

## Brief

**Name of Project:** "Reduction of Heavy Fuel Oil usage for Power Generation at Lucky Cement, Pezu, Pakistan, Version, 02".

### Objectives:

- The main objective of the project activity is conversion of existing Heavy Fuel Oil (HFO) based generators to dual fuel mode i.e. natural gas and HFO and contributes towards sustainable development.
- 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:** 21<sup>st</sup> April, 2009.

**Submitted by:** Factor Consulting and Management AG (Pvt. Entity) Switzerland

**Project Sponsors:** Lucky Cement Limited, Pakistan

**Project Development Consultants:** Factor Consulting and Management AG (Pvt. Entity) Switzerland.

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

<b>Cost Equipment/Service</b>	<b>Price (Million PKR)</b>
Dual fuel conversion cost for 7 x 18V32 engines	669.3
Dual fuel conversion cost for 3 x 12V46 engines	609.8
Price of new 20V34SG engine	325.6
Installation cost of 20V34SG engine	36.3
Other Charges: In terms of gas connection	35.0
Mechanical installation cost	132.4
Civil Works	15.2
<b>Total Project Investment (PKR Million)</b>	<b>1,823.7</b>
<b>Total Project Investment (US \$ Million)</b>	<b>22.8</b>

### **Estimated Emission Reduction:**

<u>Source</u>	<u>Tons of CO<sub>2</sub>eq/ yr</u>
Lucky Cement Limited.	17,222
<b>Total annual reduction:</b>	<b>17,222</b>

**Operational Lifetime:** 15 years.

**Starting/Commissioning date:** January 2009

**Crediting/Validity Period:**

- Kyoto first commitment period: 2008-12
- Estimated validity period (Including Post Kyoto period): 2008-23

**Economic Viability of the Project:**

Internal Rate of Return (IRR):  
 Without CDM benefits: **11.40%**  
 With CDM benefits: **12.00%**

**Benefits from the Project:**

Activity	Revenue (US\$) Million
Sale of Carbon Credits (@ US\$ 24/tonnes of CO <sub>2eq</sub> ):	0.408
<b>Total estimated annual revenue:</b>	<b>0.408</b>

**Other Qualitative Benefits:**

- The project activity reduces the local air pollutants (such as nitrogen, sulphur oxides and volatile organic compounds). Reduction in local air pollutants benefits the local community due to reduced costs for health care and climate change adaptation.
- 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 plant.
- 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. Improved the skill set for local inhabitants for training and capacity building in order to grow their technical skills.
- It encourages the use of Clean Development Mechanism (CDM) to raise finance for energy projects for power generation through fuel switch project.
- The project activity will bring new equipments/technology i.e. dual fuel equipment and natural gas based engine to the country for enhancement of cleaner energy development projects.