

# **CLIMATE INVESTMENT FUNDS**

**September 2011**

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## **CLEAN TECHNOLOGY FUND**

### **INVESTMENT PLAN FOR MOROCCO**

**Update Note**

**Clean Technology Fund**  
**Investment Plan for Morocco**  
**Update Note**

**Table of Contents**

Executive summary .....	4
1. Overview of previous, approved IP and its progress to date .....	7
2. Rationale for updating the morocco CTF IP.....	9
3. Description of the proposed changes: Wind Energy Plan .....	10
4. Impact of new IP on initial objectives and on low carbon growth.....	12
4.1. Potential for reducing greenhouse gas emissions.....	12
4.2. Leveraging resources for renewable energy .....	13
4.3. Demonstration Potential at Scale .....	13
4.4. Replication and scalability potential .....	14
4.5. Additionality .....	14
4.6. Development impact and co-benefits .....	15
4.7. Implementation Process.....	16
4.8. Ensuring Stakeholder’s engagement in dealing with renewable energy .....	17
4.9. Risk Assessment.....	18
5. Financing Plan: Wind Energy Program.....	19

## List of Abbreviations

ADEREE	Agence Nationale pour le Développement des Énergies Renouvelables et de l'Efficacité Énergétique
AfDB	African Development Bank
CCGT	combined cycle gas turbine
CDER	Centre de Développement des Énergies Renouvelables
COMAFTEP	Comité Marocain pour le Financement des Technologies et Énergies Propres
CO <sub>2</sub>	carbon dioxide
CTF	Clean Technology Fund
FDE	Fonds de Développement de l'Énergie
IBRD	International Bank for Reconstruction and Development
IFC	International Finance Corporation
IP	Investment Plan
MAD	Moroccan dirham
MASEN	Moroccan Agency for Solar Energy
Morocco CTF IP	Clean Technology Fund Investment Plan for Morocco
ONE	Office National de l'Électricité
ONEP	Office National de l'Eau Potable
SIE	Société d'Investissement Énergétique
STEP	Station de Turbinage et de Pompage
UA	Units of Account
WEP	Wind Energy Program
WBG	World Bank Group

## Units and Measurements

GW	gigawatt = 1000 MW
KV	kilovolt = 1000 volts
KW	kilowatt = 1000 watts
KWH	kilowatt-hour = 1000 watt-hours
MW	megawatt = 1000 kW
MWH	megawatt-hour = 1000 kWh

## Exchange Rates

September 2011

UA 1 =	US\$ 1.62096
UA 1 =	Euro 1.15367
UA 1 =	MAD 12.6177

## **Executive Summary**

The present note purports to inform the Trust Fund Committee about changes to the Clean Technology Fund Investment Plan for Morocco (Morocco CTF IP) pursuant to the Government of Morocco's request for changes in terms of focus of CTF support, which was submitted to the African Development Bank and the World Bank Group in April 2011.

In October 2009, the Trust Fund Committee reviewed and approved the Morocco CTF IP and agreed to allocate up to US\$ 150 million to support Morocco's Fonds de Développement de l'Énergie (FDE).

FDE was established irrespective of the CTF, but the CTF's participation was expected to leverage FDE resources. This proved unfeasible because of FDE's legal status. The Energy Investment Society (SIE) is FDE's investment fund for renewable energy and energy efficiency projects; it is not a lending institution. SIE is not habilitated to contract or to provide loans to project promoters. This legal hurdle has delayed the presentation of projects for financing.

To overcome barriers to FDE and SIE managing CTF funding, in January 2010 the Government of Morocco created the Moroccan Committee for Financing Renewable Energies and Technologies (COMAFTEP), whose objective is to evaluate and approve eligibility of projects for CTF support.

The initial Morocco CTF IP indicated three components: (i) electricity generation from renewable energy, (ii) energy conservation in the industrial sector, and (iii) energy conservation in the transport sector.

In March 2011, COMAFTEP endorsed the priority of focusing CTF support to the Wind Energy Plan of Morocco, the first area of the initial CTF IP. The Government of Morocco's April 2011 updated request for CTF support targets the National Utility (ONE)'s Wind Energy Plan (WEP). The reason for the government's decision to focus on the first component is that projects under the second component (energy conservation in the industrial sector) are covered by other sources of concessional funding, and projects under the third component

(conserving energy in the transport sector) are not expected to be ready for submission for CTF in the near future.

Supporting WEP has three major justifications: (i) Wind energy is one of Morocco's main transformational investments to move into a scalable clean energy solution; (ii) Morocco's ability to implement its ambitious Wind Plan through Public Private Partnerships will be substantially strengthened through the access to CTF concessional resources which will help mitigate its costs, risks and increase its credibility (iii) the combined Wind and Water Pumping & Storage facilities will yield significant GHG savings by displacing growth in Morocco's fossil fuel consumption.

WEP includes support for transmission infrastructure and water pumping and storage facilities in combination with wind energy. Support ONE in implementing its 2000 MW wind power through public-private partnerships will enable the Kingdom of Morocco to maximize the impact of CTF resources as the WEP is in an advanced stage of preparation and holds great promise for transformational impact and replication.

Of the 2000 MW targeted by ONE by 2020, WEP seeks to supply 1070 MW at an estimated cost of US\$ 2,166.43 billion. WEP includes wind farms, supporting transmission infrastructure as well as energy storage/ pumped hydro storage. The latter should mitigate against the intermittent nature of wind power and its increased utilization. This pumped water capacity will be used to produce hydroelectricity during peak hours, thus avoiding the need to invest in less-emission-saving gas turbines as a back-up capacity.

Total greenhouse gas emissions that WEP may save have been estimated at 33.78 million tons of carbon dioxide (CO<sub>2</sub>)-equivalent over 20 years. This estimate is based on the nationally approved emission factor of 0.6336 tons of CO<sub>2</sub>/MWh.

The development of an indigenous manufacturing industry for wind equipment is within reach. WEP seeks to integrate local manufacturing of wind equipment within national industrial activities in order to sustain wind energy development and accelerate Morocco's economic and social development.

ONE's wind generation cost are at 12 US\$ cents/kWh is higher than the electricity selling price of 10.1 US\$ cents/kWh. Information from former wind energy projects indicates that the contributions of the CTF would bring financial closure of the wind projects while maintaining financial sustainability of ONE.

## **OVERVIEW OF PREVIOUS, APPROVED IP AND ITS PROGRESS TO DATE**

Morocco is highly dependent on fossil energy imports (95% of energy consumption). Morocco is the largest energy importer in Northern Africa. As a result, Morocco is highly exposed to international oil price fluctuations, which have a destabilizing effect on its balance of payments and a negative effect on the trade balance. Overall, Morocco's CO<sub>2</sub> emissions have increased 35% from 2000 to nearly 40 million tons in 2006. Emissions in the electricity sector have risen even faster, with expanding coal-fired capacity driving a 70% increase from 1997 to 2007. Moroccan emissions intensity – ton of CO<sub>2</sub> emitted per unit of GDP – rose nearly 50% from 1971 to 2007 and is now well above international averages.

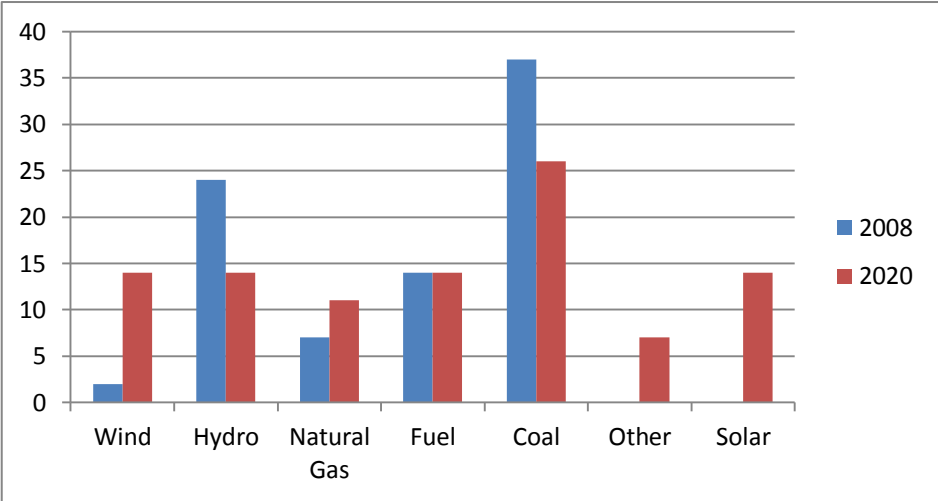
In October 2009, the Trust Fund Committee of the Clean Technology Fund (CTF) approved the CTF Investment Plan for Morocco (Morocco CTF IP) and agreed to allocate up to US\$ 150 million to support Morocco's Fonds de Développement de L'énergie (FDE). The approved Morocco CTF IP had three main components: (i) electricity generation from renewable energy, (ii) energy conservation in the industrial sector, and (iii) energy conservation in the transport sector.

Morocco's overall renewable energy strategy has two main components: (i) the generation of renewable energy, and (ii) legal and institutional measures to promote renewable energy. In both components, Morocco is embarking towards a transformative energy revolution, with a stated goal of 42% of renewable energy by 2020, fostered by establishing significant legal incentives.

### ***Investments in Renewable Energy***

Morocco is currently investing large scale in the deployment of renewable energy. Morocco has developed hydropower (increase from 24.8% to almost recently 33.0% of total installed capacity), wind energy (2.2% in 2008, but rapidly growing), and has conducted first pilots with concentrated solar power.

**Figure 1: Shares of installed electricity capacity in Morocco 2008 and 2020**



Source: ONE

Within the framework of the country’s overall strategy for renewable energy, ONE’s investment plan for 2010-2020 seeks to increase the share of installed renewable energy capacity to 42% by 2020. It plans to do this by installing 2000 MW of wind energy (compared with about 280 MW at present), 2000 MW of solar energy and 2000 MW of hydro energy.

***Creating a legal framework for renewable energy***

Morocco has strengthened its legal and regulatory framework to create an enabling environment for the private sector to engage in RE production. In February 2010, Parliament approved three laws designed to promote renewable energy: (i) the renewable energy law (n. 13.09 of 13 January 2010), (ii) a law creating the Agency for the Development of Renewable Energy and Energy Efficiency (ADEREE) (n. 16.09 of 13 January 2010), and (iii) a law creating the Moroccan Agency for Solar Energy (MASSEN) (n. 57.09 of 14 January 2010).

The laws instructed, *inter alia*:

- Public institutions, private companies and individuals may all produce electricity from renewable sources.
- Authorization is required to implement renewable energy projects that will produce 2 MW or more of electricity.
- For smaller projects, the promoter only needs to make a preliminary declaration that it will produce between 20 kilowatts (kW) and 2 MW of electricity from renewable sources.



- The electricity generated from these projects may be connected to the national grid at medium or high voltage at conditions to be defined by later regulation.
- If the capacity generated is less than 20 kW, a single promoter may generate electricity from renewable sources at one or more sites, free of all conditions.
- Private renewable energy promoters may export electricity through the national transmission grid.
- Should the capacity of the national transmission grid be limited, private renewable energy promoters may construct dedicated high-voltage direct current transmission lines for exports, in line with the conditions defined by the law on renewable energy.

## **RATIONALE FOR UPDATING THE MOROCCO CTF IP**

The Trust Fund Committee approved the Morocco CTF IP in October 2009, but solving the legal barriers to FDE on-lending CTF funding delayed the presentation of projects for financing. In the meantime the Government of Morocco concluded that the approach most likely to enable the country to maximize the impact of CTF resources would be to support Morocco's National Utility (ONE) to implement the 2000 MW wind power public-private partnership program. This program holds great promise for replication.

The Society for Energy Investment (SIE) is FDE's investment fund for renewable energy and energy efficiency projects; it is not a lending institution. FDE was established irrespective of the CTF but the CTF's participation was expected to leverage FDE resources. However, this proved unfeasible because of FDE's legal status. SIE is not mandated to contract or to provide loans to project promoters. The TFC members have, at the time of approval of the Moroccan IP, voiced its concerns on the risk related to the establishment of the institutional structure of the FDE including the aspects of management, staffing and procedures.

Following up on the Trust Fund Committee's concerns,, in January 2010 the Government of Morocco created the Moroccan Committee for Financing Renewable Energies and Technologies (COMAFTEP), which has as one of its objectives to evaluate and approve eligibility of projects to receive CTF support. Guidelines define COMAFTEP's governance arrangements and working procedures and set out criteria for identifying and selecting projects.

In March 2011, COMAFTEP endorsed the priority of focusing CTF support to the Wind Energy Plan of Morocco. COMAFTEP comprises representatives from the Ministry of Economy, Ministry of Energy and Ministry of Finance. COMAFTEP’s primary responsibility is to evaluate projects submitted and proposed for CTF financing and to provide recommendation on how to best to use the funds provided by public and private resources, by the CTF and by funding agencies.

#### **DESCRIPTION OF THE PROPOSED CHANGES: WIND ENERGY PLAN**

The Government of Morocco requested in April 2011 that CTF financing be focused on ONE’s Wind Energy Plan (WEP). GoM, through COMAFTEP, has requested CTF support for WEP, i.e. priority wind projects with pumped storage and sub-stations. Of the 2000 MW in wind power that ONE aims to commission by 2020, WEP includes support for transmission infrastructure and water pumping and storage facilities in combination with wind energy for pumping. The target date of financial closing of all projects under the WEP program is 2015.

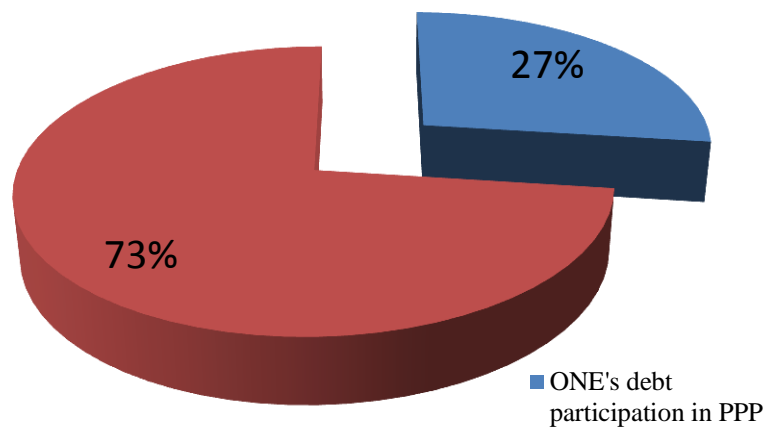
The GoM places particular emphasis on wind because of its high potential, estimated at 25,000 MW, including 6000 MW with a capacity factor of at least 35%. As of today and prior to the launching of the WEP, about 280 MW has been installed while 870 MW is being developed, financed mainly with concessional bilateral funds. The remaining capacity is under preparation and includes an added capacity of 520 MW hydro-pumping to secure the efficiency of the wind available capacity.

**Table 1 : Wind Energy Plan including the added energy storage capacity**

<b>Description</b>	<b>Installed Capacity (MW)</b>	<b>Under development (MW)</b>	<b>Under preparation (MW)</b>	<b>Total (MW)</b>
Wind	280	870	550	1700
Energy storage / hydro pumping	464	-	520	984
<b>Total (MW)</b>	<b>744</b>	<b>870</b>	<b>1070</b>	<b>2684</b>

Morocco’s overall renewable energy strategy seeks to increase renewable energy’s share of installed power generation capacity to 42% by 2020, which is built on commissioning 2000 MW of wind energy. The WEP plays an important role in reaching the set target.

**Figure 2: Use of CTF Resources within WEP**



Source: ONE

Within the framework of the WEP, the GoM intends to use the CTF resources primarily to support the necessary supporting infrastructure for the wind energy generation to allow for further crowd-in of private resources. CTF resources will finance:

- (i) Within wind farms, transmission infrastructure to evacuate electricity generated by wind farms and to increase absorptive capacity of the Moroccan grid. Connecting wind farms to the grid is a costly factor which often prevents private sector participation.
- (ii) Pumped storage to increase utilization and value of wind electricity. By using wind energy to pump water, they compensate for the volatility of wind, thus avoiding the need to invest in more emissions intensive gas turbines. ONE will, in consequence, be in a better situation to attract private financiers to invest in the financially viable production, and putting their resources towards achieving the WEP's objectives. The pumped storage will be exclusively used for storing renewable energy.

As indicated in Figure 2, about one fourth (27%) of the CTF resources will be used to allow ONE debt participation in those public private partnerships. ONE will participate with both equity and debt financing of PPPs, sharing the operational risk and profit with the private sector partners in each wind farm under the WEP. CTF funds however, will be used for debt financing in PPPs, lowering cost of capital and thus enabling ONE to pass on the benefits of CTF concessional terms directly to the price per Kwh.

Two different types of partners will implement WEP generation projects in public-private partnerships, leveraging CTF funds with national public funding, MDBs and other development partners funding as well as private funding, namely:

- National partners, including ONE, SIE, and the Hassan II Fund for Economic and Social Development;
- Private strategic partners with good references in the wind industry and in electricity generation.

## **IMPACT OF NEW IP ON INITIAL OBJECTIVES AND ON LOW CARBON GROWTH**

### **1.1. Potential for reducing greenhouse gas emissions**

Through a total remaining capacity to be installed of 1070 MW, WEP will reduce CO<sub>2</sub> emissions by about 1.7 million tons per year. This represents 29% of all emission reductions that Morocco aims to achieve by developing wind and solar energy. The updated IP will therefore increase the annual emissions reduction by 0.5 million tons CO<sub>2</sub> per year. The annual emission reduction through the original plan was about 1.2 million tons of CO<sub>2</sub>.

Total greenhouse gas emissions that may be avoided through WEP implementation are estimated at 33.78 million tons of carbon dioxide (CO<sub>2</sub>)-equivalent during the estimated life span of the project of 20 years. This estimate is based on the nationally approved emission factor of 0.6336 tons of CO<sub>2</sub>/megawatt-hour (MWh), which is the displacement factor calculated for Morocco.

WEP's economic efficiency is measured by a low marginal cost of investment per ton of CO<sub>2</sub>, as shown in Table 2.

**Table 2: The Wind Energy Plan’s Potential for Reducing Greenhouse Gas Emissions**

	<b>Total Investment</b>	<b>CTF Investment</b>	<b>Avoided CO2-ton equivalent</b>	<b>Total Investment/ Ton of CO2</b>	<b>CTF Investment/ Ton of CO2</b>
	<b>US\$ millions</b>	<b>US\$ millions</b>	<b>Million tons</b>	<b>US\$/ton of CO2</b>	<b>US\$/ton of CO2</b>
WEP	2,166.43	150	33.78	66.4	4.4

### **1.2. Leveraging Resources for Renewable Energy**

The proposed US\$150 million of CTF will leverage an estimated total of US\$ 2,166.43 billion, which is equivalent to a leverage factor of almost 14 times. The leveraging stems mainly from the 1.22 billion from private sector debt and equity, as well as additional US\$453 million from MDBs and US\$173 million from EIB. One key reason for the approval of the original Moroccan CTF Investment Plan was its significant direct and indirect leverage, the existence of local institutions that can serve as champions for the acceleration of investments in clean technology and the establishment of transformative initiatives for low carbon development in Morocco. The updated Investment Plan increases the leverage significantly. The original Investment Plan had a leverage factor of around 12 while the updated one leverages almost 14. Times the CTF investment

### **1.3. Demonstration Potential at Scale**

Further wind power development is seriously constrained by lack of dedicated transmission network and this requires public financing. In view of the competing priorities, focusing available CTF funds on the wind program would make a strong case for early development of the transmission infrastructure that would be specifically available to tap the best wind resources in Morocco. Without CTF financing, this infrastructure development could be delayed by years. The implementation of the proposed 1070 MW of the WEP will allow ONE, FDE (SIE), the Hassan II Fund, and Moroccan investors (industrial, private funds and banks) to gain the experience and know-how necessary for the future realization of Morocco’s total wind capacity, with 6 GW actually proven, and an estimated potential of up to 25 GW.

#### **1.4. Replication and scalability potential**

The CTF resources can put Morocco on a transformational path to boost the development of its vast wind energy resources by supporting the necessary infrastructure for commercializing wind energy at a larger scale, Morocco has significant potential for generating wind energy: out of 25 000 MW national potential, it aims to install 2000 MW by 2020. The current installed capacity is still modest with about 280 MW.

The CTF Funding will assist in establishing the necessary infrastructure to make wind energy commercially viable and to allow absorbing and evacuating the produced wind energy into the grid. Wind energy development is currently being hindered by the limited capacity to absorb wind energy into the general grid, by expensive extra cost for grid connection from generation to the general grid as well as to limited storage possibility. CTF support for the WEP will indeed address those three areas, by financing infrastructure that eases additional investments in the WEP, thereby enabling the creation of a wind market for the private sector.

#### **1.5. Additionality**

CTF concessional financing is the key factor for the success of the program, making the cost per kWh of wind competitive. Information from former wind energy projects indicates that the CTF contribution would bring the viability of the wind projects up to an internal rate of return of 11%. Recent PPP biddings in Morocco- subsidized with bilateral concessional climate finance - confirmed that 11 % is being considered the threshold IRR which private investors require for Wind energy generation projects in Morocco. In addition, supporting ONE's financial viability through the CTF resources provides comfort to investors that ONE is in a position to commit to purchase the comparatively expensive green energy from private IPPs.

CTF funding decreases significantly the premium that ONE needs to pay for wind-produced energy. Without CTF concessional funding, ONE considers that its wind generation cost estimated at 12 US\$ cents/kWh is higher than the cost of a kilowatt-hour of energy all sources combined delivered at the same level of the transmission grid (high voltage or very high voltage) and sold at fixed tariffs of 10.1 US\$ cents/kWh. Due to the structure of regulated tariffs, ONE has always absorbed the difference of global production cost (purchase cost of

electricity – PPA + interconnection) and the supply tariffs to the consumers, yet its financial viability would not allow to execute the WEP as described without CTF concessional funding.

**Table 3: Additionality of the CTF**

	Tariff without CTF US\$ cents/kWh	Tariff with CTF (*) 20 year maturity US\$ cents/kWh	Tariff with CTF (**) 40 year maturity US\$ cents/kWh
Tariff of Kwh paid by ONE to private promoters	12	11.6*	11.4 (**)
Average Electricity selling tariffs (HV/VHV)	10.1		
ONE’s subsidy to Wind generated electricity	1.9	1.5	1.3

Source: ONE – Exchange rate used is September 2011

These calculations are based on a debt/equity ratio of 75/25 and the financial participation of several multilateral development banks as indicated in the financing plan. Return to Equity is hold constant with 11% as current market analysis indicates this as the required Rate of Return for private PPP promoters.

(\*)CTF financing assumptions considered in the simulation are those with maturity 20 years.

(\*\*) CTF financing assumptions considered in the simulation are those with maturity 40 years. The request is to obtain financing conditions with maturity 40 years

**1.6. Development impact and co-benefits**

*Clean technology transfer and economic windfall*

Implementing a large scale program in an integrate manner will allow the GoM and the Moroccan private sector to acquire high tech wind technologies. WEP aims at integrating the manufacturing of wind equipment within national industrial activities. GoM will complement physical investments with necessary investments in human capital and R&D by for example establishing specializations in wind engineering, training of wind technicians, fostering of applied R&D and collaborative public private research in the area of wind as well as others.

*Green job creation*

The WEP is expected to create a significant amount of green jobs. About 700 direct permanent jobs in maintenance of the wind farms, as well as over direct 4200 one-year jobs in construction are being expected. Local manufacturing of the equipment is estimated to create additional jobs. In accordance with international research about 4-5 permanent jobs per MW, implying that about 4000-5000 total green jobs can be created through WEP.

### ***Increased Energy Security***

The WEP will significantly increase energy security by increasing the share of domestically produced energy. As can be seen in table 3, the WEP will save Morocco annually fossil fuel imports of 1.3 billion USD annually. This will significantly reduce the country's exposure to international oil price volatility which is important for economic growth and social stability.

**Table 3: WEP-induced Cost Savings Achieved by Replacing Fossil-Fuel Import**

	Wind Generation			Hydro Storage		Total
	Djbel Hadid	Tanger II	Koudia al Baida II	Abdel Moumen	M'DEZ - El MENZEL	
Installed capacity (MW)	100	150	300	350	170	1 070
Operation hours (h)	2,000	3,000	3,700	1,800	1,800	12 300
Average Production (Gwh)	200	450	1,110	630	306	2 696
Annual consumed Fuel quantity (ton) saved	60,000	135 000	333 000	189 000	91 800	808 800
Fuel Unit cost (USD/ton - Includ. VAT)	803.13					
Total Cost savings USD Millions	48.10	108.48	267.50	151.85	73.73	649.54
					<b>Total USD 1299.2</b>	

### **1.7. Implementation Process**

ONE holds a strategic implementation position in the electricity sector, as it is Morocco's incumbent utility and single buyer of electricity. Its main task is to satisfy electricity demand in Morocco at the best possible cost and quality of service. The Ministry of Energy, Mines, Water and the Environment plays a key role in the Moroccan institutional setting for RE. It prepares and defines renewable energy-related strategy and policy, the renewable energy regulatory framework, and renewable energy promotion tools, including the promotion of private sector participation (independent power producers, public private partnerships, and other modalities).



The WEP will be implemented according to maturity of its elements. The approach chosen allows for fast disbursing and construction of wind farms while at the same time ensuring continuous engagement and lessons learnt.

**Table 4: IMPLEMENTATION OF WEP**

Description	Public Funding	Private investor (Debt + Equity)	CTF	EIB	WBG	AfDB	Total
Wind and Energy storage	112.85	1,227.26	125.00	173.01		329.32	1,967.43
Wind	49.75	-	25.00	-	124.25	-	199.00
<b>TOTAL</b>	<b>162.60</b>	<b>1,227.26</b>	<b>150.00</b>	<b>173.01</b>	<b>124.25</b>	<b>329.32</b>	<b>2,166.43</b>

Source: ONE

**1.8. Ensuring Stakeholder’s engagement in dealing with renewable energy**

The stakeholders are supporting the update of the IP and consider ONE as a strategic and strong partner for its implementations. Under the Ministries purview, there are also additional governmental institutions that deal with specific issues of RE and which are working on implementing, all of which are in line with COMAFTEP’s recommendation to dedicate the entirety of CTF resources to support the WEP.

- The Center for the Development of Renewable Energy (CDER) launched a special wind measuring program in 1990. In February 2010, CDER was transformed into the Agence Nationale pour le Développement des Énergies Renouvelables et de l’Efficacité Énergétique (ADEREE). ADEREE’s mission is to help implement government policy as concerns renewable energy and energy efficiency.
- The Moroccan Agency for Solar Energy (MASEN) is in charge of overseeing solar electricity generation programs (conception, site selection, design, studies, selection of operators, follow-up on implementation and operation) and supervising and coordinating project-related activities.
- The Funds for the Development of Energy (FDE) contributes to the country’s efforts to increase energy security and reduce its vulnerability to oil price shocks. FDE’s current

priorities are to augment generation capacity and secure supply by developing renewable energy and increasing energy efficiency.

- The Society for Energy Investments (SIE) was created in February 2010 to act as a reference investor in renewable energy and energy efficiency projects. FDE, whose main role is to promote renewable energy and energy efficiency projects, has provided SIE an initial amount of US\$ 128.5 million to implement its investment projects.

## 1.9. Risk Assessment

The proposed CTF support to ONE’s WEP bears a moderate risk. Table 5 outlines the principal risks to ONE’s successful implementation of the WEP investments to be co-financed by the CTF.

**Table 5: Risk Ratings**

<b>Risk Area</b>	<b>Comments</b>	<b>Rating</b>
<b>Regulatory structure</b>	The Government of Morocco has passed laws regarding the promotion of renewable energy,	<b>Low</b>
<b>Institutional capacity</b>	National institutions promoting renewable energy (ADEREE, MASEN) and funding it (FDE,) are already operational, with defined guidelines. Wind energy projects have already been successfully implemented.	<b>Moderate</b>
<b>Private sector interest/financial viability</b>	Recent renewable energy legislation has created a transparent framework and the first private investors have indicated their interest.	<b>Low</b>
<b>Technology</b>	Wind technology is mature and ONE has already worked with it. “Smart grid” techniques are being considered to optimize the use of renewable energy.	<b>Moderate</b>
<b>Environmental/Social risk</b>	ONE, in joint cooperation with the AfDB and other development partners such as the EIB has prepared a Strategic Environmental and Social Framework that defines the adequate social and environmental studies to mitigate the potential environmental and social impacts.	<b>Moderate</b>
<b>COMAFTEP’s governance</b>	COMAFTEP has been created to prioritize renewable energy projects, approve funding and has adopted operational procedures and guidelines and a committee.	<b>Moderate</b>

## FINANCING PLAN: WIND ENERGY PLAN

**Table 6: Financing Plan WEP**

	FH2-SIE-ONE	EIB	CTF	AfDB / WBG	Private investors	Commercial banks	Total
<b>PROPOSED SCENARIO</b>		<b>US\$ million</b>					
<b>TOTAL INVESTMENT</b>	<b>162.6</b>	<b>173.01</b>	<b>150</b>	<b>453.57</b>	<b>209.58</b>	<b>1,017.68</b>	<b>2,166.43</b>
Equity Participation in PPP's	162.6	-	-	-	209.58	-	<b>372.18</b>
Debt Participation in PPP's	-	-	55.73	200.71	-	753.09	<b>1,009.53</b>
Supporting Infrastructure	-	173.01	94.27	252.86	-	264.59	<b>784.73</b>

Source: ONE