**May 7, 2010**

# Comments from Germany
# Egypt: Wind Power Development Project (IBRD)

Dear Rohit and colleagues,

Germany supports the project Egypt: Wind Power Development.

Please find attached our comments.

Best regards
Annette

ATTACHMENT:

## Comments on Project Appraisal Document
## Wind Power Development Project

Financial Volume: 150 Mio. USD CTF Darlehen, zzgl.
+ 70 Mio. USD IBRD (Specific Investment Loan – SIL)

Purpose of the project:
The proposed project will connect the future wind parks at Gulf of Suez and Gulf of el Zayt to the national network (220 kV and 500 kV transmission lines and related components)

## Investment criteria

1. **„Potential for GHG Emissions Savings"**
   CO2 Emission–Reduction / Programme-Duration:
   - Projected GHG emission reductions from 2,500 MW of new wind capacity – year 1: 1.2 Mio. tons p.a. to 7.0 Mio. tons p.a. in year 5 – estimated start of implementation 2010.

   Technology Development / Abatement Potential:
   - It is expected that the current state of art wind turbine technology of the 2 to 2.5 MW class will become a standard for Egypt. A number of manufacturers have gained experience with high temperature versions which are able to operate at conditions up to 45°C ambient temperature.
   - New developments in the 3-3.6 MW class, which will be ready for serial production by 2010 have rotor diameters of 107-116m with respective hub heights up to 100-140m.

2. **„Cost-Effectiveness"**
   Costs / Abatement Potential:
   - The projected emissions savings of 7 million tons of CO2 would translate to a cost estimate of about $21.40 of CTF investment per ton of CO2. However, this figure denotes the CTF investment per ton. It can therefore not be considered as abatement costs. Abatement costs would have to be based on additional costs, implying that the value of all promotional financing would have to be considered, not just CTF means.

   Analysis of Cost Reduction/Technology:
   - Local companies in Egypt already produce electrical components (cables, transformers) and wind turbine towers, at significant cost savings relative to imported

material. It is expected that the local market for turbines and components will grow in near future, so that Egyptian manufacturers are likely to enjoy a competitive advantage in regional markets, which will allow them to further reduce costs through economies of scale.

**3 " Demonstration potential at scale"**

Emission Reduction by Replicating the programme approach:

- The wind potential of the Suez Golf region alone has been estimated at 20,000 MW. If the costs of wind generation fall, and private sector proves willing to play a significant role in supplying power to Egypt, wind energy could become an economically as well as an environmentally attractive alternative to gas generation, and could ultimately exceed the 12% share of total generation targeted for 2020.

in absolute figures:

- Assuming that the government's target of 12% of total generation being supplied by wind resources is realized by 2020, it is expected that over 7,200 MW of wind capacity will be installed and over 14 million tons of CO2 emissions will be avoided annually.

Elements that will support replication and development of renewable energy sector:

- Experience in preparation of bid documents, development of grid code, and legal agreements will all be helpful for future renewable energy projects, including solar projects
- Joint wind resource measurement program will provide valuable experience for future wind projects
- Policies being introduced by the GOE in the course of development of the first BOO project such as land use, customs duties, bank guarantees, foreign exchange denominated PPAs, and permitting are likely to help future development, including development of solar projects

Potential impact private public sector relations:

- The government will gain experience in negotiating and contracting with private sector generation companies, while private companies will have an opportunity to observe the relative ease or difficulty of doing business with the Egyptian government.

Appraisal of chart on expected emission reduction:

- Not covered.

**4 „Development Impact"**

Impacts on energy intensity of the gross national product:

- Not specified.

MDG-Relevance:

- There is no reference made on the MDGs in the document.

Side effects for the environment and eco system:

- It is expected that IFC environmental and social standards will be applied. Serious negative environmental impacts are not expected.

**5 „Implementation Potential"**

Consistency with PRSP/Sector strategies:

- Presumably these are given, but are not referred to in the document.

Institutional Framework:

- Respective regulatory and institutional framework is supported by extensive technical and administrative expertise.

Requirements for Sustainability:

- Requirements for long-term sustainability are given as the gap between gas fired and wind generation will narrow.

Co Financing:

- CTF financing of US$ 150 million is leveraging other concessional financing and government financing of about US$ 200 million for the transmission infrastructure. Other donors include the European Investment Bank, KfW and AFD (led by EIB), including a grant from the European Commissions Neighbourhood Investment Facility (NIF); approximately US$ 450 million in private sector financing for the first 250 MW BOO project; and over the project life, a total of US$5 billion in wind investments for another about 2250 MW (public and private).

## 6 Relation to bilateral development cooperation

**Wind energy**

- The German development cooperation disposes of a large portfolio in the renewable energy sub-sector, in particular in wind energy projects ("Zafarana I-IV" in operation – (FC commitment 150 Mio. EUR); "Gulf of el Zayt" under implementation (191.5 Mio. EUR); "Gulf of Suez" in preparation (appr. 125-150 Mio. EUR).
- In preparation of the new wind farm "Gulf of Suez" German cooperation is financing the Environmental and Social Impact Assessment (ESIA) for an area of 200km² hosting up to 1,000 MW of wind capacity. The study area includes the envisaged 250 MW private sector BOO project (page 15 - component C).
- In doing so, German Development Cooperation is continuing its approach, started with the development of the Gulf of El Zayt region, to create sustainable framework conditions for public and private wind power development in a regional context rather than focussing on independent, non-related wind farm projects implemented by single donors.
- This regional approach takes into consideration the Paris and Accra Declarations on Aid Effectiveness, Ownership, Harmonisation, Alignment, Results and Mutual Accountability.

**Transmission**

- In the description of the project components (Component A – Transmission Infrastructure on page 13) reference is made to a 70 Mio. USD contribution of European Investment Bank (EIB).
- Two sub-stations (component A2 and A3) are mentioned in this context.
- In fact, the so-called „Egyptian Power Transmission Project" comprises a multi-component investment program for transmission infrastructure in the Egyptian 220-500 kV transmission network (currently 21 projects including the two smaller substations linked to the connection of wind farms to the national grid, described in the appraisal document).
- The investments will contribute to providing a reliable electricity supply for the increasing demand of the country, in part connecting new wind energy generation facilities to the grid and enabling future interconnections to neighbouring country networks, notably to Saudi Arabia and the Gaza strip.
- The project cost is estimated at 762 Mio. EUR, of which the KfW loan would cover 50 Mio. EUR (7% of the total investment cost). This FC loan is proposed as part of a joint financing including grant and loan contributions from the EU / Neighbourhood Investment Facility (NIF - 20 Mio. EUR or 3%), the French AFD (50 Mio. EUR or 7%) and EIB (260 Mio. EUR or 34%) for an aggregate amount of 380 Mio. EUR; EIB is proposed as Lead Financing Institution for this joint NIF financing. Additional external financing (appr. 150 Mio. EUR), in parallel, is envisaged from the Clean Technology Fund (CTF) and the World Bank (WB) - the proposed component A of the "Wind Power Development Project".
- The share of USD 150 Mio. CTF out of USD 345 Mio. for the transmission project is relatively high. The CTF financing has been justified on the basis of an economic analysis in the Project Document, because the financial analysis is complicated by uncertainty over the transmission margin rate, which would affect the revenue impacts of the incremental power generated by the project. Proposed terms are: The proposed CTF loan terms are a 40 year term, including 10 years grace, with an annual service charge of 0.25 percent, subject to final negotiations with the Government of Egypt. We assume that the proposed loan terms resemble the "softer concessional" case as laid down in paragraph 21 of the CTF's "financing products, terms and review procedures for public sector operations".
- The Egyptian wind power expansion plans are ambitious. On the basis of this ambitious plan, the proposed transmission line projects are based. There remains a

risk that the projections of wind power development will be delayed, strongly depending on the success of the first BOO project.