

# JK WHITE CEMENT WORKS

## BEST PRACTICES - ENERGY EFFICIENCY



J.K. SUPER CEMENT

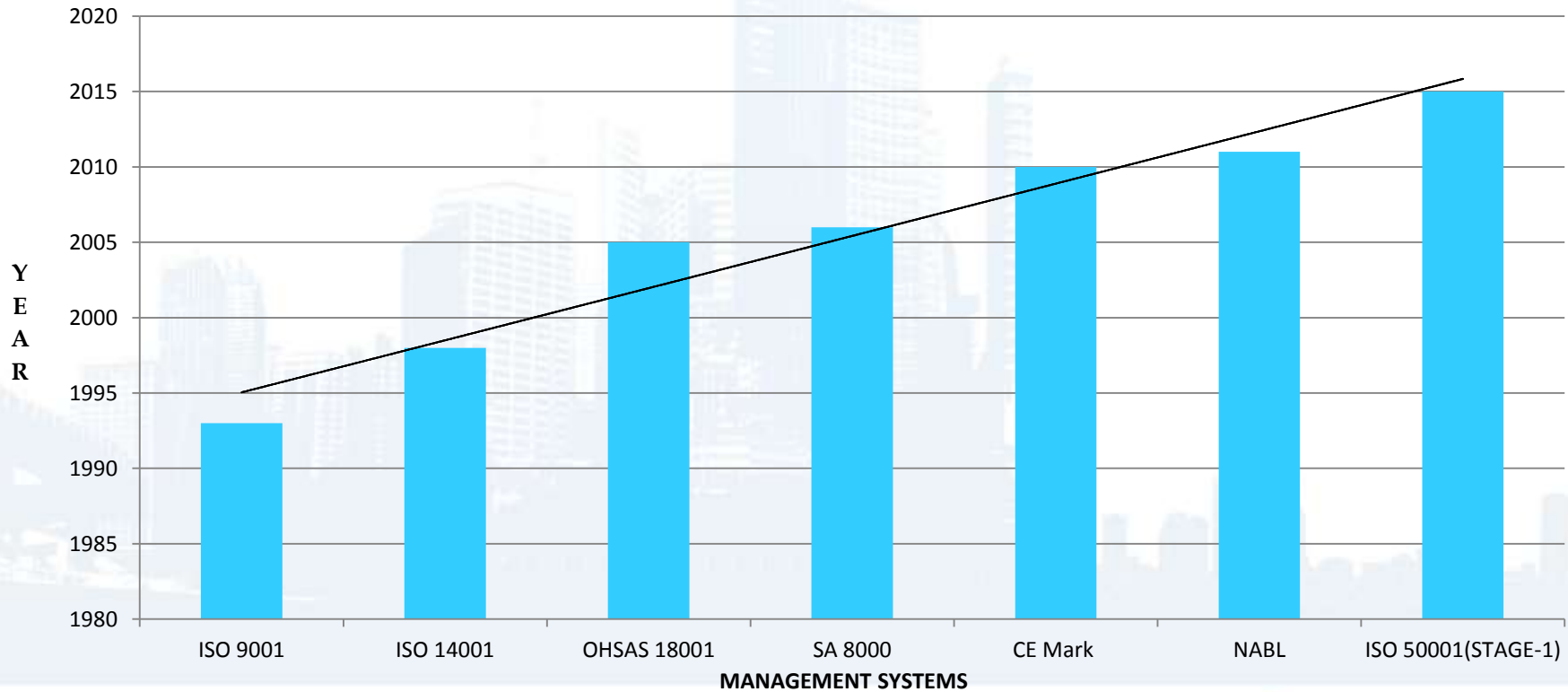


# System Approach

It is felt necessary to adopt system approach – to lead the changes

*Our journey towards international management systems started in 1993 . Our proactive approach & commitment towards adoption of management systems has a never ending journey towards continual improvement of system w.r.t Quality, Energy, Environment , Health and Safety & Social accountability.*

## MANAGEMENT SYSTEMS - JOURNEY - JK WHITE



# Quality Consistency

**Final product quality initiates from the beginning of the process**

*For consistence and reliable plant operation the quality of input and in process material is very important- this leads to less process deviation, low rejects and energy efficient plant operation*

**Raw material proportioning control through QC  
X-Ray Analyser-With XRF and XRD Features**



**J.K. SUPER CEMENT**



# Operational Consistency

**Reduce the stress on the operator – energy efficient operation**

*Use of efficient operating and automation systems – operator to act only when deviation is sudden and beyond systems control range*

- ▶ FUZZY LOGIC for stable Kiln operation.
- ▶ PID loops
- ▶ Separation of inputs for operation, input for process safety and inputs for equipment safety
- ▶ Different automation treatment to reduce stress on the operator



# Monitoring and Measurement

The principle of “measure to improve”

*Energy measurement system incorporated both for thermal and electrical energy*

Key features of state of the art

**MONITORING AND MEASUREMENT system-**

Instantaneous reading

Load sharing

Section wise meters shows measurement errors

Power management and Reporting

Maximum Demand control

Power factor management- Operating nearly one

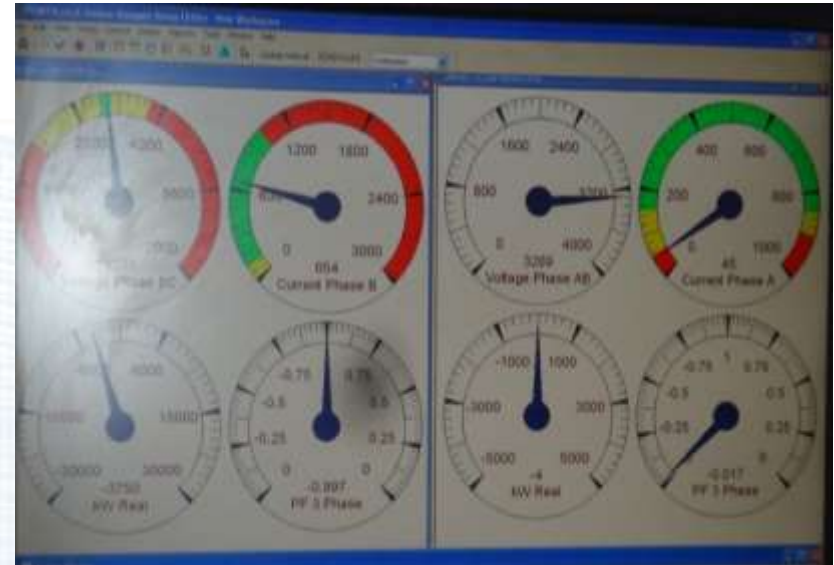
Power source management

THD measurement and control

Section wise energy losses (T&D)

Daily Power Quality reports

Shift wise Specific Power Consumption



J.K. SUPER CEMENT



# Regular External Energy Audit

**Injecting the experience and innovation**  
*Energy audit at regular interval involving different Auditing Agencies*

## Energy Audits

Concept started in the year 1991-92

During these years energy audits were conducted by various prestigious organization



J.K. SUPER CEMENT



# Equipment health / Maintenance management

## Concept of Annual maintenance System

*Reduction of down time, improved availability, Low energy waste due to less numbers of start/stop (Ex. Air Slide)*

- ✓ Critical Equipment Health Audit by OEM
- ✓ Documented system
- ✓ Standard maintenance procedure
- ✓ Machine history
- ✓ Use of predictive maintenance tools
- ✓ Machine Condition Monitoring



J.K. SUPER CEMENT



*JK White Cement is a committed organization to reduce energy consumption since its inception. The same is reflected in Our Policy statement.*

## ENERGY POLICY

We, at JK White Cement Works, Gotan are committed to demonstrate continual improvement in our Energy performance.

To achieve this, we commit ourselves for the following-

- ❖ Measure, Monitor, Control and analyse energy consumption and take appropriate action to reduce the energy consumption.
- ❖ Comply with the applicable legal and other requirements related to energy use, energy consumption & energy efficiency.
- ❖ Support the energy efficient products, services and design for energy performance improvement.
- ❖ Continual improvement in energy performance through setting and reviewing energy objectives and targets.
- ❖ The resources required for the implementation of this policy are made available on priority by Unit head.
- ❖ Ensure that policy is made available to all employees and interested parties.
- ❖ Ensure that Policy is regularly reviewed and updated as necessary.

Y.P.SINGHANIA  
Managing Director



J.K. SUPER CEMENT

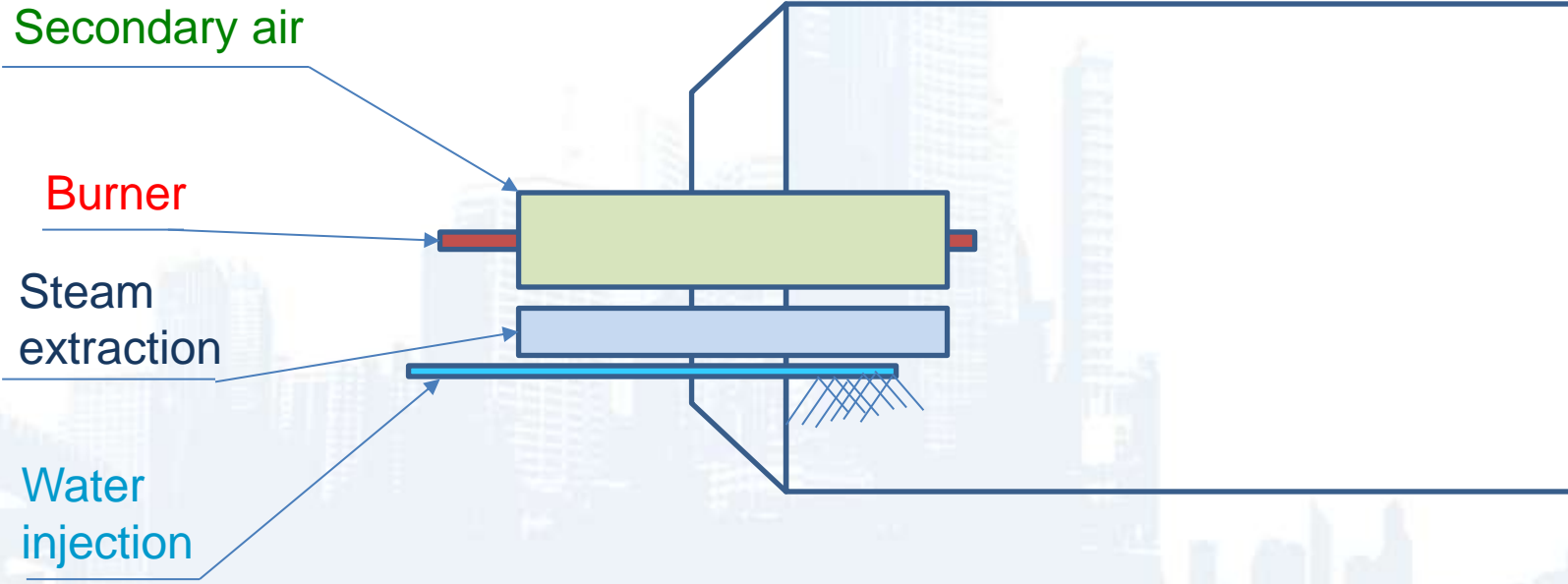




# Steam recovery

Original kiln outlet system

Low steam recovery



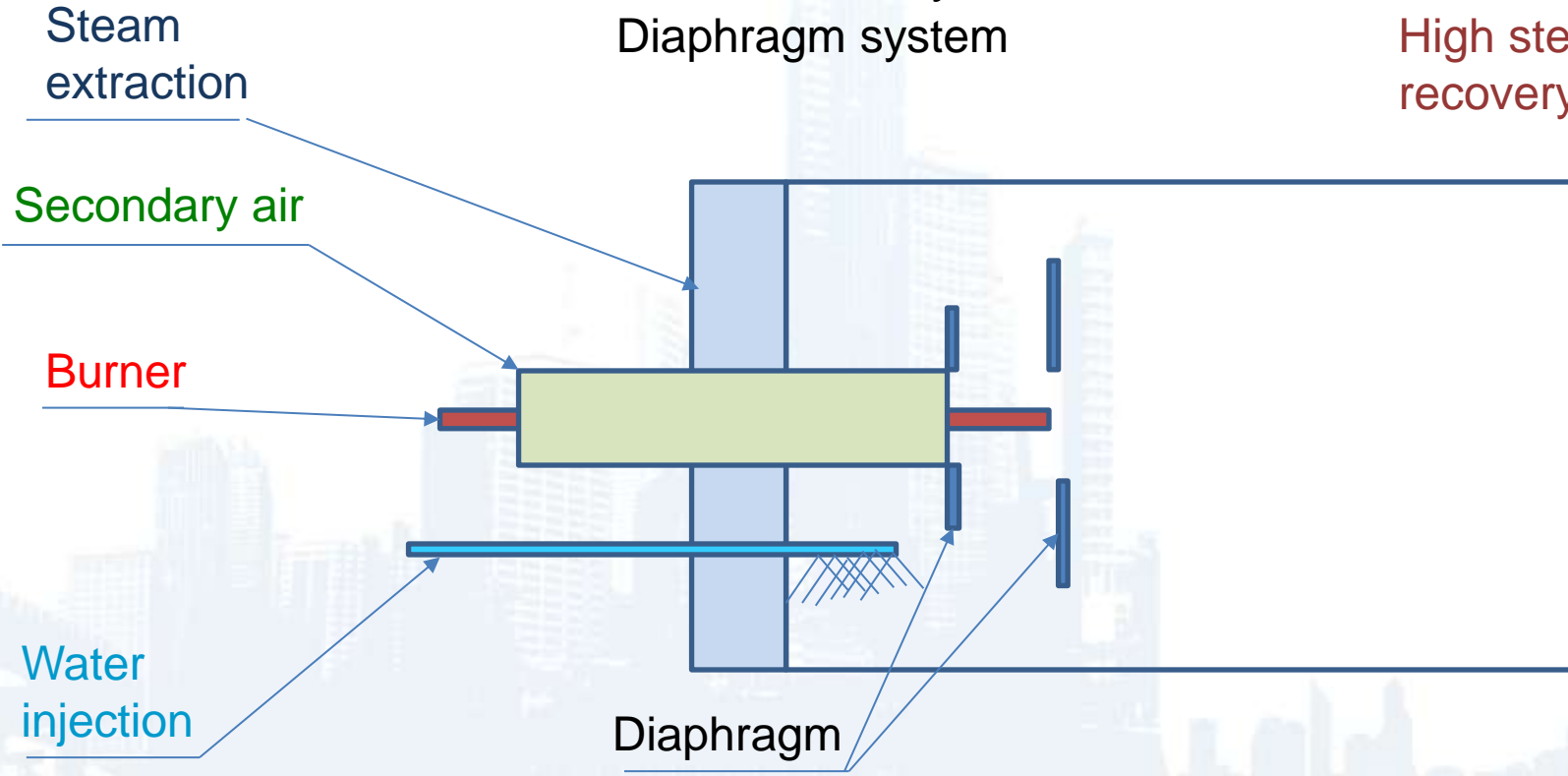
J.K. SUPER CEMENT



# Steam recovery

New kiln outlet system  
Diaphragm system

High steam recovery



J.K. SUPER CEMENT



*Optimizing motor control system by installing or upgrading to VFDs to reduce energy consumption . Accordingly VFD installed at selected equipments where we found process variations*

S.NO.	PLANT	NO. OF VFD'S
1	JK WHITE CEMENT WORKS	82
2	THERMAL POWER PLANT	16



J.K. SUPER CEMENT



# LIGHTING SYSTEM

- Use of lighting Design software for Optimised used of Lumen
- Optimisation of lighting load through proper engineering
- Street lighting – day & night lighting circuit separation
- Continuously switching over to energy efficient lighting systems
- CFL and LED Lighting system for Factory Lighting
- **Light the need concept followed**



J.K. SUPER CEMENT



# Process Machinery

Upgrade is key to survival  
Efficiency is key to survival

- V-STAGE PRE-HEATER
- MULTI CHANNEL BURNER
- PRE-CRUSHING
- SINGLE CHAMBER RAW MILL / VRM
- HIGH EFFICIENCY IIIrd GENERATION AIR-SEPARATORS
- MECHANICAL TRANSPORTATION



J.K. SUPER CEMENT



# Process Machinery

Upgrade is key to survival  
Efficiency is key to survival

- HIGH EFFICIENCY FANS
- HIGH EFFICIENCY MOTORS
- LOW PRESSURE DROP BAG FILTERS
- TOTAL COATING SOLUTION
- NO FLOW CONTROL DAMPERS
- HIGH EFFICIENCY AIR PRE HEATER



J.K. SUPER CEMENT



# Process Improvement

Upgrade is key to survival  
Efficiency is key to survival

- **PRE-CRUSHING**
- **GRINDING OPTIMIZATION-RESIDUE**
- **CLINKER COOLING – STEAM EXTRACTION**
- **TOTAL COATING SOLUTION**
- **MINERALIZER**
- **PET COKE FIRING – SOLUBLE SULFATE**



**J.K. SUPER CEMENT**



*Innovation is the way of life at JK White Cement works . We are committed to reduce the energy consumption by adopting technological advancements , team efforts & Process modifications*

S.NO.	IMPROVEMENT INITIATIVE	ANNUAL SAVINGS (KWH)	GHG Reduction (tCO2e)
<b>2011-12</b>			
1	VFD installation for PC mill Baghouse Fan	37280	34
2	Replacement of CFL lighting by LED in Street Lighting	6174.88	6
TOTAL (KWH)		43454.88	40
<b>2012-13</b>			
1	Replacement of SG Fan with High Efficiency Fan and DC Motor with High efficiency AC Motor	658672	606
2	Replacement of CFL lighting by LED in Factory Lighting	4288.11	4
3	Reduction in power consumption of External cooling fans of kiln Main Motors due to replacement of DC main motors with AC main Motors	16297	15
TOTAL (KWH)		679257.11	625



J.K. SUPER CEMENT





*Innovation is the way of life at JK White Cement works . We are committed to reduce the energy consumption by adopting technological advancements , team efforts & Process modifications*

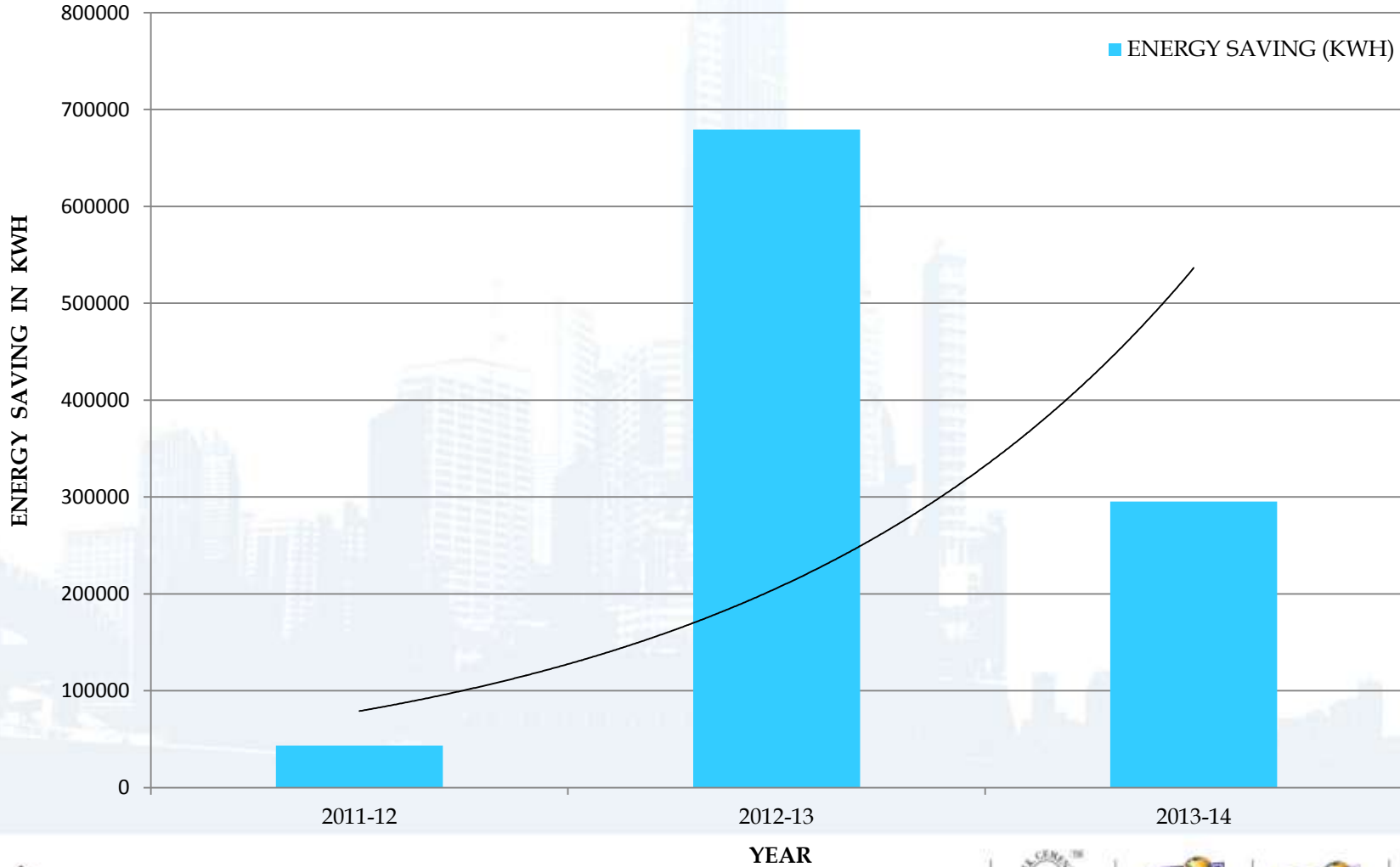
S.NO.	IMPROVEMENT INITIATIVE	ANNUAL SAVINGS (KWH)	GHG Reduction (tCO2e)
1	VFD installation at Thermal Power Plant FD FAN	51960	48
2	VFD installation at Thermal Power Plant Boiler Feed Pump	60502	56
3	RAW MILL-2 Process (Circuit) Modification	98865	91
4	New ESP- Pulse Optimization	58118	53
5	Solar Power Panels for Office Lighting	25828	24
<b>TOTAL ENERGY SAVINGS (KWH) &amp; REDUCTION IN GHG (tCO2e)</b>		<b>295273</b>	<b>272</b>



J.K. SUPER CEMENT



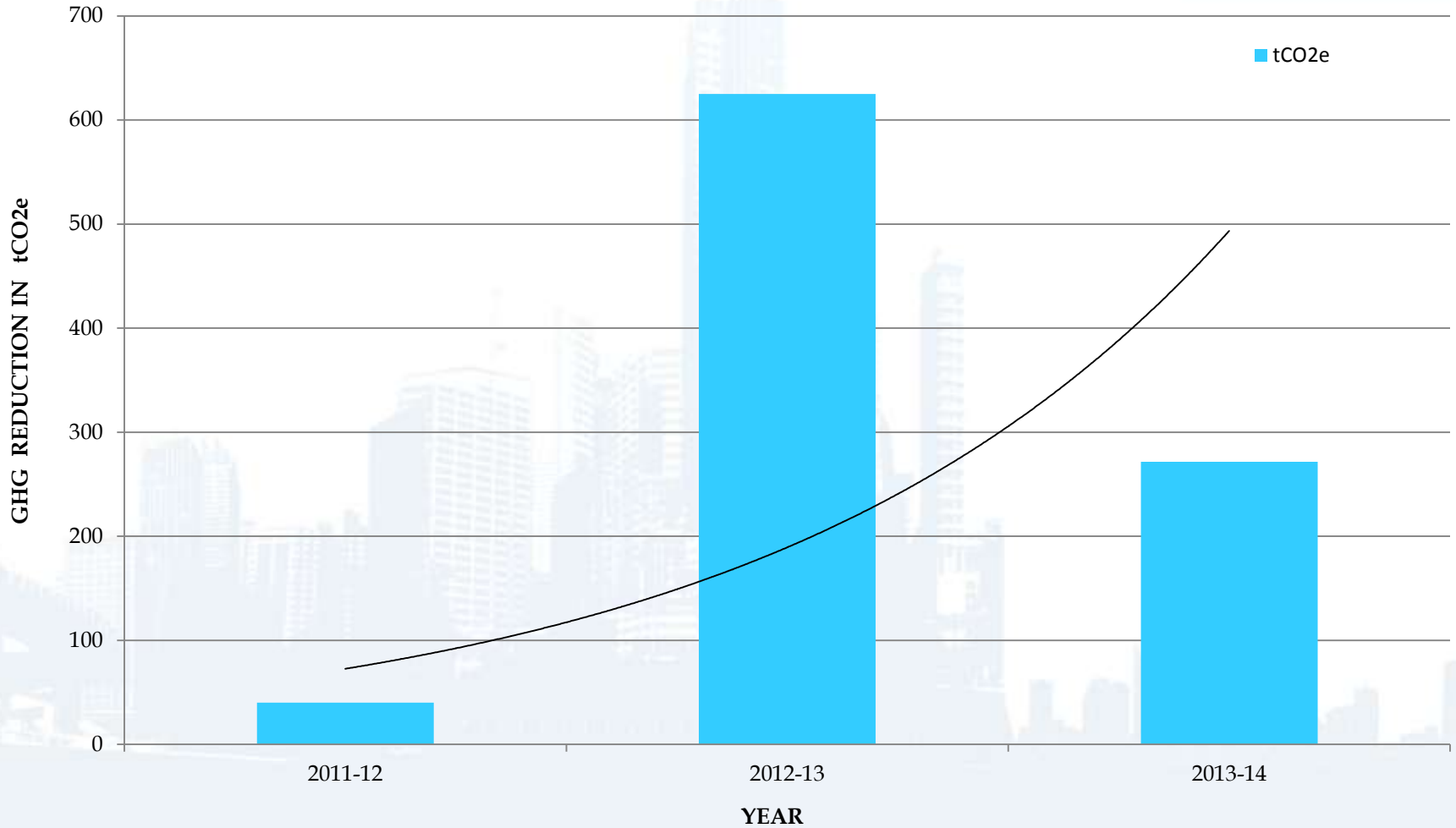
# Energy saved through Energy Saving Initiatives (kWh)



J.K. SUPER CEMENT



# GHG REDUCTION THROUGH ENERGY SAVING INITIATIVES (tCO<sub>2</sub>e)



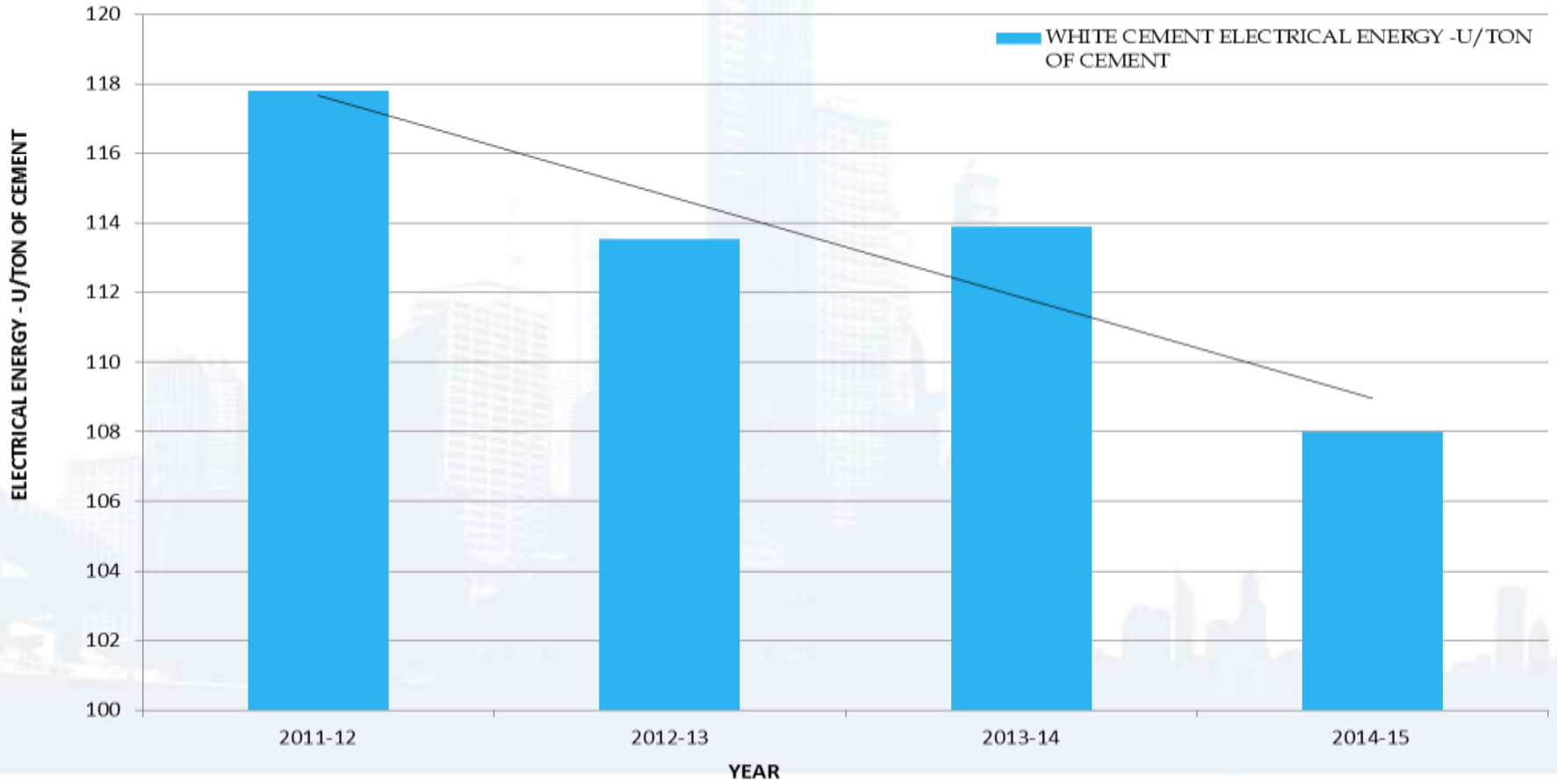
J.K. SUPER CEMENT



# ENERGY CONSERVATION

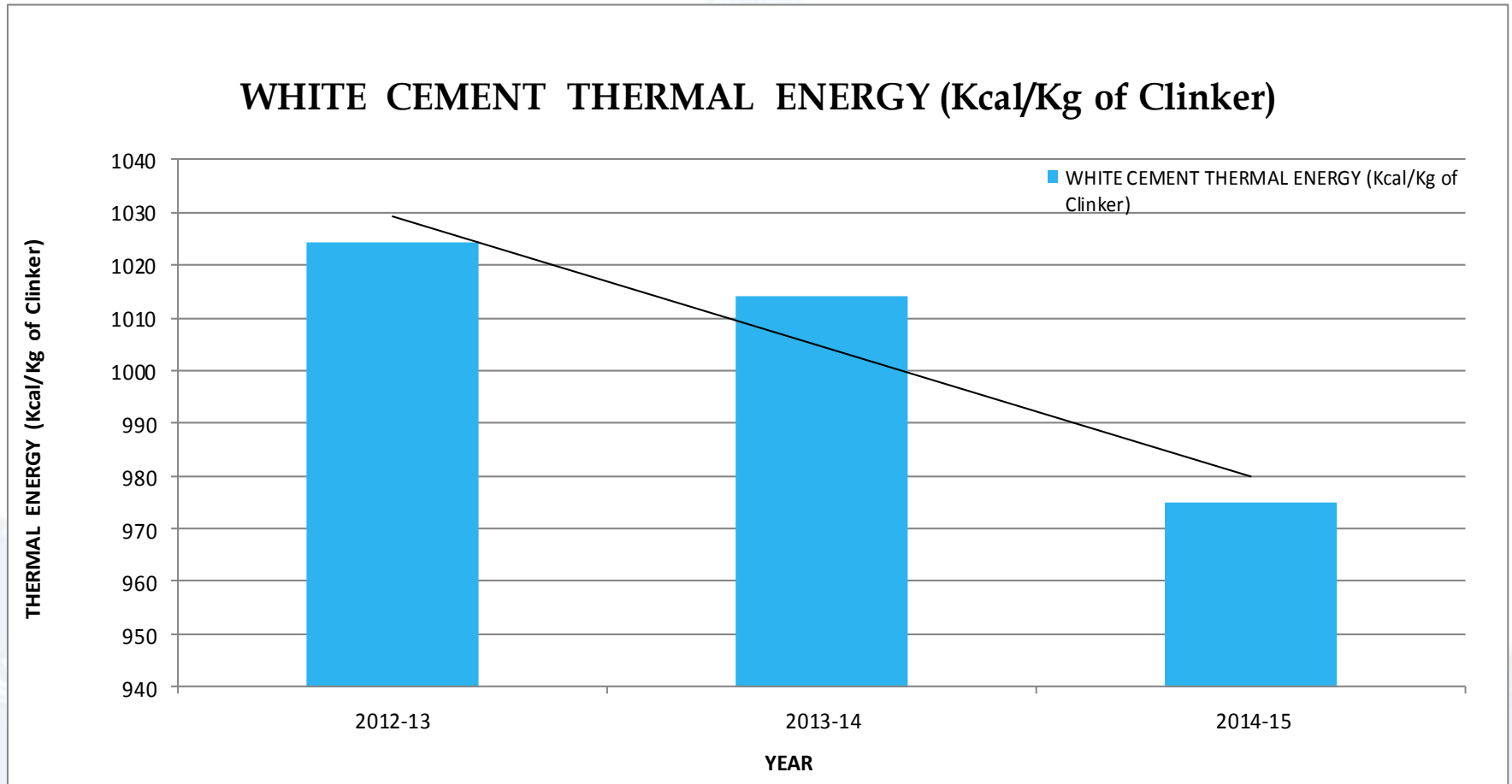
*Energy Conservation at each stage of manufacturing resulted us in segment leader*

## WHITE CEMENT ELECTRICAL ENERGY - U/TON OF CEMENT



# ENERGY CONSERVATION

*Being the segment leader for lowest energy consumption, we understand the responsibility*



**J.K. SUPER CEMENT**



# COMMITTED TOWARDS IMPROVEMENTS IN EVERY SEGMENT .....

For further information ---  
[rajeev.sharma@jkcement.com](mailto:rajeev.sharma@jkcement.com)



J.K. SUPER CEMENT

