

## BRIEF

**Name of Project:** "Installation of natural gas based cogeneration system at Century Paper & Board Mills Ltd., Lahore, Pakistan, Version 1.

### Objectives:

- To generate power by gas turbines with upstream Heat Recovery Steam Generators (HRSG) for supply to paper and board complex using clean, renewable and sustainable cogeneration technology.
- The project activity aims to install a natural gas based cogeneration system to meet the additional energy requirements. The cogeneration system comprises four natural gas-fired turbines (5.6 MW each) and four HRSGs (Heat Recovery Steam Generators, 12.5 tons each) to cater the power and heat requirements of the Century Paper & Board Mill's.
- Application of the energy efficient process of cogeneration 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 and contributes to the regional and national sustainable development.

**Date of Submission:** May, 23<sup>rd</sup> 2008

**Submitted by:** Carbon Services Limited.

**Project Sponsors:** Century Paper & Board Mills Limited

**Project Development Consultants:** Factor Consulting + Management AG

### **Detail of Total Project Cost:**

Description	Amount in Pk Rs.
<b>CIVIL WORKS</b>	
SOIL INVESTIGATION, SITE PREPARATION & BOUNDARY CONSULTANCY	1,000,000
CIVIL WORKS (BUILDINGS, FOUNDATIONS, WATER TANK)	1,000,000
PAINTING WORKS	50,000,000
<b>SUB-TOTAL</b>	<b>1,000,000</b>
	<b>53,000,000</b>



**Starting/Commissioning date:**

January 2008

**Crediting/Validity Period:**

- Kyoto first commitment period: 2008-12
- Estimated validity period (Including Post Kyoto period): 2008-28

**Economic Viability of the Project:**

Internal Rate of Return (IRR):

Without CDM benefits: -1%

With CDM benefits: 14.6%

**Benefits from the Project:**

<b>Activity</b>	<b>Revenue (US\$) million/annum</b>
Sale of Carbon Credits (@ US\$ 12/tonnes of CO <sub>2eq</sub> ):	0.624
<b>Total estimated annual revenue:</b>	<b>0.624</b>

**Other Qualitative Benefits:**

- The project activity reduces the local air pollutants (such as nitrogen, sulphur oxides and volatile organic compounds) and environmental impacts due to employment of a clean energy technology for power and heat generation. This benefits the local community due to reduced costs for health care and climate change adaptation.
- 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.
- The project improves the skill set for local inhabitants through training and capacity building in order to grow their technical skills.
- The project activity will enhance local employment opportunities resulting in reduced poverty in an economically depressed region.
- The project contributes to a diversified energy supply and energy security in Pakistan.
- It encourages the use of a new financial mechanism (CDM) to raise finance for energy efficient projects for power and steam generation.
- The project improves the skill set for local inhabitants through training and capacity building in order to grow their technical skills.