



EREL CEMENT LTD

Reuse of Cooling Water from Central Motors and Compressors

SUMMARY OF THE OPTION

Erel Cement is a cement producer in Mongolia with an annual production of 80000 tons cement per year. Cooling water from kiln motors and air compressors was previously drained but is not reused as cooling water for slurry preparation. Investment costs to collect and reuse cooling water was US\$ 12500, annual net cost savings were US\$ 29083 and the payback period was 5 months. Each year, 72000 m³ water is saved. This requires 150 MWh electricity per year to pump the water, which results in an increase of greenhouse gas (GHG) emissions of 146 tons CO₂.

KEY WORDS

Cement, Mongolia, Cooling water

OBSERVATIONS

Cooling water from central motors (for kiln rotation) and air compressors was drained.

OPTIONS

The Team proposed to collect and reuse cooling water for preparation of slurry. This required the installation of (see figure 1):

- A water collection tank
- A building for the collection tank
- Pipelines



Figure 1: Cooling water collection tank and its building

RESULTS

Financial benefits

- Investment: US\$ 12500 or MNT 15,000,000
- Annual operation cost: US\$ 7500 or MNT 9,000,000, calculated as follows:
 - Cost of electricity consumption: 6,000,000 MNT/year



- Other operation costs: 3,000,000 MNT/year
- Annual cost savings: US\$ 36583 or MNT 43,900,000 (= 3,660,000 MNT/mth X 12 mth)
- Annual net cost savings: US\$ 29083 or 34,900,000 MNT
- Payback period: 5 months

Environmental impacts

- Annual electricity increase: 150 MWh
- Annual GHG emissions increase: 146 tons CO₂ (= 150 MWh X 0.97)
- Annual water savings: 72000 m³ (= 6000 m³ per month X 12 months)

Other Benefits:

- Reduced number of start ups
- Increased life time of refractory lining and kiln
- Improvement of cooling conditions

FOR MORE INFORMATION

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