

*This project is funded by  
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# ClimaEast

Support to Climate Change Mitigation and  
Adaptation in Russia and ENP East countries

## Cement industry in Poland

### Transition period

Andrzej Werkowski, Expert

**GHG Inventory and MRV of Industrial Emissions  
Workshop, Tbilisi, 27-28 March 2017**

# Cement Industry in Poland

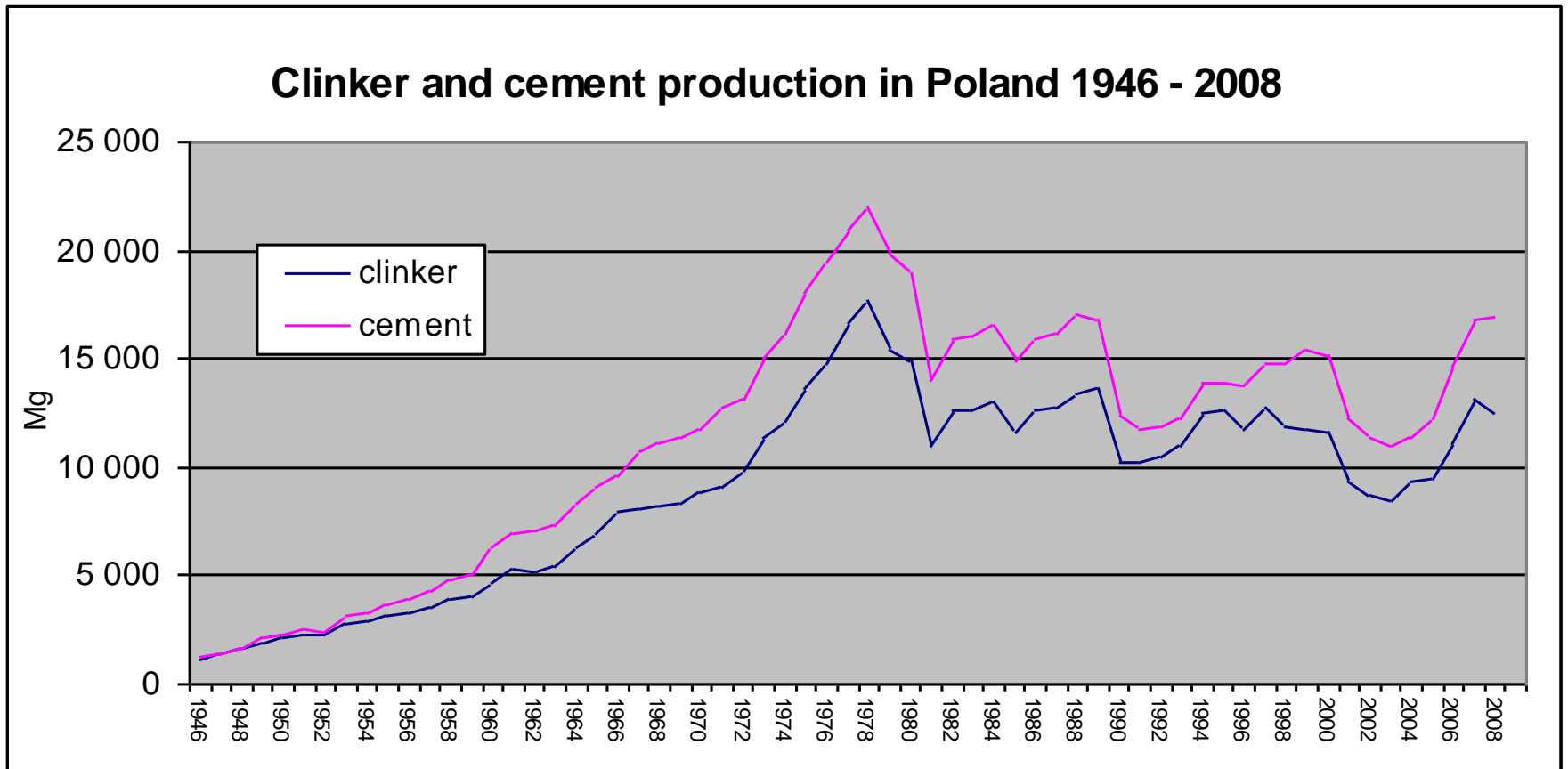
## Historic overview

- Transition from planned to market economy
  - Privatisation
  - Investments
  - Competition
- Technology changes
  - From wet to dry method
  - Energy efficiency improvement
- Exposure to multiple regulatory requirements
  - Climate change mitigation      – EU ETS
  - Environment protection          – IED, IPPC



# Cement Industry in Poland

## Cement & Clinker production



# Cement Industry in Poland

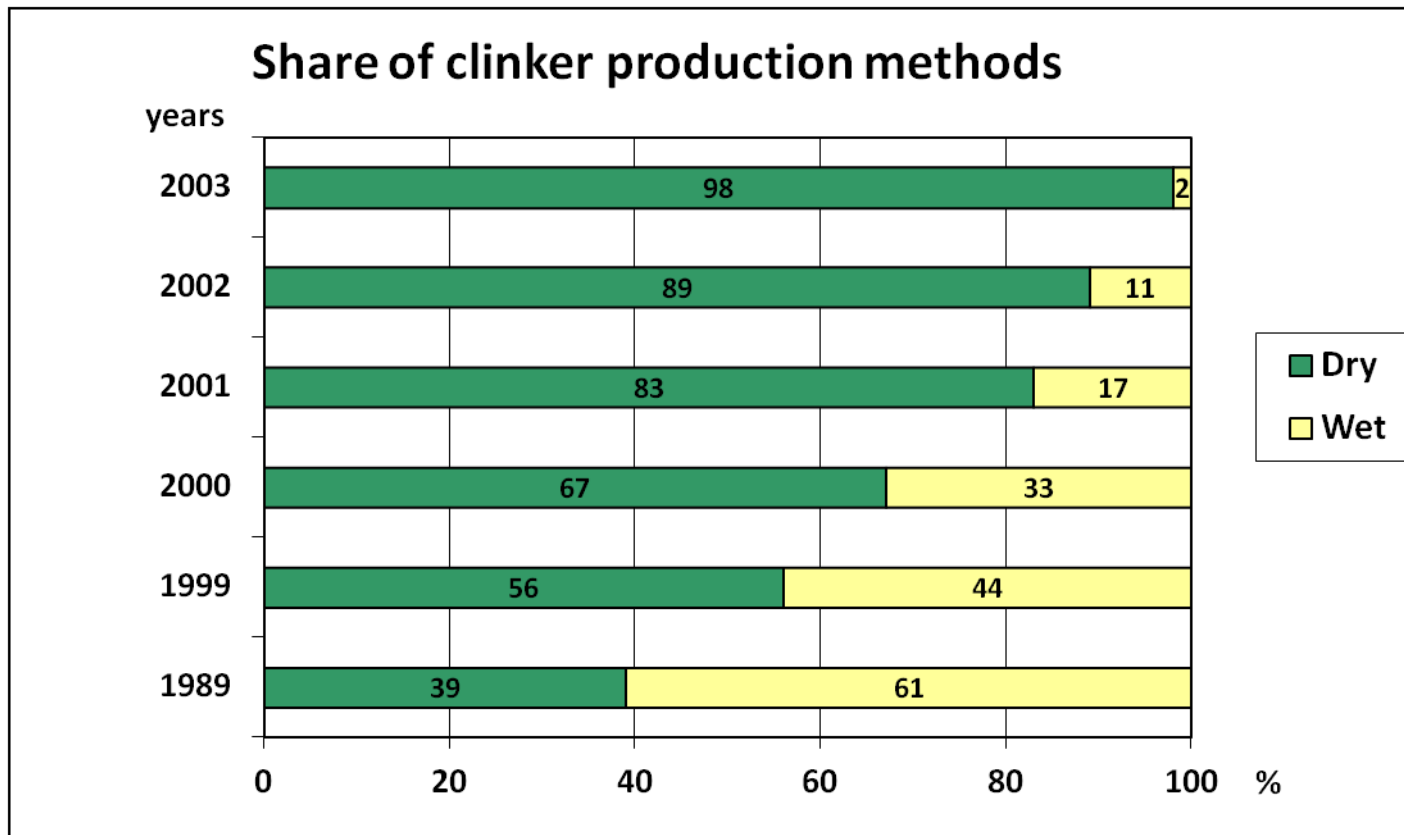
## Historic overview

- 1989 Beginning of political and economic transformations
- 1990 – 1995 Privatisation
- 1995 – 2004 Major investments
- 2004 EU Membership
- 2005 – cont. Modernisation II phase



# Cement Industry in Poland

## Technological Changes

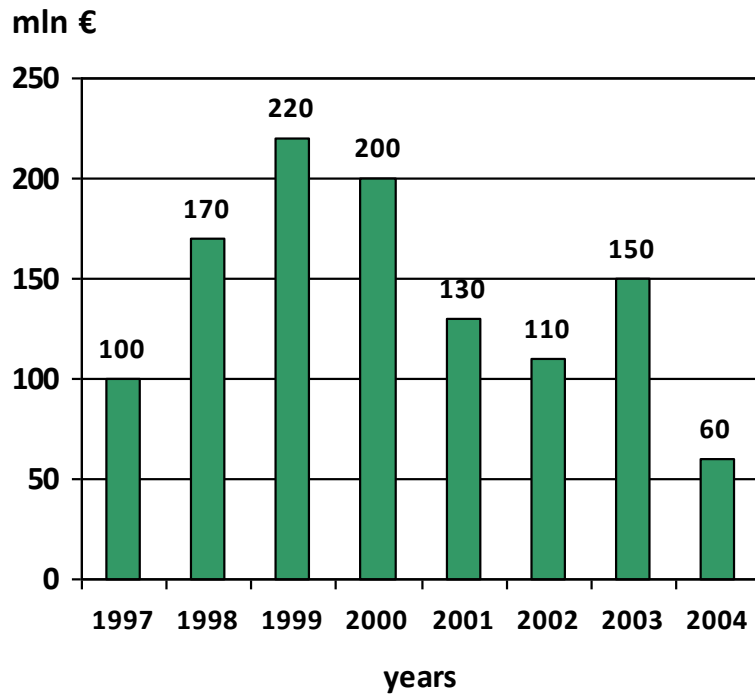


**Since 2003 cement clinker has been produced almost solely with the low energy-consuming dry method**

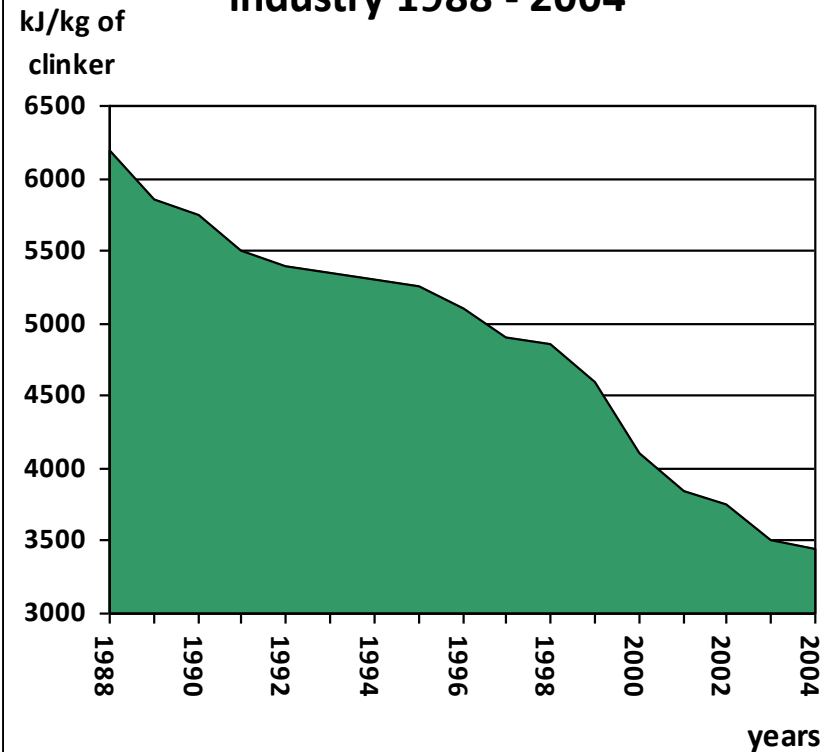
# Cement industry in Poland

## Investments & benefits

### Investment expenses in the cement industry 1997 - 2004

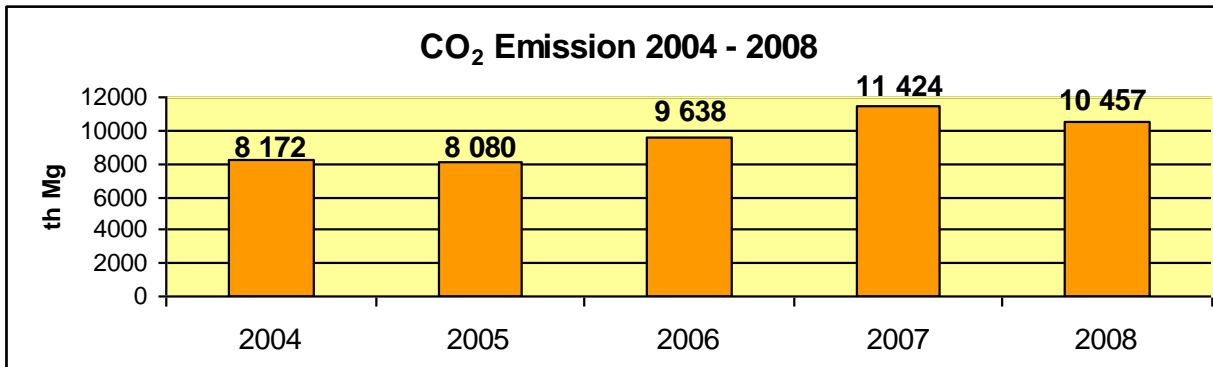
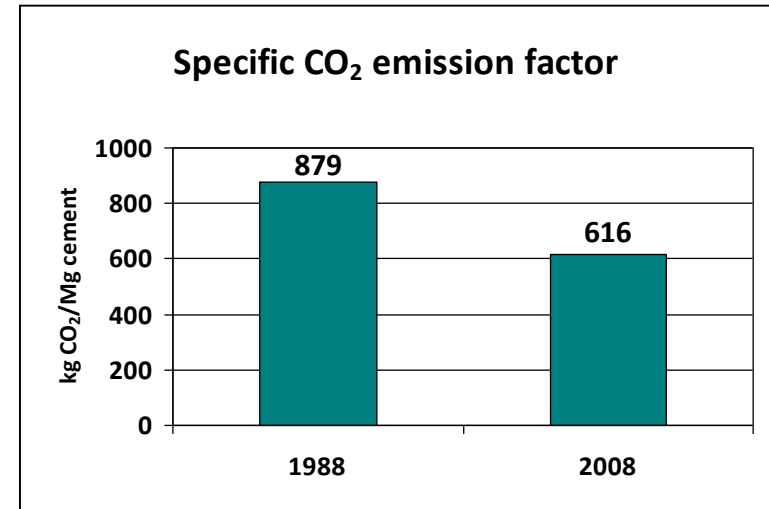
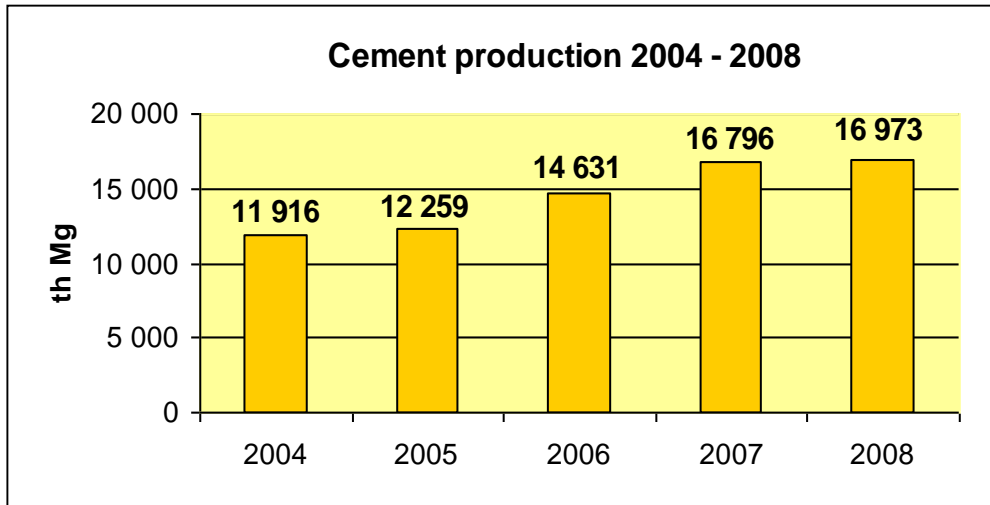


### Heat consumption in the cement industry 1988 - 2004



# Cement Industry in Poland

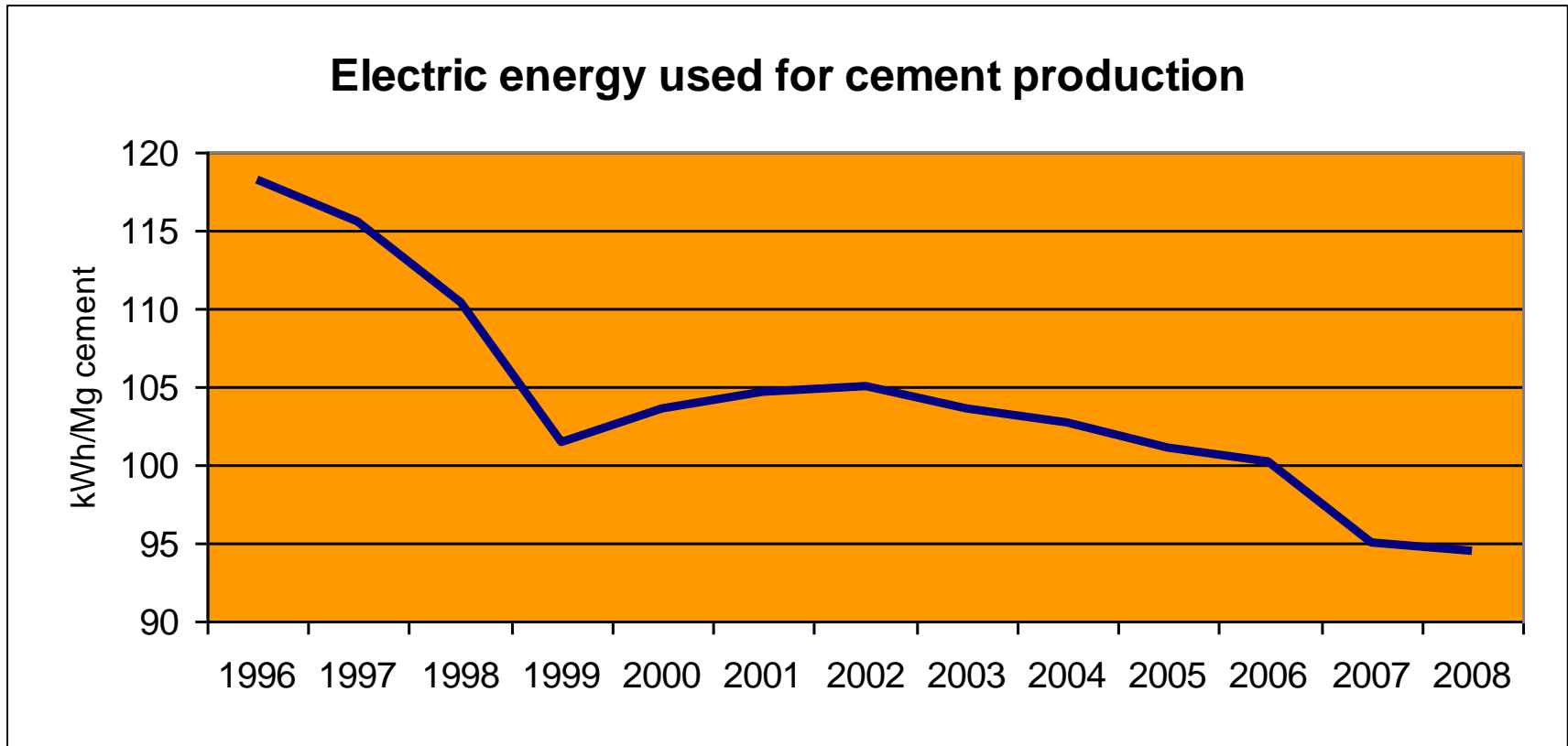
## CO<sub>2</sub> emission reduction



**1988 – 2008**  
**CO<sub>2</sub> emission factor ↓ 25%**

# Cement Industry in Poland

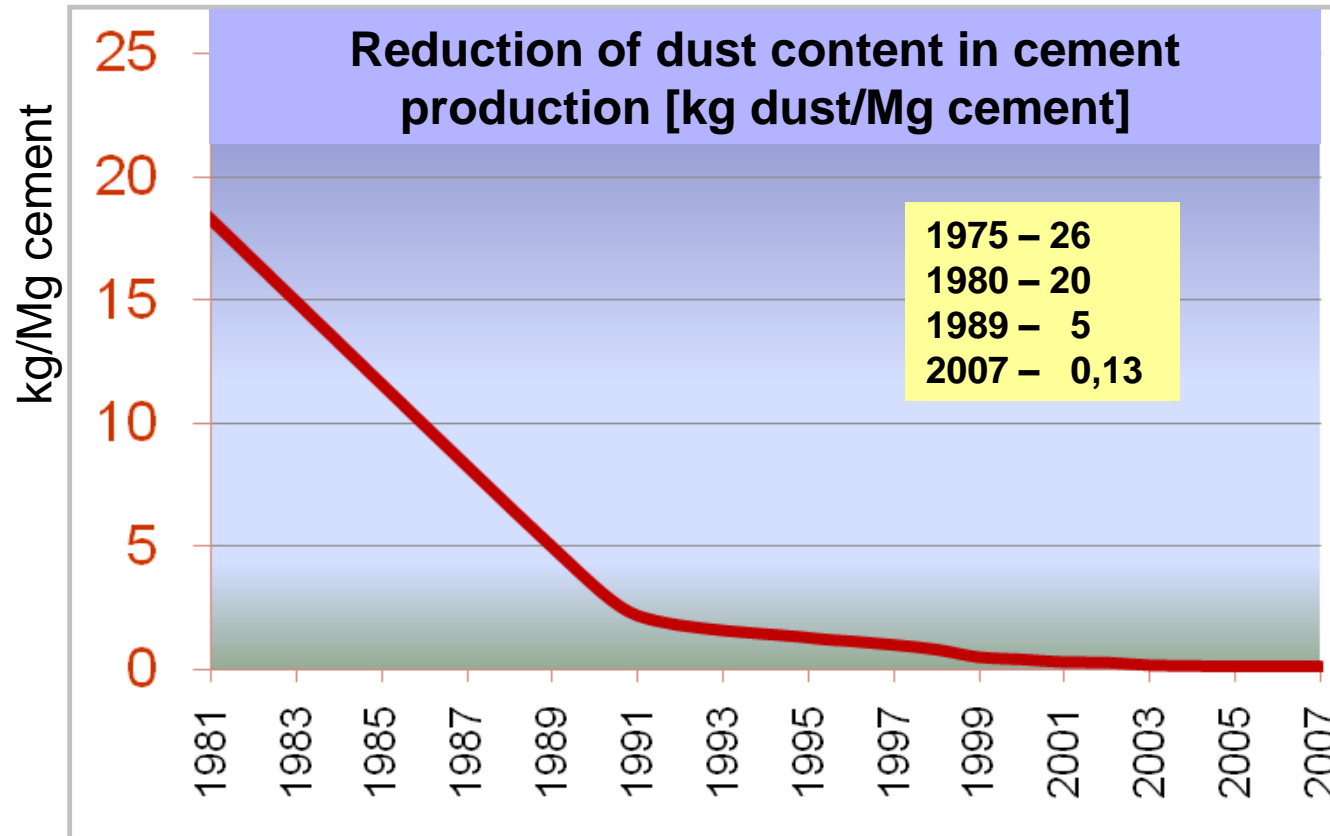
## Electric energy reduction





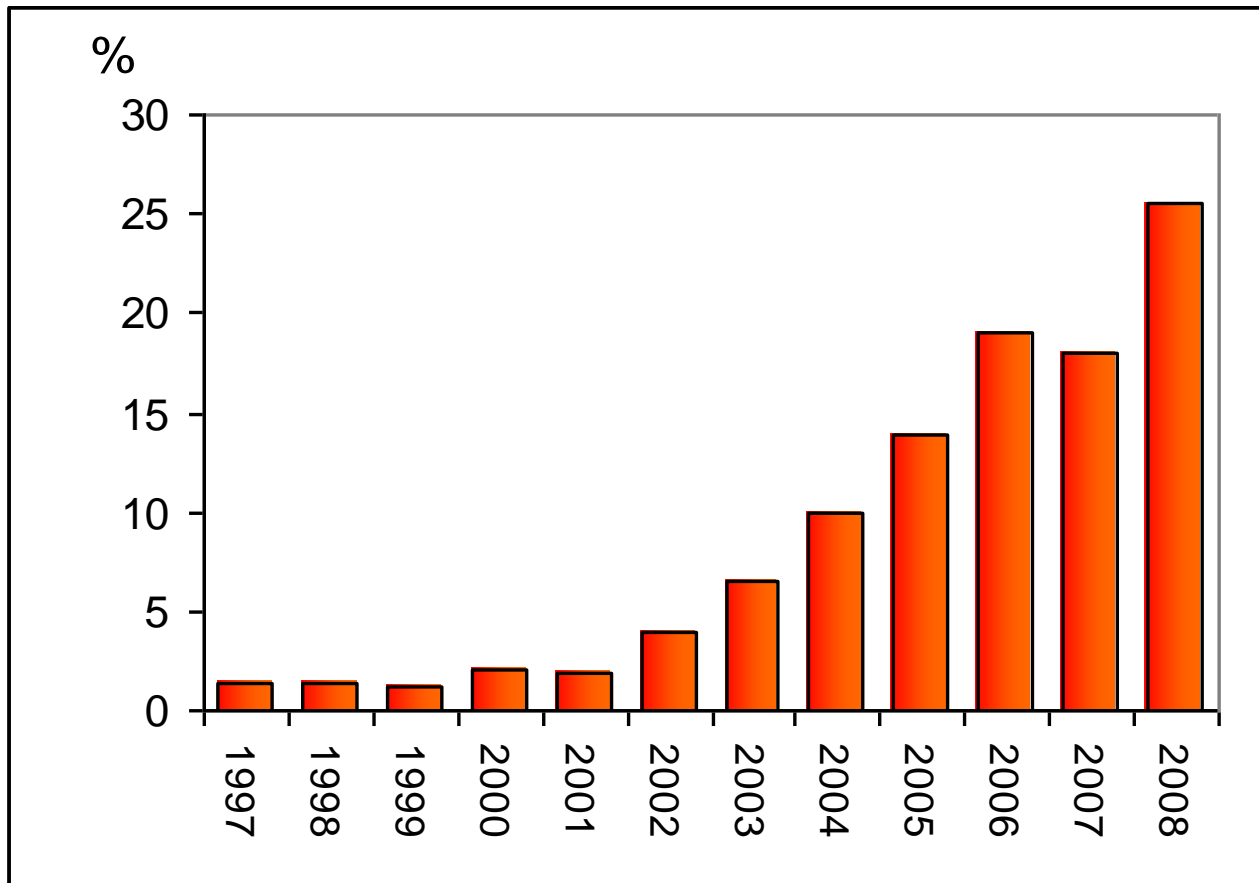
# Cement Industry in Poland

## Dust reduction



# Cement Industry in Poland

## Implementation of alternative fuel



# Cement Industry in Poland

## Progress 1988 - 2008

	1988	2008
Dry method/Wet method	39% / 61%	98% / 2%
CO <sub>2</sub> emission factor [kg CO <sub>2</sub> /Mg cement]	879	616
Heat usage for clinker burning [GJ/Mg clinker]	6,13	3,64
Electric energy consumption [kWh/Mg cement]	> 120	94,5
Energy form Alternative fuel	0	25%
Dust emission [kg/Mg cement]	5	0,13





## How to contact ClimaEast

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