



UNDP Project Document

Government of Tunisia

United Nations Development Programme

Private Sector Led Development of On-grid Wind Power in Tunisia

Description

The primary objective of this project is to promote on-grid wind power in Tunisia through the introduction of the necessary regulatory and institutional framework to create favorable conditions for private sector investors in the renewable energy sector. A secondary objective is to assist the government of Tunisia in launching a program of private wind concessions totaling 100 MW.

To accomplish the desired project objectives, the four project outcomes will focus on: (i) establishing a regulatory and institutional framework that is conducive to on-grid renewables, including a power sector arbitration mechanism; (ii) strengthening the technical and organizational capabilities of key stakeholders, including the ANME (RE/EE agency), the STEG (Transmission System Operator) and local Tunisian companies; (iii) providing technical assistance to the IPP Bureau in evaluating concessioning models and developing a tariff settlement mechanism; and (iv) providing project monitoring and evaluation support.

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ACRONYMS

APR	Annual Project Report
AWP	Annual Work Plan
ANER	National Renewable Energy Agency (former name of ANME)
ANME	National Energy Management Agency (covers both renewable energy and energy efficiency)
BOOT	Build-Own-Operate-Transfer
CIPIE	Inter-Departmental Commission of Independent Power Production
CSPIE	Higher Commission for Independent Power Production
CO	Country Office
CO ₂	Carbon Dioxide
DGE	National Directorate of Electricity
EE	Energy Efficiency
ESCO	Energy Service Company
EU	European Union
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GTZ	Germany's international cooperation agency
HV	High Voltage
IPP	Independent Power Producer
IR	Inception Report
IW	Inception Workshop
kWh	Kilowatt-Hour
LW	Low Voltage
M&E	Monitoring and Evaluation
MIEPME	Ministry of Industry, Energy, and Small and Medium Enterprises
m/s	Meter per second
MV	Medium Voltage
MW	Megawatt
MWh	Megawatt-Hour (1,000 kWh)
O&M	Operations and Maintenance
GWh	Gigawatt-Hour (1,000 MWh)
IW	Inception Workshop
MW	Megawatt
PBSS	Production-Based Smart Subsidy
PPA	Power Purchase Agreement
PIR	Project Implementation Report

PSC	Project Steering Committee
RCU	Regional Coordinating Unit
RE	Renewable Energy
SBAA	Standard Basic Assistance Agreement
SC	Steering Committee
STEG	Tunisian Electricity and Gas Company
TOR	Terms of Reference
TPR	Tripartite Review
TSO	Transmission System Operator
TTR	Terminal Tripartite Review
UNDAF	United Nations Development Assistance Framework
UNFCCC	United Nations Framework Convention on Climate Change
UNDP	United Nations Development Programme

SECTION I: ELABORATION OF THE NARRATIVE***1. Situation Analysis******1.1 Context and Global Significance***

Tunisia is a middle income country located in North Africa with a population of 10 million inhabitants. Under the dual pressures of economic development and rapid urbanization, its consumption of electricity has been growing at 6.2% per year, from 8,560 GWh in 1998 to 11,560 GWh in 2003. Tunisia's power sector has responded by increasing its power generation capabilities from 2,020 MW in 1998 to 2,800 MW currently. Tunisia will need to increase its total generation capacity to 4,160 MW by 2011 to keep up with demand.

This growing demand for electricity has had an impact on Tunisia's energy balance. Tunisia, which was a net energy exporter in the early 1980s, must now import energy to meet its needs. As an example, Tunisia consumed 136 billion cubic feet of natural gas in 2003 against a domestic production of only 80 billion cubic feet. Natural gas accounts for 75% of electricity generation.

Against this backdrop, the government of Tunisia committed itself several years ago to promoting wind energy to take advantage of the country's indigenous renewable resources. In its economic planning cycle, the government set an objective of 100 MW of wind power for the 10th plan (2002-2006) and an additional 200 MW for the 11th plan (2007-2011). So far, the STEG, the state-owned utility, has deployed a 20 MW wind farm in Sidi Daoud, on the country's northeastern coast, and has already launched plans for a 35 MW extension. In addition, large industrial groups that consume a lot of electricity have started to get involved in wind production for their own electricity needs.

To meet the government's wind development objectives, the Ministry of Industry, Energy and Small and Medium Enterprises (MIEPME) is now seeking to open up its wind sector to independent power producers (IPPs), following a similar model used for thermal generation. The MIEPME also wishes to stimulate greater wind production by industrial groups. The government understands that private sector expertise, financing and enterprise are desirable to fully exploit Tunisia's wind resources that have been conservatively been estimated at 1,000 MW. The rapid rise in oil and gas prices has improved power generation economics in favor of wind power.

This project is significant because it seeks to find a sustainable model for developing countries to promote on-grid renewable energy without requiring state or ratepayer subsidies. At the International Grid-Connected Renewable Energy Policy Forum hosted by the World Bank and the GEF in Mexico in February 2006, the issue of appropriate regulatory and market mechanisms to encourage private sector participation in the renewable sector was raised by a number of participants.

While different approaches are currently in place in Europe and other industrial nations for private production of on-grid renewable power, developing countries are looking for successful models among their peers that they can emulate. By establishing a transparent regulatory framework for private wind concessions in Tunisia, this project will provide a credible roadmap for other nations to follow.

1.2 Barrier Analysis

A number of barriers have delayed the introduction of private wind concessions in Tunisia's power sector.. Private developers have expressed strong interest in Tunisia's wind market, and some have publicly stated their willingness to build and operate wind farms under the right set of regulatory and market conditions. Despite these good intentions, the market for private wind developers in Tunisia remains on hold for several reasons. The principal barriers are described as follows.

Regulatory Barriers

Tunisia does not have the regulatory framework in place that defines a clear set of rules for private developers to develop wind projects and sell electricity to the STEG as transmission system operator (TSO). Missing are such key elements as: (i) the mechanism under which investors can propose and get approval for wind projects; (ii) the minimum conditions for a private operator to connect to the national grid; and (iii) the tariff setting mechanism.

While Tunisia has clear rules for licensing thermal power IPPs, the absence of specific rules dealing with wind power production creates a great deal of uncertainty that is holding back private investors. Without a transparent regulatory process and a clear tariff system, many developers are reticent about investing in the Tunisian wind market. Part of the confusion for Tunisian authorities is the scarcity of successful regulatory models applicable to developing countries. While the European Union has demonstrated some notable achievements with feed-in tariffs for renewables, these systems typically imply a public and/or ratepayer subsidy for wind producers, something that Tunisian authorities have been reluctant to do.

Institutional Barriers

As the country's long-standing public power utility, the STEG plays a dominant role in the debate on power sector reform. The STEG can often provide strategic guidance and technical expertise to policymakers. Capacity building support is therefore for key agencies such as the National Energy Management Agency (ANME, Tunisia's RE/EE agency) and the IPP Group (responsible for IPP tenders) to ensure that they are effective advocates of government policies that favor a neutral approach toward both public and private operators.

Another institutional barrier is the lack of arbitration mechanism between the STEG and possible private developers in case of conflict, especially with respect to interpretation and implementation of regulations. The willingness of private investors to participate in Tunisia's power sector is closely tied to the perception that RE regulations will be applied in a fair and transparent way. While this project does not propose to create a separate regulatory agency for the power sector, it does propose to develop an arbitration mechanism within the MEPME that will have the necessary mandate to interpret and enforce laws and regulations that govern the RE sector.

Technical Barriers

The ANME has progressively developed expertise on wind measurements and site assessment methodologies, but its expertise is limited. This reduces its capacity to play a role of facilitator between the various stakeholders involved in the development of this field, technologies, and energy management activities in optimal technical and economical conditions. This lack of technical expertise leaves it unable to provide independent and neutral analysis.

With the prospect of a growing domestic wind market, the STEG has requested technical assistance from the GEF. In particular, the STEG will need to deepen its experience in planning for the integration of wind power into the electricity grid, such as the development and implementation of planning tools to forecast, manage and monitor the injection of wind energy into the electricity grid.

The IPP Group, which is part of the Ministry of Industry and Energy, lacks the experience to launch international tenders for private wind concessions. It is a small bureau that has focused on thermal IPPs, and it requires technical support to identify the most conducive strategy for issuing wind tenders and negotiating with private operators.

Financial Barriers

As in most on-grid renewable energy projects, wind projects face a high capital investment. Potential investors need a medium to long term visibility and a stable policy environment to engage capitals for harnessing renewable energy.

Informational Barriers

Private developers appear to have considerable technical data and know-how necessary to develop wind proposals for Tunisia. Local firms, on the other hand, will need help in identifying opportunities to supply equipment and services for these wind projects to meet the government's target of 40% local content for wind projects. It can also be hoped that Tunisian companies will be able to leverage their know-how to target wind power markets in neighboring Arab countries, in particular in Algeria and Libya.

Barriers	Corresponding Output
Regulatory barriers	
- No regulatory framework governing on-grid renewables	1.1
Institutional barriers	
- ANME lacking technical depth to fully play a role of facilitator in the field of Renewable Energy	2.1
- No arbitration mechanism between operators	1.2
Technical barriers	
- Limited wind expertise of the ANME	2.1
- Limited expertise of wind power absorption issues by STEG	2.1
- Limited expertise of the IPP Group with wind concessions	3.1
- Limited ability to supply equipment and services to wind operator	2.2
Informational Barriers	
- Tunisian companies not able to participate in wind market	2.3
Financial Barriers	
- Absence of a sound & specific economic & policy framework for stimulating investment on on-grid renewable energy	3.2

Table 1: Barriers and Project Components Designed to Remove Barriers

1.3 Institutional, Sectoral and Policy Context

The government's four-year planning cycle has established clear objectives for wind power. The 10th plan (2004-2007) calls for 100 MW of new wind power capacity, while the 11th plan (2008-2011) calls for a further 200 MW of wind capacity.

The power sector in Tunisia is characterized by the dominant position of the STEG in the country's power sector. The STEG remains a key partner—as the country's transmission system operator—in any discussions to implement a private wind program. Part of the objective of this project is to assist the government in developing and implementing a roadmap that would allow it to open the power market to private wind operators with the STEG's support.

The STEG's monopoly rights for the generation, transmission and distribution of electricity (established in 1962) were modified by legislation adopted on April 1, 1996 (Bill N° 96-27) authorizing the State to grant concessions to independent producers that then sell their output to the STEG, the single buyer. Conditions and modalities of the concession are regulated by Decree n° 96-1125 of June 20, 1996. The main provisions of this decree are:

- The possibility for a private entity to sell electricity in exclusivity to the STEG;

- Each concession is ratified by a convention between the government and the independent power producer;

- A concession includes the characteristics and the duration of the concession, any prior requirement for its validity, expiration date, and conditions for an eventual revocation.

The same decree defined two different commission that have an important role in the concession awarding process:

- The Higher Commission for Independent Power Production (CSPIE) is an inter-ministerial body chaired by the Prime Minister that is responsible for approving the following elements of the process: (i) the selection criteria; (ii) the shortlist of candidates; (iii) the final selection of the grantee upon analysis of the bids; and (iv) terms and conditions of the concession, and advantages to be provided to the independent power producer.

- The Interdepartmental Commission for Independent Power Production (CIPIE) under the MIEPME has a mandate to: (i) propose the terms and conditions of the concession; (ii) review the final bid evaluation report and submit its recommendations to the CSPIE; and (iii) supervise the concession negotiations.

Finally, the decree 96-1125 stipulates the responsibilities of the MIEPME, including:

- Preparing the request for tender, the bidding process, the opening and the evaluation of bids;

- Creating an ad-hoc commission as needed and bringing in external resources to provide assistance during this process.

- Concluding the negotiations for the attribution of the concession with the successful bidder.

These reforms led to the implementation of the RADES II thermal IPP that resulted in a 20-year BOOT contract to an international consortium for the installation of a 471 MW combined cycled gas-fired plant representing a US\$ 250 million investment. This IPP gave key institutions such as the MIEPME and the STEG a unique opportunity to gain some hands-on experience with private participation in electricity production in Tunisia.

Now the government is interested in introducing private wind concessions under this legislation. At the same time, STEG is presently deploying an additional capacity of 35 MW of Wind production, part of the 10th plan. Beyond the 10th plan, the administration intends to launch three programmes for wind electricity production to be implemented by STEG, the auto-producers and the private sector and this for the respective capacities of 120 MW, 80 to 100 MW and an additional capacity depending of the electric grid to absorb it.

The Inter-Ministerial Council meetings of April 2003 resulted in the formulation of a set of recommendations to provide impetus to the government program to promote rational and efficient use of energy in Tunisia. These recommendations were later operationalized by way of a set of follow-up Presidential decisions on efficient use of energy and renewable energy promotion promulgated on May 3, 2001. Presidential decision 19 specifically addresses on-grid wind electricity development. To guide

implementation of the above instruction a Task Force was established to identify the legal and institutional barriers impeding the development of on-grid wind electricity with a view to suggesting viable options to correct the situation.

In the absence of an attractive wind energy market in Tunisia, there are few or no organized economic operators in this sector. Nevertheless, the Tunisian authorities are aware that several private international developers have shown some genuine interest in concessions for independent wind electricity production contracts. A number of them have established wind measurement facilities in the northern region of the country. The absence of a specific regulatory framework favorable to the development of on-grid wind power supply appears to remain a major constraint to more active involvement of these potential investors.

An important factor in understanding the electricity sector dynamics in Tunisia today is the changing structure of power production by the STEG and the basic pattern underlying the above transformation in the last 20 years:

By the early 80s, the STEG decided to optimize the use of natural gas in electricity production. In 1994-95, the predominant share of natural gas in aggregate electricity production was particularly noticeable, with the doubling of the Algerian-Italian gas pipeline and the actual exploitation of the MISKAR gas reserves.

In 1995, the STEG deployed its first combined cycle gas-fired plant on the Sousse production site. Since then, combined cycle gas-fired technology has been STEG's choice for all new major power plants. The above choice has been justified on technical, efficiency and economic grounds.

In 2000, the STEG commissioned the first on-grid wind power plant with 10.6 MW at Sidi Daoud, on the northeastern coast of the country (near Cap Bon). The capacity of the wind farm was increased by 8.6 MW in 2003, and is expected to increase by another 35 MW this year, for a grand total of 54.2 MW.

In 2004, more than 97% of STEG's production capacity relied on thermal plants, with natural gas accounting for 75% of the total. In view of the relatively poor water resource endowments of Tunisia, it is highly unlikely that the above trend will change unless the government's proposed large-scale wind electricity program is implemented. The share of combined cycle gas-fired technology in the tune of some 49.25% (in 2005) of total installed thermal electricity.

Increased Competitiveness of Wind Power

The most important change in the last year has been the rapid increase in oil and gas prices, thus bringing thermal energy costs on par with wind energy costs on a kWh basis. In consultation with the Ministry of Energy, the STEG and private sector interests, the project team has recently determined that the STEG's avoided cost for a combined cycle gas fired plant is 50-75 millimes DT per kWh (3.8-5.7 US cents), based on primary energy costs alone and assuming oil prices around US\$ 40-60. As oil prices continue to climb higher and are expected to remain at higher price levels for the coming decade, the STEG's avoided cost can be expected to climb even higher.

This calculation assumes the most conservative scenario. It does not take into consideration other factors that would tend to increase the avoided cost calculation such as: (i) additionalities tied to environmental benefits; (ii) operations and maintenance costs (O&M); and (iii) the economic value in reducing the risk tied to oil price fluctuations. A more thorough analysis of avoided costs based on an internationally

accepted methodology is proposed by this project to give the government a strong basis on which to set wind tariffs.

Until now, all avoided cost calculations have been conducted by STEG consultants. According to the STEG, its avoided cost ranges between: (i) 36 millimes DT (4.5 US cents) if one assumes concessional financing, no operating margin and no profit; and (ii) 46-52 millimes (5.8-6.6 US cents) if one assumes concessional financing, a standard operating margin but no profit.

In order to bring together all existing methods for assessing the avoided cost, the government has requested independent third party expertise to establish an internationally recognized methodology for calculating avoided costs and setting wind tariffs.

Wind Energy Potential in Tunisia

The onshore wind energy potential in Tunisia has been estimated by a number of studies to be at least 1,000 MW. Average annual wind speeds in the northern part of the country range between 7 meters/second (m/s) and 10 m/s, with utilization factors reaching 40%. Two sites provide an illustration of the quality of wind sites in Tunisia:

Jebel Sidi Abderrahmen has an average wind speed exceeding 10m/s (at 45m height) and a load factor over 3,500 hours (i.e. 40% utilization factor);

Metline, with an average speed exceeding 9m/s (at 30m height) and a load factor over 3,500 hours (i.e. 40%).

Table 2 provides a sample of wind measurements at selected sites. Other wind sites have been identified by the STEG and private developers, but wind data measurements for these sites are considered confidential by their owners and are not included in the next table.

Site	Region	Estimated Capacity (MW)	Utilization Factor	Estimated Production (GWh/ year)
Jebel Abderrahmane	Cap Bon	120	46%	480
Metline	Bizerte	30	40%	105
Kechabta	Bizerte	35	38%	116
Ben Aouf	Bizerte	25	38%	83
Sidi Daoud 2	Cap Bon	40	29%	100
Total		250		884

Table 2: Sample Data on Wind Energy Sites in Tunisia
(Other data from developers is confidential)

1.4 Stakeholder Analysis

The main stakeholders of this project include the following:

The Ministry of Industry, Energy and Small and Medium Enterprises (MIEPME) guides policies for Tunisia's power sector at several levels:

- § The recently created cabinet-level position of **Secretary of State in charge of Renewable Energy and Agri-business** is helping increase the visibility of renewable energy in the government's energy portfolio.
- § The **Directorate General of Energy** remains in charge of implementing the country's energy policy, including planning of energy infrastructure and power plants.
- § The **IPP Group** is responsible for managing the IPP tendering process within the MIEPME and submitting its recommendations to the CIPIE.

The Société Tunisienne de l'Electricité et du Gaz (STEG): Created in 1962, it is a state company in charge of generation, transmission and distribution of electricity together with distribution of natural gas. With its monopoly over power transmission and distribution activities, STEG is a key actor in the development of wind energy in Tunisia.

The National Energy Management Agency (ANME, formerly the National Renewable Energy Agency): the ANME is responsible for the promotion of wind power in Tunisia. Its mandate covers the following responsibilities: (i) implementation of a RE/EE development program; (ii) design and implementation of institutional, regulatory and financial mechanisms for promotional activities; and (iii) implementation of targeted demonstration projects. In the past few years, the ANME has established itself as a solid local partner to provide the necessary impetus for wind power development.

Private developers: at least one international private wind developer is already present in Tunisia, having opened a local office and undertaken the necessary wind studies to develop the necessary business and technical plans. Other international wind developers can be expected to follow suit once clear rules have been provided for the tendering of wind licenses.

Industrial groups: a number of industrial concerns with high energy utilization, such as cement plant operators, have expressed interest in producing electricity for their own needs from wind turbines and reselling any extra production to the national grid.

Local industries: the development of a strong national wind sector presents an opportunity for local companies to provide equipment, material and services to international wind developers. Tunisia has a local industry that has the capacity to supply various components of a wind power projects. These include: towers, electrical wiring, civil works, site development, etc. However, major components such as rotor blades, turbines, alternators and regulation systems have to be imported. Manufacturing of the "value-added" components parts such as aero generators (nacelle, rotor etc) is usually carried out offshore in high-tech and capital-intensive environments. The Tunisian market, even in a scenario of rapid development, is still realistically too narrow to justify full development of local wind power industries.

Tunisian and international banks: financial institutions will need to be involved in the financing of the various private wind IPP projects as well as those of the autoproducers.

1.5 Baseline Analysis

According to the baseline scenario, STEG is assumed to deploy an capacity of 120 MW of wind power. A call for tender is about to be launched. In complement, some autoproducers envisage to installed a additional capacity varying from 80 to 100 MW.

Without GEF intervention, the growing demand for electricity will continue to be met primarily through the construction of new natural gas-fired plants. Furthermore, the lack of private participation in the country's wind market will hamper Tunisia's ability to harvest the 1,000 MW of wind potential and to develop a strong and competitive renewable energy market.

2.1 Project Rationale and Policy Conformity

The project is aligned with the GEF Focal Area on Climate Change and addresses its Operational Program #6: "Promoting the adoption of renewable energy by removing barriers and reducing implementation costs". Within the GEF framework of Strategic Priorities, this project addresses CC-4: "Power Sector Policy Frameworks Supportive of Renewable Energy and Energy Efficiency".

In the alternative scenario, GEF resources are designed to assist Tunisia in developing an enabling regulatory framework to open up its RE sector, and in particular its wind sector, to private developers. The project will help create the necessary regulatory structure and market incentives to encourage the active participation of all developers in developing grid-connected wind power projects. It should be noted that the regulatory framework being proposed is intended to create a level playing field between public and private sector operators and is not intended to favor one group of actors over another.

Without private sector involvement, it is feared that Tunisia's RE sector will not fully exploit the 1,000 MW of identified wind potential. Potential private investors in wind concessions have indicated that the absence of standard regulatory mechanisms such as power purchase agreements (PPA), feed-in tariffs and interconnection rules is discouraging them from investing in a wind market that is otherwise very attractive. The STEG, as a TSO, must continue to develop its operational capacity in the field of wind electricity.

The project will reinforce the technical capabilities of public sector agencies responsible for implementing the government's wind strategy. The ANME and STEG need to be able to conduct detailed technical analyses to provide the necessary advice to the Ministry of Energy on such key issues as the STEG's effective avoided cost and the national grid's ability to absorb wind power from private concessions and industrial producers¹. Such inputs are key to setting up the most effective regulatory framework. Secondly, the project will assist the government in setting up an arbitration mechanism to address potential conflicts between public and private developers.

Another important aspect of the GEF intervention will be to assist the MIEPME in launching private wind Concessions. For example, this technical assistance will help determine the optimum strategy for issuing concessions (for example, through the use of competitive tenders, specific land grants, etc.). This assistance will review the success stories and failures from private wind markets in Europe, the Arab world and other developing countries to determine how to tailor the best approach for Tunisia's power market. The intention is to create a sustainable and viable wind IPP market that can exploit Tunisia's estimated wind potential beyond the initial GEF intervention phase. Lastly, GEF resources will be used to provide capacity building assistance to Tunisian companies to ensure that they can fully participate in the country's budding wind market.

2.2 Project Goal, Objective, Outcomes and Outputs/Activities

The project's objective is to support the government's effort to open the wind power market to private developers through the establishment of an open regulatory framework and transparent concessioning process. In doing so, the project seeks to reduce natural gas usage in the STEG's power plants by increasing the contribution of renewable energy to the country's energy mix. The project also seeks to

¹ Industrial groups who produce for their own needs and resell any excess wind production to the national grid.

increase the participation of Tunisian companies in the provision of equipment and services to wind projects.

By achieving this objective, the project will contribute to a wider goal of reducing Tunisia's overall energy-related CO₂ emissions in a cost-effective way while helping stabilize energy costs through greater diversification of energy sources. The project will also help Tunisian companies acquire core competencies in wind energy equipment and services.

The project consists of four components which are designed to contribute toward achieving the project's objective. Each of these components includes a number of specific outputs and a series of activities planned to achieve them. These components are the following:

Establishing an enabling regulatory and institutional framework in support of on-grid renewable energy. This component will focus on: (i) establishing a regulatory framework for on-grid wind concessions; and (ii) developing an arbitration mechanism within the MIEPME to resolve differences between the STEG and private wind developers.

Strengthening the technical and organizational capabilities of key stakeholders. This component will focus on: (i) providing technical assistance and capacity building to the ANME, STEG, large electricity consuming industries and technical consulting firms; and (ii) strengthening the ability of local industry to provide goods and services to wind operators.

Launching a private wind program. This component will focus on: (i) identifying the most favorable concessioning model(s) for the development of wind power with private developers; (ii) prepare the contractual documents required for each selected model; and (iii) remove the technical and economic obstacles to the launch of the national wind development program for both wind concessions and private industrial producers.

Providing monitoring and evaluation support. This component will focus on conducting detailed monitoring and evaluation of this project to assess its performance, and provided technical program support to the MIEPME, the ANME and ANME project support team.

Note on previous proposal for a PBSS:

A previous version of this project had proposed setting a Production-Based Smart Subsidy (PBSS) system to compensate private operators for the cost-differential between the proposed IPP tariffs and the actual cost of producing wind electricity. The original PBSS in the amount of US\$ 24 million, which was to be funded one-third by the GEF and two-thirds by the Tunisian government, would have paid the subsidy for each kWh of green electricity.

This new version of the project has eliminated the PBSS provision for several reasons: (i) the sharp rise in oil costs has eliminated the cost advantage of thermal electricity generation over wind power; (ii) the Tunisian government had been reluctant to commit budgetary resources to subsidize green electricity; and (iii) potential investors have indicated that the biggest stumbling block remains the absence of appropriate regulatory mechanisms to provide sufficient market incentives.

Outcome 1: Enabling regulatory and institutional framework has been established in support of on-grid renewables (US\$ 400,000)

The outcome is designed to establish an enabling regulatory and institutional framework that can help create a viable and sustainable on-grid renewable energy market for private operators. Private investors will remain wary of investing in wind farms in Tunisia if they don't feel that a level playing field has been created with transparent rules of engagement and a fair arbitration process.

OUTPUT 1.1 – REGULATORY FRAMEWORK HAS BEEN ESTABLISHED FOR PRIVATE WIND CONCESSIONS (US\$ 300,000)

This output is intended to create a regulatory framework designed to promote public and private investments in grid-connected wind farms. To accomplish this objective, such a framework must be transparent enough to reduce investor uncertainty by providing clear rules for private RE investments. Examples of successful (and less successful) regulatory mechanisms exist in Europe and in other developing countries, providing a sound basis to develop a regulatory framework that is well suited to the structure and experience of Tunisia's power sector.

The regulatory framework will need to define: (i) the mechanism under which investors can propose and get approval for wind projects; (ii) the minimum conditions for being able to connect to the national grid (element of Output 2.1); (iii) the tariff settlement system that is proposed (note: avoided cost calculation to be performed by the IPP Group under Output 3.2); and (iv) the arbitration process to resolve disputes (note: arbitration unit proposal to be developed under Output 1.2).

The proposed activities include:

- Review current legal and regulatory framework in place governing private wind concessions in the power sector;
- Recommend strategy for updating/creating a regulatory framework;
- Draft relevant regulations.

OUTPUT 1.2 – PROPOSAL FOR POWER SECTOR ARBITRATION MECHANISM IS DEVELOPED (US\$100,000)

An arbitration mechanism will need to be set up to resolve differences between the public and private operators. This arbitration mechanism will be responsible for: (i) clarifying rules and regulations in case of conflicting interpretation by public and private operators and various government agencies; (ii) ensuring that all rules and regulations are adhered to by all market players; and (iii) resolving any disputes that are submitted for arbitration.

The proposed activities include:

- Recommend the best scenario for setting up a power sector arbitration mechanism within the existing organizational structure of the MIEPME;
- Identify the likely scope and breadth of contractual and regulatory issues that may be submitted to the MIEPME for arbitration;
- Define the responsibilities and prerogatives of the MIEPME in providing arbitration between power sector actors;
- Develop any regulatory or administrative texts that may be needed to define the procedures for submitting complaints and resolving disputes.

Outcome 2: Technical and organizational capabilities of key stakeholders have been strengthened (US\$ 750,000)

This outcome is designed to ensure that key public and private stakeholders have received the necessary capacity building support and technical training to be able to integrate wind energy into their portfolio of responsibilities. Particular attention is being paid to: (i) the ANME, Tunisia's RE/EE agency (which needs to continue to expand its competency in the area of wind energy); the STEG (which must be ready to accept independently produced wind energy onto its grid), the large electricity consuming industries (which may become autoproducers) and the technical consulting firms (which will be used to perform the

studies and to manage the development of wind electricity projects); and (ii) private Tunisian enterprises that must be ready to take full advantage of the national (and sub-regional) market for wind-related equipment and services.

OUTPUT 2.1 – TECHNICAL ASSISTANCE AND/OR CAPACITY BUILDING PROVIDED TO THE ANME, STEG, LARGE ELECTRICITY CONSUMING INDUSTRY, TECHNICAL CONSULTING FIRMS (US\$ 650,000)

The ANME is responsible for implementing the government's renewable energy program as defined by the MIEPME. The ANME is also responsible for providing technical advice to MIEPME and its IPP Group in support of the wind IPP program. This output will provide technical assistance to the ANME to help the agency improve its technical and analytical capabilities in the area of wind energy.

The project team has determined that GEF resources can be better used to remove all regulatory, technical and organizational barriers impeding the engagement of private investors in Tunisia's wind sector.

The proposed activities include:

- Conducting a study on the technical wind absorption capacity of the electricity grid, and identifying measures to reduce the impact of wind intermittency on the country's electricity grid;
- Drafting specifications for wind farm operators and industrial wind producers to interconnect to the electricity grid, including minimum design standards and maintenance requirements for wind equipment;
- Providing training on: (i) all required software for accurate wind measurements (WASP, WINDMAP, etc.); and (ii) determination of optimal location of measurement devices and wind-turbines. Conducting studies on wind energy potential on a maximum of ten sites being part of a specific programme (the large electricity consuming industries) and analysis of the data.

OUTPUT 2.2 – LOCAL INDUSTRY ABILITY TO SUPPLY EQUIPMENT AND SERVICES TO WIND OPERATORS HAS BEEN IMPROVED (US\$ 100,000)

This output is designed to assist Tunisian companies in identifying opportunities for supplying equipment and services for the proposed wind farms. While high value items such as wind turbines are typically sourced from foreign suppliers, it is expected that 30% to 40% of the capital and operating cost of a wind farm can be supplied by local companies. Applications for wind farm licenses will be evaluated in part on the offeror's plan to integrate local industry, as will be specified in the tender documents.

The proposed activities include:

- Identifying equipment and services that Tunisian companies could reasonably supply to wind farm operators during the design, construction and operational phases;
- Disseminating information about business opportunities related to the government's wind program to Tunisian companies;
- Setting up seminars and an electronic forum to bring potential wind concession applicants and Tunisian suppliers together.

Outcome 3: IPP Group equipped to launch private wind concession program (US\$400,000)

This outcome is intended to provide technical assistance to the IPP Group in developing private wind production in Tunisia, especially in selecting the most appropriate concessioning model(s) to ensure the development of wind power by private developers, preparing the contractual documents for each model, and removing the technical and economic obstacles to prepare for the launch of the next phase of the national program to promote wind energy.

OUTPUT 3.1 – CONCESSION MODELS FOR PRIVATE WIND POWER EVALUATED, AND CONTRACTUAL DOCUMENTS PREPARED FOR ONE OR MORE MODELS (US\$ 200,000)

In promoting the participation of private developers in its wind program, the MIEPME must develop a strategy that can help it fulfill several objectives: (i) optimizing Tunisia's wind potential as a contributor to national electricity production; (ii) ensuring a transparent tendering and licensing process that meets international standards; (iii) getting the best terms and conditions for Tunisian rate payers; and (iv) ensuring a fair rate of return to private investors.

To accomplish, the MIEPME, through its IPP Group, must develop a tendering and licensing strategy that meets international standards while responding to the specific circumstances of the Tunisian power sector program. The MIEPME and its IPP Group therefore desire technical assistance to look at existing concessioning models in use other countries and to understand the relevance of each model to Tunisia's wind program. Specifically, the IPP Group would like to understand how each model is able to further the objectives set forth above.

The proposed activities include:

Within the context of Tunisia's own thermal IPP experience, developing an analysis of the main concession models used for wind and other power concessions, their success at promoting private wind projects that are supportive of national power policies, and any lessons from such international experiences;

In cooperation with the IPP Group, identify the concession models that are the most relevant given the objectives of the MIEPME's wind power program and the structure of Tunisia's power sector;

For one or more models that are selected, develop a tendering strategy and an implementation plan outlining the process to be followed, key success drivers, implementation schedule and major milestones;

For one or more models that are selected, develop all required contractual documents, including tender documents and licensing agreements.

OUTPUT 3.2 – TARIFF MECHANISM DEVELOPED AND TARIFF PROPOSED (US\$ 200,000)

As the MIEPME department responsible for managing the tendering process for power sector IPPs, the IPP Group has requested technical assistance in assessing different wind tariff settlement mechanisms based on international practices and understanding the best approach for Tunisia. In particular, the IPP Group seeks assistance in determining the most appropriate methodology for calculating the STEG's avoided cost and in performing this calculation.

The proposed activities include:

Determining the most appropriate methodology for calculating the STEG's avoided fuel cost and performing this calculation according to accepted international practices;

Developing a wind tariff settlement methodology, including the appropriateness of including any externalities such as environmental benefits and greater stability in power prices. This tariff methodology should apply to private wind developers as well as industrial producers;

Developing an interactive financial and economic model for the IPP Group to test different assumptions and to perform sensitivity analysis;

Assessing anticipated tariff requirements for private wind developers based on: (i) the most likely concession scenarios (concession, management contract, BOOT, etc.); (ii) a range of hypotheses for capital, operating and borrowing costs; and (iii) a range of wind power production factors (e.g., GWh/year);

Preparing any regulatory and administrative texts required to authorize such a wind tariff system.

Outcome 4: Monitoring and evaluation support provided (US\$ 450,000)

OUTPUT 4.1 – PROJECT MONITORING AND EVALUATION HAVE BEEN CONDUCTED (US\$ 200,000)

This output will focus on the monitoring and evaluation activities to assess the performance of this project and gather any lessons that could be applied to other developing countries looking to create a favorable regulatory climate for private on-grid wind developments.

The proposed activities include:

Executing the monitoring and evaluation plan as defined in Section 4.

OUTPUT 4.2 – TECHNICAL PROGRAM SUPPORT PROVIDED TO MIEPME, ANME AND ANME PROJECT SUPPORT TEAM (US\$ 250,000)

This output will assist the MIEPME and the ANME in managing the technical, financial, economic and regulatory aspects of this project. In particular, support will be provided by an international consulting firm specializing in managing multifaceted RE projects to ensure that the different dimensions of this project are coordinated across the stakeholder groups and integrated within the government's RE program. A project support team will reinforce ANME's capacity to accomplish its mission in better conditions and will allow the creation of a nucleus within ANME while sustaining lessons learnt from the project.

The proposed activities include:

Providing technical program support to the MIEPME and the ANME.

2.3 Project Indicators, Risks and Assumptions

Project Indicators

Key indicators of success for the project include:

ENVIRONMENTAL:

Reduction in CO₂ emissions due to the deployment of new wind power production capacity.

POLICY:

Strengthened commitment of the government to push through a program of private sector-led on-grid wind power.

REGULATORY:

Adoption of an enabling regulatory framework that provides the necessary safeguards and incentives for private wind operators to invest in Tunisia's wind sector.

ECONOMIC:

Increased investment by international operators in Tunisia's wind infrastructure.

Increased participation of Tunisian companies in the provision of equipment and services for the private sector wind farms.

INSTITUTIONAL:

Availability of effective arbitration mechanism to resolve disputes between operators.

Strengthened capacity of IPP Group to issue wind IPP tenders and finalize wind IPP concessions.

TECHNICAL:

Strengthened capacity of the ANME to provide sound technical advice to the Ministry of Industry and Energy to guide policy decisions;

Strengthened capacity of IPP to define technical parameters for wind IPP tenders.

Strengthened capacity of the STEG to develop wind energy into the electricity grid.

Key Risks

The project entails a number of risks which are tied to the willingness of the stakeholders, particularly the government, to push forward with meaningful regulatory reforms. The following table summarizes key risks along with mitigating measures.

Risks	Mitigating Measures
<u>Policy:</u> Lack of political will to push forward with regulatory framework for on-grid renewables	The government's past hesitancy came from two sources: (i) unwillingness to subsidize wind power; and (ii) lack of independent technical data to guide policy decisions. The rise in oil and gas prices has made wind power competitive with traditional thermal energy (see p. 10). Strengthening the technical capacities of the ANME will allow it to insure a better understanding of the various stakeholders.
<u>Regulatory:</u> Inadequate feed-in tariff	The feed-in tariff currently proposed by the STEG, based on internal calculations of its avoided cost, is too low to attract private developers. However, the project intends to provide technical assistance to the IPPs to propose a wind tariff based on international recognized methodologies for calculating avoided costs and related externalities. Preliminary calculations by the project team (see p. 10) indicate that wind power is competitive with thermal production at \$40-\$60 a barrel.
<u>Economic:</u> Lack of interest by international investors	Tunisia's situation is unique in that a reputable international wind developer has already stated to the government the conditions under which it is ready to invest. Others can be expected to follow as long as they can be assured of a transparent regulatory framework.
<u>Institutional:</u> Wind IPP tender fails to meet internationally accepted standards	The IPP Group under the MIEPME has experience in launching international IPP tenders for combined cycle gas fired plants. The project will provide technical assistance to help the IPP Group adapt this successful model for private wind concessions.

Table 3: Project Risks and Mitigating Measures

Main Assumptions

This project is based on the following assumptions;

The government is committed to launching its program for private sector-led on-grid wind power production;

Oil prices (and their gas equivalent) will remain above \$40-\$60/barrel;

The regulatory framework that is adopted provides sufficient incentives and safeguards to attract private wind developers;

The government accepts a wind tariff proposal that is sufficiently attractive to provide a reasonable rate of return to private developers;

The government is able to set up an arbitration mechanism to enforce regulatory provisions with various key stakeholders.

2.4 Expected Global, National and Local Benefits

The project will contribute to a reduction in greenhouse gas emissions in line with GEF objectives through the introduction of a sustainable and transparent regulatory mechanism. The project will contribute to removing institutional and technical barriers that have held back the government's wind IPP program by providing the necessary technical assistance and capacity building resources to key institutional players.

The project will also give Tunisians greater access to cleaner sources of energy by opening up the power sector to wind projects in a first phase, and possibly to other renewable energy technologies in later phases (not covered by this project). Once the Tunisian grid is connected to the European grid via Italy (expected in 2011), a vibrant wind power industry in Tunisia might eventually be able to sell green electricity to Europe.

In addition to bringing these global and local benefits, the project is consistent with Tunisia's development objectives of increasing the use of indigenous renewable energies such as wind to reduce (or limit) its dependence on fossil fuels such as natural gas.

2.5 Country Ownership: Country Eligibility and Country Drivenness

Tunisia ratified the UN Framework Convention on Climate Change (UNFCCC) on 15 July 1993.

Tunisia's commitment to wind energy is reflected in its 10th and 11th four-year plans.

The government has furthermore elevated responsibility for renewable energy to the cabinet level by creating the post of Secretary of State in charge of Renewable Energy and Agri-business. Reporting to the Minister of Industry and Energy, the Secretary General is responsible for driving government policy in the area of renewable energy and advocating policies and programs that can help Tunisia develop its full wind potential.

The regulatory framework for renewable energy in Tunisia evolved over the last twenty years. Much of the change and progress has to do with the various fiscal incentives and entitlements granted by the government over the years. Though overall renewable energy sector business environment seems to have improved gradually, 2001 can be observed to be a unique milestone with the issuance of some 20 presidential decrees to support the government's renewed policy commitments to the sector. Government decisions made by way of the May 2001 decree can be outlined as follows:

Compulsory use of solar water heaters in new public buildings;

Emphasis on optimal use of photovoltaic energy in various sectors and government sponsored projects;

Development of on-grid wind electricity;

Announcement of a variety of incentives to produce energy from waste, geothermal sources, together with micro/mini-hydro power production to displace fossil fuels.

- Promulgation of law n° 2004-72 from 2 August 2004 addressing energy efficiency and of law n° 2005-82 from 15 August 2005 related to the creation of an energy efficiency system.

Other actions taken in the past in favor of renewable energy include the following:

Presidential decision issued in 2001 for the promotion of on-grid wind electricity supply;

Signing by Tunisia of the Kyoto Protocol in June 2002;

Launching in 2002 of a global project for capacity building in wind power. The project—jointly funded by the ANME, the UNDP, the Canadian International Development Agency (CIDA) and the Francophone Energy and Environment Institute (IEPF)—includes a component for capacity building for public organizations involved (ANME, STEG) and the private sector together with a partial wind power capacity assessment and an investigation of the sector's regulatory framework;

Creation in 2003 of a Commission for the development of wind energy in charge of preparing and supervising the implementation of a regulatory framework conducive to the commercialization of on-grid wind power;

Extension of the Sidi Daoud wind project by STEG with the addition of 8.7 MW wind power capacity in 2003 and 35 MW in 2006.

2.6 Sustainability

Investors in renewable on-grid electricity need medium and long term visibility and contractual arrangements. The nature, duration and conditions of future Purchase Power Agreement will be defined through outcomes 3.1 and 3.2 based on a sound analysis of the financial and economical Tunisian context.

The approach adopted in this project seeks to reinforce the long-term sustainability of the Tunisian wind electricity market. By addressing systematically and simultaneously each of the barriers currently impeding the development of commercial wind electricity in Tunisia, the project will create a regulatory and institutional framework that is conducive to a sustainable wind market. Project activities will strengthen capacities and foster the establishment of a transparent environment within which all key players and major stakeholders will have every reason to contribute their best efforts. The entire process will be supported by UNDP-GEF providing technical and capacity building assistance to the entire process as needed.

The project's sustainability is further reinforced by the fact that no public subsidies are required to compensate private wind developers. Calculations made by the project team (to be confirmed during the project execution phase) confirm that wind energy in Tunisia is competitive over a 20-year timeframe with oil prices around US\$40-US\$60 a barrel. With oil prices expected to continue to increase beyond the current US\$70/barrel level, wind energy has become a cost-competitive alternative for developing countries that are reluctant to having the public treasury and/or ratepayers subsidize green electricity.

2.7 Replicability

By establishing a regulatory framework that sets clear rules for private wind concessions, this project opens the door for further private wind projects in Tunisia, as well as creating a viable IPP model for other RE technologies. Once the private sector sees that Tunisia has created a transparent mechanism for opening up its power sector to private wind projects, other developers will be seeking authorization to launch new wind projects.

The Conference on Grid-Connected Renewables hosted by the World Bank in Mexico in February 2006 highlighted the fact that many developing countries are still searching for the most appropriate mix of regulation, market incentives and tendering process to attract private wind developers without requiring subsidies from ratepayers or the public treasury. If Tunisia were to succeed in this project, this would provide a case study for large scale implementation of on-grid private wind projects that could be leveraged with the policymakers in other similar countries to encourage greater innovation. Absent a success story such as this one, most wind projects in developing countries will continue to be developed by the public utility, thus hindering technical innovation and limiting the total investment that can be directed to this sector.

3. Management Arrangements

The project will be implemented by the UNDP and executed by the ANME on behalf of the Tunisian Government. The project provides the government with a good opportunity to strengthen the institutional and technical capabilities of its agencies in the area of on-grid wind project promotion, especially as it applies to private sector-led development. A prime beneficiary will be the ANME, which will act as Execution Agency.

The ANME has been clearly identified by the Ministry of Industry and Energy as the most experienced entity for: (i) driving this project forward; (ii) establishing a technical competency center in the area of on-grid wind power; (iii) providing independent technical advice to guide policymakers in decision making; and (iv) proposing a transparent regulatory framework that establishes the procedures for private wind concessions.

A Project Coordinator will be named by the ANME to manage this project, interact on a regular basis with the UNDP-CO, and provide coordination with all the relevant stakeholders. Furthermore, the Director General of the ANME (or his designee) will chair a Project Steering Committee (PSC) that will meet on a regular basis with the consultants and other key institutional representatives (IPP Group, STEG, Ministry of Industry and Energy) to review progress, discuss implementation issues, and ensure close coordination among the project participants. A permanent support for the project team will be put in place for the execution of the project.

The UNDP-CO, with assistance from the UNDP-GEF RCU, will provide project oversight and will ensure the completion of key reports and other deliverables (as identified in next section on Monitoring and Evaluation).

The following items will be handled by entities other than the ANME:

Ministry of Industry, Energy and Small and Medium Enterprises:

- § **The Directorate General of Energy** will ensure the approval and adoption of the regulatory framework that will be developed with the technical assistance proposed to the ANME. This step is considered very important, since the policy process is an important factor in the success of this project. The Ministry will ensure that the private sector perceives the overall process as being fair to all and that an effective

arbitration mechanism is set up to resolve eventual disputes between public and private operators.

§ **The General Directorate of Industry** will be the partner for managing the process of increasing the participation of Tunisian companies in the provision of equipment and services to private wind developers.

§ **The IPP Group** will be responsible for identifying and developing a tariff settlement mechanism that can attract private developers while minimizing the cost to Tunisian ratepayers.

All wind electricity stakeholders (STEG, autoproducers, technical consulting firms..) will be responsible for developing the necessary technical competency to be able to plan, forecast and manage the injection of intermittent wind electricity onto the national grid. The STEG will play a key role by working closely and effectively with private wind developers to ensure a smooth transition to a liberalized wind market.

During the preparatory assistance phase, the consultants met with the World Bank team that is responsible for the energy portfolio in Tunisia. Although the World Bank is not a party to this project, the two organizations have coordinated their approach to the technical assistance and capacity building that is proposed to the MIEPME and the government of Tunisia. The World Bank has proposed technical assistance in the area of energy efficiency and renewable energy to help the ANME improve its execution capabilities and to provide funding for energy efficiency programs. This assistance will help the ANME build stronger organizational capability in the area of renewable energy.

In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF. The UNDP logo should be more prominent -- and separated from the GEF logo if possible, as UN visibility is important for security purposes.

4. Monitoring And Evaluation Plan And Budget

Project monitoring and evaluation (M&E) will be conducted in accordance with established UNDP and GEF procedures as well as the new UNDP procedures in the ATLAS system. Project M&E will be provided by the project team with support from the UNDP Country Office (UNDP-CO) and the UNDP-GEF Regional Coordination Unit (RCU). The Logical Framework Matrix in Section II provides *performance* and *impact* indicators for project implementation along with their corresponding *means of verification*. These will form the basis on which the project's Monitoring and Evaluation system will be built.

The following sections of the Monitoring and Evaluation Plan will include: (i) establishing monitoring responsibilities and events; (ii) project reporting; and (iii) independent evaluations. The project's Monitoring and Evaluation Plan will be presented and finalized at the Project's Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

4.1 Monitoring and Reporting

4.1.1 Project Inception Phase

A Project Inception Workshop will be conducted with the full project team, the ANME, the IPP Group, the Ministry of Energy, the STEG, the UNDP-CO (Country Office) and representation from the UNDP-GEF Regional Coordinating Unit (RCU), as well as the UNDP-GEF (HQ) as appropriate.

A fundamental objective of this Inception Workshop will be to assist the project team to understand and take ownership of the project's goals and objectives, as well as finalize preparation of the project's first annual work plan on the basis of the project's logframe matrix. This will include reviewing the logframe (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise, finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

Additionally, the purpose and objective of the Inception Workshop will be to: (i) introduce project staff with the UNDP-GEF *expanded team* that will support the project during its implementation, namely the CO and RCU staff; (ii) detail the roles, support services and complementary responsibilities of UNDP-CO and RCU staff vis-à-vis the project team; (iii) provide a detailed overview of UNDP-GEF reporting, monitoring and evaluation (M&E) requirements, with particular emphasis on the annual Project Implementation Reviews (PIRs) and related documentation, the Annual Project Report (APR), Tripartite Review Meetings, as well as mid-term and final evaluations. Equally, the Inception Workshop will provide an opportunity to inform the project team on UNDP project-related budgetary planning, budget reviews, and mandatory budget rephasings.

The Inception Workshop will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff and decision-making structures will be discussed again as needed in order to clarify for all, each party's responsibilities during the project's implementation phase.

4.1.2 Monitoring Responsibilities and Events

A detailed schedule of project review meetings will be developed by the project management—in consultation with project implementation partners and stakeholder representatives—and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Steering Committee Meetings; and (ii) project related Monitoring and Evaluation activities.

(A) DAY-TO-DAY MONITORING

Day-to-day monitoring of implementation progress will be the responsibility of the Project Coordinator (named by the ANME) based on the project's Annual Work Plan and its indicators. The Project Team will inform the ANME and the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

The Project Coordinator and the Project GEF Technical Advisor will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the Inception Workshop with support from UNDP-CO and assisted by the UNDP-GEF RCU. Specific targets for the first year implementation progress indicators together with their means of verification will be developed at this Workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Work Plan. The ANME and the IPP Group will also take part in the Inception Workshop in which a common vision of overall project goals will be established. Targets and indicators for subsequent years would be defined annually as part of the internal evaluation and planning processes undertaken by the project team.

(B) PERIODIC MONITORING

Periodic monitoring of implementation progress will be undertaken by the Project Steering Committee (PSC) through quarterly meetings with the ANME, the IPP Group and the UNDP-CO, or more or less frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

The UNDP-CO and the UNDP-GEF RCU are responsible for monitoring the project on a continuous basis and can conduct, as appropriate, visits to the project and field sites to assess first hand project progress. Any other member of the Project Steering Committee can also accompany, as decided by the Committee. A Field Visit Report will be prepared by the UNDP-CO and circulated no less than one month after the visit to the project team, all PSC members and the UNDP-GEF.

(C) ANNUAL MONITORING

Annual Monitoring will occur through the *Tripartite Review (TPR)*. This is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to Tripartite Review at least once a year. The first such meeting will be held within the first twelve months of the start of full implementation. The ANME, in collaboration with the IPP Group, will prepare an Annual Project Report (APR) and submit it to UNDP-CO and the UNDP-GEF at least two weeks prior to the Tripartite Review for review and comments.

The Annual Project Report will be used as one of the basis documents for discussion in the Tripartite Review meeting. The ANME along with the IPP Bureau will present the Annual Project Report to the Tripartite Review, highlighting policy issues and recommendations for the decision of the Tripartite Review participants. The ANME also informs the participants of any agreement reached by stakeholders during the Annual Project Report preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary.

(D) TERMINAL TRIPARTITE REVIEW (TTR)

The Terminal Tripartite Review is held in the last month of project operations. The ANME along with the Project Coordinator is responsible for preparing the Terminal Report and submitting it to UNDP-CO and RCU. It shall be prepared in draft form at least two months in advance of the Terminal Tripartite Review in order to allow review, and will serve as the basis for discussions in the review. The Terminal Tripartite Review considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as a vehicle through which lessons learnt can be captured to feed into other projects under formulation or implementation.

The Tripartite Review has the authority to suspend disbursement if project performance benchmarks are not met. Benchmarks will be developed at the Inception Workshop, based on delivery rates and qualitative assessments of achievements of outputs.

4.1.3 Project Monitoring Reporting

The Project Coordinator will be responsible for the preparation and submission of the following reports that form part of the monitoring process. Items (a) through (f) are mandatory and strictly related to monitoring.

(A) INCEPTION REPORT (IR)

A project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year/Annual Work Plan divided in quarterly time-frames detailing the activities and progress indicators that will guide implementation during the first year of the project. This Work Plan would include the dates of specific field visits, support missions from the UNDP-CO or the Regional Coordinating Unit (RCU) or consultants, as well as time-frames for meetings of the project's decision-making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and

evaluation requirements to effectively measure project performance during the targeted 12-month timeframe.

The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project partners. In addition, a section will be included on progress to date on project establishment and start-up activities, as well as on an update of any changed external conditions that may effect project implementation.

When finalized the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the Inception Report, the UNDP-CO and RCU will review the document.

(B) ANNUAL PROJECT REPORT (APR)

The APR is a UNDP requirement and part of UNDP's Country Office central oversight, monitoring and project management. It is a self-assessment report by project management to the UNDP-CO and provides input to the country office reporting process and the ROAR, as well as forming a key input to the Tripartite Project Review. The APR, to be prepared on an annual basis prior to the Tripartite Project Review, will reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work.

The format of the APR is flexible but should include the following:

An analysis of project performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome;

The constraints experienced in the progress towards results and the reasons for these;

The three (at most) major constraints to achievement of results;

AWP, CAE and other expenditure reports (ERP generated);

Lessons learned;

Clear recommendations for future orientation in addressing key problems in lack of progress.

(C) PROJECT IMPLEMENTATION REVIEW (PIR)

The PIR is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for a year, a Project Implementation Report must be completed by the UNDP-CO together with the project coordinator. The PIR can be prepared any time during the year (July-June) and ideally prior to the Tripartite Review. The PIR should then be discussed in the Tripartite Review so that the result would be a PIR that has been agreed upon by the project team, the ANME, the UNDP-CO and the RCU.

The individual PIRs are collected, reviewed and analyzed by the RCs prior to sending them to the Climate Change Cluster at the UNDP-GEF HQ. The focal area clusters supported by the UNDP-GEF M&E Unit analyze the PIRs by focal area, theme and region for common issues/results and lessons. The Technical Advisors and PTAs play a key role in this consolidating analysis.

The focal area PIRs are then discussed in the GEF Interagency Focal Area Task Forces in or around November each year, and consolidated reports by focal area are collated by the GEF Independent M&E Unit based on the Task Force findings.

The GEF M&E Unit provides the scope and content of the PIR. In light of the similarities of both APR and PIR, UNDP-GEF has prepared a harmonized format for reference.

(D) QUARTERLY PROGRESS REPORTS

Short reports outlining main updates in project progress will be provided quarterly to the local UNDP Country Office and the UNDP-GEF regional office by the project team.

(E) PERIODIC THEMATIC REPORTS

As and when called for by UNDP-CO, UNDP-GEF or the ANME, the project team will prepare Specific Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be provided to the project team in written form by UNDP and will clearly state the issue or activities that need to be reported on. These reports can be used as a form of lessons learnt exercise, specific oversight in key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered. UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary will allow reasonable timeframes for their preparation by the project team.

(F) PROJECT TERMINAL REPORT

During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met or not achieved, structures and systems implemented, etc. It will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities.

4.2 Independent Evaluation

The project will be subjected to at least two independent external evaluations as follows:

(A) MID-TERM EVALUATION

An independent Mid-Term Evaluation will be undertaken at the end of the first 18 months of implementation. The Mid-Term Evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP-CO based on guidance from the UNDP-GEF RCU.

(B) FINAL EVALUATION

An independent Final Evaluation will take place three months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation. The Final Evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the UNDP-GEF RCU.

(C) AUDIT CLAUSE

The Government will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the procedures set out in Section 30503 of the UNDP Policies and Procedures Manual and

Section 10404 of the UNDP Finance Manual. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

4.3 Learning and Knowledge Sharing

Results from the project will be disseminated through a number of existing information sharing networks and forums dealing with on-grid renewable energy. The project will participate, as relevant and appropriate, in networks sponsored by UNDP and GEF that are organized for staff working on projects that share common characteristics. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. UNDP-GEF shall provide a format and assist the project team in categorizing, documenting and reporting on lessons learned.

4.2 Monitoring and Evaluation Budget

The proposed M&E budget for the project, in the amount of US\$ 200,000, is presented in Table 4.

M&E Activity	Responsible Parties	Budget (US\$)	Timeframe
Project Inception Workshop	<ul style="list-style-type: none"> • Project Coordinator • UNDP-CO 	0	Start of project
Strategic Planning Matrix (SPM) - annual workplan	<ul style="list-style-type: none"> • Project Team • UNDP-CO 	0	Annually
Baseline and End-of-Project Study of Project Indicators	<ul style="list-style-type: none"> • Project Coordinator • Hired consultants 	100,000	Start and end of project
Measurement of Means of Verification for Project Progress and Performance (measured annually)	<ul style="list-style-type: none"> • Oversight by UNDP-GEF RCU and Project Coord. • ANME staff or hired consultants 	Part of the SPM's preparation	Annually prior to the APR/PIR
Tripartite Review (TPR)	<ul style="list-style-type: none"> • UNDP-CO • Project Coordinator • UNDP-GEF RCU 	0	Within 12 months of project start, then annually
Annual Project Report (APR)	<ul style="list-style-type: none"> • ANME • Project Coordinator • UNDP-CO 	0	Annually, at least two weeks prior to TPR
Project Implementation Review (PIR)	<ul style="list-style-type: none"> • UNDP-CO • Project Coordinator • UNDP-GEF RCU 	0	Annually
Steering Committee Meetings (SCM)	<ul style="list-style-type: none"> • Project Team • UNDP-CO 	0	Following Inception Workshop and held quarterly
Terminal Report	<ul style="list-style-type: none"> • Project Coordinator • UNDP-CO 	0	At least one month before project's end
Mid-Term Evaluation	<ul style="list-style-type: none"> • Project Coordinator • Hired consultants 	25,000	At the end of the second year of implementation
Final Evaluation	<ul style="list-style-type: none"> • Project Coordinator • Hired consultants 	25,000	3 months prior to the terminal Tripartite Review
Terminal Tripartite Review	<ul style="list-style-type: none"> • Project Team • UNDP-CO 	0	End of project
Lessons Learned	<ul style="list-style-type: none"> • Project Coordinator • UNDP-GEF RCU 	30,000	Annually
Audit	<ul style="list-style-type: none"> • Project Coordinator • UNDP-CO 	5,000	Annually
Visits to field sites (UNDP staff travel costs should be charged to IA fees)	<ul style="list-style-type: none"> • UNDP CO • UNDP-GEF RCU • Govt. representatives 	15,000	Annually
Total Indicative Costs (excluding project team staff time and UNDP staff and travel expenses)		US\$200,000	

Table 4: Indicative M&E Workplan and Budget

5. *Legal Context*

This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement (SBAA) between the Government of Tunisia and the UNDP, signed by the parties on April 25, 1987. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

The UNDP Resident Representative in Tunis is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP-GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

Revision of, or addition to, any of the annexes to the Project Document;

Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;

Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and

Inclusion of additional annexes and attachments only as set out here in this Project Document.

SECTION II: STRATEGIC RESULTS FRAMEWORK*1. Incremental Cost Analysis*

- Each MW of additional wind capacity developed by the private sector as a result of an enabling regulatory and institutional framework is expected to produce 3.1 GWh of wind power per year, resulting in an equivalent reduction in thermal electricity. Given the timeframe to develop the necessary regulatory framework and launch wind concessions in several phases, it is expected that 60% of the proposed 100 MW wind program will be realized in the three years of the program (direct GHG savings) and the remaining 40% will be launched in the following year (direct post-project GHG savings).
- Each GWh of electricity produced by the STEG generates 604 tCO₂. By substituting wind power for thermal electricity, this project is able to reduce CO₂ emissions by the following amount over 20 years:
 1. The direct emissions reduction impact is 2.2 million tCO₂. This represents 3,720 GWh, equivalent to 713,000 Ton-Oil-Equivalent (TOE). Given the GEF contribution of US\$ 2 million, the direct cost of abating a ton of CO₂ comes to US\$ 0.91.
 2. The direct post-project emissions reduction impact is 1.5 million tCO₂. This represents 2,480 GWh, equivalent to 644,000 TOE.
- After the initial 100 MW program is implemented, it is reasonable to expect that a favorable regulatory framework and continued high oil prices will stimulate further investments by private wind developers. Given the continued growth in Tunisia's total power requirements and the currently verified wind potential of 1,000 MW, it is reasonable to expect that another 200 MW could be developed by the private sector after the GEF project concludes. This would lead to indirect emissions reduction of an additional 7.3 million tCO₂ over 20 years. This represents 12,400 GWh, equivalent to 2,377,000 TOE.

	Outputs	Baseline	Alternative	Increment (Alternative-Baseline)
Outcome 1: Enabling regulatory and institutional framework has been established in support of on-grid renewables	1.1 Regulatory framework has been established for private wind concessions	The current regulatory system is insufficient to attract private wind developers in the absence of clear licensing procedures and tariff mechanisms. Lack of arbitration mechanism does not create level playing field for new entrants. GEF: US\$ 0 Cofinancing: <u>US\$ 0</u> Subtotal: US\$ 0	Technical assistance to the ANME to create enabling regulatory framework, and to the MIEPME to create an arbitration mechanism within its ranks. ANME and MIEPME provide legal and technical resources to integrate recommendations. GEF: US\$ 400,000 Cofinancing: <u>US\$ 400,000</u> Subtotal: US\$ 800,000	Regulations promulgated defining wind licensing procedures. Arbitration mechanism developed for MIEPME to provide occasional arbitration between STEG and wind producers. GEF: US\$ 400,000 Cofinancing: <u>US\$ 400,000</u> Subtotal: US\$ 800,000
	1.2 Proposal for power sector arbitration mechanism is developed			
Outcome 2: Technical and organizational capabilities of key stakeholders have been strengthened	2.1 Technical assistance and capacity building provided to the ANME	ANME conducts wind measurement campaign, but otherwise has limited ability to conduct technical studies to guide government policy on wind concessions. STEG has difficulty in absorbing intermittent wind power onto power grid. Local industry not prepared to participate in private wind market. GEF: US\$ 0 Cofinancing: <u>US\$ 450,000</u> Subtotal: US\$ 450,000	Technical assistance to ANME to develop industry guidelines for wind concessions. ANME develops detailed wind maps. STEG engineers study standard methodologies for integrating wind power onto the grid. MIEPME launches program to help local industry compete for equipment and service contracts with wind industry GEF: US\$ 750,000 Cofinancing: <u>US\$ 1,850,000</u> Subtotal: US\$ 2,600,000	Avoided cost calculation performed, and technical specifications for wind farm connection to grid drafted. Plan to manage wind injection into grid developed, along with optimal load management technique. Integration of local industry through better information and knowledge sharing. GEF: US\$ 750,000 Cofinancing: <u>US\$ 1,400,000</u> Subtotal: US\$ 2,150,000
	2.2 STEG ability to integrate independent wind electricity production in its grid is strengthened			
	2.3 Local industry ability to supply equipment and services to wind operators has been improved			

	Outputs	Baseline	Alternative	Increment (Alternative-Baseline)
Outcome 3: IPP Group equipped to launch private wind concession program	3.1 Concession models for private wind power evaluated, and contractual documents prepared for one or more models	No private wind concessions issued, and no private investments in wind projects.	Technical assistance to IPP Group to prepare a tendering strategy for the government's wind program.	Wind concessioning strategy meeting international standards has been developed, along with accepted tariff setting methodology.
	3.2 Tariff mechanism developed and tariff proposed	GEF: US\$ 0 Cofinancing: <u>US\$ 0</u> Subtotal: US\$ 0	GEF: US\$ 400,000 Cofinancing: <u>US\$ 100,000</u> Subtotal: US\$ 500,000 Expected Investment: >US\$ 60,000,000	GEF: US\$ 400,000 Cofinancing: <u>US\$ 100,000</u> Subtotal: US\$ 500,000 Expected Investment: >US\$ 60,000,000
Outcome 4: Monitoring and evaluation support provided	4.1 Project monitoring and evaluation have been conducted	Limited capacity available to monitor project and assess impacts.	Evaluation of the impact of MIEPME's on-grid wind program, STEG's contributions, and private sector investment activities.	Design and study of baseline and target indicators (e.g., CO ₂ reductions, ANME capacity development, concession grants), serving as an annual M&E tool.
	4.2 Technical program support provided to MIEPME and ANME	GEF: US\$ 0 Cofinancing: <u>US\$ 0</u> Subtotal: US\$ 0	GEF: US\$ 450,000 Cofinancing: <u>US\$ 100,000</u> Subtotal: US\$ 550,000	GEF: US\$ 450,000 Cofinancing: <u>US\$ 100,000</u> Subtotal: US\$ 550,000
Total Project		GEF: US\$ 0 Cofinancing: <u>US\$ 450,000</u> Subtotal: US\$ 450,000	GEF: US\$ 2,000,000 Cofinancing: <u>US\$ 2,450,000</u> Subtotal: US\$ 4,450,000 Expected Investment: >US\$ 60,000,000	GEF: US\$ 2,000,000 Cofinancing: <u>US\$ 2,000,000</u> Subtotal: US\$ 4,000,000 Expected Investment: >US\$ 60,000,000
Environmental Benefits		In the baseline scenario, Tunisia continues to rely heavily on fossil fuels to produce electricity while failing to fully exploit its wind power potential.	Within 3 years, government policies in favor of private wind power will have resulted in wind concessions totaling at least 60 MW. Total investment by private	GEF funding supports the establishment of a viable market for private wind concessions. This helps Tunisia develop its full wind potential and create a

	Outputs	Baseline	Alternative	Increment (Alternative-Baseline)
			<p>developers exceeds US\$ 60 million.</p> <p>CO₂ emissions reductions:</p> <ul style="list-style-type: none"> - Direct: up to 2.2 million tCO₂ - Direct post-project: up to 1.5 million tCO₂ - Indirect: 7.3 million tCO₂ 	reference point for other middle income developing countries seeking to introduce a sustainable regulatory framework for private RE developers.

2. Logical Framework Analysis

	Objectively Verifiable Indicators				
Goal	To reduce Tunisia's energy related CO ₂ emissions by stimulating the development of wind energy through greater participation of private wind developers.				
Strategy	Indicators	Baseline	Target	Sources of Verification	Risk and Assumptions
<p>Project Objective:</p> <p>To create a favorable regulatory and institutional framework that will provide the necessary incentives for private wind developers to invest in Tunisia's power sector, while assisting the government in crafting the most appropriate strategy for issuing tenders.</p>	<ul style="list-style-type: none"> • Reduction in CO₂ emissions • Issuance of private wind concessions • Private sector wind power investments 	<ul style="list-style-type: none"> • No CO₂ reductions from private sector wind projects • No private sector investment 	<ul style="list-style-type: none"> • CO₂ emissions reduced by 2.2 million tons from direct impacts • Private sector has invested US\$ 60 million during life of project (Totaling 60 MW on wind capacity) 	<ul style="list-style-type: none"> • IPP Group concession agreements • Survey of private wind developers • Review of government regulatory legislation 	<ul style="list-style-type: none"> • Oil prices stay above US\$ 40-60 threshold • IPP Group is successful in issuing international tenders • Market for private wind concessions in developing countries remains strong

Outcome 1: Enabling regulatory and institutional framework has been established in support of on-grid renewables	<ul style="list-style-type: none"> Strengthened commitment of government to push through a program of private sector on-grid wind power 	<ul style="list-style-type: none"> Limited government policies promoting private on-grid wind projects 	<ul style="list-style-type: none"> Government documents on wind energy 	<ul style="list-style-type: none"> MIEPME internal documents 	<ul style="list-style-type: none"> Govt. adopts a regulatory framework that ensures reasonable rate of return to developers
Output 1.1: Regulatory framework has been established for on-grid wind concessions	<ul style="list-style-type: none"> Adoption of an enabling regulatory framework 	<ul style="list-style-type: none"> No regulatory framework defining market access conditions for developers 	<ul style="list-style-type: none"> Enabling regulatory framework provides the necessary safeguards and incentives for private wind developers 	<ul style="list-style-type: none"> Government regulatory filings 	<ul style="list-style-type: none"> Govt. adopts a regulatory framework that ensures reasonable rate of return to developers
Output 1.2: Proposal for power sector arbitration mechanism is developed	<ul style="list-style-type: none"> Effective arbitration mechanism developed 	<ul style="list-style-type: none"> No arbitration mechanism to settle differences between STEG and new entrants 	<ul style="list-style-type: none"> Arbitration mechanism defined and implemented by MIEPME 	<ul style="list-style-type: none"> MIEPME arbitration procedures manual 	<ul style="list-style-type: none"> Govt accepts value c regulatory mechanism to resolve disputes between operators
Outcome 2: Technical and organizational capabilities of key stakeholders have been strengthened	<ul style="list-style-type: none"> Strengthened capacity of key stakeholders to engage in wind power market 	<ul style="list-style-type: none"> Limited experience with large scale wind projects 	<ul style="list-style-type: none"> Technical assistance provided according to workplan 	<ul style="list-style-type: none"> Internal agency document 	<ul style="list-style-type: none"> Quality of technical assistance, along with receptivity of recipient
Output 2.1: Technical assistance and capacity building provided to the ANME	<ul style="list-style-type: none"> Technical inputs for regulatory frameworks 	<ul style="list-style-type: none"> Limited technical inputs for regulatory frameworks 	<ul style="list-style-type: none"> Technical wind absorption capacity study of the grid Specifications to interconnect private wind farm to grid 	<ul style="list-style-type: none"> Project files ANME internal documents 	<ul style="list-style-type: none"> Ability of ANME to establish technical credibility

Output 2.2: STEG ability to integrate independent wind electricity production in its grid is strengthened	<ul style="list-style-type: none"> Capacity of STEG to manage injection of wind power into the electricity grid 	<ul style="list-style-type: none"> Uncertainty about intermittency risks pushes STEG to reject private wind power 	<ul style="list-style-type: none"> Documented STEG plan to manage wind injection in network 	<ul style="list-style-type: none"> Project files STEG internal documents 	<ul style="list-style-type: none"> STEG prepared to accept reasonable risk of wind intermittency
Output 2.3: Local industry ability to supply equipment and services to wind operators has been improved	<ul style="list-style-type: none"> Increased participation of Tunisian companies 	<ul style="list-style-type: none"> Limited integration of local industry 	<ul style="list-style-type: none"> 30% of value of equipment and services provided by local firms 	<ul style="list-style-type: none"> Survey of wind developers and local suppliers/service providers 	<ul style="list-style-type: none"> Tunisian companies not competitive enough with foreign businesses
Outcome 3: IPP Group able to launch private wind concession program	<ul style="list-style-type: none"> Increased participation by private developers 	<ul style="list-style-type: none"> No private developers doing projects 	<ul style="list-style-type: none"> 60 MW of Wind Power installed by IPP 	<ul style="list-style-type: none"> IPP Group and ANME files Investment of \$US 60 M from private sector 	<ul style="list-style-type: none"> Developers perceive that rate of return is sufficient
Output 3.1: Concession models for private wind power evaluated, and contractual documents prepared for one or more models	<ul style="list-style-type: none"> Strengthened capacity of IPP Group to issue wind tenders and finalize private concessions 	<ul style="list-style-type: none"> No concession model for private wind concessions is identified 	<ul style="list-style-type: none"> One or more concession models have been identified and contractual documented prepared 	<ul style="list-style-type: none"> Concession models from IPP Group 	<ul style="list-style-type: none"> Concessioning mode adapted to developing countries is identified
Output 3.2: Tariff mechanism developed and tariff proposed	<ul style="list-style-type: none"> Proposed tariff is calculated 	<ul style="list-style-type: none"> Differing interpretations of appropriate tariffs levels between MIEPME and STEG 	<ul style="list-style-type: none"> Tariff mechanism is clearly identified and STEG avoided cost is calculated 	<ul style="list-style-type: none"> Feed-in tariff methodology and calculation 	<ul style="list-style-type: none"> IPP Group ability to calculate STEG's avoided cost
Outcome 4: Monitoring and evaluation support provided	<ul style="list-style-type: none"> Timely reporting and monitoring of the project 	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Project workshops held on timely basis Timely submission of all M&E reports 	<ul style="list-style-type: none"> Reports and workshop minutes from M&E team 	<ul style="list-style-type: none"> Cooperation of project stakeholders

Output 4.1: Project monitoring and evaluation have been conducted	<ul style="list-style-type: none"> • Timely reporting and monitoring of the project 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Reporting and evaluation are conducted accurately and on time 	<ul style="list-style-type: none"> • Consultant reports 	<ul style="list-style-type: none"> • Lack of coordination among project partners
Output 4.2: Technical program assistance has been provided to MIEPME and ANME	<ul style="list-style-type: none"> • Level of technical program assistance 	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • The level of technical program assistance is acceptable 	<ul style="list-style-type: none"> • Interviews with UNDP and government agencies 	<ul style="list-style-type: none"> • None

SECTION III: TOTAL BUDGET AND WORKPLAN

Award ID:	00035597
Award Title:	PIMS 2129 CC FSP: Wind Energy
Project ID:	00038270
Project Title:	PIMS 2129 CC FSP: Private Sector Led Development of On-Grid Wind Power in Tunisia
Executing Agency:	NEX: National Energy Management Agency (ANME)

GEF Outcome/Atlas Activity	Responsible Party (Implementing Agent)	Source of Funds	Atlas Budgetary Account Code	ERP/ATLAS Budget Description/Input	Amount (USD) Year 1	Amount (USD) Year 2	Amount (USD) Year 3	Total (USD)
OUTCOME 1: regulatory and institutional framework enabled	ANME	GEF	71200	International Consultant	120,000	100,000	80,000	300,000
			71600	Travel	10,000	10,000	10,000	30,000
			71300	National Consultant	30,000	30,000	10,000	70,000
				Sub-Total	160,000	140,000	100,000	400,000
OUTCOME 2: Technical and organizational capabilities of key stakeholders strengthened	ANME	GEF	71200	International Consultant	390,000	0	80,000	470,000
			716000	Travel	20,000	0	10,000	30,000
			71300	National Consultant	165,000	45,000	40,000	250,000
				Sub-Total	575,000	45,000	130,000	750,000
OUTCOME 3: Technical assistance to IPP Group	ANME	GEF	71200	International Consultant	200,000	100,000	70,000	370,000
			71600	Travel	20,000	0	10,000	30,000
				Sub-Total	220,000	100,000	80,000	400,000
OUTCOME 4: Monitoring and Evaluation support	ANME	GEF	71200	International Consultant	69,000	31,000	15,000	115,000
			716000	Travel	25,000	10,000	0	35,000
			71300	National Consultant	30,000	30,000	15,000	75,000
			74500	Miscellaneous	5,000	5,000	5,000	15,000
			72200	Equipment and Furniture	10,000	0	0	10,000
			71400	Contractual Services	67,000	67,000	66,000	200,000
				Sub-Total	206,000	143,000	101,000	450,000
				TOTAL				2,000,000

Summary of Funds: 4,000,000			
GEF	2,000,000		
Government	2,000,000		
Expected Investment	>60,000,000		

	GEF Project Duration (3 Years)					
	Jan-June 2007	Jul-Dec 2007	Jan-June 2008	Jul-Dec 2008	Jan-June 2009	Jul-Dec 2009
1. Enabling regulatory and institutional framework has been established in support of on-grid renewables						
1.1 – Regulatory framework has been established for wind conceptions	X	X	X	X		
1.2 – Proposal for power sector arbitration mechanism is developed			X	X		
2. Technical and organizational capabilities of key stakeholders have been strengthened						
2.1 – Technical assistance and capacity building provided to the ANME, to the STEG, the Large energy Consuming industries and the technical consulting firms	X	X	X	X	X	X
2.2 – Local industry ability to supply equipment and services to wind concessions has been improved			X	X	X	X
3. IPP Group equipped to launch private wind concession program						
3.1 – Concession models for private wind power evaluated, and contractual documents prepared for one or more models		X	X			
3.2 – Tariff mechanism developed and tariff proposed			X	X	X	
4. Monitoring and technical support provided						

4.1 – Project monitoring and evaluation have been conducted	X	X	X	X	X	X
4.2 – Technical program assistance has been provided to MIEPME and ANME	X	X	X	X	X	X


SECTION IV: ADDITIONAL INFORMATION

1. Other Agreements

The following commitment letters are included in the following pages:

Agence Nationale de Maîtrise de l’Energie (ANME) dated 27 April, 2007

Tunisian Government - GEF Focal Point


ANME
N/REG: D.C.I/N° 2105
27 AVR. 2007


**A l'attention de
Monsieur Yannick Glemarec
Coordinateur Exécutif Adjoint du PNUD/FEM**

Objet: Lettre d'engagement de l'Agence Nationale pour la Maîtrise de l'Energie pour le projet
"Développement par le secteur privé de l'électricité éolienne connectée au réseau en
Tunisie".

Monsieur,

J'ai l'honneur de vous informer de l'appui de l'Agence Nationale pour la Maîtrise de
l'Energie pour l'exécution du projet cité en objet et je vous confirme par là même la disponibilité du
cofinancement évalué à deux millions de dollars des Etats Unis soit sept cents mille dollars en
nature et un million trois cents mille dollars en financements parallèles.

Restant à votre disposition pour toute suite utile et en vous remerciant par avance pour votre
précieuse collaboration, je vous prie d'agréer, Monsieur le Coordinateur Adjoint, l'expression de
ma parfaite considération.

Le Directeur Général

3, Rue 8000
Montplaisir
1073 Tunis
Hannissa AYADI

المقر الاجتماعي : 3 نهج 8000 مونتبليرز 1073 تونس هـ.ب. الهاتف : (216) 71 787 700 - الفاكس : (216) 71 784 624
E - mail : boc@anme.nat.tn البريد الإلكتروني :
Siège Social : 3, rue 8000 Montplaisir 1073 Tunis - BP213 Tél : (216) 71 787 700 - Fax : (216) 71 784 624

11 NOV 2006

République Tunisienne

Ministère de l'Environnement et du
Développement Durable

Direction Générale de l'Environnement
et de la Qualité de Vie

A l'attention de: Monsieur Yannick Glemarce
Coordinateur Exécutif Adjoint du PNUD/GEF

Objet: lettre d'endossement du projet "Développement par le secteur privé de
l'électricité éolienne connectée au réseau en Tunisie".

Monsieur,

En ma qualité de Point Focal Opérationnel du Fonds pour l'Environnement
Mondial (FEM) en Tunisie, j'ai l'honneur de vous signifier, par la présente, tout
l'intérêt et le soutien que j'accorde à la mise en œuvre du projet
"Développement par le secteur privé de l'électricité éolienne connectée au
réseau en Tunisie".

En effet, ce projet s'inscrit pleinement dans la politique nationale en matière
de maîtrise de l'énergie et dans la stratégie nationale visant à participer à
l'effort mondial de lutte contre les changements climatiques et l'atténuation
des émissions de gaz à effet de serre.

En vous remerciant d'avance pour l'appui que vous voudriez bien réserver à
cette requête afin d'obtenir un financement auprès du FEM, je vous prie
d'agréer, Monsieur le Coordinateur Adjoint, l'expression de mes salutations
distinguées.

Prof. Najeh DALI

Point Focal Opérationnel du FEM en Tunisie

2. Stakeholder Involvement Plan

The project will require close coordination among the various public and parastatal institutions that will be required to contribute to its success. As the ministry responsible for the power sector, the MIEPME will be the best placed to provide strategic guidance to institutional stakeholders on the direction and deliverables of the project. The MIEPME will also play an important role in ensuring that all institutional stakeholders (ANME, STEG, IPP Group under the MIEPME, etc.) are able to contribute on an open basis to the definition of the regulatory framework and the roll-out of the government's wind IPP program. The MIEPME will need to exert its influence to ensure that the project objectives, in particular the focus on private sector involvement, remain foremost in the activities of the project.

On behalf of the MIEPME, the ANME will be responsible for day-to-day management of the project, including management of the consultants. The ANME will chair a Project Steering Committee that will meet regularly to review the status of the project, discuss any findings and deliverables presented by the consultants, and provide feedback and validation of any conclusions and recommendations to be presented to the MIEPME. The ANME will also host bi-annual or quarterly project workshops with public and private stakeholders to ensure full consultation and discussion of project work, findings and recommendations before they are finalized.

The involvement of Tunisia's private sector will be another element of the stakeholder involvement plan. Local Tunisian manufacturers and service providers in sectors that are relevant to the wind power sector will be represented at the workshops and other major project milestone events through their trade associations that will act as information relays and will also be able to represent the interests of their membership. Informational workshops will also be conducted in Tunis and other major cities as needed to brief potential suppliers on opportunities in the wind sector and put them in touch with international wind developers.

The project intends to reach out to major wind developers (and indirectly to the financial community in Tunisia and abroad) to communicate the intent of Tunisia's wind power reform proposals and to seek out the broadest possible level of interest by investors in Tunisia's wind IPP tenders. This will be done by hosting an investment conference in Tunis to highlight the government's IPP program and solicit feedback from wind developers.

The project will also reach out to major industrial groups in Tunisia that have expressed interest in developing wind production capability for their own internal power needs and for eventual resale of excess production to the national grid. A workshop will be held for these groups to integrate them into the technical and economic components of this project.

SIGNATURE PAGE

Country: Tunisia

UNDAF Outcome(s)/Indicator(s): (B) Taking up social challenges;
 (C) The protection of the environment
(Link to UNDAF outcome. If no UNDAF, leave blank)

Expected Outcome(s)/Indicator(s): (B1) The protection of the most vulnerable social strata and groups
 (B2) The reduction of social and regional disparities
(CP outcomes linked to the SRF/MYFF goal and service line)

Expected Output(s)/Indicator(s): _____
(CP outcomes linked to the SRF/MYFF goal and service line)

Implementing partner: National Energy Management Agency (ANME)
(Designated institution/Executing agency)

Programme Period: 2002-2006 _____
 Programme Component: Protection of the
 Environemnt _____
 Project Title: Private Sector Led Development of On-Grid
 Wind Power in Tunisia _____
 Project ID: PIMS 2129; ATLAS Project ID: 00035597, and
 Project ID: 00038270 _____
 Project Duration: 3 years _____
 Management Arrangement: NEX _____

Total budget: 4,000,000 _____
 Allocated resources: _____
 • Government _____
 • Regular _____
 • Other:
 ○ GEF 2,000,000 _____
 ○ Donor _____
 ○ Donor _____
 • In kind contributions 2,000,000 _____

Agreed by (Government): _____

Agreed by (Implementing partner/Executing agency): _____

Agreed by (UNDP): _____

Template I (Request for Project Changes)

Name of Amended Project: “Private Sector Led Development of On –Grid Wind Power in Tunisia”

UNDP-GEF would like to request approval from the GEF Secretariat for the amendment of the following project:

- Agency Project ID: PIMS 2129
- Focal Area: Climate Change
- Project Type: FSP
- Project Name: “Private Sector Led Development of On –Grid Wind Power in Tunisia”
- Country: Tunisia
- Project Approval Date. Council approval date for Full Size Projects: 15 November, 2003
- Project Approval Amount by IA/ExA: \$10,250,000
- CEO Endorsement Date (FSPs and non-expedited): Not available
- Endorsed Amount (FSPs and non-expedited): Not Available
- Agency Approval Date: 07 January, 2005
- Amendment date: 20 November, 2006
- Changed amount or objective: \$2,000,000

Explanation for amendment: The UNDP-GEF project PIMS 2129 “Private Sector Led Development of On-grid Wind Power in Tunisia” has been deeply reshaped and reformulated for the following reasons:

- (i) The sharp rise in oil costs has eliminated the cost advantage of thermal electricity generation over wind power;
- (ii) The Tunisian government had been reluctant to commit budgetary resources to subsidize green electricity; and
- (iii) Potential investors have indicated that the biggest stumbling block remains the absence of appropriate regulatory mechanisms to provide sufficient market incentives.

The attached Executive Summary and Project Document are therefore different from what was originally planned and requested, in terms of GEF financial contribution. The new and final versions of these documents reflect the new Tunisian context and decision.

A key component of the previous version of this project was to propose a Production-Based Smart Subsidy (PBSS) system to compensate private operators for the cost-differential between the proposed Independent Power Producers (IPP) tariffs and the actual cost of producing wind electricity. The original PBSS in the amount of US\$ 24 million, which was to be funded one-third by the GEF and two-thirds by the Tunisian government, would have paid the subsidy for each kWh of green electricity.

This new version of the project has eliminated the PBSS provision. The project's objective is to support the government's effort to open the wind power market to private developers through the establishment of an open regulatory framework and transparent concessioning process. The project establishes a sustainable model for Tunisia to promote on-grid renewable energy without requiring state or ratepayer subsidies. The revision of project components builds from recommendations heard at the International Grid-Connected Renewable Energy Policy Forum hosted by the World Bank and the GEF in Mexico in February 2006, where the issue of appropriate regulatory and market mechanisms to encourage private sector participation in the renewable sector was raised by a number of participants.

While different approaches are currently in place in Europe and other industrial nations for private production of on-grid renewable power, developing countries are looking for successful models among their peers that they can emulate. By establishing a transparent regulatory framework for private wind concessions in Tunisia, this project will hopefully provide a credible roadmap for other nations to follow.

GEF resources are now designed to assist Tunisia in developing an enabling regulatory framework to open up its renewable energy sector, and in particular its wind sector, to private developers. The project will help create the necessary regulatory structure and market incentives to encourage the active participation of all developers in developing grid-connected wind power projects. The regulatory framework being proposed is intended to create a level playing field between public and private sector operators and is not intended to favor one group of actors over another.

The overall budget is now \$US 4 Million of which \$US 2 Millions is requested from the GEF.