

# CDM Projects in Cement Factories

- Title: Energy management in Isfahan cement Factory
- Aim of the Project: Reducing the specific energy consumption (SEC)
- By installation a roller press before the cement ball mill and exchange the open circuit to a close circuit, the production capacity increase up to twice.
- The Result of this project is reduction of electricity consumption up to  $13.36 \times 10^6$  KWh and reduction of 8262 ton of CO<sub>2</sub> in a year.

# Energy Conservation measures and costs for installation in Isfehan cement factory

Modification of facility	Energy Conservation effect		Cost of equipment & machinery (million US\$)	Other Cost of measures (million US\$)	Increasing the Production (Ton/day)	Payback (M= Months) (Y= Years)
	Fuel Oil (kl/year)	Electricity (MWh/Year)				
High efficiency Separator		4500	1.129	0.56	750	3 M
Installation precrusher for cement mill		4000	1.41	0.451	400	6 M

# Energy Management in Isfhan Cement Factory

Energy Consumption GJ	Energy Consumption GWh	Saving GJ	Saving GWh	Saving CO <sub>2</sub> (Ton)	Saving NO <sub>x</sub> (Ton)	Saving SO <sub>2</sub> (Ton)	Saving CO (Ton)	Reduction of CO <sub>2</sub> (%)
	32.54		13.36	8262	510			41%

# CDM Projects in Cement Industry

- Title: Energy management in cement Industry in IRAN
- Aim of the Project: Reducing the specific energy consumption (SEC) in 36 cement factories that exist in IRAN
- Execution of this project causes the prevention of energy losses up to 829 GWh electricity and up to  $24 \times 10^6$  GJ fossil energy and reduction of anthropogenic gases such as CO<sub>2</sub> up to  $2261 \times 10^3$  ton

# Some Cases of this project activities

- Installation of screen crow for crushers
- Installation of a roller press or a pre-crusher before the cement ball mill.
- Installation of screen crow for crushers
- Exchange of the open circuit mills to close circuit mills
- Equipting of the pre-heaters to pre-calciner and auxiliary burner and increasing of Cyclone stages.
- Change the satellite cooler in some factories into grate cooler system.

# Energy Conservation measures and costs for installation in cement industry (case study in Iran factory with 2000 ton cement/day)

Modification of facility	Energy Conservation effect		Cost of equipment & machinery (million US\$)	Other Cost of measures (million US\$)	Increasing the Production (Ton/day)	Payback (M= Months) (Y= Years)
	Fuel Oil (kl/year)	Electricity (MWh/Year)				
Conversion from satellite cooler to grate cooler	6000		2.25	0.56	200	16 M
Vertical type mill for raw materials		5500	2.59	1.12		18 M
High efficiency Separator		4500	1.129	0.56	750	3 M
Installation pre-crusher for cement mill		4000	1.41	0.451	400	6 M
To exchange open circuit mill to close one		5000	1.69	0.73	250	12 M
Using of high efficiency compressors		6000				
Using of elevator instead of airlift		5000	1.016	0.28		9 Y

# Energy Management in Cement Industry in IRAN

Energy Consumption GJ	Energy Consumption GWh	Saving GJ	Saving GWh	Saving CO <sub>2</sub> (Ton)	Saving NO <sub>x</sub> (Ton)	Saving SO <sub>2</sub> (Ton)	Saving CO (Ton)	Reduction of CO <sub>2</sub> (%)
$108.68 \times 10^6$	3600	$24 \times 10^6$	829.5	$2261 \times 10^3$	4504	10949	500.4	25%

# CDM Projects in Thermal Power Plants

- Title: Energy efficiency improvement in Thermal Power Plants in IRAN
- Aim of the Project: Promotion of energy efficiency in thermal power plants in Iran
- In case of 1% increasing in thermal power plants efficiency energy consumption will be reduced about 59,759,425 GJ and reduction of anthropogenic gases such as CO<sub>2</sub> up to  $2012 \times 10^3$  ton in a year.

- A thermal power plants optimization involves a thermodynamics cycle optimization, the claimed 1% or more improvement in plant efficiency will be achieved by utilization of some tools such as pinch tech. For studying of heat exchanger networks, or energy analysis for energy targeting.
- Along with mentioned techniques, performance improvement of plant units for instance, boilers, condensers, turbines, pumps, and etc is useful for purpose.

# Energy Efficiency Improvement in Thermal Power Plants in IRAN

Energy Consumption GJ	Energy Consumption GWh	Saving GJ	Saving GWh	Saving CO <sub>2</sub> (Ton)	Saving NO <sub>x</sub> (Ton)	Saving SO <sub>2</sub> (Ton)	Saving CO (Ton)	Reduction of CO <sub>2</sub> (%)
2134.25 × 10 <sup>6</sup>		59.759 × 10 <sup>6</sup>		2011 × 10 <sup>3</sup>	3103	8585		2.8%