

Brief

Name of Project: ICI Polyester Co-generation Project (Version 01).

Objectives:

The main objective of the project is installation of an energy-efficient cogeneration plant (gas turbines and Heat Recovery Steam Generators (HRSGs) for combined power and heat generation). The hot exhaust gases from the gas turbines are utilized to generate process steam.

- The project consist of installation of two new 5.67 MW Gas Turbines (GTs) and two new Heat Recovery Steam Generators (HRSGs) with a production capacity of 18 t/h of steam each. The GTs and the HRSGs will be catering the power and steam demand of the production facility and sustainable cogeneration technology.
- 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: 2nd April, 2009

Submitted by: Carbon Services (Pvt) Limited.

Project Sponsors: ICI Pakistan PowerGen Limited, Pakistan.

Project Development Consultants:

First Climate (Switzerland) AG.

Detail of Total Project Cost:

Cost Equipment/Service	Quantity	Per Unit Price (Million PKR)	Total Price (Million PKR)
Gas Turbine	02	192.5	385.0
HRSG	02	35.0	70.0
Allied Equipment / Accessories			10.0
Civil Works			30.0
Mechanical Works			15.0
Electrical Works			30.0
Traveling			1.5
Miscellaneous			8.5
Total Project Investment (PKR Million)			550.0
Total Project Investment (US \$ Million)			6.87

Estimated Emission Reduction:

<u>Source</u>	<u>Tons of CO₂eq/ yr</u>
New gas turbine cogeneration plant	19,233
Total annual reduction:	19,233

Operational Lifetime:

20 Years

Starting/Commissioning date:1st January 2009 (Commissioning date: 1st January, 2009)**Crediting/Validity Period:**

- Kyoto first commitment period: 4 years (2009– 2012)
- Estimated validity period (including Post Kyoto period): 20 years (2009– 2029)

Economic Viability of the Project:

In CDM there are two possibilities to prove additionality i.e. Investment and barrier analysis. In the project additionality is not based on the financial analysis but rather on the barrier analysis.

Benefits from the Project:

Activity	Revenue (US\$ million)
Sale of Carbon Credits (@ US\$ 20/tonnes of CO ₂ eq):	0.38
Total estimated annual revenue:	0.38

Other Qualitative Benefits:

- The project will cover the power and steam demand of the Polyester complex by reducing the carbon emission.
- The project activity will enhance local employment opportunities. Local community will benefit from new job opportunities that will be created particularly for the time span of construction and operation of the co-generation plant.
- The project activity reduces the local air pollutants (such as nitrogen, sulphur oxides and volatile organic compounds)
- The project builds up a knowledge base about the operation of the natural gas based power generation and builds up a skill set for such kind of operation through training and capacity building in order to grow their technical skills.
- The project represents a good example of sustainable development, in which effectiveness and efficiency of new technologies are also oriented to a wiser use of natural resources and a lower impact on the environment.