

## BRIEF

**Name of Project:** Pakarab Fertilizer Co-generation Power Project (Version 02).

Objectives:

- To generate power by gas turbines with upstream heat recovery steam generators for supply to fertilizer complex using clean, renewable and sustainable cogeneration technology.
- Application of the energy efficient process of co-generation of heat and power in natural gas fired cogeneration plant.
- To help in achieving the objectives of combating climate change under UNFCCC by reducing significant amount of greenhouse gas (carbon dioxide) emissions.

**Date of Submission:** 20<sup>th</sup> July 2007

**Submitted by:** Pakarab Fertilizer Limited, Pakistan

**Project Sponsors:** Pakarab Fertilizer Limited, Pakistan.

**Project Development Consultants:**

Fichtner GmbH & Co. KG, Germany.

**Detail of Total Project Cost:**

<b>Items</b>	<b>Amount in US \$</b>
Gas Turbine/ Generator (GTG)	15,252,122 /-
Heat Recovery Steam Generator (HRSG)	11,696,088/-
Balance of Plant (BoP)	6,005,670/-
Civil Construction	2,000,000/-
<b>Total Project Cost</b>	<b>34,953,881/-</b>

**Estimated Emission Reduction:**

<u>Source</u>	<u>Tons of CO<sub>2</sub>eq/ yr</u>
New gas turbine cogeneration plant	107,746
<b>Total annual reduction:</b>	<b>107,746</b>

**Operational Lifetime:**

25 Years

**Starting/Commissioning date:**

1<sup>st</sup> January 2008 (Commissioning date: 1<sup>st</sup> January, 2009)

**Crediting/Validity Period:**

- Kyoto first commitment period: 4 years (2009– 2012)
- Estimated validity period (including Post Kyoto period): 21 years (2009– 2030)

**Economic Viability of the Project:**

Internal Rate of Return (IRR):

Without CDM benefits: 16%  
With CDM benefits: 20%

**Benefits from the Project:**

<b>Activity</b>	<b>Revenue (US\$ million)</b>
Sale of Carbon Credits (@ US\$ 14.6/tonnes of CO <sub>2eq</sub> ):	1.61
<b>Total estimated annual revenue:</b>	<b>1.61</b>

**Other Qualitative Benefits:**

- The project will cover the power and steam demand of the fertilizer complex and the existing power house will be further used as back up and standby purposes.
- The project activity will improve the local economy through creation of employment opportunities during construction and operational phase.
- Will help in improving the skills for local inhabitants through training and capacity building in the project contributing to growing technical advancement.
- Project activity will reduce the poverty in an economically depressed region with a very little industry and high unemployment.
- It will reduce the carbon emission by using natural gas as fuel.
- It will reduce the carbon emissions by replacing reusing calorific gases and thus mitigating environmental pollution with positive spin off for community health.