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ClimaEast

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

Cement industry in Poland

Andrzej Werkowski, Expert

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

Cement industry in Poland

Cement Industry in Poland 2016	
Cement Plants	13
Cement Groups	9
Production Capacity Clinker	15 mln t
Production Capacity Cement	22 mln t
Clinker Production	12 mln t
Cement Production	16 mln t
Dry technology	14 kilns (3 reserve)
Wet technology	2 kilns (4 reserve)
Kiln Capacity	500 – 8.500 t /24 h

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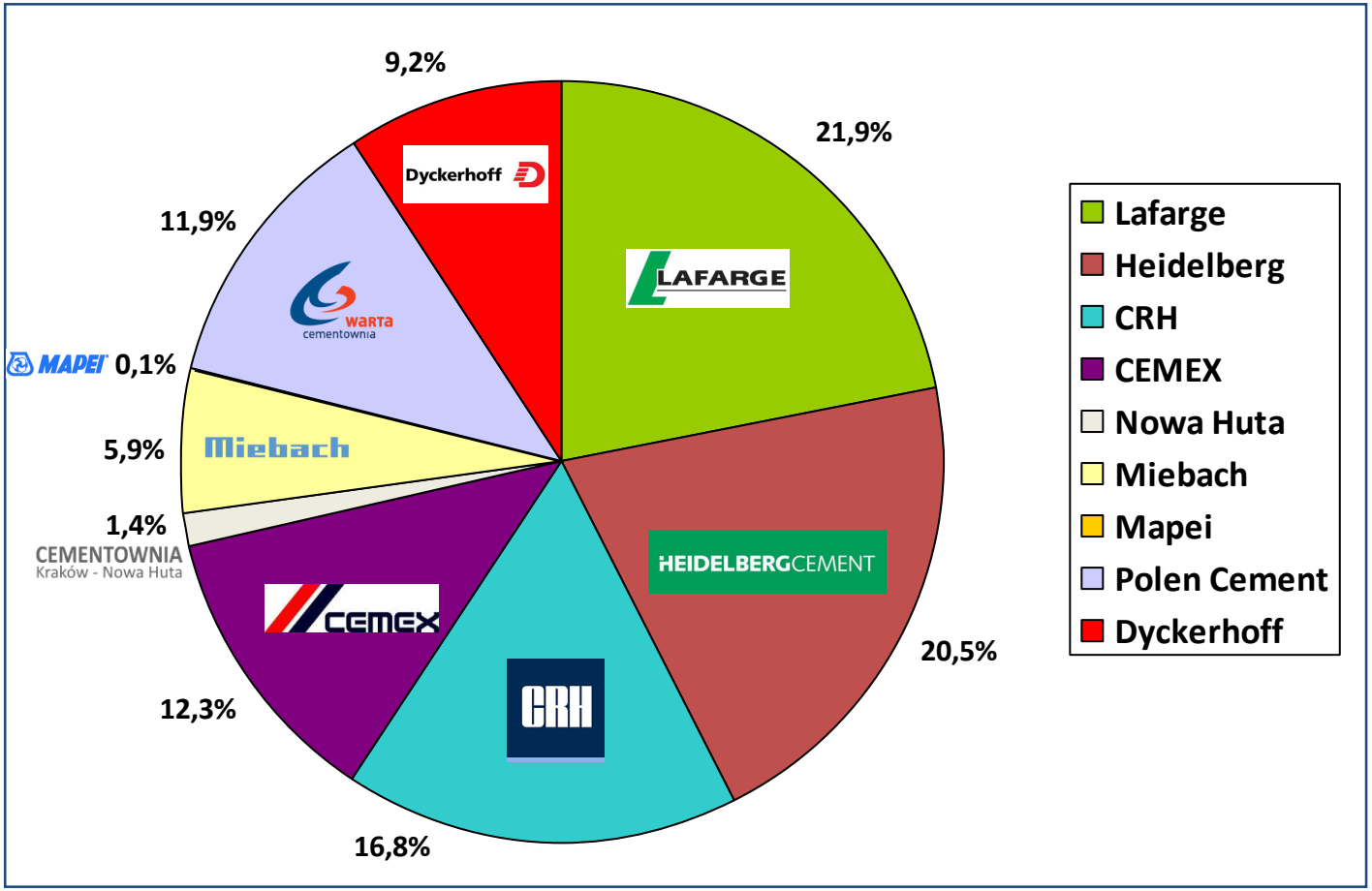
Cement industry – Market share



Cement Plants in Poland

HEIDELBERGCEMENT

- Górażdże
- Ekocem

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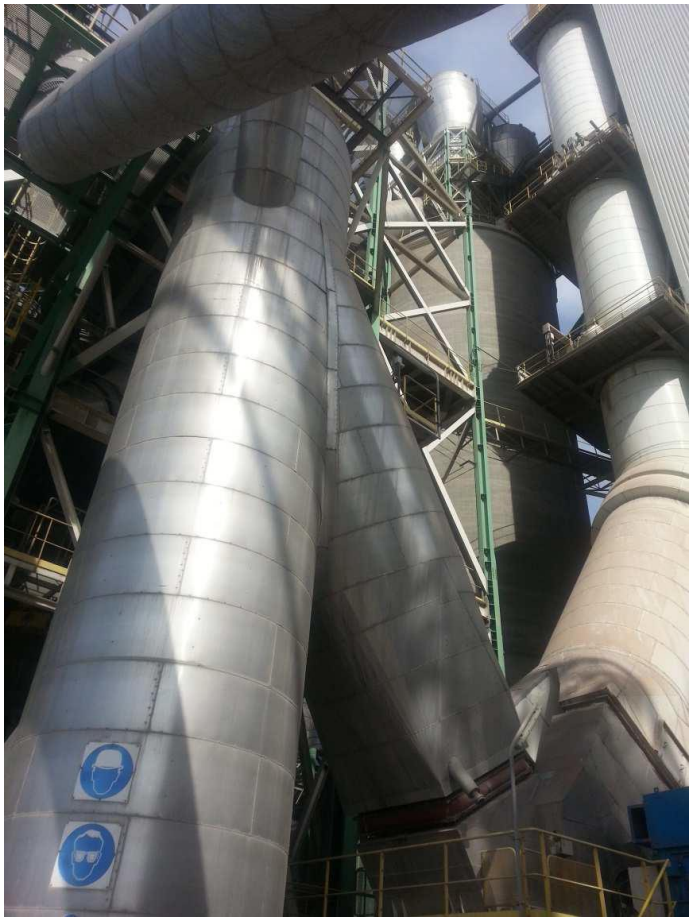
Cement Plants in Poland

LAFARGE

- Małogoszcz
- Kujawy



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Cement Plants in Poland

- Ożarów
- Rejowiec

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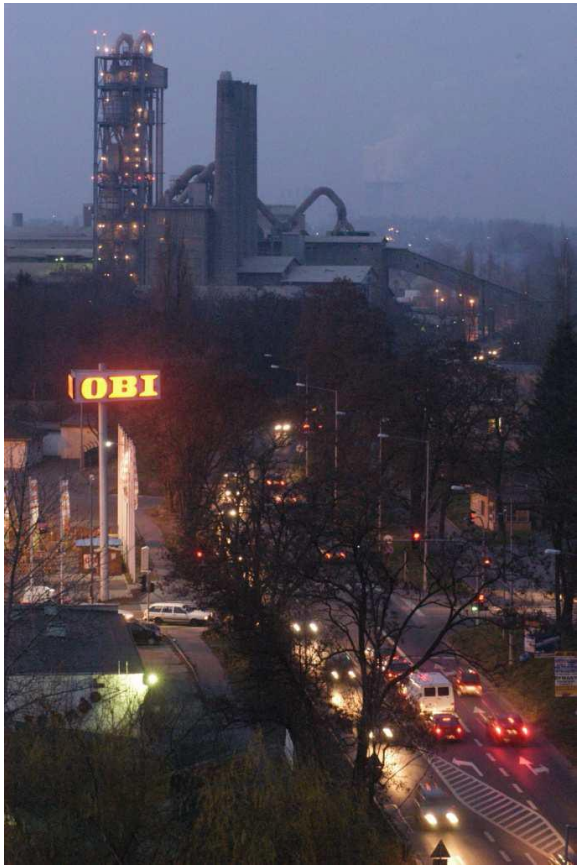
Cement Plants in Poland

Polen Cement

- Warta

Miebach

- Odra



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Cement Plants in Poland

Dyckerhoff

- Nowiny

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Cement Plants in Poland

- Chełm
- Rudniki

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Cement Plants in Poland

Cement Plant Kraków – Nowa Huta

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Cement Plants in Poland

MAPEI

- Górka (Aluminous cement)

Technology

- Over 98% of cement production in Poland is produced using dry method and modern technology meeting BAT requirements
- Most of production lines are equipped with novel cyclon heat exchangers and calciners

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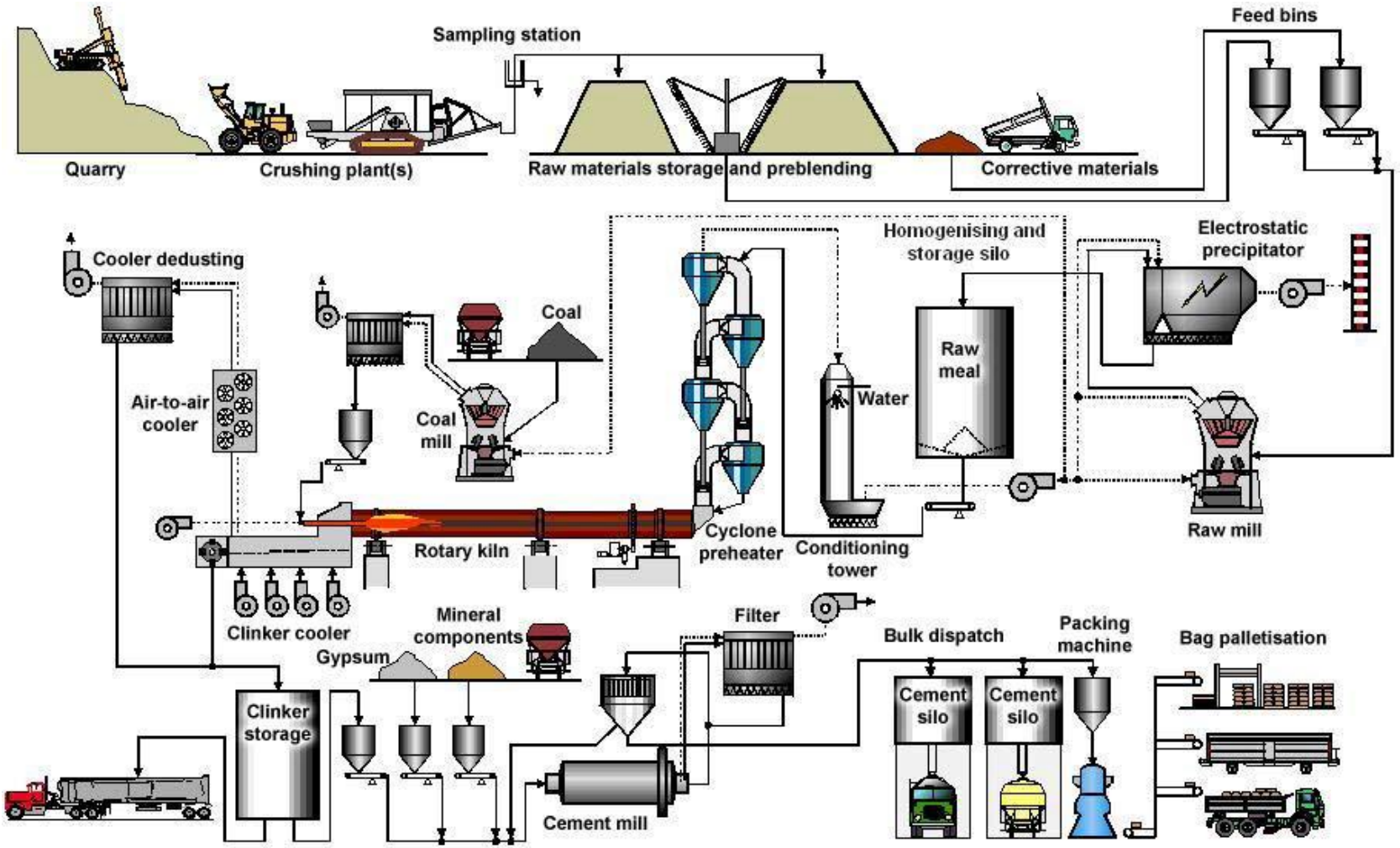
Cement Production Process



Cement industry in Poland
Energy efficiency related factors

Consumption of:	2009	2010	2011	2012	2013
Coal [th Mg]	864	962	1 203	920	726
Alternative fuels [th Mg]	752	952	1 227	1 180	1 131
Electric energy kWh/Mg cement	98	100	102	104	104
Heat kJ/kg clinker	3 692	3 712	3 828	3 766	3 722

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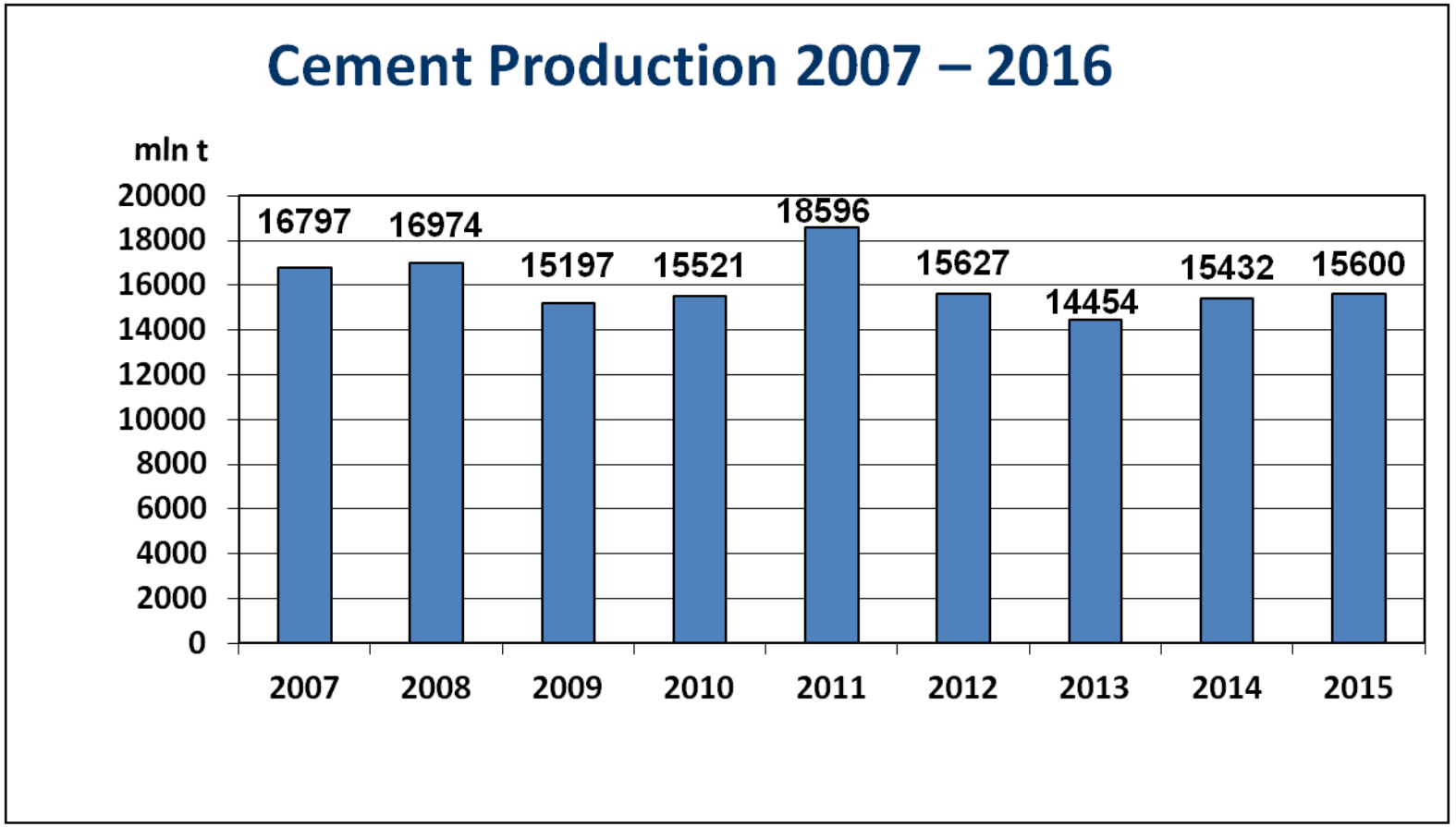
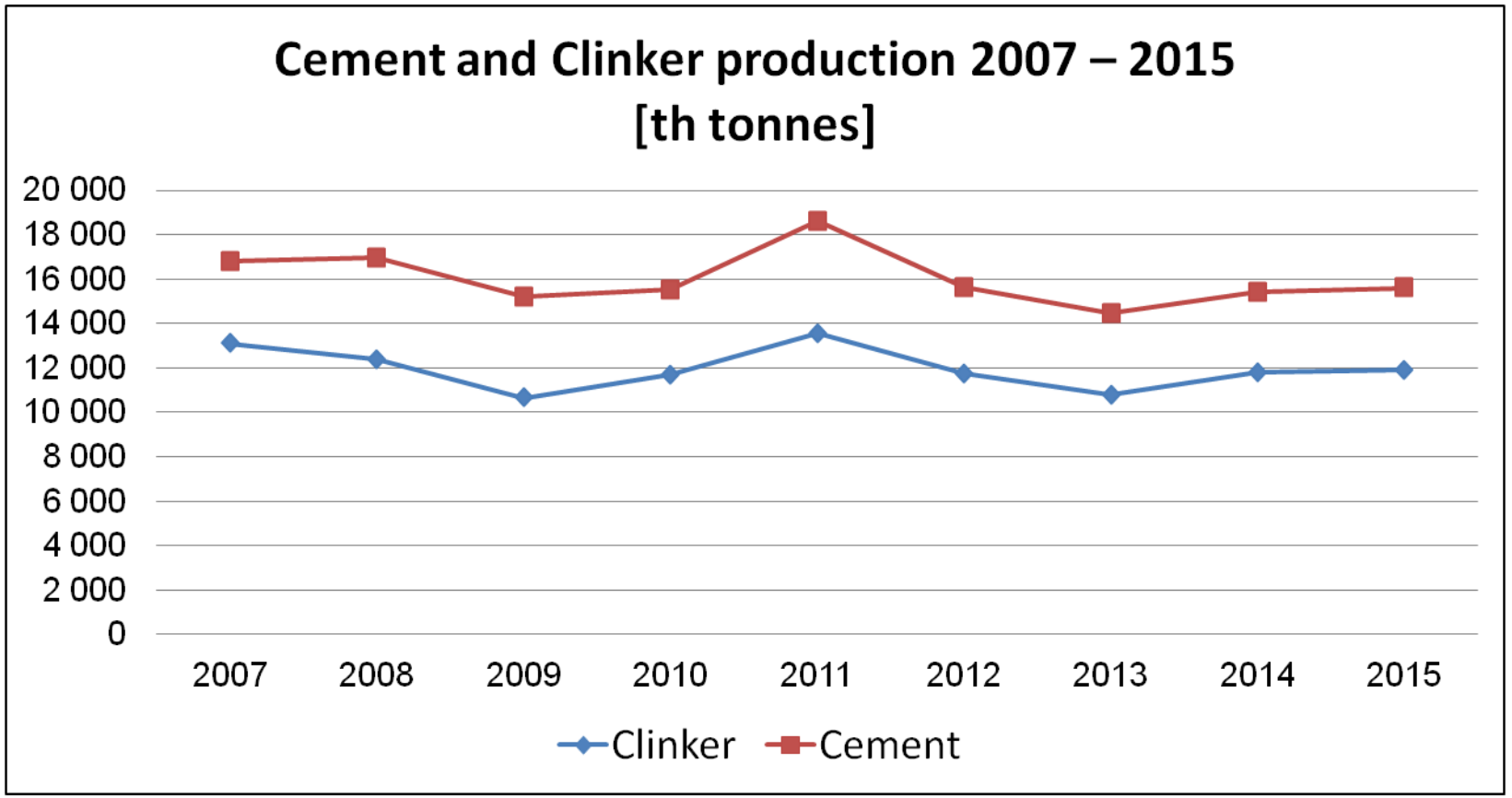
Cement industry in Poland
Cement Production



Cement industry in Poland
Cement and Clinker production



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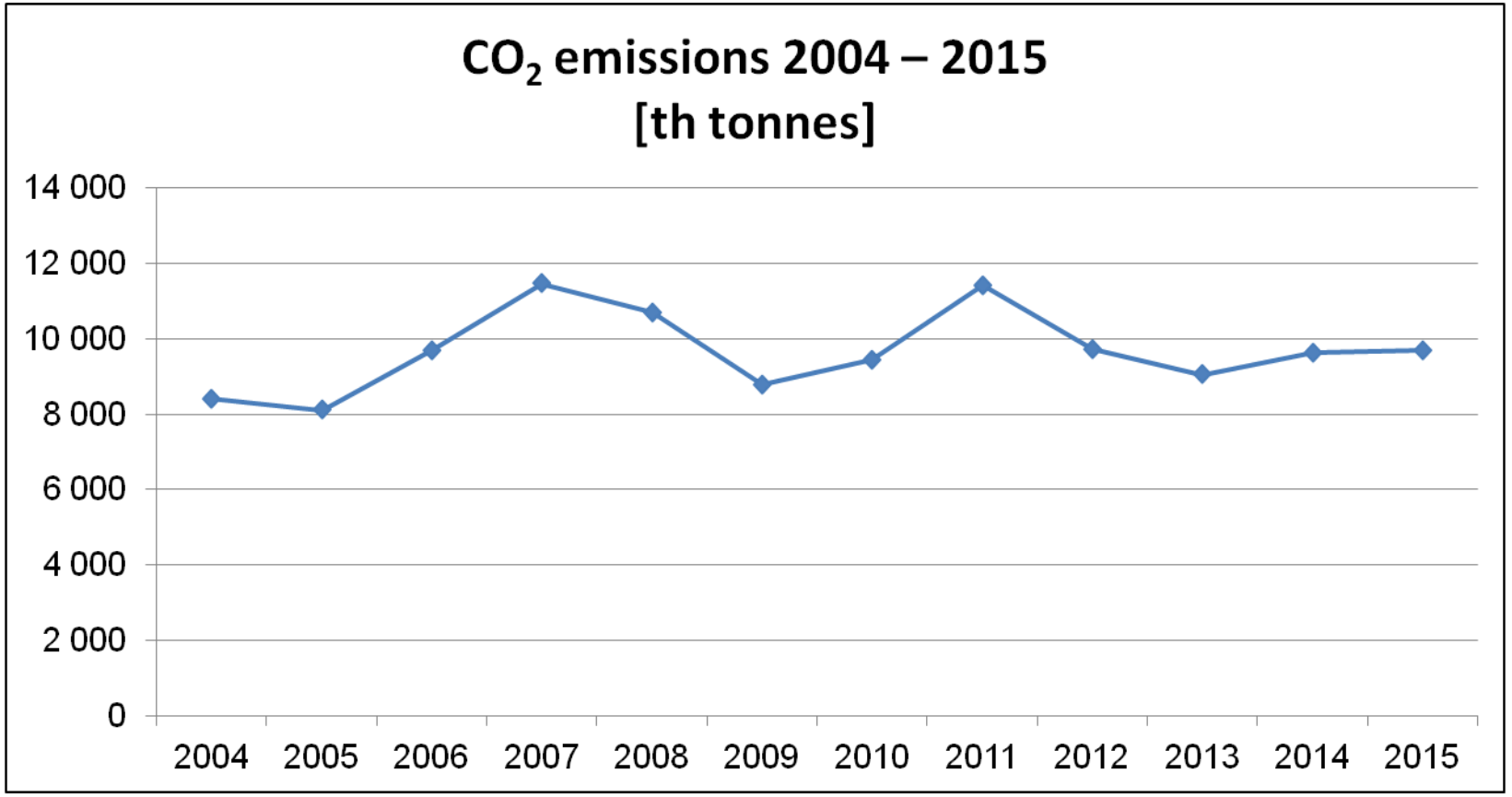
Cement industry in Poland
CO_2 emissions



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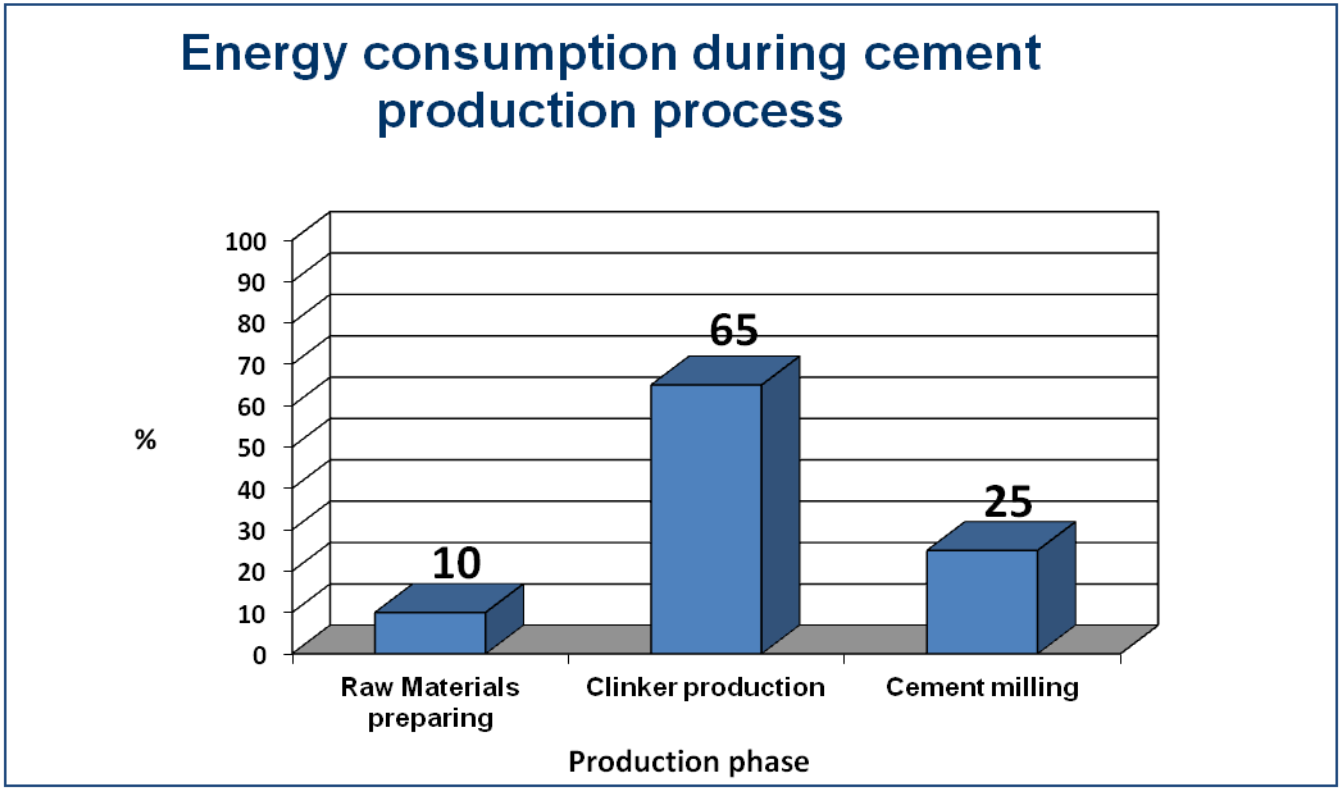
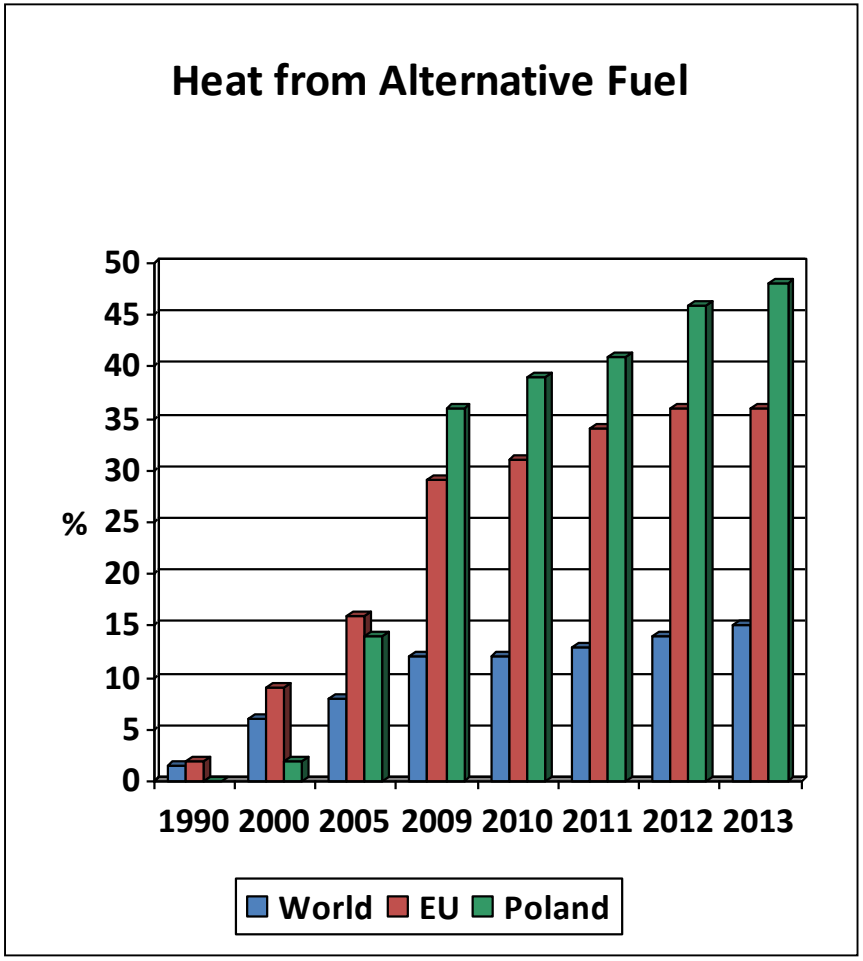
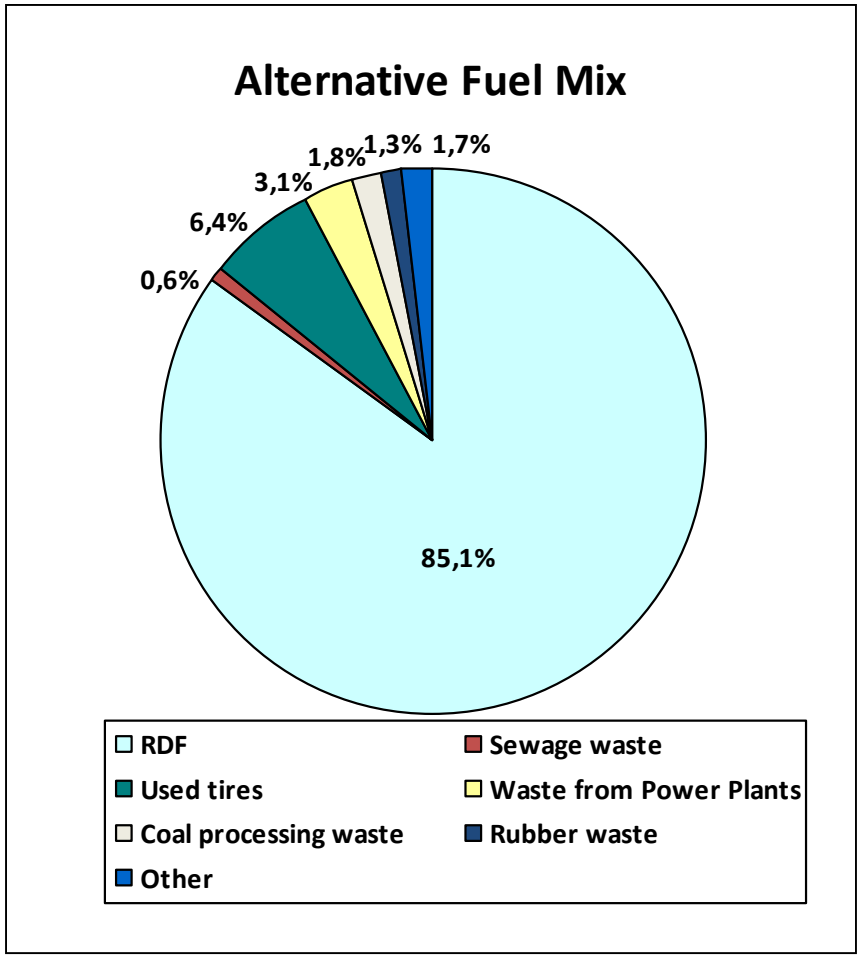
Cement Production Energy consump[tion



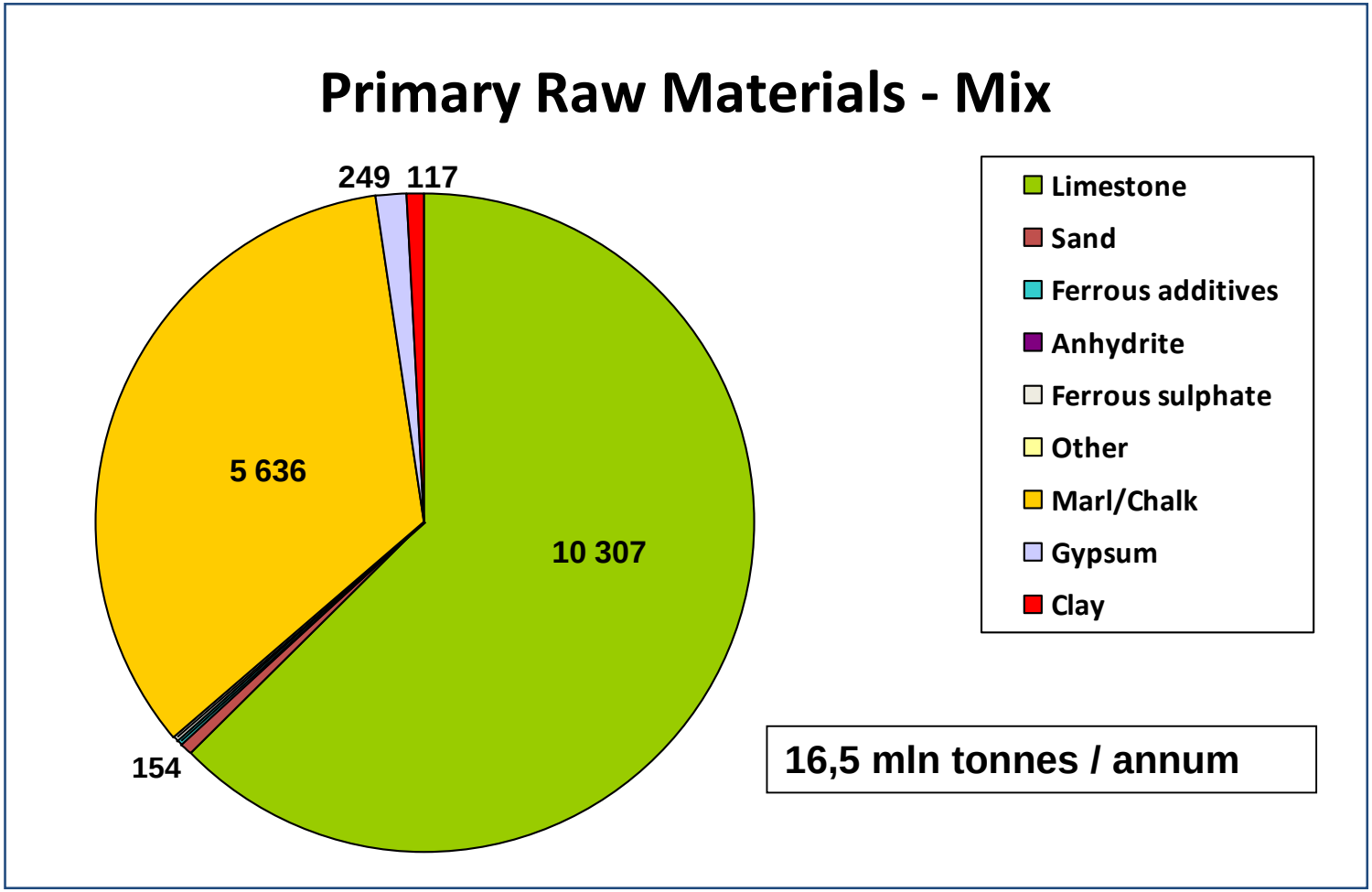
Depending on raw materials and technology used cost of energy represents **20% ÷ 40%** of total variable cost of cement production

Cement industry – Alternative fuel





Cement industry
Primary Raw Materials



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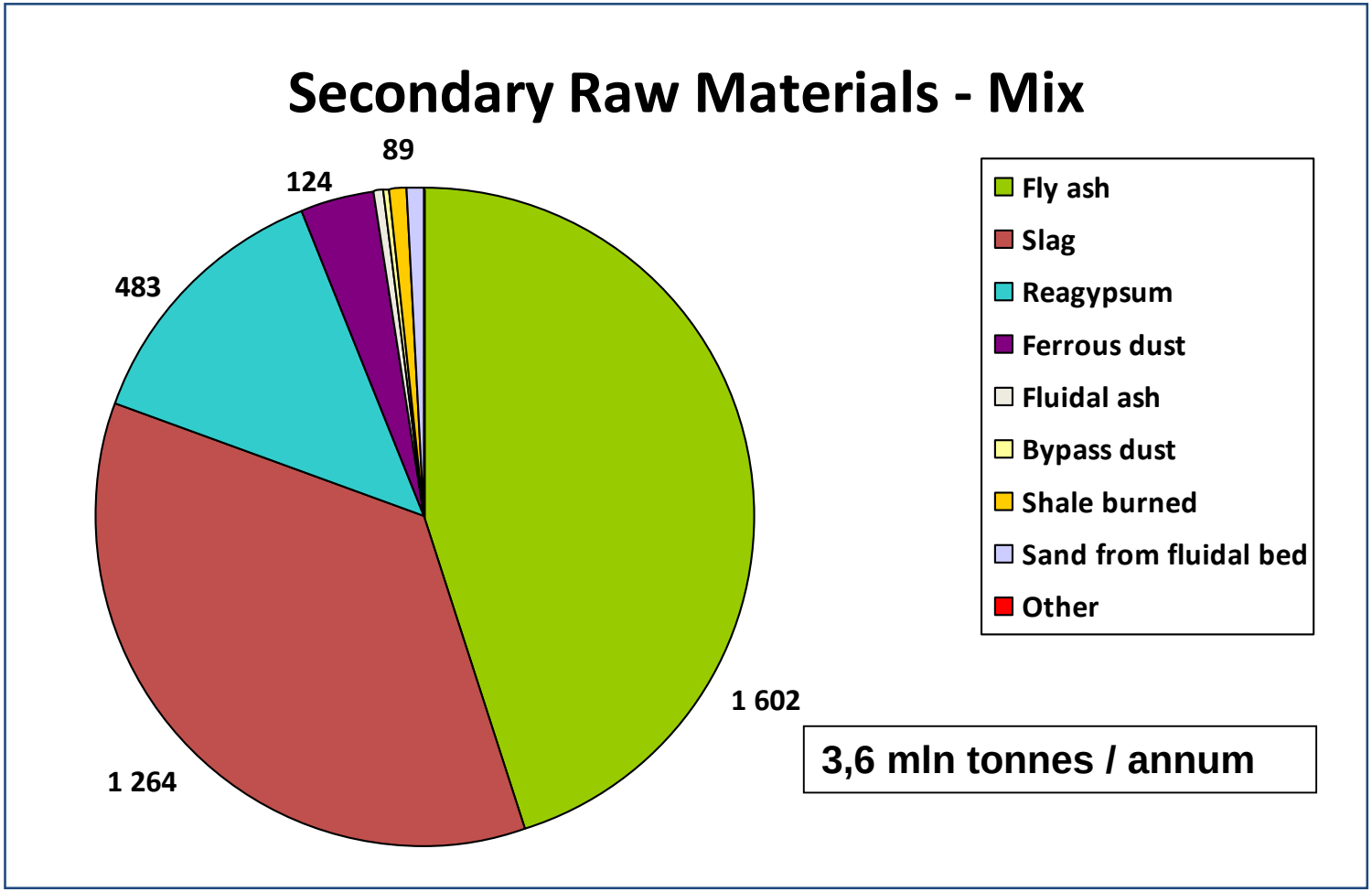
Cement industry
Alternative Raw Materials



Cement industry in Poland
Important facts

- Waste treatment benefits
  - In 2012 1,1 Mtonnes of waste were co-processed in Poland (46% subsitution rate)
  - The cement industry reached 60% substitution level in 2016 (unofficial information yet)
- CO_2 reduction
  - Use of waste-derived alternative fuels abated emission of 1,8 Mtonne of CO_2 in 2012
  - At 60% substitution rate, the savings increase by 35% to 2,5 Mtonne of CO_2 annually

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Cement industry in Poland
Important facts

- Energy production and coal savings
  - Polish cement industry replaced over 700 ktonnes of coal in 2012
  - With substitution level 60% in 2016 1mln tonnes of coal were replaced
  - The 1,2 Mtonnes RDF processed in 2012 by the cement industry is equivalent to between 660 M EUR and 1,2 bln EUR in Waste to Energy plant expenditure
  - In 2016 additional 500 ktonnes of RDF processed led to further savings of 275 M EUR to 500 M EUR in WtE plants

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Cement industry in Poland
Important facts

- 2,5 bln € invested in cement industry over past 20 years
- 1 € invested in cement industry creates 2,8 € in other sectors
- 25.000 jobs (directly and indirectly)
- 400 mln €/annum – taxes paid to central and local budgets
- 6 mln tonnes/annum – use of alternative fuels and secondary raw materials

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Cement industry in Poland Achievements & Threats

Polish Cement Industry:

- Implemented privatization, restructuring and complex modernisation programs in 1990 – 2015
- Invested in highly efficient, low energy consuming production technologies becoming one of the most modern and environmentally friendly industries in the EU
- Successfully compete on the EU and global markets
- Ready to further invest to maintain competitiveness and growing environmental requirements
- Exposed to indirect CO_2 emission negative effect due to coal-based fuel mix in Poland and growing energy prices (Polish energy sector will be coal-based still for long time)
- Vulnerable to Carbon Leakage

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How to contact ClimaEast

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