

October 28, 2011

**Comments from Germany on Approval by mail: Morocco:
One Wind Energy Plan**

Dear Mafalda,

pls find attached comments for the ONE Wind Energy Plan for Morocco. We are prepared to support this proposal, but would feel more comfortable if it was possible to answer our questions before we submit our comments officially.

I'm sorry we are already quite close to the deadline and that we missed your offer to discuss this with you during the last days, but you might possibly find that the answers to our questions are not extremely time consuming, possibly with the exception of the question whether the approach is technically incomplete.

You will also find our comments for the up dated IP. Here we still have some minor (and in some cases similar to the project proposal) questions, that we would be grateful if you could answer as well, before we give our positive vote..

We might also discuss this over the phone, I'm in office until quite late.

All the best

Dr. Annette Windmeisser

Klimapolitik und Klimafinanzierung

Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

**Comments on CTF Proposal
“ONE Wind Energy Plan Morocco”**

Cost/Financing : Investment cost: about 2.167 billion US\$
125 million US\$ CTF resources (40yr tenor, 10 yrs grace, 0.25% annual interest rate; either 10bps management fee on undisbursed loan amounts or 25bps flat upfront fee)
In addition: Funds from AfDB, WB and other multi- and bilateral Donors

Purpose of the program: Financing Morocco's wind energy plan in order to contribute to Morocco's objectives of a more secure energy supply, energy diversification, CO₂ emission reductions and by creating a new green industry, increased employment

Summary

We are generally happy to support this proposal, provided that some additional information is provided as specified below. The proposed project adopts an integrated approach and aims at mobilizing the tremendous wind potential for wind energy in Morocco and at developing high tech wind technologies in Morocco. It will create a strong precedent for using PPP business models to mobilize private sector financing and to develop large scale-renewable energy in Morocco and elsewhere.

Power Generation in Morocco is dominated by coal, which makes Morocco a carbon dioxide-intensive country, emitting 50% more CO₂ per KWh than the world average, despite low CO₂ per capita. The only way Morocco can meet its fast-growing electricity demand without increasing its reliance on augmenting its carbon intensity is to develop its vast renewable energy potential. Morocco's large endowment with wind energy resources has been estimated at 25 GW, with 6 GW actually proven. The CTF contribution will help to make the cost of wind competitive, as wind generation cost is, in general, still higher than the cost of coal and natural gas-based generation technologies. Therefore, the proposal is in line with the CTF investment criteria and justifies the use of low-cost funds from the CTF and other international financial institutions. Nevertheless, in certain cases and sites power production from wind energy in Morocco could be competitive. Therefore, we would appreciate to receive more detailed information why such an important amount of highly concessional resources is needed to mitigate the costs and risks of the Wind Plan.

Comments on the Project Proposal

The strategy presented takes into account the complexity of developing an integrated approach of a wind energy generating system in Morocco. We highly appreciate that the Plan will be implemented as PPP, as the strong involvement of the private sector seems to be the most appropriate approach to transfer technology, reduce the cost of wind technologies, ensure operational performance and reduce risks of cost overruns and delays in construction. The concept has incorporated the supportive Moroccan political, legal and institutional parameters, which could be the key factors for sustainability. Risks and mitigation measures could have been developed more in details, as the project design is quite complex.

The proposal is presented as an integrated approach including wind and hydroelectric generation, related transmission infrastructure and rural electrification and intends to promote local manufacturing by increasing local content of the wind plan. It is not clear for us why the rural electrification plan is integrated in the proposal as CTF funding is not sought for this component. It is also not clear for us which measures shall be financed out of the transmission infrastructure component as in the project financing table this component is not mentioned. We are very interested to hear more about the approach to increase local content of the wind plan, as no details have been presented in the proposal how this component shall be realized.

Clarification should be given to the subcomponents, as statements in Table 1 (Project Capacity and Estimated Investment by Subcomponents, page 13) and the text disagree

(number of wind farms, combined capacity and part of wind/hydroelectric generation to total power generated by the plan). Clarification is also needed to better understand table 2 (project financing, page 16). Why is the wind farm in Djebel el Hadid presented as it is not included in the proposed CTF appraisal document? What about the transmission infrastructure component?

A combined wind-hydro energy production station is very good, in principle. Normally we call this "wind-hydro hybrid plant for electricity generation". A classical hydropower plant is usually not used to store energy. Therefore, technically spoken, we think the proposal means a pumped storage plant (psp). From a technical point of view, the approach presented is incomplete. Firstly, the whole grid in this part of the country where the project is located has to be considered, not only the individual wind-hydro plants. Secondly, a sound model has to consider not only storage balancing but all ancillary services as well, so as need for balancing of frequency, need for voltage regulation and participation in primary and secondary reserve.

Project preparation and implementation requires intense donor coordination. Which measures are intended to optimize coordination in this and future projects?

Comments on the Financing Terms

The financial terms (40yr term, 0.25% interest rate) are to be considered very generous with respect to both, interest rate and maturity. The proposal does not provide a clear reason for the necessity of these very soft terms, this should be further clarified. Furthermore, the impact of CTF financing (20 or 40 yr term) on the cost of generation as opposed to the case without CTF financing is not tremendous, which again raises the question how the soft terms of the requested CTF contribution are to be justified.

Since the project seeks a 40yrs maturity it should be clarified in particular whether the parallel AfDB loan will have the same maturity. Or will the CTF be the only creditor from year 20 on?

CTF Investment criteria

1. „Potential for GHG Emissions Savings”

1) CO₂ Emission–Reduction / Programme-Duration:

Morocco estimates that greenhouse gas emissions from power generation could increase from 16 million tons per year in 2007 to 36 million tons by 2020, if renewable resources are developed. CO₂ saving of the wind plan I is estimated at 1.7 million tons per year, over the 20 year-lifetime the cumulative emissions reduction is estimated at 34 million tons.

2. „Cost-Effectiveness“

1) CTF cost effectiveness for the Program:

The cost of each tonne of CO₂ saved related to the CTF support has unfortunately not been calculated. It would be useful to have detailed information about the cost-effectiveness calculation.

On the other hand the proposal gives some indications of the impact of the CTF funding on the price of Kwh paid by ONE. It would be very helpful to get some detailed information about the financial model of the wind plan, as the allocation of such an important amount of highly concessional loan still has to be justified and that the impact of the CTF loan seems to be quite limited.

3 “ Demonstration potential at scale”

The proposal points out that wind power development is constrained by lack of dedicated transmission network and that CTF fund of the wind plan accelerates infrastructure development. Once again, please give some clarifications of the transmission infrastructure component of the proposal. Just as well, we are interested to hear more about the approach to increase local content of the wind plan, as it is mentioned that proposal will encourage local manufacturing of wind equipment and services.

4 „Development Impact“

The project has several impacts:

- reliable and secure supply of clean electricity to meet the fast growing electricity demand
- diversify energy supply, increase energy independence and reduce the vulnerability to future price shocks of fossil fuels
- reduce the carbon intensity of power generation substantially
- developing wind plan as a PPP is a clear commitment to involve the private sector in the wind programme which will induce the private sector to increase their investment in goods and services, which will increase local industrial integration and job creation

From our point of view the macroeconomic benefits could have been developed more in details.

5 „Implementation Potential“

In view of the high number of donors involved in the wind plan (also the German financial cooperation), it will be important to establish an effective coordination mechanism during project preparation and implementation as several steps have to be harmonized.