



Description of The Project Design Document (PDD) for Zafarana Wind Project

Eng. Rafik Youssef
Eng. Afaf Mekhael Twfic
NREA

Clean Development Mechanism



- ⌘ Aids sustainable development of the host country. (Technology, environment, additional revenue).
- ⌘ Host country contributes to global GHG reduction.
- ⌘ Allows sponsor country to meet emission reduction obligations.

CDM - KYOTO CRITERIA



- ⌘ Contributes to the sustainable development of the host country.
- ⌘ Results in emission reductions that would not have happened otherwise.
- ⌘ Generates real, measurable and long-term climate change mitigation benefits.
- ⌘ Credits potentially earned from 2000 onward (through 2008-2012).

PROJECT DESIGN DOCUMENT (PDD)



- ⌘ General description of project activity.
- ⌘ Baseline methodology.
- ⌘ Duration of the project activity.
- ⌘ Monitoring methodology and plan.
- ⌘ Calculation of GHG emissions by sources.
- ⌘ Environmental Impacts.
- ⌘ Stockholders comments.

Zafarana Wind Power Plant Project as a CDM



- ⌘ Zafrana project is 120 MW wind power gen.
- ⌘ More than 400 GWh of electricity per year.
- ⌘ Around 100,000 TOE Saved yearly.
- ⌘ About 200,000 t of Certified Emission Reductions (CERs) if designated as CDM.

A cooperation project between NREA of Egypt and JBIC of Japan who Supports project financing.

CDM Procedures

- ⌘ PDD Production
- ⌘ Public & Expert Opinions.
- ⌘ Host country confirmation.
- ⌘ Meth Panel Approval.
- ⌘ CDM Executive Board Approval.
- ⌘ Validation.
- ⌘ CDM Executive Board Approval.
- ⌘ Registration.
- ⌘ Monitoring.
- ⌘ Verification.
- ⌘ Certification.
- ⌘ Registration.

Baseline Methodology



- ⌘ Presently, no approved CDM methodology to be applied for “Grid Connected wind Power Generation”.
- ⌘ New methodology is proposed in accordance with CDM modalities and Procedures.

Baseline Methodology steps



The project is additional because:

- ⌘ There is no incentive program to promote wind power projects currently in Egypt.
- ⌘ The cost for a wind power plant is higher than for conventional thermal power plants, in terms of levelised cost of KWh produced.
- ⌘ The economic growth in Egypt has led to stricter terms and conditions for foreign financial assistance.

Baseline Methodology steps (continued)



**The project will affect Operating margin
and build margin.**

⌘ Combined margin =

$$\{\text{Operating margin} + [\text{Build margin} \times n]\} / n + 1$$

⌘ n has been chosen to be 1 instead of 0.6 which would have been in favor of wind.

Base line Methodology steps (continued)



Determining Operating Margin.

- ⌘ Less than 20% generation comes from hydro.
- ⌘ More than 80% from thermal Power Plants.
- ⌘ Wind will replace thermal generation mix of Combined Cycle, Steam Turbines and Gas Turbines.

Determining Build margin

Emission rate of :

- ⌘ Most recent 20% plants built, or
- ⌘ Most recent (5) plants built gives same result.
 - ◆ Cairo North (2), 750MW, CC, 5.3%.
 - ◆ Cairo North (1), 750MW, CC, 5.256%.
 - ◆ Zafarana, 77MW, wind, 0.3%.
 - ◆ Suez Gulf (1,2) Boot, 682M, ST 4.8%.
 - ◆ Port Said East (1,2), 682MW, ST 4.6%.

Conservative Approach to Consider Wind Plant.

Investment Barriers for wind Plants



- ⌘ No incentives for wind power generation.
- ⌘ Wind is more capital intensive.
- ⌘ Low price for natural gas.

Result:

Currently wind generated KWh cost cannot compete with thermal generated KWh cost.

i.e. Wind cannot be viewed as BAU leading to :

WIND NEED for CDM SUPPORT TO BE IMPLEMENTED.

Monitoring Methodology



- ⌘ Presently there is no monitoring methodology applicable to the project.
- ⌘ The baseline emission will be monitored through the amount of electricity export by the project to the grid.

Environmental Impacts



⌘ Noise Pollution

Negligible, Being an eroid area.

⌘ Visual Pollution

Same, no community nearby.

⌘ Land Use

Same, however, during construction fences will be erected around.

Environmental Impacts

⌘ Potential impact on Migrating Birds.

- Zafarana is close but not in a major Pathway of birds.
- No green areas, fresh water nor food scraps of human activity exist as it is a remote area.

Result:

Danger is minimum and almost negligible.

Conclusion:



- ⌘ At 5 US\$ per ton CO₂ & around 0.56kg CO₂ avoided emissions per KWh produced from thermal power stations -Wind produced KWh will have a bonus of around 2 piaster which cannot close the gap between wind and thermal generation.
- ⌘ CDM cannot solely make uncompetitive projects economically attractive.
- ⌘ Rather, CDM can make near economic projects feasible or more attractive.

Thank you



The PDD document can be accessed on :

<http://cdm.unfccc.int/methodologies/process>

New and Renewable Energy Authority

Web site :

www.nrea.gov.eg