to Objective</b>		
Institutional responsibilities for energy efficiency in the industrial sector are not clarified.	N	<ul style="list-style-type: none"> <li>· A law adopted in August 2004 has given full institutional responsibility to ANME for energy efficiency in the industrial sector.</li> <li>· The project steering committee, with all major stakeholders involved, would provide a platform for solving any inconsistencies in responsibilities as they may arise.</li> </ul>
Projected energy savings are not achieved.	M	<ul style="list-style-type: none"> <li>· During project development, engineering and financial consultants using best practices would be deployed.</li> <li>· Connections with strategic partners would be maintained, enabling the PMU and other project participants (including ESCOs) to tap their experience during start-up.</li> <li>· Savings predictions would be compared against industry benchmarks during project due diligence, and as a condition for the 10 percent subsidy.</li> <li>· Risks would be shared among all participants in the energy efficiency market.</li> </ul>
Local banks are not willing or able to co-finance energy efficiency projects on reasonable terms, or contribute to the equity of energy efficiency investments.	S	<ul style="list-style-type: none"> <li>· One or two banks would be selected early on for involvement in a specific investment, to demonstrate its savings potential.</li> <li>· The concept of energy performance contracts would be introduced to the banking industry during project start-up.</li> <li>· Training and partial guarantees would be provided to numerous local banks to incite competition based on economically attractive ESCO investments.</li> <li>· SOTUGAR will administer the Partial guarantee Fund. SOTUGAR's has expertise in managing commercial guarantees and has close access to commercial banks in Tunisia.</li> </ul>
Industry not willing to purchase energy	S	<ul style="list-style-type: none"> <li>· Information on investment and project</li> </ul>



<p>efficiency services.</p> <p>No new ESCOs enter into the energy efficiency market.</p>	S	<p>successes would be disseminated to industry.</p> <ul style="list-style-type: none"> <li>· GEF's 10 percent subsidy and Partial Guarantee Fund would reduce costs for industry.</li> <li>· Information on the project tools that assist with financing would be disseminated.</li> <li>· Capacity building would be targeted to offices such as engineering bureaus and Technical Centers that could readily enter into the ESCO business.</li> <li>· A course on business planning would be offered for ESCOs.</li> </ul>
<p><b>From Components to Outputs</b></p> <p>Inconsistency of the proposed financing arrangements with the legal framework, especially with respect to FODEC/PMN funds.</p> <p>Long lag-time before the first ESCO transactions take place, because of delays in designing a legally acceptable guarantee, or because start-up capital may be difficult to access.</p> <p>The default rate on loans guaranteed by the Partial Guarantee Fund exceeds the anticipated level.</p>	<p>M</p> <p>S</p> <p>N</p>	<ul style="list-style-type: none"> <li>· Financing arrangements under the project would be planned in close collaboration with the PMN/BMN.</li> <li>· Flexibility would be maintained in administering project finances.</li> <li>· SOTUGAR would provide a standard or framework guarantee text. not clear</li> <li>· An ESCO guarantee could possibly be converted into a working capital loan.</li> <li>· Efforts would be made to ensure that estimates for structuring guarantees and loans are based on real market figures.</li> <li>· Default rates would be monitored during project implementation, and checked against projections and comparable market benchmarks.</li> <li>· Exposure to risk would be reduced by strict oversight and accountability for the use of guarantee funds;</li> <li>· Conservative rules and guidelines would be maintained for guarantee management.</li> </ul>
<b>Overall Risk Rating</b>	M	

Risk Rating - H (High Risk), S (Substantial Risk), M (Modest Risk), N(Negligible or Low Risk)

### 3. Possible Controversial Aspects:

None

## G. Main Conditions

### 1. Effectiveness Condition

None



## 2. Other [classify according to covenant types used in the Legal Agreements.]

### During project implementation:

1. ANME and SOTUGAR shall submit to the Bank semi-annual progress reports.
2. ANME and SOTUGAR shall hire an independent auditor no later than three months after effectiveness of the project.
3. Midterm review of the project is to be undertaken in June 30, 2007.

## H. Readiness for Implementation

- 1. a) The engineering design documents for the first year's activities are complete and ready for the start of project implementation.
- 1. b) Not applicable.
- 2. The procurement documents for the first year's activities are complete and ready for the start of project implementation.
- 3. The Project Implementation Plan has been appraised and found to be realistic and of satisfactory quality.
- 4. The following items are lacking and are discussed under loan conditions (Section G):

## I. Compliance with Bank Policies

- 1. This project complies with all applicable Bank policies.
- 2. The following exceptions to Bank policies are recommended for approval. The project complies with all other applicable Bank policies.

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Noureddine Bouzaher  
**Team Leader**

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Francoise Clottes  
**Sector Manager**

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Theodore O. Ahlers  
**Country Manager/Director**

**Annex 1: Project Design Summary**  
**TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR**

<b>Hierarchy of Objectives</b>	<b>Key Performance Indicators</b>	<b>Data Collection Strategy</b>	<b>Critical Assumptions</b>
<p><b>Sector-related CAS Goal:</b> Sustainable development of energy demand in the industrial sector</p> <p>Enhanced competitiveness of industry</p>	<p><b>Sector Indicators:</b> Reduction in energy demand from industry, reflected in a reduction of operational cost.</p>	<p><b>Sector/ country reports:</b> Review and comment on report(s) prepared by PMU/ANME, which include(s) an industry assessment survey.</p>	<p><b>(from Goal to Bank Mission)</b> Macro-economic conditions and environmental policies do not discourage energy efficiency.</p>
<p><b>GEF Operational Program:</b> Sustained removal of barriers to energy efficiency and energy conservation.</p>	<p><b>Outcome / Impact Indicators:</b> Establishment of a sustainable energy efficiency market for Tunisian industry.</p> <p>Long-run greenhouse gas emissions reductions.</p>	<p>Annual Implementation and Performance Evaluation Reports</p>	<p>Energy efficiency gains are sustained and grow on the basis of proliferation of performance contracting principles.</p>
<p><b>Global Objective:</b> Declining energy intensity in the industrial sector.</p> <p>Increasing competitiveness in the industry.</p>	<p><b>Outcome / Impact Indicators:</b> Increased gross investment in energy efficiency in Tunisian industry corresponding to US\$25 million for the five-year implementation period of the project.</p>	<p><b>Project reports:</b> Impact calculation methods would be established as part of the grant negotiations. A report should be provided for WB review annually.</p>	<p><b>(from Objective to Goal)</b></p>

Hierarchy of Objectives	Key Performance Indicators	Data Collection Strategy	Critical Assumptions
<p><b>Output from each Component:</b></p> <p>A. GEF Pilot Phase for Energy Efficiency.</p> <p>B. GEF Partial Guarantee Fund.</p> <p>C. GEF Technical Assistance</p>	<p><b>Output Indicators:</b></p> <p>A1. Estimated greenhouse gas emission reductions as resulting from energy efficiency investment. Expected reduction of 127,284 tons of CO<sub>2</sub> annually and 636,422 tons over the project lifetime.</p> <p>A2. Quantified energy savings of at least 10 ktoe per year, but on average expected at 33 ktoe per year.</p> <p>A3. Number of projects generated and reaching financial closure – a minimum of 125 demonstration investments envisaged.</p> <p>B1. At least 3 ESCOs are operational</p> <p>B2. Commitment of at least 90 percent of the Partial Guarantee Fund.</p> <p>B3. At least 30 companies have ESCO-mediated projects</p> <p>B4. A minimum of 20 percent of energy efficiency projects in the industrial sector use the Partial Guarantee Facility.</p> <p>C1. Adoption of energy efficiency program planning in overall MOIE and/or BMN and/or ANER planning.</p> <p>C2. At least two Technical Centers develop a monitoring and verification procedure for energy efficiency investments.</p> <p>C3. Levels of co-financing for ESCOs and industry by commercial banks exceed 5 percent of all energy efficiency investments under</p>	<p><b>Project reports:</b></p> <p>Implementation reports that record these indicators.</p>	<p><b>(from Outputs to Objective)</b></p> <p>A3. Market-based skills are adapted and used by technically trained specialists.</p> <p>B1. Projected savings are achieved.</p> <p>B2. Industry willing to purchase energy efficiency services.</p> <p>B3. The process of agreeing to guarantees can be undertaken within a reasonable timeframe.</p> <p>C1. The responsibilities for energy efficiency measures in the industrial sector remain clear.</p> <p>C3. Financing terms enable payback periods acceptable to the energy efficiency providers and the clients.</p>

<b>Project Components / Sub-components:</b>	<b>Inputs: (budget for each component)</b>	<b>Project reports:</b>	<b>(from Components to Outputs)</b>
<p>A. GEF Pilot Phase for Energy Efficiency</p> <p>B. GEF Partial Guarantee Fund for ESCOs</p> <p>C. Technical Assistance</p>	<p>A. US\$25 million, including a GEF Grant of US\$2.5 million</p> <p>B. A GEF grant of US\$ 4.0 million</p> <p>C. US\$2.8, including a GEF Grant of US\$2.0 million</p>	<p>A1. Implementation progress reports</p> <p>A2. Supervision reports</p> <p>A3. Project management report (PMR)</p> <p>B. Fund manager reports</p> <p>C1. Implementation progress reports</p> <p>C2. Supervision reports</p> <p>C3. Project management report (PMR)</p>	<p>A. Local partners co-finance up to 90 percent of the component cost, and up to 70 percent of the audits.</p> <p>B. Default rate of energy service providers and investing companies would not exceed the anticipated level.</p> <p>C. None.</p>

## **Annex 2: Detailed Project Description**

### **TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR**

The proposed project is expected to have three main components: (a) establishment of a financial intermediation mechanism to support private sector energy efficiency investments (through ESCO projects, among others); (b) a sustainable Partial Guarantee Fund; and (c) technical assistance. It is estimated that of a total budget of US\$31.8 million, the MOIE would contribute US\$4.9 million, ESCOs/industrialists would contribute US\$5.6 million, and commercial banks would contribute US\$12.8 million. The local contribution to the total budget would thus amount to 85 percent. The project was identified in September 2002.

#### **(a) Component 1 - GEF Pilot Phase for Energy Efficiency (GEF: US\$2.5 million)**

The component suggests adding a grant element to an already existing fund, the FODEC. Presently the BMN (administrator of the FODEC, located at the MOIE) is providing an average of: 13 percent Grant on the proposed investments – a mix of 20 percent of the equity (representing 30 percent of the total investments), and 10 percent of the loan (representing the remaining 70 percent of the total investment).

The financial intermediation program would be developed and administered by the MOIE. The financing mechanism for energy efficiency projects would be implemented in parallel with the financing mechanism that exists under the BMN, which aims at enhancing competitiveness of the industrial sector in Tunisia.

The aim of this component is to address two of the main barriers to energy efficiency measures in the industrial sector in Tunisia:

- (a) the lack of project financing on reasonable terms for energy efficiency projects;
- (b) the production priority bias in the industrial sector, together with a lack of information on the benefits of energy efficiency measures.

To attract the attention of industrialists, it is important to create a real incentive for them to tackle the issue of energy efficiency and realize the potential in reductions of energy consumption. The failure of the mandatory energy efficiency audits to bring about any investments is due to the fact that they do not come with a financing package, and are administered by an organization – the ANME – - that is perceived to be too academic.

During the consultation phase of the concept note, it was agreed that MOIE/GEF funds should be allocated on the basis of a number of underlying principles. These include: (a) the size of the reduction of the investment costs for the industrial private client (based on the current high perceived risk and transaction costs) relative to the market cost (based on the actual project risk determined over time); and (b) the extent to which MOIE/GEF funds would be replaced by the BMN contribution at the end of the project, as banks and clients become increasingly familiar with the energy efficiency market and its stakeholders (ESCOs, among others).

MOIE/GEF funds would not be used to support investments that could be financed from normal commercial sources or customers, which are not creditworthy. During project preparation, the operational mechanisms of the proposed financing program would be established, allocation of GEF funds defined, institutional organization and procedures of the project management unit (PMU) determined, and an exit

strategy for the project elaborated. Also, a detailed market assessment and a demand survey would be conducted to identify the size and scope of the financing program.

The aim of this project component would be to build the capacity of the BMN so that, following the phase-out of the GEF subsidy at the end of the project, the BMN could dedicate its own resources through a subsidy for energy efficiency measures in the industrial sector, to ensure the sustainability of the project. A decision to dedication of such funds would have to be made by the steering committee of the BMN. In the context of Tunisia, the GEF solar water heating project, implemented through ANME, is a good example of subsidies being sustained by the Tunisian Government beyond the funds available through the GEF.

**(b) Component 2 - GEF Partial Guarantee Fund (GEF: US\$4 million which includes a US\$0.5 million for management fee of the Guarantee Fund)**

To support efforts of the ESCOs to arrange for the financing of energy efficiency investments and to enhance the development of ESCOs in Tunisia, a Partial Guarantee Fund is to be put in place based on GEF finance. The guarantee would be attributed at 75% percent of the total loan to be financed. In order to minimize risk of default, only ESCOs or other intermediaries would be eligible for such guarantees. For the remainder of project financing, investors/ESCOs would have to rely on commercial banks to extend credit to customers directly. The Partial Guarantee Fund would be implemented by SOTUGAR, Tunisia's private guarantee facility, of which all commercial banks are members. The maximum level of coverage guarantee would be US\$200,000.

Risk mitigation provisions for these commercial banks could consist of one or more of the following options:

- a contingent grant from the GEF to create a loan loss reserve and/or guarantee to provide for the risks of customer default;
- commercial bank's own internal guarantee on MEI funds, properly priced and paid for by the customer or subsidized by the MOIE/GEF, where appropriate;
- provisions of guarantees by an insurance company, paid by the customer or MOIE/GEF.

**(c) Component 3 - GEF Technical Assistance (GEF: US\$2 million)**

The project would provide technical assistance for many different stakeholders throughout the implementation of the project. These activities include: (a) training local financial institutions in the assessment of energy efficiency projects, the ESCO concept, and the evaluation proposals; (b) technical assistance to other intermediaries for the development of bankable projects and the mechanisms to secure project financing and the creation of ESCOs (including existing ANME/MOIE audits and investment plans, in addition to the proposed partial guarantee mechanism. The partial guarantee mechanism implies that financing is made available to individual customers on the basis of proven results of their project in the industrial sector., and ESCO project proposals development; and (c) market development support through energy end-user information dissemination and development of a limited number of demonstration projects. During project preparation work, a range of potential mechanisms would be identified to reduce the gap between audit realization and project financing/implementation.

On top of the development of ESCO support, other options may include establishment of a project

development group, associated with the bank partners, to proactively seek investment opportunities and facilitate negotiations among customers, auditors/ESCOs, and banks. Additional activities under this component could include a detailed policy and procedural review of the project implementation strategies, information dissemination support for the project itself, and capacity building for all other relevant institutions (government organizations, professional associations, equipment providers, customers associations, etc.).

**By Component:**

**Project Component 1 - US\$ million**

**Annex 3: Estimated Project Costs**  
**TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR**

<b>Project Cost By Component</b>	<b>Local US \$million</b>	<b>Foreign US \$million</b>	<b>Total US \$million</b>
GEF Pilot Phase for Energy Efficiency	22.50	2.50	25.00
GEF Partial Guarantee Fund for ESCOs		4.00	4.00
Technical Assistance	0.80	2.00	2.80
<b>Total Baseline Cost</b>	<b>23.30</b>	<b>8.50</b>	<b>31.80</b>
<b>Physical Contingencies</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Price Contingencies</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Total Project Costs<sup>1</sup></b>	<b>23.30</b>	<b>8.50</b>	<b>31.80</b>
<b>Total Financing Required</b>	<b>23.30</b>	<b>8.50</b>	<b>31.80</b>

<sup>1</sup> Identifiable taxes and duties are 0 (US\$m) and the total project cost, net of taxes, is 31.8 (US\$m). Therefore, the project cost sharing ratio is 26.73% of total project cost net of taxes.



**Annex 4: Cost Benefit Analysis Summary**  
**TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR**

Not Applicable

**Annex 5: Financial Summary**  
**TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR**

Not Applicable

**Annex 6(A): Procurement Arrangements**  
**TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR**

**Procurement**

1. ANME, under the Ministry of Industry and Energy (MOIE), would be the project beneficiary and would act as the project implementation agency for the GEF Grant. ANME would be responsible for monitoring the project's overall procurement activity, including compliance with procedures and timetables agreed with Bank.

The project components 1 and 2 would be procured in accordance with established commercial practices acceptable to the Bank, pursuant to paragraph 3.12 of the "Guidelines for Procurement Under IBRD Loan and IDA Credits."

The project's implementation would require significant technical assistance services for studies, training, and other consultants assignments (95 percent of the project), for which selecting, contracting, and monitoring of consultants would be the predominant procurement activity. Procurement of goods would be limited to office supplies, vehicles, hardware and software equipment to be used by ANME, representing 5 percent of the project cost.

**Use of Bank Guidelines and Standard Bidding Documents**

2. Procurement under the proposed Project would be carried out in accordance with "Guidelines for Procurement under IBRD Loans and IDA Credits," dated May 2004; and "Guidelines: Selection of Consultants by World Bank Borrowers," dated May 2004.

**Advertising**

3. A General Procurement Notice (GPN) would be published online in "*United Nations Development Business*" (UNDB) at least 8 weeks before the issuance of the first Request for Proposals for services costing US\$200,000 or more.

**Procurement Implementation Arrangements**

4. Procurement activities would be carried out by ANME, which would be responsible for the implementation, supervision, and monitoring of the overall project, including its Technical Assistance component. The project management unit (PMU) would be located at the ANME under direct responsibility of ANME's director. A project manager has been appointed. The PMU would be composed of the project manager and several engineers for the implementation of their respective programs, including procurement decisions that affect their activities. The PMU has appointed an experienced procurement specialist (PS), who would ensure timely procurement of goods and services. Terms of reference of the PS of the components would include, inter alia: (a) coordination of the procurement planning and monitoring; (b) collection from the technical units of the components all technical specifications of goods to be procured, and Terms of references for consultants services; and (c) prepare/finalize procurement-related documents for goods and requests. Requests for Proposals for consultants' services.

## Procurement Capacity Assessment

5. A procurement capacity assessment (PCA) of the project implementing agency, ANME, was initiated and completed during project pre-appraisal (January 2004). The capacity assessment was based on: the (a) Tunisia Public Legislation, (b) past procurement performance, including the same organizational structure and staffing under the Solar Water Heating Project; (c) review of filing system; and (d) and interviews of staff. The assessment found that the in-house expertise for the preparation of technical specifications and terms of reference and project planning are satisfactory. The procurement staffs have a very good understanding of National Procurement Procedures, and a good knowledge of Bank procurement procedures. However, it was agreed that the Bank would conduct training on the selection of consultants to strengthened to capacity of the PMU.

The Bank has judged that the overall risk is low (detailed procurement capacity assessment report is available in the project technical documents).

In addition, an assessment of commercial practices has being carried out. As a result of this assessment, such practices, acceptable to the Bank, pursuant to paragraph 3.12 of the "Guidelines for Procurement under IBRD Loans and IDA Credit," would be reflected in the "Contrat-Programme" among between ANME, the Industrial Companies, and the ESCOs.

## Procurement Plan

6. The procurement plan for project implementation is shown below:

(a) Goods and Works and non-consulting services (US\$ million).

1	2	3	4	5	6	7	8	9
Ref. No.	Contract (Description)	Estimated Cost	Procurement Method	Prequalification (yes/no)	Domestic Preference (yes/no)	Review by Bank (Prior/Post)	Expected Bid-Opening Date	Comments
	Vehicles	0.05	G	no	no	Post	12/04	
	Equipment	0.05	G	no	no	Post	12/04	

(b) Consulting Services (US\$ million)

1	2	3	4	5	6	7
Ref. No.	Description of Assignment	Estimated Cost	Selection Method	Review by Bank (Prior / Post)	Expected Proposals Submission Date	Comments
1	Development & implementation of program procedures	0.3	QCBS	Prior	01/05	
2	Regulatory Framework	0.2	QCBS	Prior	01/05	
3	Training of technical centers on monitoring & verification	0.3	QCBS	Prior	04/05	
4	Training on ESCOs	0.2	CQ/QCBS	Prior	03/05	
5	Training on Energy Efficiency	0.3	QCBS	Prior	01/05	
6	Training of commercial financial institution, including SOTUGAR	0.2	CQ/QCBS	Prior	01/05	
7	Awareness & dissemination of results	0.1	CQ/QCBS	Prior	07/05	
8	PMU assistance	0.2	IS/CQ	Prior	12/04	
9	M&E+	0.1	IS/CQ	Prior	08/05	

The revised plan would be included in the Project Operation Manual. This Plan has been furnished to the Bank for its review and approval, in accordance with the provisions of paragraph 1 of Appendix I to the Guidelines. At the end of each calendar year, the Borrower would update the Procurement Plan with a detailed procurement schedule for the coming year.

### Procurement Implementation Arrangements

#### 7. Procurement of Goods

**Goods** under subgrants component 1 (US\$2.5 million) and component 2 (US\$3.5 million - guarantee fund) would be procured in accordance with established commercial practices acceptable to the Bank, in accordance with the provisions of paragraph 3.12 of the "Guidelines for Procurement under IBRD Loans and IDA Credits."

**Shopping** would be used for procuring goods (including equipment, materials, commodities, etc.) of standard specifications available off the shelf for contracts of less than US\$50,000 each.

#### 8. Selection of Consultants

##### Firms

The following procurement methods for selection of consultants would be used: (a) Quality and Cost-Based Selection method (QCBS) would be used for selection of consultant services with value of contracts estimated at more than US\$200,000 equivalent; and (b) Selection Based on Consultant's Qualifications (CQ) would be used for assignments estimated at more than US\$100,000 equivalent per contract for the technical assistance.

## Individuals

Specialized advisory services would be provided by individual consultants, selected by comparison of qualifications of at least three candidates and hired in accordance with the provisions of paragraphs 5.1 through 5.3 of the Consultant Guidelines.

A Short list of consultants for services estimated to cost less than \$200,000 equivalent per contract, may be composed entirely of national consultants, in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

### **Frequency of Procurement Supervision Mission proposed**

9. The proposed frequency of procurement supervision missions, including special procurement supervision for post-review/audits, is one every 12 months.

#### **Procurement methods (Table A)**

**Table A: Project Costs by Procurement Arrangements**  
(US\$ million equivalent)

Expenditure Category	Procurement Method <sup>1</sup>			N.B.F.	Total Cost
	ICB	NCB	Other <sup>2</sup>		
<b>1. Works</b>	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
<b>2. Goods</b>	0.00 (0.00)	0.00 (0.00)	0.15 (0.10)	0.00 (0.00)	0.15 (0.10)
<b>3. Services</b>	0.00 (0.00)	0.00 (0.00)	2.65 (1.90)	0.00 (0.00)	2.65 (1.90)
<b>4. Subgrants (component 1 and component 2 - Guarantee Fund)</b>	0.00 (0.00)	0.00 (0.00)	28.50 (6.00)	0.00 (0.00)	28.50 (6.00)
<b>5. Management Fee for Guarantee Fund</b>	0.00 (0.00)	0.00 (0.00)	0.50 (0.50)	0.00 (0.00)	0.50 (0.50)
<b>Total</b>	0.00 (0.00)	0.00 (0.00)	31.80 (8.50)	0.00 (0.00)	31.80 (8.50)

<sup>1/</sup> Figures in parentheses are the amounts to be financed by the Bank Grant/Other (Specify). All costs include contingencies.

<sup>2/</sup> Includes civil works and goods to be procured through national shopping, consulting services, services of contracted staff of the project management office, training, technical assistance services, and incremental operating costs related to (a) managing the project, and (b) re-lending project funds to local government units. It also includes US\$22.5 million of co-financing from the commercial banks, MOIE and Industrial Companies

**Table A1: Consultant Selection Arrangements (optional)**  
(US\$ million equivalent)

Consultant Services Expenditure Category	Selection Method							Total Cost <sup>1</sup>
	QCBS	QBS	SFB	LCS	CQ	Other	N.B.F.	
<b>A. Firms</b>	1.30 (1.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.70 (0.30)	0.00 (0.00)	0.00 (0.00)	2.00 (1.30)
<b>B. Individuals</b>	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.65 (0.60)	0.00 (0.00)	0.65 (0.60)
<b>Total</b>	1.30 (1.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.70 (0.30)	0.65 (0.60)	0.00 (0.00)	2.65 (1.90)

<sup>1)</sup> Including contingencies

Note: QCBS = Quality- and Cost-Based Selection

QBS = Quality-based Selection

SFB = Selection under a Fixed Budget

LCS = Least-Cost Selection

CQ = Selection Based on Consultants' Qualifications

Other = Selection of individual consultants (per Section V of Consultants Guidelines), Commercial Practices, etc.

N.B.F. = Not Bank-financed

Figures in parentheses are the amounts to be financed by the Bank Grant/Other (Specify).

Prior review thresholds (Table B)

**Table B: Thresholds for Procurement Methods and Prior Review<sup>1</sup>**

<b>Expenditure Category</b>	<b>Contract Value Threshold (US\$ thousands)</b>	<b>Procurement Method</b>	<b>Contracts Subject to Prior Review (US\$ millions)</b>
<b>1. Works</b>	N/A	N/A	N/A
<b>2. Goods</b>	<50	NS	None
<b>3. Services</b> Firms  Individual	>200	QCBS	All contracts: Cumulative prior review amount: US\$ 1.1
	<200	CQ/QCBS/Others	Above \$100,000: Cumulative prior review amount: US\$ 0.5
	>50	See Section V of Guidelines	All: Cumulative prior review amount: US\$ 0.3
	<50	See Section V of Guidelines	TORs only
		Direct Award	All Direct Award Contracts

**Total value of contracts subject to prior review:** US\$1.9 million

**Overall Procurement Risk Assessment:** Low

**Frequency of procurement supervision missions proposed:** One every 12 months  
(includes special procurement supervision for post-review/audits)

<sup>1</sup> Thresholds generally differ by country and project. Consult "Assessment of Agency's Capacity to Implement Procurement" and contact the Regional Procurement Adviser for guidance.



## **Annex 6(B): Financial Management and Disbursement Arrangements TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR**

### **Financial Management**

#### **1. Summary of the Financial Management Assessment**

##### **General Framework**

An analysis of the financial management system of the project's two executing agencies, ANME and SOTUGAR, was recently undertaken. The system's main characteristics are described below.

#### **1. ANME**

##### **1.1 Accounting System**

ANER is a non-administrative public enterprise created by Decree — Law no. 85-8 of September 14th, 1985, on energy economics, and uses a commitment accounting method as required by the Accounting System for Enterprises promulgated by Law 96-112 of December 1st, 1996, based for the most part on international accounting norms and principles. ANER was renamed ANME through Decree 2004-72 of August 2, 2004 to reflect better its mandate and activities, in particular energy efficiency. ANME's financial statements are reconciled by December 31st of each fiscal year as follows: a statement of account balances; a statement of treasury flows; and financial statement "notes." Accounting operations are currently centralized in a unit which is part of the financial and administrative department. ANME's accounting department includes only two individuals, which explains its inadequate financial recording. This department's ongoing activities include the following:

- Control and recording of expenses/revenues;
- General expenses and salaries;
- Monthly bank reconciliation;
- Updating company ledgers;
- Inventories.

Accounting documents are recorded by ANME's accounting department on a chronological basis and by topic as follows:

- General ledger;
- Overall accounts ledger;
- Global balance sheet.

ANME has not yet prepared an accounting manual, as required by the Accounting System for Enterprises.

##### **1.2 External Control**

Legally, ANME is under the control of a certified public accountant (CPA) who is a member of the Tunisian Institute of Certified Public Accountants (INCA). The CPA's mandate is to examine the books, funds, and portfolio of the enterprise, and to oversee the regularity of financial inventories, as well as the accuracy of accounting data collected and recorded in the council's report. ANME's financial statements, which were closed on December 31st, 2002, have been certified by the CPA.

Moreover, as a public enterprise, ANME is under the authority of the INCA, which oversees the following:

- Strategic management;
- Organization;
- Resource management and recruitment policies.

In the absence of official legal operating guidelines, INCA can enforce its authority when deemed necessary.

### **1.3 Information System and Financial Reporting**

ANME's financial management system is satisfactory overall. Although the detailed review conducted at appraisal showed areas in need of improvement, these related mainly to management issues, which normally face newly created institutions. More specifically, ANME still lacks :

- A procedures manual and an accounting manual: In the absence of these documents, sound coordination and distribution of responsibilities cannot be ensured;
- An internal audit department;
- Analytical accounting methods;
- Application software to monitor the budget.

### **1.4 Budgetary Control System**

ANME is responsible for preparation of the following annual reports :

- Operating budget;
- Investment budget;
- Development budget.

#### *Budget Preparation*

Preparation of the agency's annual budget is the responsibility of the Department of Programming, Monitoring, and Development, based on each department's estimates and their projected annual requirements. Operating and investment budgets are submitted to the ministry concerned (Ministry of Industry) for its approval.

#### *Budget Monitoring*

The Department of Programming, Monitoring and Development follows up on budget requirements. However, certain gaps still exist, such as:

- The lack of a software program for budget monitoring, which hinders the smooth operation of the Budget Office and does not facilitate the link between accounting and budgets;.
- The agency does not have an analytical accounting system in place to identify project costs.

## **2. SOTUGAR**

### **2.1 Accounting System**

SOTUGAR, a limited liability company created in May 2003, has a commitment accounting system as required by the Accounting System for Enterprises promulgated by Law 96-112 of December 31st, 1996, based largely on international accounting norms and principles. Its books are closed as of December 31st for the following financial reports: balance sheet (active capital); current status; treasury flow statement; and financial statements. At present, accounting functions are distributed by a department comprising only one person who reports to the Director General. Since SOTUGAR was recently created, it does yet have approved financial statements and an accounting manual, as required by the Accounting System for Enterprises.

### **2.2 External Controls**

SOTUGAR's operations are overseen by a certified public accountant (CPA) who is a member of the Tunisian Institute of Certified Public Accountants.

### **2.3 Information System and Financial Reporting**

SOTUGAR's financial management system is satisfactory overall. Although a detailed review conducted at appraisal showed areas in need of improvement, these related mainly to management issues which a new institution would normally face. More specifically, SOTUGAR still lacks:

- A procedures manual and an accounting manual. In the absence of such documents, solid coordination and distribution of responsibilities cannot be ensured;
- An internal audit department;
- A legal department;
- Application software to monitor its projects;
- A sufficient number of well-trained financial managers to monitor and control expenditures eligible for funding under the project.

## **3. Strengths and Weaknesses**

### **3.1 Strengths**

During appraisal, the mission noted the following strong points, which underline the strong financial management viability of both agencies:

1. The accounting systems of both ANME and SOTUGAR are commitment -oriented;
2. The agencies' annual financial statements are audited by an independent accountant;
3. ANME has experience in the management of World Bank projects.

WEAKNESSES	RECOMMENDATIONS
<p><b>1. Executing Agencies</b></p> <p><b>ANME and SOTUGAR</b></p> <p>The institutional framework, responsibilities and financial authority of both agencies are not well defined.</p> <p><b>2. Flow of Funds</b></p> <p><b>ANME</b> ANME does not have a control system in place to monitor the Special Account. The Special Account opened at the BCT for the “Solar Water Heating” Project in Tunisia was not monitored by ANME.</p> <p><b>SOTUGAR</b> SOTUGAR was recently created and does not yet have sufficient experience in the management of guarantee funds or World Bank funds, nor does it have the software capacity to monitor funds which it guarantees.</p>	<p>A clear description of the institutional framework, responsibilities and financial authority for both agencies would be defined under a general agreement to be signed by the two institutions.. Project financial management procedures must be described and could be included in the project operation manual.</p> <p><b>ANME</b> An accurate monitoring system must be implemented within ANME for the Special Account at BCT.</p> <p><b>SOTUGAR</b> The quality of personnel within the financial unit in charge of the study and the guarantee documentation must be improved. A legal department as well as an audit department must be created. Application software must be acquired for project monitoring. A procedures manual must be written. The European Commission has provided SOTUGAR with the services of an international expert in technical assistance. The duration of these services should be extended.</p>

WEAKNESSES	RECOMMENDATIONS
<p><b>3. Human Resources</b></p> <p><b>ANME</b> The Commitments and Regulations Office has not been trained in project financial management, more specifically in the Bank’s financial monitoring system.</p> <p><b>SOTUGAR</b> SOTUGAR was recently created and has a small work force (6 staff). Therefore, accurate monitoring</p>	<p><b>ANME</b> Staffing must be increased in the Commitments and Regulations Office, and a financial manager should be recruited. Staff should be trained in financial management of projects, more specifically in the Bank’s financial monitoring system.</p> <p><b>SOTUGAR</b> The financial department should be strengthened by recruiting a financial manager to ensure</p>

<p>of projects which it guarantees is difficult.</p> <p><b>4. Internal Control Mechanisms</b></p> <p><b>ANME</b> ANME does not have: (a) a procedures manual or an accounting manual, which impedes function coordination and distribution of responsibilities; (b) an internal audit department; (c) an analytical system of accounting; and (d) a software application to monitor the budget.</p> <p><b>SOTUGAR</b>  SOTUGAR does not have a procedures manual or an accounting manual, impeding function coordination and distribution of responsibilities. SOTUGAR does not have an internal audit department. SOTUGAR does not have application software to monitor projects which it guarantees.</p>	<p>monitoring and control of specific cases eligible for financing under the project's guarantee fund. Creation of a legal department, and training for SOTUGAR personnel in management of project guarantees and in the Bank's financial management system..</p> <p><b>ANME</b> The development of an administrative procedures manual and an accounting manual. Creation of an internal audit department and recruitment of an experienced financial manager and the necessary associated funds to ensure adequate monitoring. Creation and implementation of an analytical accounting system. Application software for budget monitoring.</p> <p><b>SOTUGAR</b>  The development of an administrative procedures manual and an accounting manual. Creation of an internal audit department. Application software for budget monitoring of projects which it guarantees.</p>
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#### 4. Project Financial Management Arrangement

##### 4.1 Project Management

The Project Management Unit (PMU) would be part of ANME. The PMU as Executing Agency/ANME would be responsible for the implementation of Components 1 and 3 of the project, and SOTUGAR would be in charge of Component 2. The PMU, which would include qualified industrial engineers, would be assisted by ANME support units, especially in the fields of management, finance, procurement, and communication/awareness programs. It is important to note that the project's institutional framework, as well as the two executing agencies' financial responsibilities, are not clearly defined. However, the preparation of a Project Operations Manual and standard agreement between the two agencies should help to bridge these gaps

##### 4.2 Project Financial Management Regulations

The executing agencies are in charge of the project's operations and financial affairs, based on existing procurement, payment and accounting structures. Project bookkeeping operations would be included in the respective agencies' accounts, and would adhere to the internal controls mentioned above, under the supervision and signatory authority of the agency directors.

Financial management regulations to be used in project execution should be described in a financial management manual or included in the project operation manual in order to provide the necessary operational coherence and efficiency. The PMU would be responsible for the preparation of this manual which would include formal procedures, responsibilities and position descriptions for staff assigned to the project or working on its behalf (within the two executing agencies), as well as the relationship between the two agencies, payment methods and timetable for submission of bookkeeping records to the PMU. The financial management manual would include: (a) an organizational chart of project management responsibilities; (b) project accounts and operational regulations; (c) internal control procedures; (d) a sample report on project financial monitoring; and (e) auditing arrangements. This manual should be used by both executing agencies as a reference guide during the project implementation period.

#### **4.3 Project Bookkeeping**

The PMU would have a general coordination role and would be responsible for preparation and delivery of financial monitoring reports, as required by the Bank, based on consolidated data from SOTUGAR. ANME's office of commitments would ensure that financial statements are maintained for all project components and would assist PMU monitoring in this regard. This office comprises one manager and two executing agency staff who manually monitor ongoing projects using Excel, but lack adequate training in World Bank financial management systems. This office would require strengthening through: (a) the recruitment of a financial manager; (b) staff training in financial management systems; and (c) the implementation of an application software system capable of analyzing variables and summary statements based on specific data required for accurate financial monitoring.

#### **4.4 Financial Monitoring Report**

World Bank guidelines on financial monitoring reports have been given to the PMU, which would be responsible for preparing these financial reports. These reports are as follows:

- A procurement report;
- A project progress reports with target indicators;
- A financial report, including:
  - a statement on staffing and available resources with their sources of financing, use and available balances;
  - a monitoring statement on contractual liabilities by component;
  - a statement of disbursement by component category; and
  - a reconciliation sheet for CS balances.

Sample financial monitoring reports (FMR) would be agreed before project launching. These sample tables would be computer-generated by the PMU, based on a reconciliation of accounting and financial data from both executing agencies. The FMR would be prepared every six months and would be submitted to the Bank at the latest 45 days after the end of each semester.

#### **4.5 Action Plan**

The actions below and target completion dates will be discussed during the upcoming appraisal mission.

<b>Action</b>	<b>Responsibility</b>	<b>Target date</b>
Preparation of operational manual and official agreement (Convention) between SOTUGAR and ANME.	PMU	Sept/2004
Finalization of financial management procedures and purchase of application software for project management	PMU	At launching of the Project
Training of ANME's commitment ANME office staff in project financial management, especially the Bank's financial monitoring system.	ANME	At launching of the Project
Strengthening of SOTUGAR's financial department by recruitment of a financial manager to oversee: (a) studies; (b) monitoring; and (c) eligible contracts under the project's guarantee fund.	SOTUGAR	Nov. /2004
Training of SOTUGAR staff in management of project guarantees and the Bank's financial management system.	SOTUGAR	At launching of the Project
Purchase of software capable of monitoring and evaluating projects guaranteed by SOTUGAR.	SOTUGAR	Oct /2004
Strengthening of staffing in ANME commitment offices by recruitment of lead financial management specialist.	ANME	Oct 2004
Creation and implementation of a legal department and an internal audit department at SOTUGAR.	SOTUGAR	Sep 2005
Preparation of an administrative procedures manual and an accounting manual.	ANME & SOTUGAR	Sep 2005
Creation of an internal audit department.	ANME	Jul 2005
Creation and implementation of analytical accounting system within ANME.	ANME	Jan 2005
Purchase of software package for budget monitoring.	ANME	Jan 2005

## **2. Audit Arrangements**

The borrower would appoint an independent auditor acceptable to the Bank to perform an annual audit in accordance with International Standards on Auditing (ISA), as issued by the International Federation of Accountants, and with specific terms of reference acceptable to the Bank. The auditor would provide a professional opinion on the project financial statements and would submit an annual audit report to the Bank within six months of the end of the fiscal year. The audit would be detailed and would cover all aspects of the project, including all sources and uses of funds. It would also cover the internal control and financial management system.

## **3. Disbursement Arrangements**

Disbursement Methods. The proceeds of the grant would be disbursed in accordance with the traditional Disbursement procedures of the Bank and would be used to finance project activities through the disbursement methods currently in use: i.e., withdrawal applications for direct payments, for special commitments and/or reimbursements, accompanied by appropriate supporting documentation or on the basis of a Statement of Expenditures (SOEs), in accordance with the procedures described in the Disbursement Letter and the Bank's "Disbursement Manual". As the execution of the project's components is entrusted to two different executing agencies (ANME and SOTUGAR), each of the agencies would be responsible for submitting the appropriate supporting documentation for services rendered or activities implemented under its component, either to the Central Bank of Tunisia (CBT), so that payments can be made from the Special Account opened for that purpose, or for direct payment to the Bank. In case payments are to be made from the Special Account, the executing agencies are required to send to CBT

payment orders for services rendered or activities implemented, along with supporting documentation. The CBT, in turn, reviews the documentation received to ensure its compliance with the terms of the grant agreement and project documentation, as well as the eligibility of the expenditures being incurred. CBT, then proceeds with the payment, if these expenditures are deemed eligible. The CBT monitors the level of the Special Account (SA), and prepares and submits withdrawal applications to the Bank for replenishment of the Special Account. Under existing disbursement procedures, the Executing Agencies would also be permitted to submit withdrawal applications for direct payment as well as special commitments, accompanied by the necessary supporting documentation. As projected by Bank's standard disbursement profiles, disbursements would be completed four months after project closure.

**Allocation of grant/other (specify) proceeds (Table C)**



**Table C: Allocation of Grant/Other (Specify) Proceeds**

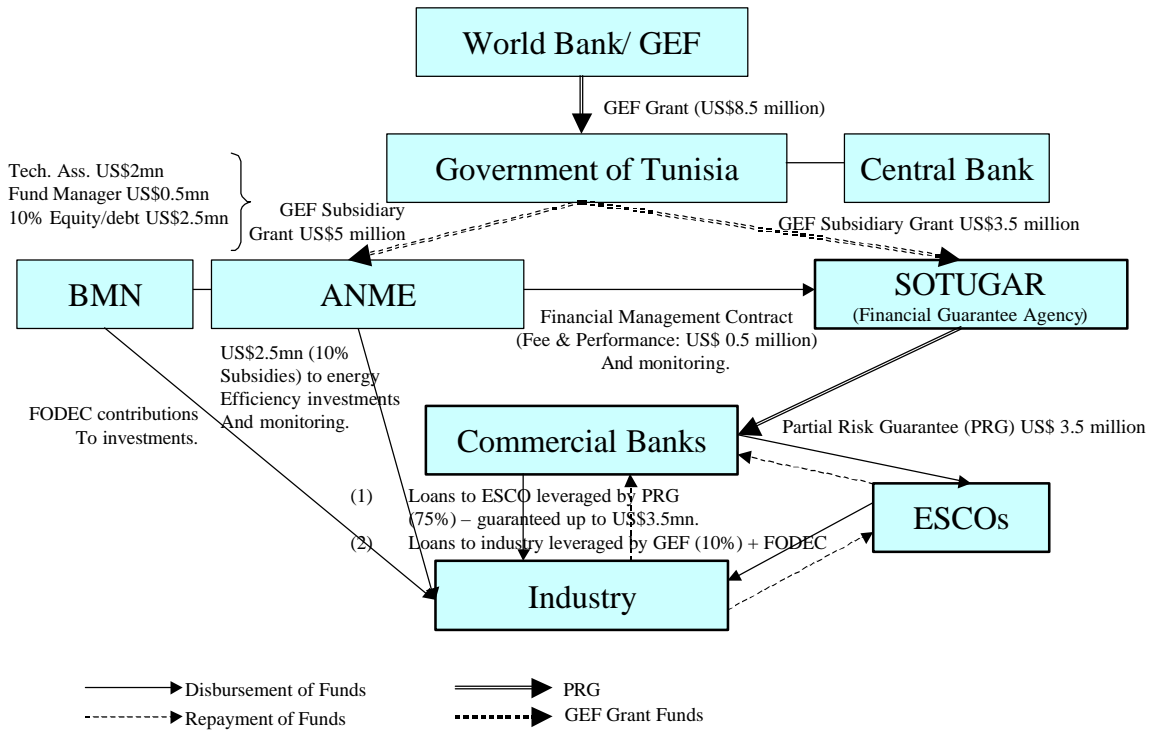
<b>Expenditure Category</b>	<b>Amount in US\$million</b>	<b>Financing Percentage</b>
Subprojects	2.50	100
Guarantee Fund	3.50	100
Management Fee for the Guarantee	0.40	100
T.A. Consultancy Services	1.60	100
Unallocated	0.50	100
<b>Total Project Costs with Bank Financing</b>	8.50	
<b>Total</b>	8.50	

All applications to withdraw proceeds from the grant would be fully documented, except for : (a) expenditures of contracts with an estimated value of US\$100,000 equivalent, or less for sub-grants and consulting firms; and (b) US\$50,000 or less for individual consultants and for the Management Contract , which may be claimed on the basis of certified Statements of Expenditures (SOEs). Documentation supporting expenditures claimed against SOEs would be retained by the CBT, and would be available for review when requested by Bank supervision missions and project auditors. All disbursements would be subject to the conditions of the Grant Agreement and the procedures defined in the Disbursement Letter.

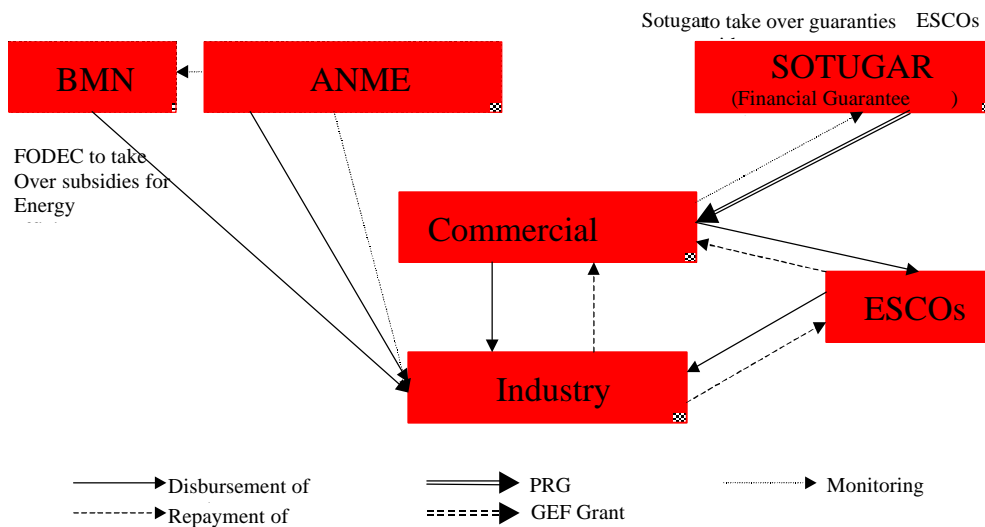
**Special account:**

Special Account. To facilitate disbursement of eligible expenditures, the Government would open two Special Accounts at CBT to cover part of the grant's share of eligible expenditures for the two components of the project to be managed by the Central Bank . The first Special Account (Special Account ANME ) would finance activities under parts A , B.2, and C of the project, whereas the second Special Account (Special Account SOTUGAR) would cover expenditures under part B.1 of the project. The authorized allocation of the ANME Special Account would be the equivalent of US\$600,000, covering an estimated four months of eligible expenditures financed by the loan, while the authorized allocation of the SOTUGAR Special Account would be the equivalent of US\$500,000. CBT would responsible for submitting monthly replenishment applications with appropriate supporting documentation for expenditures incurred, and would retain and make the documents available for review by Bank supervision missions and project auditors. The replenishment applications would be prepared on the basis of information provided by each executing agency . To the extent possible, all of the grant's share of expenditures should be paid through the Special Accounts opened for that purpose. The supporting documentation would include reconciled bank statements and other documents as may be required.

## Flow of funds for energy efficiency investments during project implementation



## Flow of funds for energy efficiency investments after project



**Annex 7: Project Processing Schedule**  
**TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR**

<b>Project Schedule</b>	<b>Planned</b>	<b>Actual</b>
<b>Time taken to prepare the project (months)</b>		
<b>First Bank mission (identification)</b>	07/10/2003	
<b>Appraisal mission departure</b>	07/15/2004	
<b>Negotiations</b>	07/15/2004	
<b>Planned Date of Effectiveness</b>	11/30/2004	

**Prepared by:**

**Preparation assistance:**

**Bank staff who worked on the project included:**

<b>Name</b>	<b>Speciality</b>
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Nourredine Bouzaher	Co-Task Team Leader
Fanny Missfeldt-Ringius	Environmental Economist
Afef Khaleil	Financial Management
Meryem Benchemsi	Financial Management
Hocine Chalal	Environmental Safeguards
Radia Lalouani	Procurement Analyst
Umar Kamarah	Social Safeguards
Hakim Zahar	Energy Efficiency Specialist
Zakia Chummun	Program Assistant

**Annex 8: Documents in the Project File\***  
**TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR**

**A. Project Implementation Plan**

**B. Bank Staff Assessments**

**C. Other**

Law 94-127, Article 37 as published in the Official Journal of the Republic of Tunisia on 30/31 December 1994: The competitiveness fund FODEC.

Decree no. 95-916 of 22 May 1999, which fixes the responsibilities of the Ministry of Industry.

Decree no. 99-2741 of 6 December 1999, which governs the rules of organization, functioning as well as the modalities of intervention of the competitiveness fund FODEC.

Decree no. 2000-134 of 18 January 2000, about the organization of the Ministry of Industry.

Presidential dDecisions regarding energy efficiency (2001).

**Other Publications:**

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\*Including electronic files

**Annex 9: Statement of Loans and Credits**  
**TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR**  
19-Jul-2004

Project ID	FY	Purpose	Original Amount in US\$ Millions			Cancel.	Undisb.	Difference between expected and actual disbursements <sup>a</sup>	
			IBRD	IDA	GEF			Orig	Frm Rev'd
P088929	2005	TN-ICT Sector Development Project	13.13	0.00	0.00	0.00	13.35	0.00	0.00
P082999	2004	TN-Education PAQSET II	130.34	0.00	0.00	0.00	123.17	8.92	0.00
P071115	2004	TN-Export Development II	36.00	0.00	0.00	0.00	37.61	0.00	0.00
P072317	2003	TN-NW Mountainous and For. Areas Dev.	34.00	0.00	0.00	0.00	37.97	3.27	0.00
P074398	2003	TN-MUNICIPAL DEVELOPMENT III	78.39	0.00	0.00	0.00	81.24	10.54	0.00
P048315	2002	TN-Protected Areas Management Project	0.00	0.00	5.33	0.00	4.78	1.79	0.00
P064082	2001	TN-TRANSPORT SECTOR INVESTMENT	37.60	0.00	0.00	0.00	34.06	14.91	0.00
P005750	2001	TN-AGRIC. SUPPORT SVCS	21.33	0.00	0.00	0.00	24.42	4.48	0.00
P048825	2001	TN-CULTURAL HERITAGE	17.00	0.00	0.00	0.00	20.75	5.12	0.00
P050945	2000	TN-Education PAQSET I	99.00	0.00	0.00	0.00	42.66	7.16	0.00
P035707	2000	TN-WATER SECTOR INVESTMENT PROJECT	103.00	0.00	0.00	0.00	68.45	7.50	0.00
P055814	1999	TN-EXPORT DEVELOPMENT	35.00	0.00	0.00	0.00	10.50	10.50	2.73
P005741	1998	TN Higher Education Reform Support I	80.00	0.00	0.00	0.00	29.87	28.38	4.57
P043700	1998	TN-TRANSPORT SECTOR INV	50.00	0.00	0.00	0.00	11.53	13.63	2.00
P005731	1997	TN-GREATER TUNIS SEWERAGE	60.00	0.00	0.00	6.95	20.62	32.37	6.83
<b>Total:</b>			<b>794.79</b>	<b>0.00</b>	<b>5.33</b>	<b>6.95</b>	<b>560.98</b>	<b>148.57</b>	<b>16.13</b>

TUNISIA  
STATEMENT OF IFC's  
Held and Disbursed Portfolio  
Mar - 2004  
In Millions US Dollars

FY Approval	Company	Committed				Disbursed			
		IFC				IFC			
		Loan	Equity	Quasi	Partic	Loan	Equity	Quasi	Partic
1995	Maghreb IM Bank	0.00	0.33	0.00	0.00	0.00	0.33	0.00	0.00
1986/98	SITEX	0.00	0.77	0.00	0.00	0.00	0.77	0.00	0.00
1998	Tuninvest	0.00	4.29	0.00	0.00	0.00	4.29	0.00	0.00
	Total Portfolio:	0.00	5.39	0.00	0.00	0.00	5.39	0.00	0.00

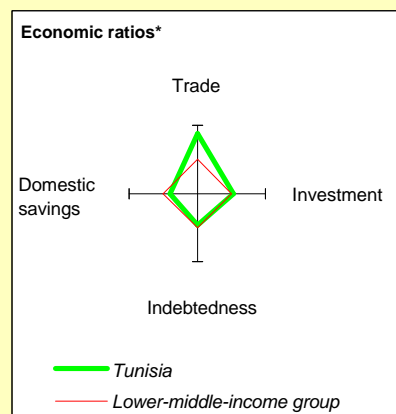
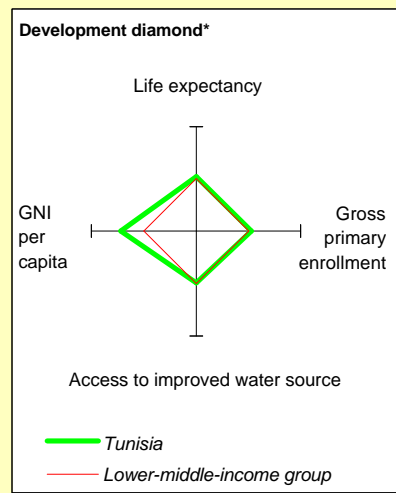
  

FY Approval	Company	Approvals Pending Commitment			
		Loan	Equity	Quasi	Partic
	Total Pending Commitment:	0.00	0.00	0.00	0.00

## Annex 10: Country at a Glance

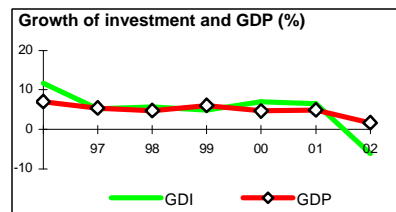
### TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR

	Tunisia	M. East & North Africa	Lower-middle-income		
<b>POVERTY and SOCIAL</b>					
<b>2002</b>					
Population, mid-year (millions)	9.8	306	2,411		
GNI per capita (Atlas method, US\$)	2,000	2,070	1,390		
GNI (Atlas method, US\$ billions)	19.6	670	3,352		
<b>Average annual growth, 1996-02</b>					
Population (%)	1.2	1.9	1.0		
Labor force (%)	2.4	2.9	1.2		
<b>Most recent estimate (latest year available, 1996-02)</b>					
Poverty (% of population below national poverty line)	..	..	..		
Urban population (% of total population)	67	58	49		
Life expectancy at birth (years)	73	69	69		
Infant mortality (per 1,000 live births)	24	37	30		
Child malnutrition (% of children under 5)	4	..	11		
Access to an improved water source (% of population)	80	88	81		
Illiteracy (% of population age 15+)	27	35	13		
Gross primary enrollment (% of school-age population)	117	95	111		
Male	120	98	111		
Female	115	90	110		
<b>KEY ECONOMIC RATIOS and LONG-TERM TRENDS</b>					
	1982	1992	2001	2002	
GDP (US\$ billions)	8.1	15.5	20.0	21.2	
Gross domestic investment/GDP	31.7	34.3	27.9	25.8	
Exports of goods and services/GDP	36.9	39.5	47.1	44.3	
Gross domestic savings/GDP	21.2	27.4	23.4	21.4	
Gross national savings/GDP	22.5	26.4	23.6	22.4	
Current account balance/GDP	-9.2	-7.0	-4.3	-3.5	
Interest payments/GDP	2.7	2.6	2.1	2.2	
Total debt/GDP	46.4	55.1	54.5	57.2	
Total debt service/exports	16.2	20.0	13.9	15.4	
Present value of debt/GDP	..	..	54.2	..	
Present value of debt/exports	..	..	102.7	..	
	1982-92	1992-02	2001	2002	2002-05
(average annual growth)					
GDP	3.8	4.7	4.9	1.7	4.7
GDP per capita	1.3	3.2	3.7	0.5	3.7

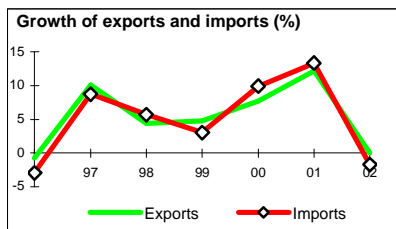


#### STRUCTURE of the ECONOMY

	1982	1992	2001	2002
<i>(% of GDP)</i>				
Agriculture	13.2	16.1	11.6	10.4
Industry	31.1	28.5	28.8	29.1
Manufacturing	11.1	16.5	18.5	18.6
Services	55.8	55.4	59.5	60.5
Private consumption	62.3	56.6	60.9	62.3
General government consumption	16.5	16.0	15.7	16.3
Imports of goods and services	47.4	46.5	51.7	48.7



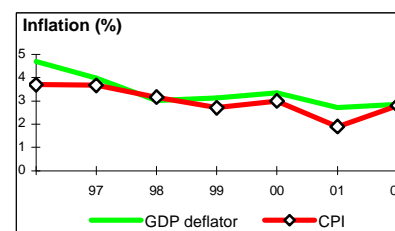
	1982-92	1992-02	2001	2002
<i>(average annual growth)</i>				
Agriculture	5.3	1.9	-1.5	-10.3
Industry	3.6	4.8	5.7	3.4
Manufacturing	2.0	5.6	6.9	2.2
Services	3.4	5.3	6.0	3.7
Private consumption	2.7	4.6	5.4	3.4
General government consumption	3.0	4.2	5.0	4.5
Gross domestic investment	0.8	3.7	6.4	-6.2
Imports of goods and services	3.0	4.7	13.4	-1.7





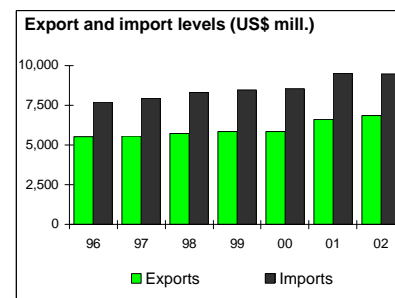
## PRICES and GOVERNMENT FINANCE

	1982	1992	2001	2002
<b>Domestic prices</b>				
<i>(% change)</i>				
Consumer prices	..	5.8	1.9	2.8
Implicit GDP deflator	16.0	5.7	2.7	2.8
<b>Government finance</b>				
<i>(% of GDP, includes current grants)</i>				
Current revenue	31.7	26.8	24.6	24.6
Current budget balance	6.7	4.1	5.2	4.7
Overall surplus/deficit	-2.2	-3.0	-3.5	-3.1



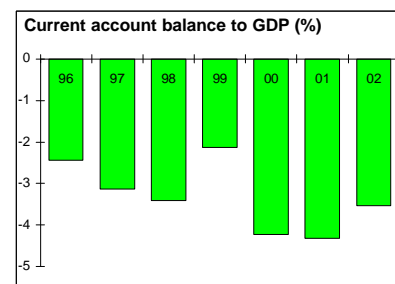
## TRADE

	1982	1992	2001	2002
<i>(US\$ millions)</i>				
Total exports (fob)	1,980	4,014	6,606	6,857
Fuel	911	609	610	641
Agriculture	63	416	541	489
Manufactures	965	2,432	4,981	5,272
Total imports (cif)	3,389	6,432	9,521	9,503
Food	356	430	654	653
Fuel and energy	377	449	888	886
Capital goods	1,032	1,578	2,240	2,236
Export price index (1995=100)	..	79	151	154
Import price index (1995=100)	..	89	107	109
Terms of trade (1995=100)	..	89	141	141



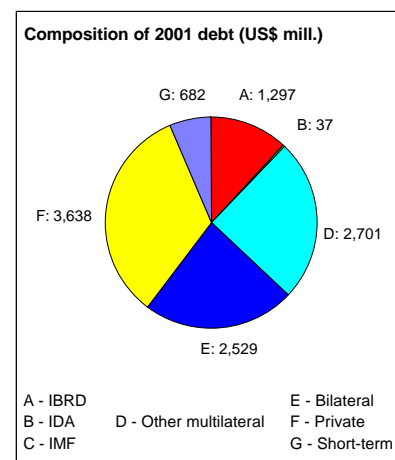
## BALANCE of PAYMENTS

	1982	1992	2001	2002
<i>(US\$ millions)</i>				
Exports of goods and services	3,002	5,973	9,518	9,539
Imports of goods and services	3,859	6,978	10,423	10,431
Resource balance	-856	-1,005	-905	-893
Net income	-294	-654	-941	-984
Net current transfers	403	570	983	1,130
Current account balance	-748	-1,089	-863	-746
Financing items (net)	776	1,171	1,118	895
Changes in net reserves	-27	-82	-255	-149
<b>Memo:</b>				
Reserves including gold (US\$ millions)	614	862	1,999	2,301
Conversion rate (DEC, local/US\$)	0.6	0.9	1.4	1.4



## EXTERNAL DEBT and RESOURCE FLOWS

	1982	1992	2001	2002
<i>(US\$ millions)</i>				
Total debt outstanding and disbursed	3,772	8,543	10,884	12,100
IBRD	376	1,470	1,297	1,464
IDA	68	56	37	35
Total debt service	563	1,342	1,465	1,641
IBRD	53	267	226	233
IDA	1	2	2	2
Composition of net resource flows				
Official grants	29	140	..	..
Official creditors	279	278	365	-90
Private creditors	29	74	229	556
Foreign direct investment	340	526	..	..
Portfolio equity	0	0	0	..
World Bank program				
Commitments	0	210	328	112
Disbursements	83	111	293	117
Principal repayments	27	149	148	156
Net flows	56	-39	145	-39
Interest payments	27	120	80	79
Net transfers	29	-159	65	-118



## **Additional GEF Annex 11: FODEC – Tunisia’s Industrial Competitiveness Development Fund TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR**

### **FODEC’s Mission**

The Tunisian Industrial Competitiveness Development Fund (FODEC) is a special fund that aims at enhancing the competitiveness of Tunisian industry, in order to prepare companies for the opening of the Tunisian to the European Union market. The fund is managed by the “*Programme de Mise à Niveau (PMN)*” through the BMN unit (*Bureau de Mise à Niveau*), which is a special unit in the Ministry of Industry and Energy (MOIE). The PMN has been in operation since 1996, for a total of 6 years.

The fund’s mission is to:

- Contribute to financing measures to improve the quality of industrial commodities;
- Help finance industrial restructuring operations;
- Finance strategic sector studies; and
- Undertake any other measures aimed at developing industrial competitiveness.

### **FODEC Resources**

The FODEC is financed by contributions from industry through a tax levied on local and imported products. The tax is leveled at 1 percent of a company’s turnover, and on the value of custom duties for imports. It is collected through custom duties for imported as well as local commodities, based on a monthly statement established by producers of commodities that are subject to this tax. The same deadlines as for value added taxes apply. This tax is collected locally based on a monthly statement.

**Activities eligible for funding.** The FODEC supports industrial competitiveness in several ways:

**(1)** Financial assistance for investments aimed at upgrading schemes within a company or for specific priority operations aimed at improving industrial competitiveness. Eligible investments include:

- Modernization techniques and production process technologies;
- Activity re-conversion and adaptation to markets;
- Investments for specific priority operations aimed at improving industrial company competitiveness;
- Diagnostic studies and upgrading plans prior to actual upgrading; and
- All immaterial investments for specific purposes aimed at improving competitiveness.

Banks and Technical Centers are responsible for monitoring and implementing the investments of beneficiary enterprises. Relevant agreements are reached between the Ministry of Finance and the banking institutions concerned.

**(2)** Financial assistance to conduct diagnostic enterprise studies within the restructuring of enterprises in financial difficulty in accordance with Law No. 95-34, dated April 17th, 1995.

**(3)** Annual subsidies for Technical Centers to support their operation, equipment and financial activities.

(4) Financial assistance for programs aimed at promoting the quality of upgrades, and all other programs aimed at improving the industrial competitiveness of supporting institutions.

The Ministry of Industry and Energy (MOIE), through the PMN/BMN, approves assistance payments for industrial entities based on advice provided through a consultative committee consisting of 18 representatives from Ministries, the Tunisian Industrial, Trade and Craft Industry Union, the General Union of Tunisian Workers, and financial institutions.

**Steering Committee.** This steering committee of the FODEC consists of:

- The Minister of Industry and Energy or his representative (President)
- A representative of the Ministry of Finance (Member)
- A representative of the Ministry of International Cooperation and External Investments (Member)
- A representative of the Ministry of Industry (Member)
- A representative of the Ministry of Economic Development (Member)
- A representative of the Ministry of Professional Training and Employment (Member)
- A representative of the Ministry of Trade (Member)
- Five representatives of the Tunisian Industrial, Trade and Craft Industry Union (Members)
- A representative of the General Union of Tunisian Laborers (Member)
- Five representatives of financial institutions (Members).

These members are designated by the Ministry of Industry and Energy, through nominations from concerned ministries, organizations and institutions. The President of the Steering Committee may also suggest any individual whose contribution is deemed relevant for the committee's work. This individual would not, however, have voting power. The Consultative Committee's secretariat is handled by the BMN.

The Consultative Committee meets periodically, at least once every three months, by order of its president and according to an agreed agenda which is transmitted to committee members at least one week before the meeting is held.

Committee deliberations are only valid if at least half of its constituency is present. If a quorum is not reached, the committee will reconvene, regardless of the number of members present, and after an official meeting notice has been issued.

Committee proposals are based on a consensus of members present, and are recorded in minutes prepared by the Office of Upgrading, for review by the Ministry of Industry. The consultative committee can request the views of its sub-committee on financial assistance on requests from the Fund for investments, up to a fixed amount designated by the Minister of Industry and Energy and on the recommendation of the sub-committee.

**FODEC's Financial Assistance.** For projects that have been found to be eligible for support, the following subsidy rates apply:

- Financial aid of up to 20 percent of the share of investment that is financed through company-owned funds;
- Financial aid of up to 10 percent of the share of investment that is financed through a loan;
- Financial aid of up to 50 percent of priority equipment costs, with a ceiling of 100,000 TND (about US\$79,808) for each enterprise. This assistance can be renewed every five years. The

consultative committee decides on which priority equipment is selected from a pool of specific upgrading activities;

- Financial aid limited to 70 percent of the cost of diagnostic studies undertaken before upgrading works, with a ceiling of 30,000 TND (about US\$ 23,943);
- Financial aid limited to 70% percent of immaterial investments for upgrading purposes;

Financial aid limited to 70 percent of specific, immaterial, priority investments, with a ceiling of 70,000 TND (about US\$55,866) for each company. This aid can be renewed every five years.

Financial assistance for diagnostic studies and plans prior to upgrading can be cleared after approval by the company that is to implement measures to enhance its competitiveness. Contributions made to technical modernization investments and technology production processes involved in upgrading should not cover the cost of infrastructure works outside the enterprise itself.

### **Monitoring**

In order to enhance the incentive for companies to implement the agreed measures to enhance their competitiveness, financial assistance is disbursed in tranches, following agreed implementation steps. If approved works do not start within one year of the payment order date, the Industry Ministry's decision for financial aid is cancelled. Except in the case of "*force majeure*", approved works not undertaken, or non-compliance with payment orders, would require total or partial reimbursement of assistance funds given to enterprises, according to the degree of work performed. Reimbursement of assistance funds is made in accordance with the decision of the Minister of Industry and Energy and based on the advice of the consultative committee, which interviews the beneficiary at an official meeting.

### **FODEC's Achievements (until 30 June 2003)**

#### **(1) Files considered for funding by the FODEC:**

Registered with the PMN	: 2,619 companies
Files under review	: 1,113 companies
Files reviewed by the PMN	: 1,202 companies
Approved projects	: 1,498 companies
Refused projects	: 8 companies
Refusal rate	: less than 1 percent

**(2) Total Approved Investments** : 2,484.0 million TND (about US\$1,987 million)

**(3) Total Approved Grants (FODEC)** : 351.6 million TND (about US\$281 million)  
(14% percent of total approved investment)

#### **(4) Grant Disbursements:**

Feasibility studies	: 14.4 million TND (US\$11.5 million); (4.09 percent)
Soft costs	: 226.0 million TND (US\$180.8 million); (31.62 percent)
Equipment	: 111.2 million TND (US\$88.9 million); (64.27 percent)

**Procedures that would be applied in the context of a GEF Energy Efficiency Project vis-à-vis FODEC**

- As they enhance competitiveness of industry, energy efficiency measures in the industrial sector are and would be eligible for financing under the FODEC.
- The energy efficiency files (projects) would be submitted to the unique counter of the PMN, which would pass it on to the PMU at ANME. Eligibility for FODEC and GEF grants would be considered in parallel.
- Technical oversight of cases of energy efficiency in the industrial sector would be the responsibility of ANME through the PMU, and with the assistance of the PMN.
- Official regulations on energy efficiency in the industrial sector are being harmonized among existing programs.

The exchange rate used here is US\$1.25 = 1 TND.

## **Additional GEF Annex 12: Monitoring of Environmental and Social Impacts of the Project TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR**

The effort of monitoring and verifying potential Environmental and Social Impacts, which were discussed in the main document, would be led by the PMU, to be housed at Tunisia's renewable energy agency, ANME would develop a set of guidelines and promotional brochure to increase awareness in this area.

This is important as monitoring and verification (M&V) activities are paramount for the success of the project. Since about 125 investments would be made over the lifetime of the GEF project, it is expected that the monitoring of project implementation and verification of energy savings and CO<sub>2</sub> emissions, including reporting to GEF (see Annex 14 of the PAD and Annex 6 of the Project Brief), would be intense. During the first few months of project implementation, an M&V methodology and an implementation plan would be developed. The M&V information would provide the basis for the development of the success stories to be used, for example, in outreach activities.

Achievements in the area of environmental and social impacts would both be measured through indicators describing the enhancement of the

- Institutional;
- Individual;
- Project-by-project; and
- Pollutant-by-pollutant / impact-by-impact

capacity to monitor and verify environmental and social impacts.

Indicators for monitoring the **institutional capacity** to monitor and verify environmental and social impacts are as follows:

- ANME would aggregate information on environmental and social indicators, which are gathered by the Technical Centers for all energy efficiency investments individually;
- Technical Centers would include in their monitoring and verification procedures for energy efficiency projects, elements pertaining to the environment and society;
- At the end of the project, at least two Technical Centers would have developed a monitoring and verification procedure for energy efficiency investments, which would also includes aspects pertaining to the environment and society.

Indicators to measure how the project would enhance the **individual or expert capacity** to monitor and verify environmental and social impacts would be based on indicators such as:

- Workshops and number of training held for both M&V experts and industry;
- Number of participants in workshops.;

Surveys among workshop participants could elicit how many participants would use skills learned in practice.

On a **project-by-project** level, the following issues would be monitored, and the minimization of negative impacts verified:

- Reduction of energy use;
- Reduction of greenhouse gas emissions;

- Reduction of dust;
- Reduction of noise through new equipment's;
- Impact on employment through new investments;
- Environmentally sound disposal of solid and liquid wastes when equipment is being replaced;
- Procedures for battery disposal to minimize the hazard of mercury in the groundwater.;

## **Additional GEF Annex 13: Overview of the Project's Administrative Procedures TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR**

The project's administrative management procedures consists of four phases: awareness raising / sensitization, preparation of funding request, analysis of request, and realization of the project. The various administrative stages of these phases are listed below. The flowcharts below illustrates the process.

### **Phase A: Awareness raising/ sensitization**

- Establishment of detailed rules and procedures for the operation of the project;
- Design of a presentation sheet for the project;
- Design of various means of communication (brochures, handouts, mailing lists, etc.);
- Organization of project promotion events (seminars, specialized workshops, roundtables, publications, websites);
- Encouragement of public-private partnerships for the development of ESCOs.
- Reinforcement of institutional and legal framework;
- Dissemination of results.

### **Phase B-1: Training**

- Technical training for ESCOs, engineering offices and consultants on:
  - Identification of energy efficiency technologies as they apply to the industrial sector;
  - Risk evaluation;
- Specialized training for ESCOs on:
  - The concept of ESCO;
  - Development of bankable projects;
  - Financial management.
- Training of financial institutions (banks, SOTUGAR, leasing companies, etc.);
- Training of Technical Centers on:
  - How to develop a protocol for Monitoring and Verification of project performance;
  - Training of the trainers on the ground;
  - Assistance for the establishment of testing workshops for new energy efficiency equipment (technologies with large but unverified penetration potential in the Tunisian market).

### **Phase B-2: Preparation of funding request**

- Industrial companies would contact the PMU in order to be informed about procedures to follow when preparing a funding request;
- The industrial companies would consult with various stakeholders for the preparation of their proposal, using one of the following procedures:
  - Through direct request at engineering offices, consultants, and suppliers;
  - Through performance contract with an ESCO, which is to be established in collaboration with the financial institutions and the manager of the partial risk



guarantee fund (SOTUGAR).

- The industrial companies would consult with the PMU on the approach that they are intending to take in preparing the funding request before submitting it to the PMN/BMN or to ANME.

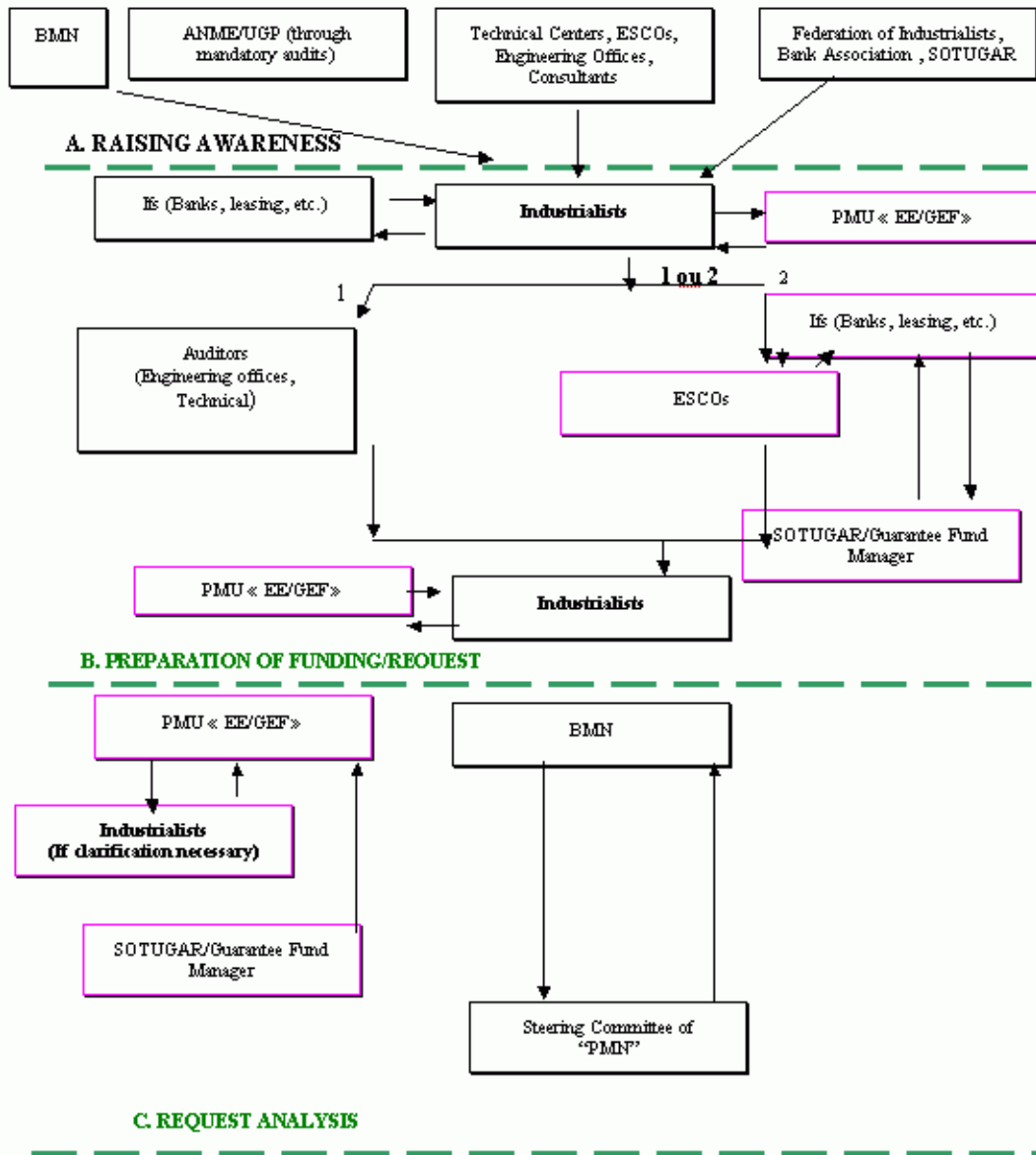
#### **Phase C: Analysis of Request**

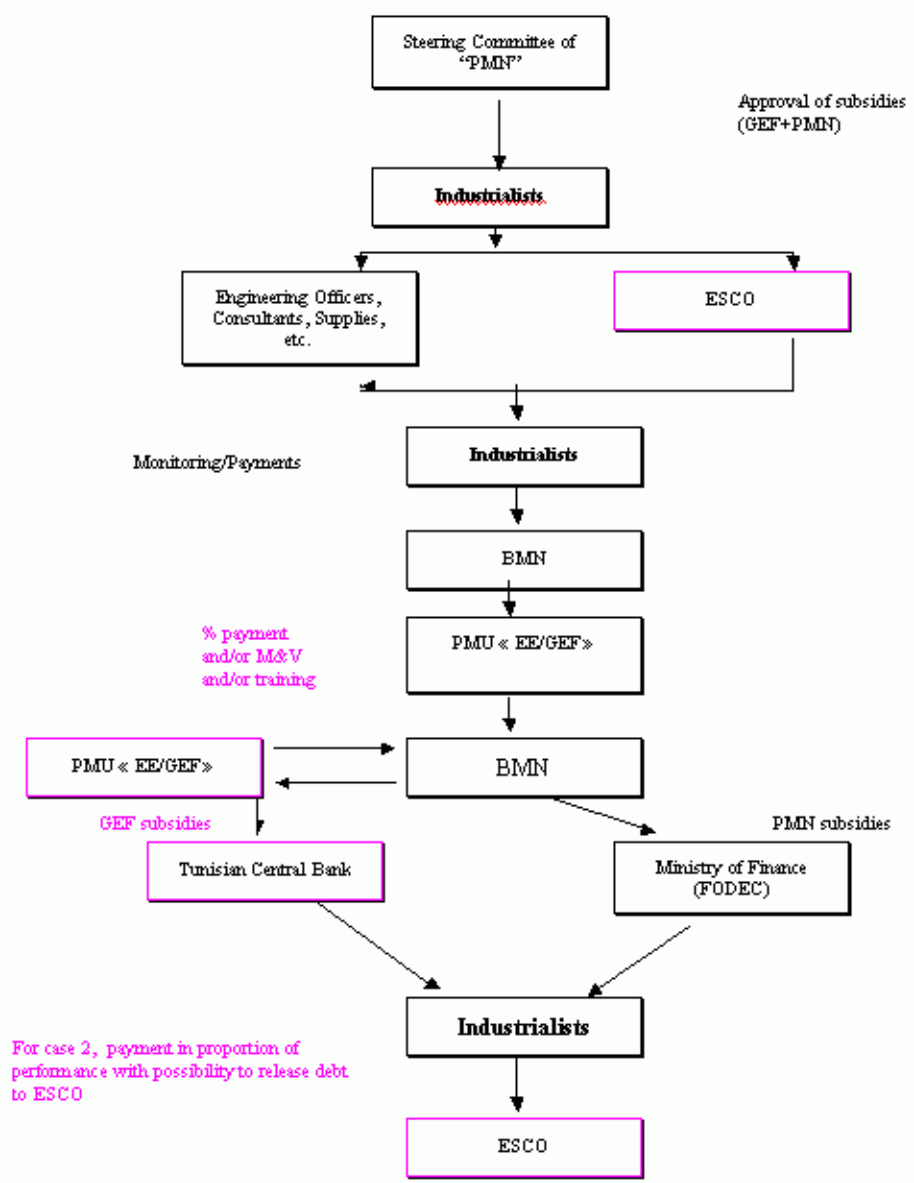
- The industrial company submits its request for funding to the unique counter of the PMN, housed in the MOIE. The request relating to energy efficiency needs to be written up separately in the total request for funding by the industrialist;
- Following eligibility verification of the request, the PMN would pass on to the PMU/ANME those projects that have an energy efficiency component for study and technical advice;
- If necessary, the PMU requests clarification from the company and/or other relevant stakeholders on issues pertaining to the request for funding. This includes consultation with the partial risk guarantee fund manager in the event that an ESCO is involved in the suggested project;
- If necessary, the PMU will coordinate with SOTUGAR, in the case, where the request intends to include an ESCO with guarantee for the funding of the energy efficiency component;
- The decision made by the PMU is communicated to the PMN; and
- The steering committee of the PMN takes a decision pertaining to the subsidy from the FODEC and informs the PMU and the industrial company about the final result.

#### **Phase D: Realization of Project**

- The industrial company submits a request to the PMN for disbursement of funds. The request relating to energy efficiency needs to be written up separately in the total request for funding;
- The PMN informs the PMU about this request;
- The technical follow-up is done for the respective subsidies through the PMN and the PMU;
- The PMU disburses the subsidy via the Tunisian Central Bank in proportion to the amount disbursed by the PMN concerning the energy efficiency component.

The graphs below illustrate how the administration of the three program components is envisaged.





**D. PROJECT REALISATION**

## **Additional GEF Annex 14: Monitoring and Evaluation TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR**

### **1. Institutional Arrangements**

Monitoring and Evaluation (M&E) would be conducted by a consultant to be contracted by the Project Management Unit (PMU) at ANME, following World Bank procedures. Monitoring and evaluation would include environmental and social Impacts of the project, as required by the World Bank's safeguards policy. As the project is likely to engender activities through numerous stakeholders in many types of combinations, it is important to employ a consultant for the M&E task that has a good overview of the emerging market in Tunisia. ANME is ideally placed for supervising the task of such a consultant, as ANME possesses the largest database on industry's energy efficiency activities. This is due to the auditing and reporting obligation that all large companies have vis-à-vis ANME. The M&E work would be funded at US\$100,000 through the Technical Assistance component of the project.

### **2. Functions**

Evaluation would be performed relative to the output and outcome performance indicators shown in Annex 1 and Table 1 below. In addition to the output and outcome performance indicators, energy efficiency of the industrial sector during the project lifetime would be tracked. M&E would be based on the following functions:

- Confirmation of baseline assumptions and extraction of baseline parameters, in line with the annex on incremental cost analysis;
- Conversion of energy savings data into greenhouse gas emission reductions;
- Aggregation of sub-project- level indicators into the project-level indicators of Annex 1, and those required for environmental and social safeguards;
- Collection of sub-project level information from ESCOs and, the Partial Guarantee Fund (SOTUGAR), and through regular reporting requirements of industry to ANME;
- Internal monitoring;
- Assistance in the mid-term review and advising on corrective actions to stimulate the market (if project objectives are not being achieved);
- Review of performance indicators at project completion;
- Demonstration to local stakeholders of the global and local environmental benefits of energy efficiency measures in the industrial sector, through dissemination of results.

The **data** gathered would focus on both energy and financial savings, through energy efficiency measures implemented in the industrial sector. Savings would be recorded in accordance with the standards set by the International Measurement and Verification Protocol (Volume 1, 2002). In training activities that ANME would conduct under other activities of the Technical Assistance Component, elements of the M&E of energy efficiency activities would be taught specifically, in order to ensure that the emerging market intermediaries are able to monitor their activities, and so that data can be gathered readily for project M&E.

**Internal monitoring** would cover items such as: costs and savings to date, relative to budget; expected total costs and savings at contract completion, relative to budget; expected financial position at contract termination, relative to any performance guarantee; physical progress to date, relative to plan; and any

proposed revisions to project plan or budget, as a result of variances to date.

The **mid-term review** would include an analysis of:

- ESCO reports on sales activities, to assess the fraction of proposed projects achieving financial closure;
- The Partial Guarantee Fund reports on guarantee commitments (including an assessment of whether the level of guarantee should be revised, given observations in the emerging market) administered by SOTUGAR;
- The projects that received funding through the 10 percent subsidy administered by ANME (including an assessment of whether the level of the subsidy should be changed to suit the developing market);
- Whether and how commercial banks are getting involved in the energy efficiency market.

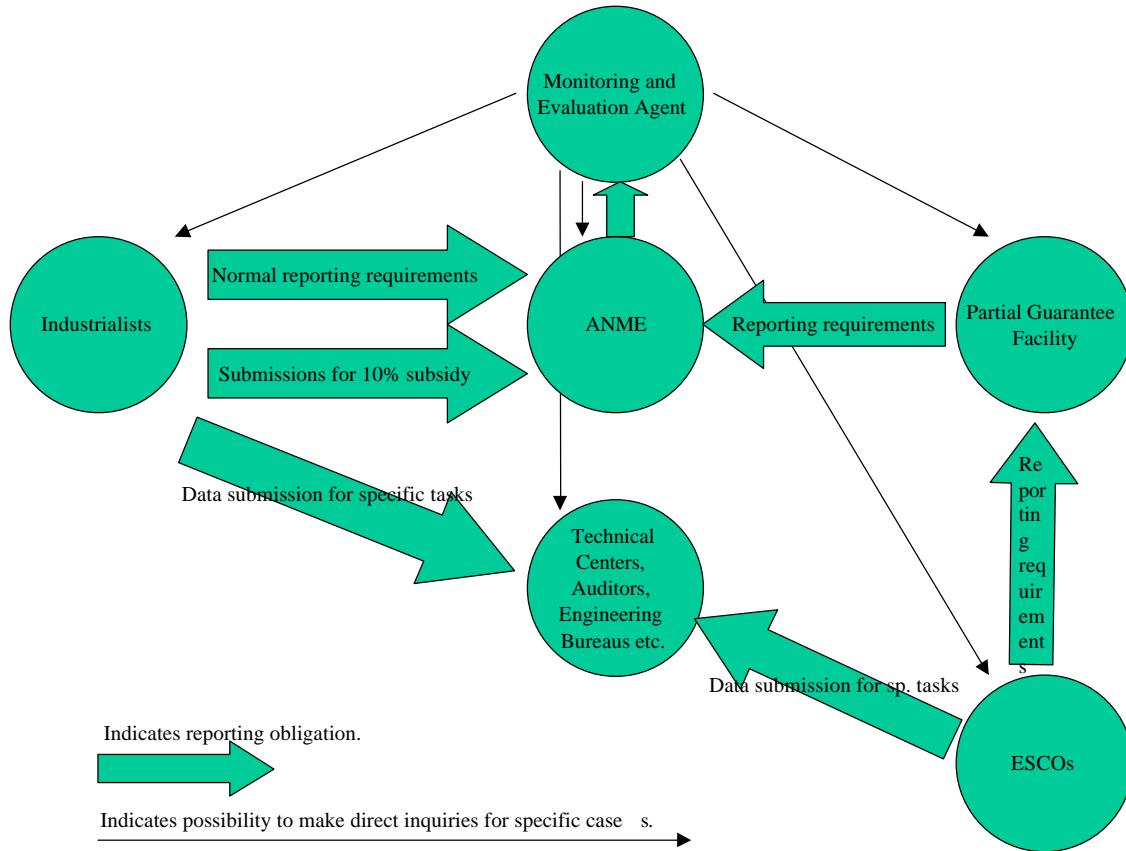
#### 4. Reports

Monitoring and evaluation reports would be delivered in year 1 (baseline confirmation), year 3 (mid-term), and year 5 (at project completion).

**Table 1: Key output and outcome performance indicators**

<b>1. Outcome/Impact Indicators</b>	
	Establishment of a sustainable energy efficiency market for Tunisian industry.
	Increased gross investment in energy efficiency in Tunisian industry corresponding to US\$25 million for the five-year implementation period of the project.
<b>2. Output Indicators</b>	
2.1 GEF Pilot Phase for Energy Efficiency	Estimated greenhouse gas emission reductions resulting from energy efficiency investment. Expected reduction of 127,284 tons of CO <sub>2</sub> annually and 634,422 over the project lifetime.
	Quantified energy savings of at least 10 ktOE per year, but on average expected at 33 ktOE per year.
	Number of projects generated and reaching financial closure – a minimum of 125 demonstration investments envisaged.
2.2 GEF Partial Guarantee Fund	At least 3 ESCOs are operational.
	Commitment of at least 90 percent of Partial Guarantee Fund.
	At least 30 companies have ESCO-mediated projects.
	A minimum of 20 percent of energy efficiency projects in the industrial sector use the Partial Guarantee Facility.
2.3 GEF Technical Assistance	Adoption of energy efficiency program planning in overall MOIE and/or BMN and/or ANME planning.
	At least two Technical Centers develop a monitoring and verification procedure for energy efficiency investments.
	Levels of co-financing for ESCOs and industry by commercial banks exceed 5 percent of all energy efficiency investments under the project.

**Figure 1: Capturing the Impact of the Energy Efficiency Market through Monitoring and Evaluation**



**Additional GEF Annex 15 : Incremental Cost Analysis  
TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR**

**Concept**

The proposed project would reduce greenhouse gas emissions in Tunisia’s industrial sector by creating a sustainable market for energy efficiency services. Tunisia’s potential market in the industrial sector is estimated at US\$73 to 194 million in investment value (see Table 1) over a 10-year period (Econoler, 2002). Elsewhere, the market has been estimated at US\$140 million, based on a 3-5 percent annual reduction of energy use in the 10 years to come (ANME, 2002). The project targets 20 percent of this market. The targeted reduction in greenhouse gas through the project amounts to 127,284 tons of CO<sub>2</sub> annually, and 636,420 tons of CO<sub>2</sub> equivalent over the project lifetime. About 125 energy efficiency pilot projects are to be generated through incentives provided in this project.

<b>Table 1: Tunisia's Energy Efficiency Market Potential in the Industrial Sector (millions of US\$)</b>		
Total Investment	Low Scenario (only investment with max. 3-year payback period)	High Scenario (up to 5-year payback period)
Energy Efficiency	73.1	121.8
Cogeneration	-	72
Total	73.1	193.8
Source: Econoler (2002).		
Note: 1) Only 70 percent of the annual potential savings has been considered.		

**Incremental Costs**

The total costs of the project are US\$31.80 million. The **incremental cost** component amounts to US\$8.5 million. Of the US\$8.5 million, US\$2.5 million is for energy efficiency subsidies administered through the financial intermediation component, and US\$4.0 million contributes to the financing of the Partial Guarantee Fund, which includes US\$0.5 million for its management fees. US\$2 million is dedicated to technical assistance. Table 2 presents the incremental cost matrix.

The incremental costs are derived by comparing the status quo or **baseline scenario** with the alternative as it presents itself through the project. Under the baseline scenario, it is assumed that during the next 7 years (corresponding to the suggested length of this project), no or only negligible energy efficiency measures would be taken in the industrial sector. The main reasons for this are the barriers currently present in Tunisia, as discussed in section C.3. In addition, the experience gained by Tunisia’s only ESCO ( “STGE”) illustrates that in the current investment climate, with risk- averse financing institutions, the industrial sector pre-occupied by process-enhancing rather than energy efficiency measures, and an uncertainty surrounding the public responsibility for energy efficiency measures in the industrial sector, no major initiatives can be expected. Equally, the experience of Tunisia’s industrial competitiveness fund, FODEC, is that among 2,159 proposals submitted, none contained elements regarding energy efficiency.

<b>Table 2: Incremental Cost Matrix</b>			
	<b>Baseline</b>	<b>Alternative</b>	<b>Increment</b>
<b>Country Benefit</b>	· Energy efficiency measures in industry would only be implemented with substantial bilateral finance. No advancing in the implementation of energy efficiency measures in the industrial sector	· Expansion of private sector role in financing and delivering energy efficiency services (2 new ESCOs). · Easier access to commercial finance for energy efficiency	· Improved level and delivery of energy efficiency services · Enhanced competitiveness of industry
<b>Global Environmental Benefit</b>	· Greenhouse gas emissions increasing at the current growth rate.	· Reduction of greenhouse gas emissions in the industrial sector	· Reduced greenhouse gas emissions (636,420 tons of CO <sub>2</sub> )
<b>COSTS (in US\$ million)</b>			
1. Pilot Phase for Energy Efficiency	22.5	25	2.5
2. Partial Guarantee Fund	0.0	4.0	4.0
3. Technical Assistance	0.8	2.8	2.0
<b>Total</b>	23.3	31.8	8.5
Ministry of Industry and Energy (MOIE)	4.9	4.9	
Auto-financing by the industrial sector	5.6	5.6	
Commercial financing	12.8	12.8	
GEF Incremental Costs		8.5	8.5

### **Modalities**

Projected disbursement of all three components are depicted in Tables 4, 5 and 6, respectively.

#### *Component 1: GEF Pilot Phase*

The size of the GEF Pilot Phase component is based on the 10 percent subsidy that satisfactory energy efficiency proposals would receive. Given that about 125 projects, corresponding to a total investment volume of US\$25 million, are to be supported, the total volume of subsidy would amount to US\$2.5 million. This is equivalent to the incremental costs of this activity.

The 10 percent grant would be added to the 13 percent of grant, which is offered by the MOIE's competitiveness fund, FODEC. Energy efficiency investments are eligible for FODEC's funding, because they enhance a company's competitiveness. A total of 23 percent is considered to be a sufficiently high subsidy in Tunisia to create a satisfactory incentive for investment. By comparison, the ongoing GEF solar water-heating project, which provided a 30 percent subsidy, has been fully committed one year ahead of project closure, indicating that the subsidy might be too high. At the end



of the project, when the 10 percent subsidy ceases, investors will have gained sufficient experience for FODEC to receive a continuous stream of energy efficiency proposals even at the lower subsidy of 13 percent.

### *Component 2: Partial Risk Guarantee Facility*

The project proposes to establish a GEF-funded guarantee facility of US\$3.5, administrated by SOTUGAR for commercial banks participating in the ESCO project activities in Tunisia. The overall project period for the purpose of incremental costs calculations is 5 years (with 3 years as an average project payback period, the total fund would operate for 8 years). As a risk-sharing mechanism that helps ensure the success of project, the GEF Guarantee Facility would only cover 75 percent of the total commercial bank exposure in any project activity.

The five-year GEF Partial Guarantee Facility would be available only to ESCOs, to enable more ESCOs of these companies to emerge. At least three ESCOs are necessary in the Tunisian context if they are to participate in bidding processes, which require a minimum of three submissions. The demonstration projects would help to implement profitable projects in the energy efficiency field and also demonstrate, where applicable, the benefits of the ESCO concept. The benefit of lower prices through the first two components would accrue to end-users in the form of shorter payback periods and lower financing costs for the energy service package.

### *Component 3: Technical Assistance*

It is proposed that US\$2.0 million of the GEF grant be used for the incremental costs of technical assistance. In addition, US\$0.8 million will be provided locally by the MOIE.

## **Risk Sharing**

The risk of implementing the energy efficiency investments is to be borne jointly by the BMN and the PMU, in accordance with their relative contribution to the total subsidy of about 23 percent. The ratio of relative risk exposure of FODEC and PMU is 57:43.

In the context of the Partial Risk Guarantee Facility, the risk of the loan is shared between the commercial bank and the ESCO. The latter is in turn backed in part or totally by a guarantee for 75 percent for the loan. This corresponds to the amount provided by other guarantee funds. The Hungarian Energy Efficiency Co-Financing Programme (HEECP), for example, provides a guarantee of 75 percent of total bank exposure.

## **Leveraging**

Leveraging under the guarantee facility is estimated at approximately 8:1, where every one -dollar of losses paid out by the guarantee would leverage eight additional dollars in commercial loans. This leveraging ratio assumes 25 percent to 75 percent risk sharing between the commercial bank and the guarantee facility, and a 5 percent default rate as presented here, and includes the cost of the GEF and the PMN grant for projects. The default rate is based on similar projects in other countries, such as the Romania guarantee fund. If remaining funds in the guarantee facility revolve into co-financing mechanisms, as suggested for the exit strategy, leveraging can be much higher even during the first 10 years of the project.

## **Exit Strategy**

The exit strategy of the GEF guarantee facility would be determined at the end of the project. At that time, projections of default coverage would be more robust, and managers would be able to estimate the amount of funds remaining in the facility after client loan retirement. However, it is envisaged that remaining (and returning) funds could be used for extending the guarantee facility for the benefit of ESCOs under SOTUGAR's management. Alternatively, FODEC could at that point extend additional funds, or the Partial Guarantee Facility could be moved to FODEC.

## **Potential Global Environmental Benefits of the Project**

The global environmental benefits of this project arise from the reduction of greenhouse gas emissions through savings in energy consumption. Thus, reductions of greenhouse gas emissions in energy efficiency savings achievable in Tunisia are estimated at 164.80 ktoe per year. Assuming a market penetration factor of approximately 20% percent for ESCOs in 5 years or energy performance contracting, a conservative market potential for energy efficiency activity of this kind is about 164.80 ktoe during the project lifetime.

The annual savings potential achievable in the entire industrial sector by source is as follows:

- Fuel oil: 60.58 ktoe
- Gas oil: 23.82 ktoe
- Natural gas: 37.82 ktoe
- Coke: 8.00 ktoe
- Electricity: 27.89 ktoe
- LPG: 5.26 ktoe
- Kerosene: 1.44 ktoe

Using the emissions rate used to CO<sub>2</sub> tons equivalent of 0.575 CO<sub>2</sub> tons equivalent per MWh and otherwise standard IPCC emission factors (1996), the estimated potential total greenhouse gas emissions reductions generated by the project over a five- year period amounts to 636,422 tons of CO<sub>2</sub> equivalent. The reduction of GHG emissions, by fuel, over five years of project implementation, would be:

- Fuel oil: 209,767.45 tons of CO<sub>2</sub> equivalent
- Gas oil: 78,982.66 tons of CO<sub>2</sub> equivalent
- Natural gas: 94,960.85 tons of CO<sub>2</sub> equivalent
- Coke: 33,853.20 tons of CO<sub>2</sub> equivalent
- Electricity: 199,374.99 tons of CO<sub>2</sub> equivalent
- LPG: 14,841.26 tons of CO<sub>2</sub> equivalent
- Kerosene: 4,641.77 tons of CO<sub>2</sub> equivalent

<b>Project Level</b>	<b>Number of Years in Project Case</b>	<b>Total ton of CO<sub>2</sub> Equivalent; Reduction in Project Life</b>	<b>Total Expected GEF Cost (US\$)</b>	<b>Cost (US\$/ton of CO<sub>2</sub> equivalent)</b>
125 Pilot Projects	5	636,422	8,500,000	13.35
Total Market	5	3.182.110	8,500,000	2.67

### **Monitoring and Verification**

Monitoring and verification of the GEF component of the project is critical to establishing a sound precedent for non-grant mechanisms in the array of GEF modalities. During the first few months of project implementation, an M&V methodology and an implementation plan would be developed. The M&V information would provide the basis for the development of the success stories to be used, for example, in outreach activities.

Technical assistance would therefore support the development of performance indicators during the preparation period. The indicators and monitoring procedures would be refined during the initial two years of implementation, building on the progress of similar programs such as IFC's HEECP. Regular reporting of the fund's performance, most likely on a quarterly and annual basis, would be required, together with the regular M&V associated with energy efficiency projects.

Indicators would include, for example, standard performance indicators for: (a) the quantified energy savings in the participating companies; (b) the associated emissions reductions of greenhouse gases (carbon dioxide); (c) the number of ESCO projects developed and implemented per year, and guaranteed-versus-actual savings for each ESCO project; (d) the level of co-financing from Tunisian banks lending directly to ESCO clients on a commercial non-recourse financing basis for the full cost of guaranteed savings projects; (e) standard financial management and portfolio performance indicators for the ESCO; and (f) other standard indicators for overall project implementation. These specific project-level indicators would be developed and target values agreed upon with MOIE (see also Annex 1).

Monitoring and verification is an essential part of the energy performance contracting process, as the energy savings guaranteed by the ESCO against a baseline must be confirmed in order for savings payments to be made. A format for standard monitoring, evaluation and verification reports would be included in the Project Implementation Plan. Measuring equipment for technical and environmental performance would be procured. More details on how the environmental and social performance of the project is to be monitored are given in Additional Annex 12 of the PAD and Annex 4 of the Project Brief.

### **Process of Agreement**

The parameters and assumptions used in the incremental cost analysis are based on information collected as part of the Business Plan for Tunisia's only existing ESCO, STGE. The proposed approach and financing modalities have been discussed and agreed upon with the Steering Committee for the project's implementation, which was convened by MOIE. The analysis would be refined at project appraisal, as necessary, and would be formally agreed upon with the authorities in the course of project negotiations.

**Table 4: Estimated Disbursement of GEF Incentive/Grant (Component 1)**

<b>Ref.</b>	<b>Year</b>	<b>FY05</b>	<b>FY06</b>	<b>FY07</b>	<b>FY08</b>	<b>FY09</b>	<b>FY10</b>	<b>Total</b>
1	"Disbursement" Rate	5%	10%	20%	30%	35%	0%	100%
2	Total annual Investment(kUS\$)	1,250	2,500	5,000	7,500	8,750		25,000
3	Year 1 GEF Financing (kUS\$)		125					125
4	Year 2 GEF Financing (kUS\$)			250				250
5	Year 3 GEF Financing (kUS\$)				500			500
6	Year 4 GEF Financing (kUS\$)					750		750
7	Year 5 GEF Financing (kUS\$)						875	875
<b>8</b>	<b>Cumulative Total GEF Disbursement (kUS\$)</b>	0	125	375	875	1,625	2,500	2,500

**Notes:**

(1) The disbursement rates are set for the annual progress for the pilot projects.

(2) The annual investment is calculated based on the annual disbursement rates indicated in (1) and the total budget of Component 1 (US\$25 million).

(3), (4), (5), (6) and (7): The calculations of the annual GEF disbursements are based on the following assumptions:

- The average payback period of the projects would be 3 years
- The GEF contribution is paid one year after the project engagement
- The GEF contribution is equal to 10 percent of the total demonstration projects engaged during the year.

(8) Total of the annual GEF contributions.

**Table 5: Estimated Performance Guarantee Fund (Component 2)**  
**(All values in kUS\$ unless otherwise stated)**

	<b>Year</b>	<b>FY05</b>	<b>FY06</b>	<b>FY07</b>	<b>FY08</b>	<b>FY09</b>	<b>FY10</b>	<b>FY11</b>	<b>FY12</b>	<b>Total</b>
1	Total annual investment	1,250	2,500	5,000	7,500	8,750	0	0	0	25,000
2	Share of investment supported by guarantee fund (65%)	813	1,625	3,250	4,875	5,687	0	0	0	16,250
3	GEF guarantee exposure (year 1)	0	320	640	1,280	1,920	2,239	0	0	
4	GEF guarantee exposure (year 2)	0	0	213	427	853	1,280	1,493	0	
5	GEF guarantee exposure (year 3)	0	0	0	107	213	427	640	746	
6	Cumulative GEF guarantee exposure	0	320	853	1,813	2,986	3,946	2,133	746	
7	Loss Probability (%)	5%	5%	5%	4%	4%	3%	3%	3%	
8	Loss Probability (kUS\$)	0	16	43	73	119	118	64	22	455
9	GEF cumulated Exp. Cost (failures) (kUS\$)	0	16	59	131	251	369	433	455	455
10	Administration Cumulative costs (kUS\$)	20	40	60	80	100	120	140	150	150
11	Guarantee cumulative transaction costs (kUS\$)	0	70	140	210	280	350	350	350	350
<b>12</b>	<b>Total cumulative disbursement (kUS\$)</b>	<b>20</b>	<b>126</b>	<b>259</b>	<b>421</b>	<b>631</b>	<b>839</b>	<b>923</b>	<b>955</b>	<b>955</b>

**Notes:**

(1) Idem to line 2 of the "GEF Disbursement Table, (2), (3), (4) and (5)

The GEF guarantee exposure calculations are based on the following assumptions:

- The exposure is based on the annual investment minus the GEF contribution (10 percent), and the PMN contribution estimated at 15 percent of the total investment.
- The loans are 70 percent of the total investment.
- The guarantee coverage under Component 2 is considered equal to 75 percent of the loans.
- The guarantee coverage is reduced by 1/3 annually (payback period = 3 years).

(6) Total of the three years guarantee commitment per each year. (sum of lines 3+4+5).

(7) The loss probability is assumed to be 5 percent of the GEF exposure for the three first operating years, and then decreased to 4 percent of the GEF exposure for years 4 and 5, and finally reaching 3 percent for year 6 and following years. The decreasing loss probability is to reflect that unreliable new actors would drop out of the market early. The loss probability assumed is somewhat more conservative than the assumption of 2 percent for the Romania guarantee fund.

(8) The loss probability in kUS\$

(9) The GEF cumulative default losses (cumulative values of line 8).

(10) The fixed costs of the fund manager are estimated to be equal to US\$20,000 per year for the total period of operation of the fund (5 years project duration + 3 years of the remaining guarantee of the project implemented during the last year). These costs are cumulated annually.

(11) The transaction costs would be paid to the fund manager according to his or her performance. They are estimated to be equal to 10 percent of the total fund guarantee for the project duration. These costs are cumulated annually.

(12) The cumulative total disbursements for the Component 2 is the addition of lines 9+10+11.

**Table 6: Program Disbursements (Components 1 & 2)**  
(All values in kUS\$)

Ref	Year	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12
1	Total cumulative disbursement, component 1	0	125	375	875	1,625	2,500	2,500	2,500
2	Total cumulative disbursement, component 2,	20	126	259	421	631	839	923	955
3	Total cumulative disbursement component 1 & 2	20	251	634	1,296	2,256	3,339	3,423	3,455
4	Remaining budget of the project	6,480	6,249	5,866	5,204	4,244	3,161	3,077	3,045
5	Cumulative GEF guarantee exposure	0	320	853	1,813	2,986	3,946	2,133	746

**Notes:**

- (1) Same as line 8 of the GEF Disbursement table 4.
- (2) Same as line 12 of the Guarantee Fund Disbursement table 5.
- (3) Total of lines 1 and 2.
- (4) The remaining budget of the project is calculated on a total GEF budget of components 1 and 2 (US\$6.5 million).
- (5) Same as line 6 of the Guarantee Fund Disbursement Table 5.

**Table 7: Number of Industries for each sector (Year 2000)**

Usage	Industries			
	Very Large	Large	SME	TOTAL
1. Extraction Industries	1	4	407	412
2. Metalurgical Industries	2	3	127	132
3. Chemistry	1	11	493	505
4. Glass, Cement and Construction Materials	6	26	342	374
5. Pulp and Paper	1	5	139	145
6. Textile	--	17	1,252	1,269
7. Food and Tobacco	--	32	507	539
8. Miscellaneous	--	7	1,182	1,189
9. Small Businesses and Handicraft	--	--	37,322	37,322
<b>TOTAL</b>	<b>11</b>	<b>105</b>	<b>41,771</b>	<b>41,887</b>

Source: STEG Statistics (2001)

**Table 8: Annual Consumption of Tunisian Industries in 2000 (ktoe)**

Types of Industries	Fuel Oil	Gas Oil	Natural Gas	Coke	Electricity	LPG	Kerosene	Total
Agricultural and Food	39.0	14.2	7.9	0	36.2	12.6	0	109.9
Chemical	127.6	44.4	75.8	0	39.9	4.8	0	292.6
Other	13.1	90.0	40.1	0	36.6	0.1	11.1	190.9
Glass and Construction	483.1	38.0	290.0	0	136.9	12.4	0	961.0
Mechanical and Chemical	43.8	34.0	1.1	82.0	40.2	30.0	0	231.2
Textile and Clothing	1.6	4.1	13.0	0	33.7	1.3	0	53.7
<b>Total</b>	<b>708.2</b>	<b>224.5</b>	<b>428.8</b>	<b>82.0</b>	<b>323.6</b>	<b>61.1</b>	<b>11.1</b>	<b>1839.3</b>

Source: Tunisian National Agency (ANME), 2003.

## Additional GEF Annex 16: STAP Roster Technical Review TUNISIA: EGY EFFICIENCY PROGRAM/INDUSTRIAL SECTOR



September 11, 2003

Review of the document "TUNISIA; TN-EGY EFFICIENCY PROGRAM/INDUSTRIAL SEC; GEF Project Brief"

### 1. Overall Assessment

The proposal deals with an important area – reducing barriers to the development of a sustainable market of energy efficiency projects in Tunisia. It seeks to develop a market for energy efficiency in Tunisia building on the strengths of existing institutions and employing reliable measures to remove the barriers. The project fits very well into the Tunisia's priority areas for development by increasing competitiveness of the industry through cost reductions. The comments relate to some of the items on which either adequate information was not available or more clarity is needed. Some suggestions have been made which hopefully will found constructive and useful for the project.

### 2. Project Relevance

Improving energy efficiency in industry is one of the important measures to increase competitiveness of the industry through reduced energy consumption, and in turn reduce greenhouse gas emissions. It is in line with the Tunisian Government strategy to increase industry competitiveness. The project meets the GEF funding criteria under its operational programme 5 and also meets FCCC objectives of mitigating greenhouse gas emissions.

### 3. Background Information

The background information has been presented fairly well in the document.

### 4. General Comments

The project relies on the existing institutional structure in Tunisia to deliver after proposing specific responsibilities of the governmental partners agencies- PMN and ANER in the project. Stakeholders have also been involved in the project through participation in the Project Steering Group. This is useful for resolving any problems that project may experience due to communication gap between the implementing agencies and other stakeholders. Technical assistance, including capacity building is an important component of the project, which is needed for a sustainable energy efficiency market. However, the information on this component is inadequate in the document. This has been covered in more details in the section that follows. Project replicability is difficult to assess since issues and their resolutions have been found to be varying even in similar regions. Yet, the project can provide important lead in this



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direction for the countries mentioned in the document.

Comments on some of the areas are as follows:

**Institutional Arrangement** : Has been taken care of very well. There is however risk "after the project". The momentum created by the project will hopefully ensure that institutional arrangement in the country becomes stable.

**Time Frame** : The time frame is reasonable and adequate for stabilization of the EE market.

**Sustainability**: The programme has been designed to create a sustainable EE market.

**National Development Priorities**: Very well meets this criterion.

**Lessons from other initiatives**: There are a fair number of initiatives discussed in the project.

**Stakeholder Participation**: The stakeholders should be involved during the project preparation stage itself. Although it is mentioned (on page 23) that the government held some meetings with some stakeholders for preparing the project, there is no information on concerns expressed by stakeholders, and how these were addressed. It is not clear, if the proposal addresses their concerns; for example, how ESCO will secure balance 50% (if guarantee fund secures 50%), or how bank will agree to give balance 50% without guarantees. It is not clear if ESCOs and banks, two crucial stakeholders were also part of the consultation or not. Their feedback even at this stage may be useful for the project.

**Viability of EE projects**: It depends on energy prices among other things. Some information on this should be provided, indicating implications on payback period.

## **Specific Comments**

### **5. Objectives (page 2)**

(a) Objectives are clear and valid. However, the Project Development Objective" (page 2, para 1 ) states that *"the project will focus in a first instance on the larger and medium-size industries, which present the bulk of potential for energy efficiency measures."* Looking at the total projected investment of USD 25 million in the 125 projects that programme proposes, average project size works out to less than USD 0.2 million; which is considered unattractive for lending by banks. It is indicated in the para 2 of the page 2 that commercial banks are the third funding partners besides GEF and the government. But one of the barriers to funding by commercial banks (cited on page 5 of the document; and validated also based on experience in other countries) is:

*The relatively small size of energy efficiency projects makes them uninteresting for commercial lending (up US\$300,000);*

Therefore, considering the size of total investment, (i) not many large and medium size projects can be covered, and (ii) If a few large and medium size projects are covered, the balance from the targeted investment may not be able to produce viable projects from the co-financer's (lenders) perspective. The actual size of the projects in this case will be much smaller than even 0.2 million. The target figure of 125 projects therefore appears to be high.

In fact, on page 9, it is mentioned that 50 medium size projects (of USD300 ,000 each) and 80 small projects will be taken up (and no large one). This should be checked with commercial banks, if they are willing to fund these low levels (considering transaction costs in appraising the projects).

## **6. Key Performance Indicators (page 2)**

(a) One of the indicators is:

*At least 50 companies have ESCO mediated projects*

Assuming that all the ESCO projects will require guarantee facility, and 50 to 80 per cent guarantee support is provided to each project, how much total investment the facility with USD 4 million will be able to support? Will it meet the project needs?

Also, on the one hand projects sizes will be too small, while on the other, it may be difficult for two ESCOs to handle so many projects in the initial stages (assuming only two ESCOs are created, as mentioned in the document).

(b) One of the indicators is:

*- Levels of co-financing for ESCOs and industry by commercial banks exceed 5% of all energy efficiency investments under the project.*

The 5% level of achievement does not correspond to a successful project. From page 35 of the document, commercial financing at USD12.8 million is more than 50% of the total investment of 25 million in energy efficiency projects under the project. As mentioned earlier (para 5 a), the project document indicates that commercial banks are the third funding partners besides GEF and the government. Therefore, this difference between actual requirement (50%) v/s target (5% ) needs to be clarified.

## **7. Main sector issues and Government strategy: Energy balance and intensity (page 3)**

Tunisia's energy intensity is more than double than that of Germany and France. The figure may be based on GDP at exchange rates. It would be interesting to include the intensity based on PPP, which is more relevant in energy efficiency context.

## **8. Lessons learned from previous initiatives and need for action**

(a) It is stated (page 5) that; *the application processes for obtaining financial support from ANME's programmes for audits and implementation are lengthy and bureaucratic.*

It is not clear if ANME will be changing the procedure for the project or not.

(b) it is mentioned on page 5 that; *no bank has been able to develop any specific approach to structure project financing*

Activities under Technical assistance / capacity building have not been sufficiently detailed. Therefore, it is not clear if the capacity building / technical assistance programme includes above item or not..

(c ) What is the progress of the UIVDP-GEF project *Development of ESCOs in Tunisia* mentioned on page

6? Will the proposed project duplicate or supplement it ? *How ?*

**9. Sector issues to be addressed by the project and strategic choices: Sector issues: overcoming barriers in energy efficiency (page 6) .**

(a) It is mentioned (and is true) that the *loan guarantee presents special challenges and risks, as appraised collateral values of assets purchased with loans are often well below loan amounts*, and also that banks *do not want to reduce the level of collateral requirements for energy efficiency measures*.

Since the guarantee fund will support only 50 percent of the loan (up to 80 percent if needed), given the poor balance sheet of ESCOs and "no cash flows" in the projects, it is not clear how the balance 50 percent will be secured by them. This is a classic problem for development of ESCOs in developing countries.

(b) It is hoped that *identification of specific energy efficiency measures*, which has been identified as a barrier, has been included in the capacity building programme.

**10. GEF Partial Guarantee Fund (page 10)**

What is the provision to meet the transaction costs related to operation of guarantee fund. ? It will need to appraise EE projects before providing guarantee. Will 1.5% be sufficient to meet all the costs?

**11. GEF Technical Assistance (page 11)**

This is a big component of the project in terms of activities, with the budget of USD 2.8 million just for these activities. But activities have not been described in detail. This section should be enlarged to indicate all the activities currently envisaged under this head, preferably with budget. For example, what will be done under awareness raising? Similarly, ESCO creation may need several capacity building activities such as preparation of "Model Performance Contracts" for different type of projects. These need to be elaborated.

**12. Benefits and target population (page 13)**

The statement; *The programme targets Tunisia's private sector companies in the industrial sector, which spend more than US\$150,000 on energy consumption annually* may result in exclusion of small scale companies from the target population. Programme seeks to target 80 of these. Is there information on energy consumption by small-scale industries?

**13. Project Rationale (page 15)**

The PMN is offering an (additional) unlimited subsidy of around 13 percent for measures enhancing competitiveness.

It appears to be 14 percent as per data on page 45.

**14. Incremental Costs (page 33)**

Incremental cost calculations are quite innovative; they do not seem to follow traditional incremental cost calculation methodology. But then it may not be possible to support EE barrier projects under

conventional method.

## **15. Potential Global Environmental Benefits of the Project (page 36)**

What is the source of saving potential data?

I hope these would be helpful.

Jyoti Prasad Painuly

### **STAP Technical Review**

STAP technical review was completed on September 11, 2003.

#### **Responses to STAP technical reviewer's primary concerns:**

**Para. 1. Issues relating to Technical Assistance (numbered as referenced in the review letter)**

**Para 4. Technical assistance, including capacity building is an important component of the project, which is needed for a sustainable energy efficiency market. However, the information on this component is inadequate in the document.**

**Para. 8(b). It is mentioned on page 5 that; no Bank has been able to develop any specific approach to structure project financing.**

**Activities under Technical assistance / capacity building have not been sufficiently detailed. Therefore, it is not clear if the capacity building / technical assistance programme includes above item or not.**

**Para. 9(b). It is hoped that identification of specific energy efficiency measures, which has been identified as a barrier, has been included in the capacity building programme.**

**Para. 11. This is a big component of the project in terms of activities, with the budget of USD 2.8 million just for these activities. But activities have not been described in detail. This section should be enlarged to indicate all the activities currently envisaged under this head, preferably with budget. For example, what will be done under awareness raising?**

In the interest of conciseness in the document, the description of the technical assistance was limited. The budget of US\$2.8 million would be broken down as follows:

TA Components		GEF Financing (in US\$)	Total Budget* (in US\$)	Targeted Component**
1	Development and implementation of program procedures	300,000	400,000	1,2
2	Strengthening of institutional and regulatory framework	200,000	300,000	1,2
3	Training of Technical Centers on Monitoring and Verification	300,000	400,000	1,2
4	Specialized training on ESCOs	200,000	300,000	2
5	Technical training on energy efficiency projects	300,000	400,000	1,2
6	Training of commercial financial institutions, including SOTUGAR	200,000	300,000	2
7	Dissemination of obtained results	100,000	200,000	1,2
8	Program management***	400,000	500,000	1,2
<b>Total</b>		<b>2,000,000</b>	<b>2,800,000</b>	
<p>* This figure includes self-financing.</p> <p>** The numbers of this column refer to components one and two of the project respectively.</p> <p>*** Including monitoring and evaluation of the program (See Additional Annex 14 of the PAD and Annex 6 of the Project Brief) and for Review of Environmental and Social Performance (See Additional Annex 12 of the PAD and Annex 4 of the Project Brief).</p>				

**The activities sponsored would focus on the following elements:**

1. Development and implementation of program procedures

- Implementation of detailed rules of program operation;
- Development of capacity relating to project development, analysis, acceptance procedures, and the evaluation of energy efficiency component, including environmental and social aspects;
- Encouragement of public-private partnership for the development of ESCOs;
- Development of ESCOs performance based contracts.

2. Strengthening of institutional and regulatory framework

- Evaluation of laws and decrees as they pertain to the encouragement of energy efficiency in the industrial sector;
- Putting in place of a suitable environment/ working framework for the operation of ESCOs; Analysis of fiscal rules in Tunisia and establishment of off-balance-sheet financing;
- Barrier removal as they pertain to the financing of projects through banks;
- Analysis and proposition of a framework that gives incentives for energy efficiency measures in the public sector;

3. Training of Technical Centers

- Training with respect to the monitoring and verification protocol of project performance;
- Training of trainers;
- Assistance with setting up testing workshops specifically for energy efficiency;

4. Specialized training for ESCOs
  - The ESCO concept;
  - Development of bankable projects;
  - Financial design of projects.
5. Technical training of Technical Centers, ESCOs, Engineering firms ;
  - Identification of appropriate energy efficiency technologies as they apply to the industrial sector;
  - Risk evaluation.
6. Training of commercial financial institutions (banks, leasing companies, SOTUGAR etc.)
  - Energy efficiency projects;
  - Performance contracting;
  - The Partial Guarantee Fund administrated by SOTUGAR;
  - Evaluation of financial proposals and needs.
7. Dissemination of obtained results
  - Workshops, roundtable, publications, website etc.;
  - Activities by theme and/or type of industrial branch;
8. Program management/Establishment of the project management unit (PMU)
  - Periodical meetings with technical operators and financial operators for the evaluation and follow-up of the program;
  - Follow-up of activities of the Partial Guarantee Fund;
  - Interaction with the program's steering committee;
  - Training on financial management (FMS) aspects of the project;
  - Review of Environmental and Social Performance (See Additional Annex 12 of the PAD and Annex 4 of the GEF Project Brief).
  - Monitoring and Evaluation of environmental performance indicators (See Annex 14 of the PAD and Annex 6 of the GEF Project Brief).

Thus, the program targets commercial banks specifically to remove the barriers of lacking information on the financing possibilities of energy efficiency projects. Training would focus in particular on Performance Contracting. Equally, under the element of technical training for stakeholders, the identification of appropriate energy efficiency technologies will be addressed. With respect to awareness raising, information in addition to the above has been added to the Annex presenting the overview of the project's administrative procedures.

**2. The stakeholders should be involved during the project preparation stage itself. Although it is mentioned (on page 23) that some meetings were held by the government with some stakeholders for preparing the project, there is no information on concerns expressed by stakeholders, and how these were addressed. It is not clear whether the proposal addresses their concerns; for example, how ESCO would secure the 50 percent balance (if the guarantee fund secures 50 percent), or how a bank would agree to give the 50 percent balance without guarantees. It is not clear whether ESCOs and banks, two crucial stakeholders, were also part of the consultation. Their feedback even at this stage may be useful for the project.**

The original project idea stems from Tunisia's only ESCO to date, the STGE, as it has been struggling to establish sufficient levels of business given the barriers to energy efficiency as listed

in section B3. The project components were then subsequently developed in close collaboration with the project steering group and additional stakeholders. Except for the bilateral/multilateral donors, the following stakeholders have closely aided the development, structuring and sizing of project components and ideas:

- All relevant units at the Ministry of Industry and Energy (MOIE);
- The Ministry of Development and International Cooperation;
- The Ministry of Agriculture, Environment and Water Resources;
- The Finance Ministry
- The Central Bank
- The Tunisian Electricity Utility STEG;
- The National Agency for Renewable Energy ANME;
- The STGE, Tunisia's only ESCO;
- The Technical Center for construction, ceramics and glass (CTMCCV);
- The Technical Center for Mechanical and Electrical Industries (CETIME);
- The Tunisian Guarantee Company (SOTUGAR);
- The Tunisian Union for Industries, Commerce and Handicrafts (UTICA);
- The Association of Tunisian Commercial Banks and their members;
- Other bilateral/multilateral donors such as the African Development Bank, Kreditanstalt fuer Wiederaufbau (KfW).

Intense discussions were held to find an appropriate level for both the level of subsidy and the level of guarantee to be provided by the Partial Guarantee Fund. The level of guarantee was discussed with all stakeholders. The eventually adopted level of 75% was suggested by both SOTUGAR and the commercial banks that were consulted. The appropriate location for the PMU was carefully assessed by the group. In addition, performance indicators were also arrived at through group discussions.

**3. Viability of EE projects: It depends on energy prices among other things. Some information on this should be provided, indicating implications on payback period.**

The table below presents a list of projects that have been evaluated by the STGE, Tunisia's only ESCO. The calculation of payback times is based on actual energy prices in Tunisia. The payback times indicate that current price levels are high enough to warrant the financial viability of projects in the industrial sector. In the table below, 1TD (Tunisian Dinar) corresponds to US\$0.76.

<b>Projects</b>	<b>Annual energy consumption</b> (TD/year)	<b>Savings identified</b> (TD/year)	<b>Investment</b> (TD)	<b>Pay-back Period</b> (Years, months)	<b>Ratio of savings (%)</b>
<b>Food and tobacco</b>					<b>14,9%</b>
CDS	466 570	103 000	280 600	2,7	
COTUSEM	471 000	66 450	152 500	2,3	
RANDA	803960	108725	261700	2,4	
SLAMA FRERES	682680	55350	145 000	2,6	
SOTUMIS	314 765	32 000	84 350	2,6	
TUNISIE LAIT	1 370 000	247 000	670 000	2,7	
<b>Textile</b>					
SITEX(HVAC only)	230834	222500	320 000	1,4	5,4%
<b>Glass, cement and construction material</b>					<b>12,9%</b>
CIMENTERIE DE BIZERTE	4 570 944	1 476 900	5 372 000	3,6	
CIMENTERIE DE GABES	13 047 079	378 800	1 030 000	2,7	
LACERAMIC	1 561 556	153 000	78 000	0,5	
LACERAMIC	1 561 556	250 000	245 000	1,0	
LACERAMIC	1 561 556	615 000	3 100 000	5,0	
TUNISIE PORCELAINE	771 600	109 000	276 000	2,5	
<b>Plastic</b>					<b>11,8%</b>
INOPLAST	508 360	52 800	159 650	3,0	
SICOAC	226 250	34 120	115 545	3,4	
<b>Petrochemical</b>					<b>15,2%</b>
STIP	1 766 153	267 700	728 000	2,7	
<b>Metallurgical Industries</b>					<b>22,3%</b>
TPR	280 680	62 700	171 900	2,7	
<b>Chemicals</b>					<b>16,1%</b>
GALION	136 000	24 000	71 200	3,0	
TMM	471320	73 850	233 300	3,2	
<b>Pulp and paper</b>					<b>28,1%</b>
CARTONNERIE ENFIDHA	962 936	245 960	441 150	1,8	
EMBALLAGE DU BELVEDERE	700 850	221 000	321 000	1,5	
SNCPA		300 000	1 500 000	5,0	
<b>Miscellaneous</b>					<b>29,2%</b>
MMI	17 150	5 000	17 640	3,5	

**4. Reference Para. 5(a) - The objectives are clear and valid. However, the Project Development Objective" (page 2, para 1 ) states that "the project would focus in a first instance on the larger and**



medium-size industries, which present the bulk of potential for energy efficiency measures." Looking at the total projected investment of USD 25 million in the 125 projects that programme proposes, average project size works out to less than USD 0.2 million; which is considered unattractive for lending by banks. It is indicated in the para 2 of the page 2 that commercial banks are the third funding partners besides GEF and the government. But one of the barriers to funding by commercial banks (cited on page 5 of the document; and validated also based on experience in other countries) is:

*The relatively small size of energy efficiency projects makes them uninteresting for commercial lending (up US\$300,000);*

Therefore, considering the size of total investment, (a) not many large and medium size projects can be covered, and (b) if a few large and medium size projects are covered, the balance from the targeted investment may not be able to produce viable projects from the co-financer's (lenders) perspective. The actual size of the projects in this case would be much smaller than even 0.2 million. The target figure of 125 projects therefore appears to be high.

In fact, on page 9, it is mentioned that 50 medium size projects (of USD300,000 each) and 80 small projects would be taken up (and no large one). It should be confirmed whether commercial banks are willing to fund these low levels (considering transaction costs in appraising the projects).

Also, on the one hand projects sizes would be too small, while on the other, it may be difficult for two ESCOs to handle so many projects in the initial stages (assuming only two ESCOs are created, as mentioned in the document).

The program is foremost geared toward the development of ESCOs, and not so much to making financing more suitable to banks. This is a secondary purpose and would be addressed through both the technical assistance and the Partial Guarantee Fund. Thus, the size of the energy efficiency activities is chosen, such that ESCOs are able to handle their financing (and not the banks, as indicated). The ESCOs would have to put down on average equity of 30 percent of the total investment, which leaves them with, on average, US\$60,000 to advance. Even that may be shared with the respective company: the activity becomes financially viable. The banks in turn would have to learn through medium and small-size projects how to develop project financing.

In addition, the criteria selected by the steering committee for the eligibility for the 10 percent subsidy is limited to a contribution of US\$0.1 million. This implies a maximum size of US\$1 million (a higher project size can also be accepted, but the grant would be limited to US\$0.1 million). Therefore, this average size is only hypothetical. The project would, however, limit the number of projects of such size to avoid disbursing to only a few bigger projects.

For marketing purposes, we think that the concept would have to be promoted among the large and medium-size industries in the first stage, as these industries would be leading companies, with higher energy saving potential than small industries. These industries would learn through this program about the benefits of energy efficiency projects and may be willing to implement other projects after the reimbursement of their project.

**5. Reference to para. 6(a) - One of the indicators is:**

**- At least 50 companies have ESCO-mediated projects -**

**Assuming that all the ESCO projects would require the guarantee facility, and 50 to 80 percent guarantee support is provided to each project, how much total investment would the facility be able to support with US\$4 million? Would the facility be able to meet the needs of the projects?**

These issues are discussed in the Annex 15 containing the incremental cost analysis of the PAD and Annex 7 of the Project Brief. We have modified the number to 30 companies (see Section A2 and Annex 1): The Partial Guarantee Fund would reach an exposure of about US\$4 million in fiscal year 2010. If the fund covers 75 percent of the risk, then projects worth a total of US\$6 million would be supported. Assuming an average project size of US\$200,000, 30 projects could be covered.

**6. Reference to para. 6 (b) - One of the indicators is :**

**- Levels of co-financing for ESCOs and industry by commercial banks exceed 5 percent of all energy efficiency investments under the project.**

**The 5 percent level of achievement does not correspond to a successful project. From page 35 of the document, commercial financing at USD12.8 million is more than 50 percent of the total investment of 25 million in energy efficiency projects under the project. As mentioned earlier (para 5a), the project document indicates that commercial banks are the third funding partners besides GEF and the government. Therefore, this difference between actual requirement (50 percent) vs. target (5 percent) needs to be clarified.**

There seems to be a misunderstanding here, and language has been clarified in the PAD and Project Brief. Tunisian banks are used to finance projects of all sizes, but against collateral brought by the industries. This indicator is aiming to finance 5 percent of all the energy efficiency investments under the project without any collateral (project financing). The remaining 45 percent of the loans would be made in accordance with the ordinary credit rules of banks in Tunisia. These require collateral. In achieving a 5 percent contribution by banks, we believe that a big barrier will have been mitigated.

**7. Tunisia's energy intensity is more than double than that of Germany and France. The figure may be based on GDP at exchange rates. It would be interesting to include the intensity based on PPP, which is more relevant in energy efficiency context.**

This is a valid point. The text has been reinforced in the PAD.

**8. With regard to Para. 8 (a) It is stated (page 5) that the application processes for obtaining financial support from ANME's programmes for audits and implementation are lengthy and bureaucratic. It is not clear if ANME will be changing the procedure for the project or not.**

The meeting of the Steering Committee of July 2003 included a discussion of administrative procedures and how they can be kept simple in the context of this program. The leading entity for channeling project proposals will be FODEC/BMN, which has a lighter administrative procedure (see Annex on administrative procedure).

In addition, ANME's administration has improved with the experience gained under GEF's solar water heating project, for which ANME housed the PMU.

**9. With regard to 8 (c ), what is the progress of the UNDP-GEF project on Development of ESCOs in Tunisia, mentioned on page 6? Would the proposed project duplicate or supplement it?**

## How?

The UNDP/GEF project (RAB 94/G31) consisted of a capacity building and stocktaking exercise on how to address issues relating to climate change. In this context, the development of ESCOs was identified as one of the preferable policy options for the reduction of greenhouse gases. The project consisted of identification measures only. No implementation of measures has been envisaged.

**10. In 9 (a), it is mentioned (and is true) that the loan guarantee presents special challenges and risks, as appraised collateral values of assets purchased with loans are often well below loan amounts, and banks do not want to reduce the level of collateral requirements for energy efficiency measures.**

**Since the guarantee fund would support only 50 percent of the loan (up to 80 percent if needed), given the poor balance sheet of ESCOs and the absence of cash flows in the projects, it is not clear how the remaining 50 percent would be secured by them. This is a classic problem for the development of ESCOs in developing countries.**

The ESCOs would have to be capitalized to provide the 30 percent equity on the projects (this may be shared with the industries) and the needed collateral loan coverage. The new ESCOs would not be able to undertake projects if they are not sufficiently capitalized. See also response under question 4 above.

**11. What is the provision to meet the transaction costs related to the operation the guarantee fund, which would need to appraise energy efficiency projects before providing a guarantee. Would 1.5 percent be sufficient to meet all the costs?**

Yes. In the US\$4 million available for the Partial Guarantee Fund, the costs of operation are included and listed in detail in Annex 15 on the incremental cost analysis of the PAD and Annex 7 of the Project Brief (Table 5: lines 10 and 11).

**12. The PAD states that “the program targets Tunisia's private sector companies in the industrial sector, which spend more than US\$150,000 on energy consumption annually.” This may result in the exclusion of small scale companies from the target population. The program seeks to target 80 of these. Is there information on energy consumption by small-scale industries?**

The project does not aim at targeting 80 small-scale industries, it aims at targeting 80 small-scale projects. On small-scale companies, please refer to the market survey results included included in Annex 15: Incremental Cost Analysis of the PAD and Annex 7 of the Project Brief (Tables 8 and 9) where the annual consumption of all the industries by sector and the number of companies are included.

**13. The PMN is offering an (additional) unlimited subsidy of around 13 percent for measures enhancing competitiveness. It appears to be 14 percent as per data on page 45.**

The 14 percent are a typographical error and the number is now corrected.

**14. Incremental cost calculations are quite innovative; they do not seem to follow traditional incremental cost calculation methodology. But then it may not be possible to support energy efficiency barrier projects under conventional methods.**

The incremental cost analysis follows the examples of two past energy efficiency projects:

Croatia Energy Efficiency Project (CEO endorsed) and the Romania Energy Efficiency Project (CEO endorsed).

**15. Potential Global Environmental Benefits of the Project (page 36). What is the source of the data on savings potential?**

The source of the data on the potential energy saving is the database of Tunisia's National Agency for the Rational Use of Energy (ANME), which is based on industry's obligation to report and undertake audits. The database contains information from 1994 to 2000. Afterward uncertainty regarding responsibilities for energy efficiency in the industrial sector has led to discontinuation of reporting. In addition, data on savings potential in different industrial sectors was also based on information provided by STGE.

