



MINISTRY
OF THE ENVIRONMENT



COAL AND CARBON CAPTURE & SEQUESTRATION

CONFERENCE ENERGY IN POLAND

Tomasz Chruszczow
Special Envoy for Climate Change
Paris, 10 June 2011





COAL AND CARBON CAPTURE & SEQUESTRATION

Overview

- Energy & Industry Sectors in Poland
- Our GHG emissions
- CCS - Gaps and Concerns
- EU Climate Policy
- Short conclusions



Main activities in energy and industry sectors

- Enhancing the energy efficiency,
- The development of the use of renewable energy sources, including biofuels ,
- The improvement of the technical standards for equipment and facilities,
- The implementation of the best available techniques,
- The promotion of environmentally sound and eco-efficient practices and technologies in industrial activities and supporting the development of environmentally friendly and technically viable methods for reducing greenhouse gas emissions.



Main challenges for energy policy

**High demand
for final energy**

**Inadequate generation
and transmission
infrastructure**

**Significant dependence
on external supplies of
natural gas**

**Commitments on
environment and climate
protection compel us to take
decisive actions**

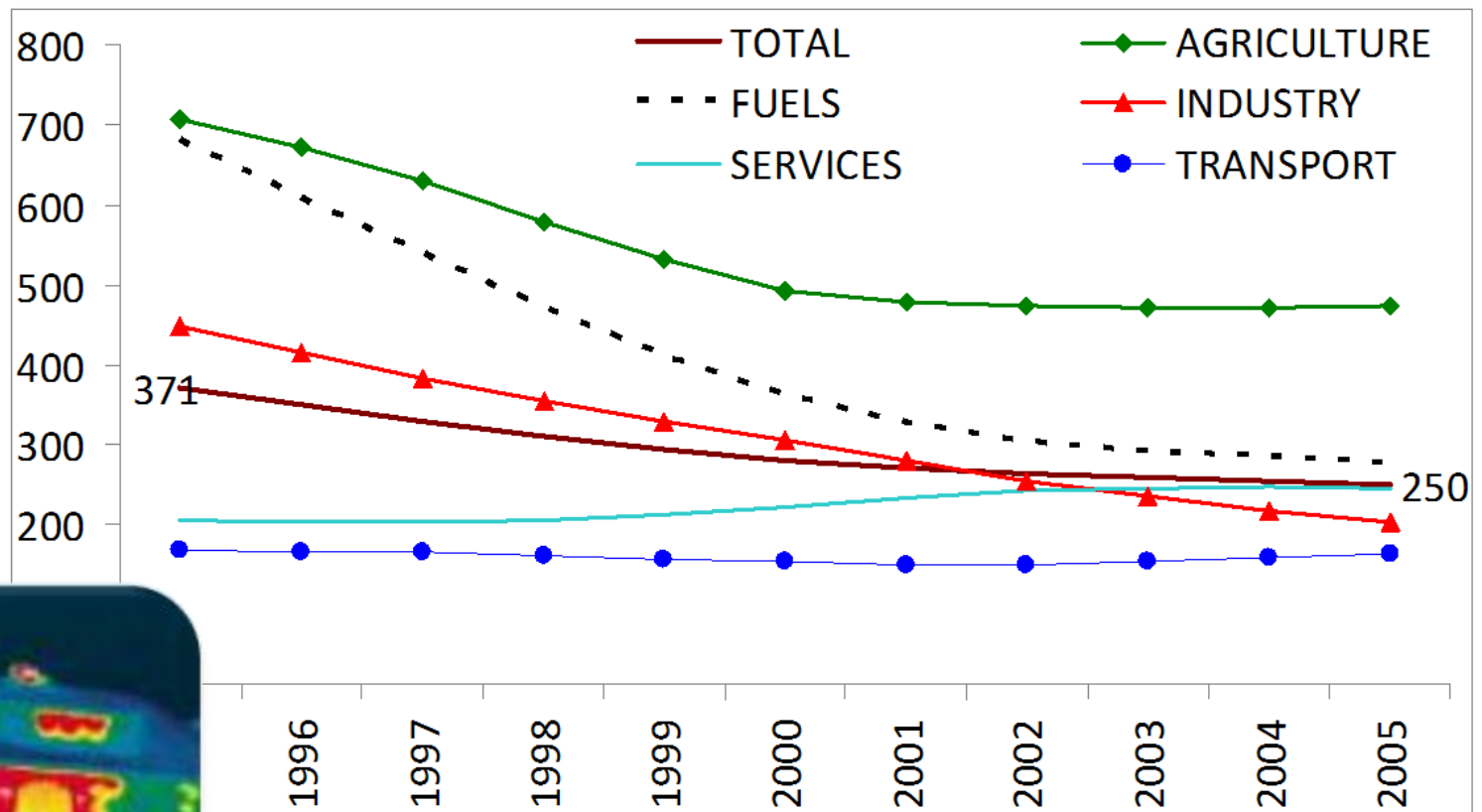
**Almost full dependence
on external supplies of
crude oil**





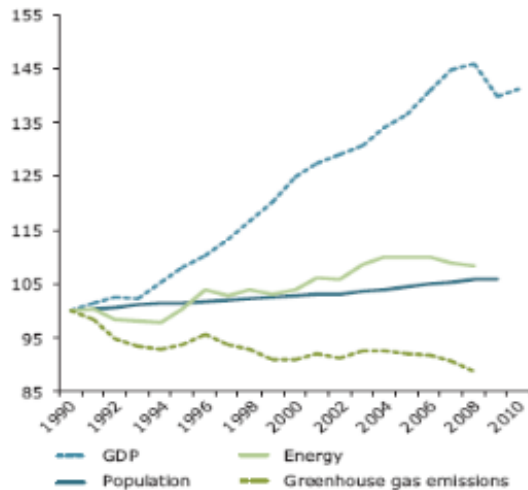
PL energy efficiency of GDP

Energy intensity of Poland as a percentage of the EU15 level



What should come first – direct emission cuts
or ... energy efficiency improvement?

Index, 1990 = 100 (EU-27 — cumulative change)

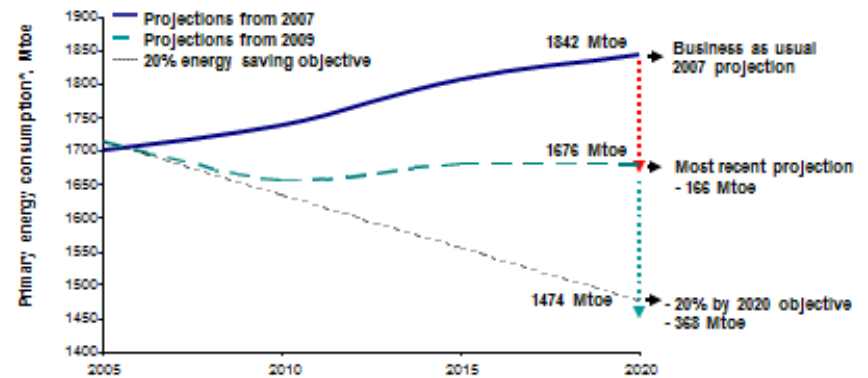


- EU emissions reduced by 16% between 1990 - 2009
- EU GDP grew 40%
- EU manufacturing grew by 34%
- EU on track towards the - 20% emission reduction target by 2020
- However, current policies would only lead to ca. - 40% GHG emissions by 2050

EU story

But we are not delivering energy efficiency target!

Is that mean that Europe had chosen outsourcing of the emissions and not efficiency?!

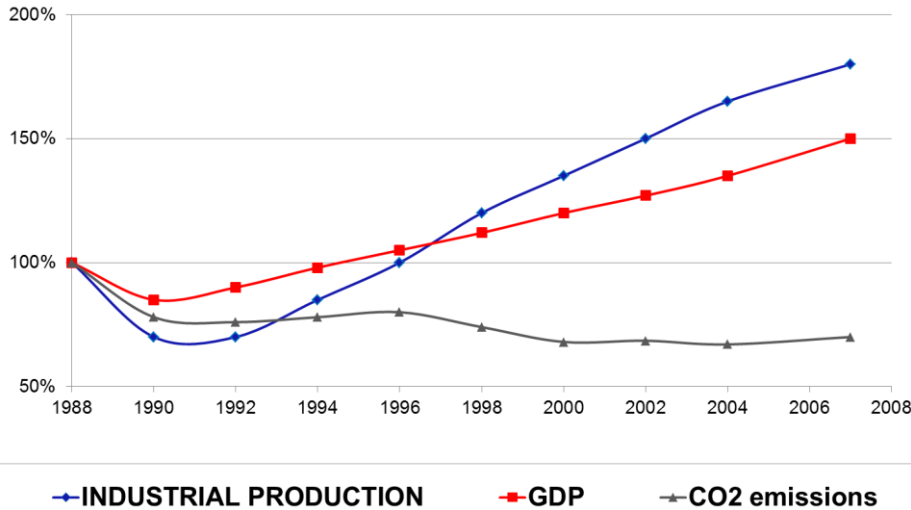


* Gross inland consumption minus nonenergy uses

Additional efforts are needed to achieve the 20% energy efficiency improvement. Current policies will achieve only 10% savings



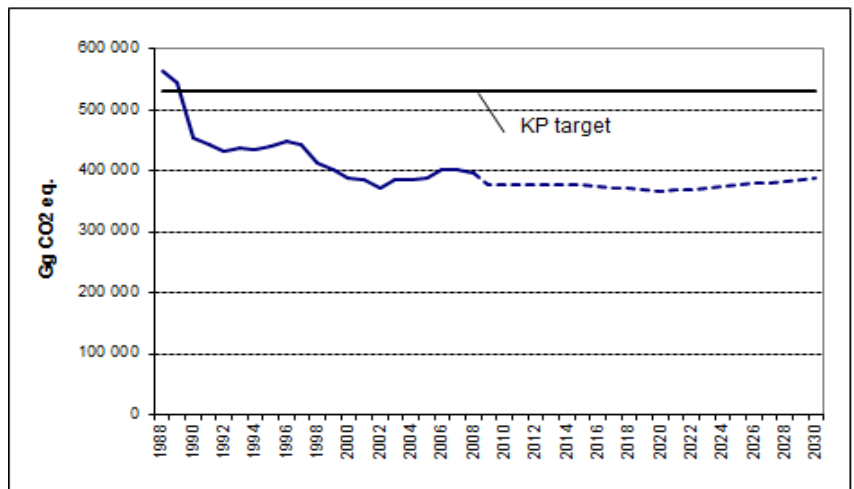
PL story



Economic growth decoupled from energy consumption and GHG emissions

It's permanent! - GHG emissions don't change despite of growing economy

Projected GHG emissions vs. KP target

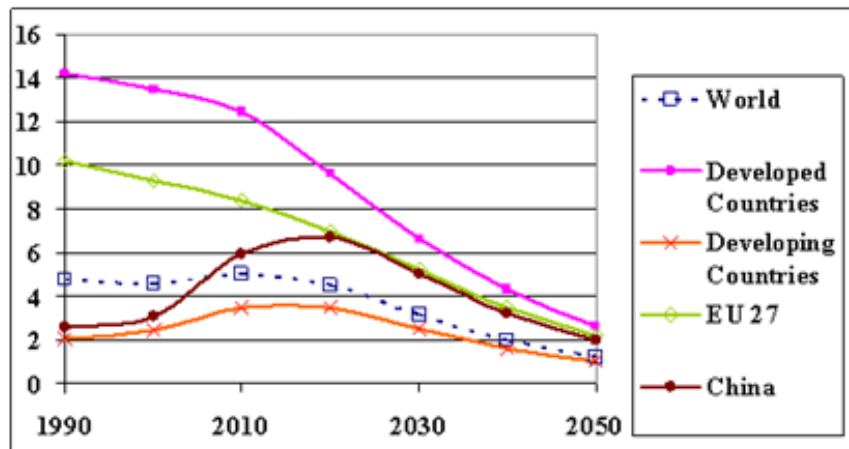




Global goals & challenges



Global climate action leads to
converging emissions per capita



The goal – 2 deg

All countries must engage in mitigation efforts

Developed must cut

DCs must change their development paradigm

Developed must assist the DCs in building capacity and technology transfer

Developed should pledge economy – wide reduction targets

DCs should develop and implement their NAMAs

By 2050 per capita emissions in both developed and developing countries should be nearly the same



European Commissions' Roadmap



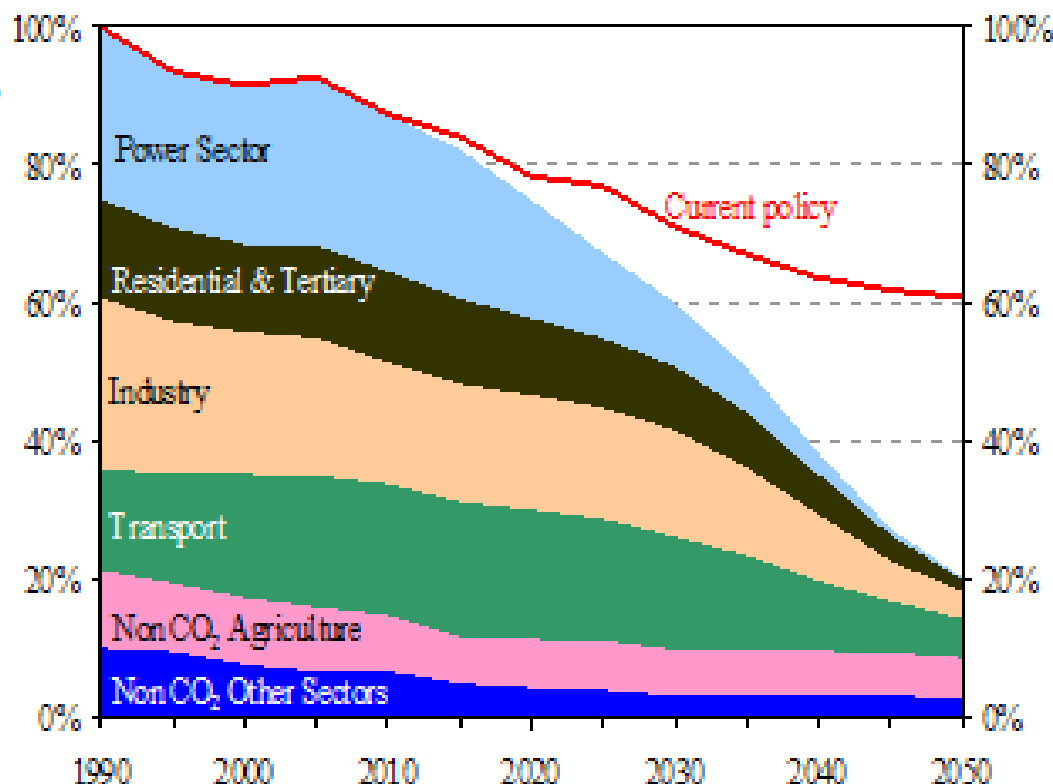
A cost-efficient pathway
towards 2050

80% domestic reduction in 2050 is feasible

- with currently available technologies,
- with behavioural change only induced through prices
- If all economic sectors contribute to a varying degree & pace.

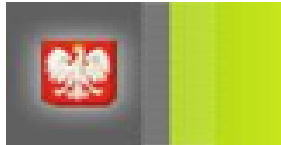
Efficient pathway:

- 25% in 2020
- 40% in 2030
- 60% in 2040



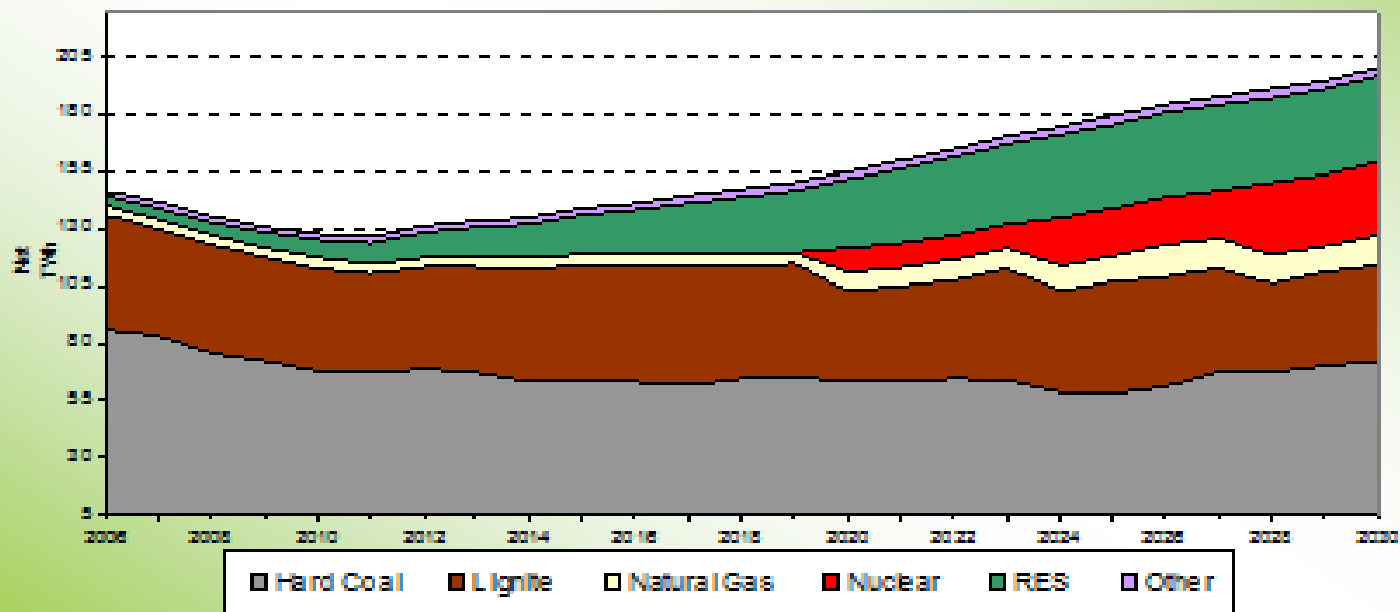


Can Polish Energy Policy deliver?



MINISTRY OF ECONOMY

Electricity generation by sources (TWh)





MINISTRY OF ECONOMY

Reducing the environmental impact of power industry

The main targets:

- Reducing emission of CO₂, SO₂, NO_x and dust
- Development of low-emission technologies



The main actions:

- Development of technologies which reduce the emission of pollutants, ex.: RES, high efficiency cogeneration, nuclear energy
- Development of clean coal technologies, including CCS installations and gasification of coal
 - Use all reasonable efforts to locate in Poland two CCS demonstrative power plants
 - Using the CCS technology to support crude oil and natural gas extraction
 - Intensifying research and development of the CCS technology
- Utilization of methane from mining sector for energy generation





CCS – the only solution?

CCS is one of the Clean Coal Technologies analysed

- Poland will be utilising coal and lignite as the strategic energy security assurance.
- Polish Energy Policy will deliver substantial change in our energy mix.
- CCS is the technology to be developed and demonstration projects should allow for gaining the necessary experience.
- Energy cost of CCS diminishes environmental benefits, thus challenging economic balance on installation level.
- Will probably become technically mature in 2030- 2035





CCS – the concerns

There are many concerns as well as „common knowledge” exists

- Economic – very high cost, and with no public money involved – not economically viable.
- Technical – storage in geological structures not yet tested (?) outside of oil wells or under the sea
- Public opinion’s mistrust
 - need to built new pipelines to transport the CO₂
 - need to convince local communities that CO₂ won’t hazardously leak





If we are serious about Climate

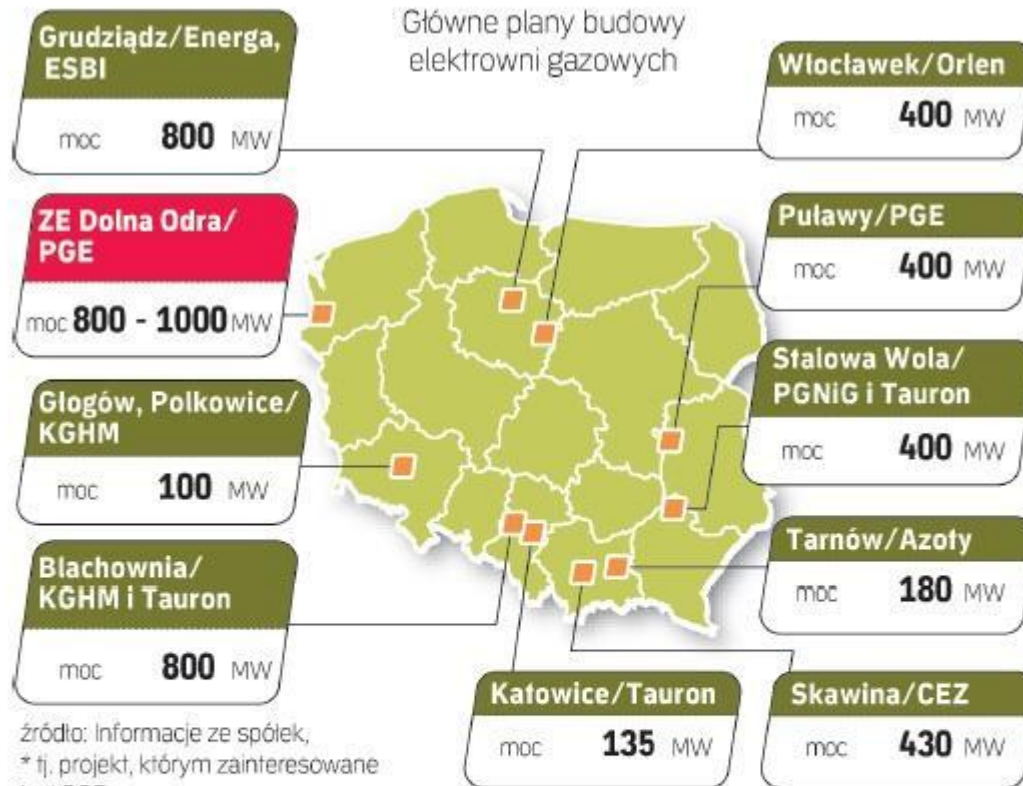
We need to start immediately and waiting for 2030 is not an option

- Need to research & develop new technologies for industry.
CCS for process emissions – might not be possible because of the scale of the process. Unless we want industry to disappear.
- Gas fired plants – could be quick solution as their specific emissions per MWh are around 40% comparing to lignite supplied units
- Other energy technologies e.g. – subterranean gasification, IGCC – deliver significant reductions at competitive (to CCS) cost and are easy to digest by the social partners





Gasification of power generation



➔ MOGĄ POWSTAĆ BLOKI O ŁĄCZNEJ MOCY 4,5 TYS. MW.

Illustration:
Rzeczpospolita





Conclusions

- CCS will be tested and demonstration projects shall provide us with more data allowing for the informed decision.
- Cost is a real obstacle and demonstration projects must be supported with extra funds (adding to NER300 grants)
- Public concerns and lack of relevant information makes investment decisions even more difficult.
- CCS is not the only CCT and we must invest in R&D to improve energy performance and reduce emissions of generators, industrial users as well as households
- Transport sector remains big challenge to the goals of CC policy





MINISTRY
OF THE ENVIRONMENT



Thank you ?



MINISTRY
OF THE ENVIRONMENT



THANK YOU FOR YOUR ATTENTION

TOMASZ CHRUSZCZOW

tomasz.chruszczow@mos.gov.pl

Paris, 10-06-2011