

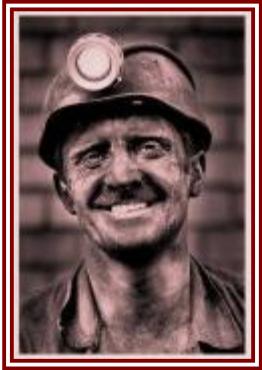


PUBLIC BOARD OF THE
NATIONAL EMISSION
REDUCTION PROGRAM

How to win on efficiency?

Prof. Krzysztof Żmijewski
Public Board of
National Emission Reduction Program
Secretary General

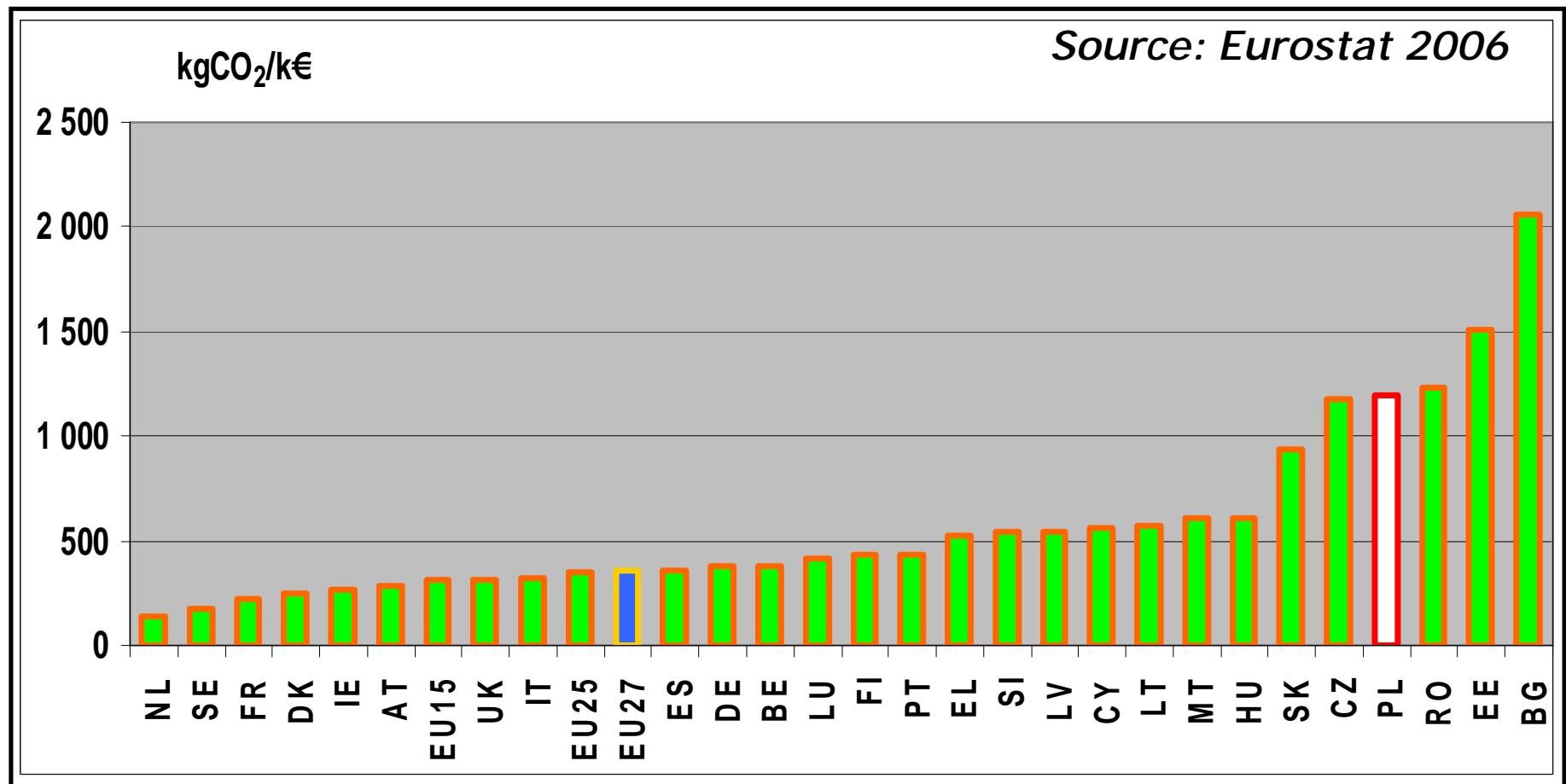
WASHINGTON DEC 2009



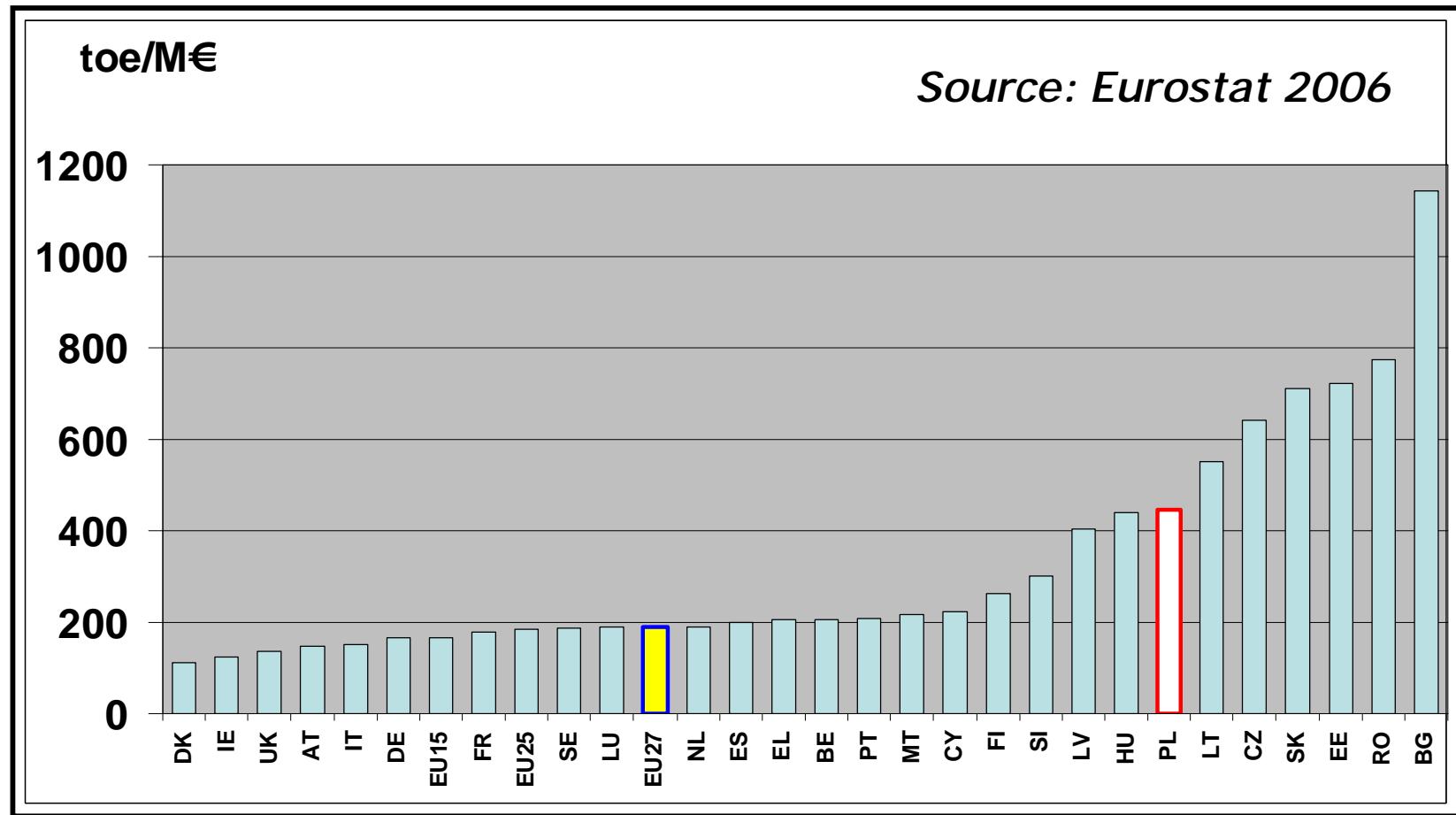
We were born black



CO₂ EMISSIONS



ENERGY EFFICIENCY

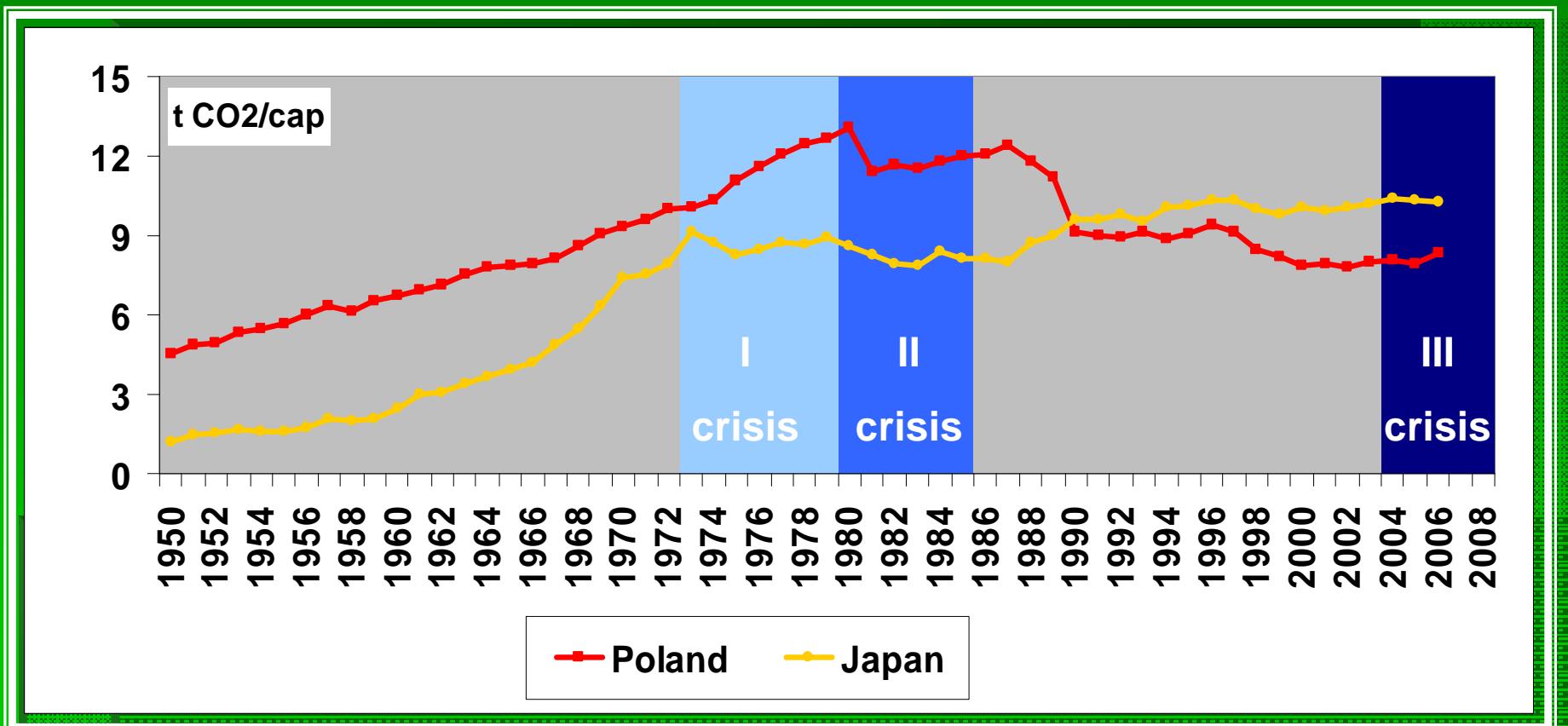




But we go green

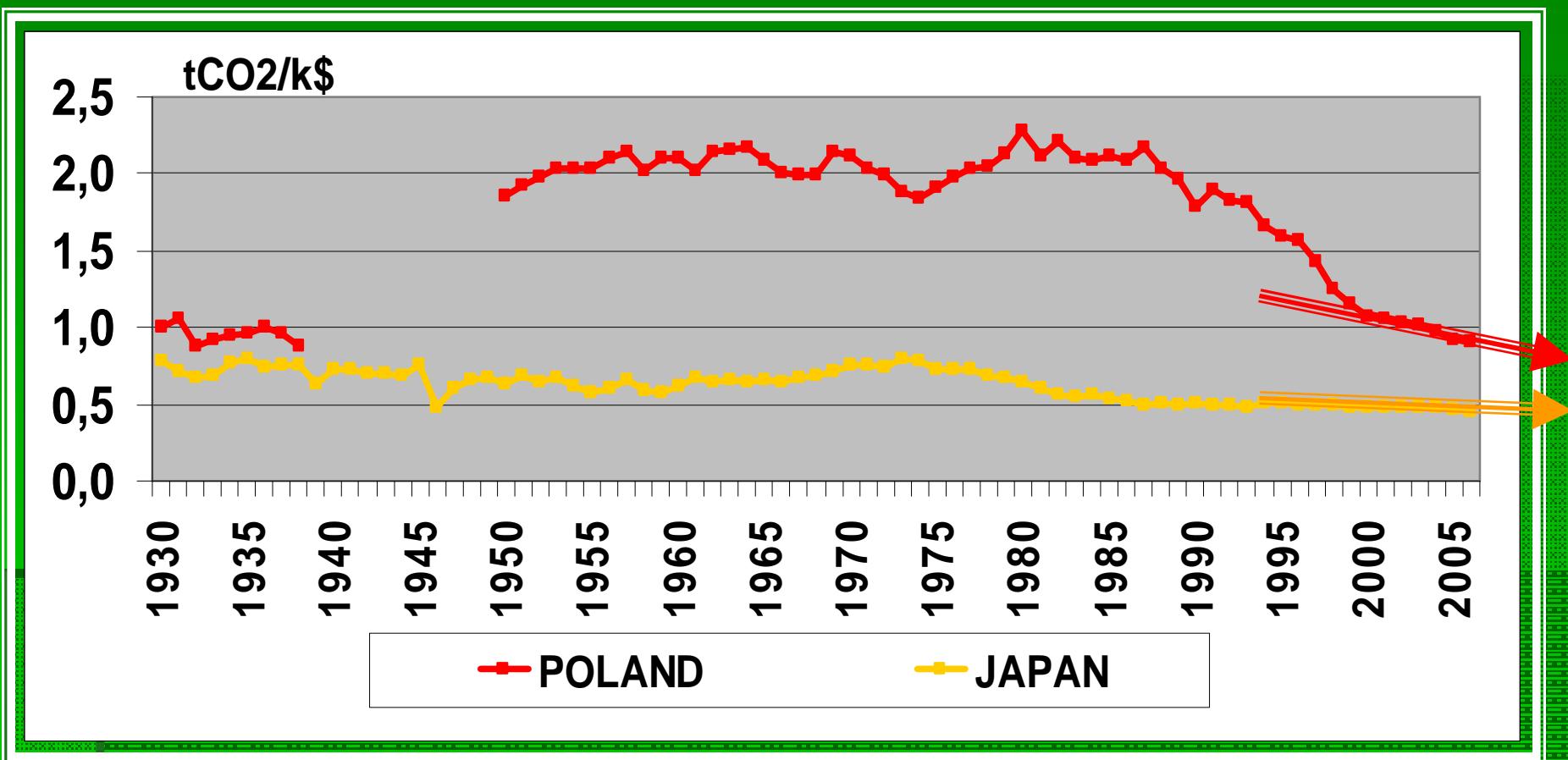


We already went green



emission per capita is the most ethic measure ₆

We are approaching! (~2025-30)



emission per GDP shows only the structure of the economy

STRATEGIC OBJECTIVES

A dilemma or synergy?

Poland's perspective

IMPROVEMENT
OF ENERGY EFFICIENCY
OF THE POLISH ECONOMY

SIGNIFICANT REDUCTION
OF CO₂ EMISSION

EU's perspective



How to achieve energy reduction?

Ep mln toe	Consum- ption	BAU=	EEAP=	Reduced consum- ption, Ep
		104%20 05	80%BAU	
2005	2020	2020	2020	
Europe	1811,3	1890,0	1512,0	16,53%
Poland	93,7	97,8	78,2	

This is a very significant requirement, yet now only a moral one.

It is easier to improve the efficiency than to reduce energy consumption!!!



Drivers

Two directions

End-use
energy

- ENERGY EFFICIENCY DIRECTIVE 2006/32/EC
9% **END-USE ENERGY**
IN 2016, i.e. 4 596 ktoe

Primary
energy

THE PROGRAMME 3x20 BY
2020 WITHIN THE SCOPE
OF **PRIMARY ENERGY**
USE EFFICIENCY

Energy use
efficiency

Economic
efficiency

DIRECTIVE 2006/32/EC

- q determination of indicative targets, as well as development of mechanisms, incentives and institutional, financial and legal framework necessary to remove existing market barriers and market imperfections hampering energy end-use efficiency;
- q creation of conditions for development and promotion of energy services market and for provision, to end users, of other energy efficiency improvement measures



National Programme of Emission Reduction by 2020:

!

National Energy Efficiency Programme

!

National Programme of RES & Energy-oriented Agriculture

?

National Clean Coal Programme

New paradigm of energy sector

Availability of emission allowances becomes more important and expensive (30 €/MWh) than availability of fuels (20 €/MWh).

Variable cost dominates over fixed cost, and product cost dominates over service cost



National Energy Efficiency Programme



Energy saving targets:

National energy saving targets:

- 2% by 2010
- 9% by 2016 (Directive 2006/32/EC)
- The ambitious target of EU's energy consumption reduction by 20% in relation to 2020

Support mechanisms:

- Energy efficiency certificates
- Voluntary commitments
- Other mechanisms

Energy Efficiency Act:

1. General provisions
2. Energy saving targets
3. National Energy Efficiency Plans
4. Model role of the public sector
5. System of energy efficiency certificates
6. Energy audits
7. Obligations of energy companies
8. Supervision, monitoring and reporting
9. Financial penalties

10. Voluntary commitments
11. Energy Agency
12. Energy Efficiency Fund



The Act determines:

- Institutional, financial and legal frameworks as well as mechanisms and incentives necessary for removing existing barriers hampering energy efficiency improvement
- Energy efficiency improvement targets
- Rules of support to energy services and other energy efficiency improvement measures

Energy efficiency certificates – key information:

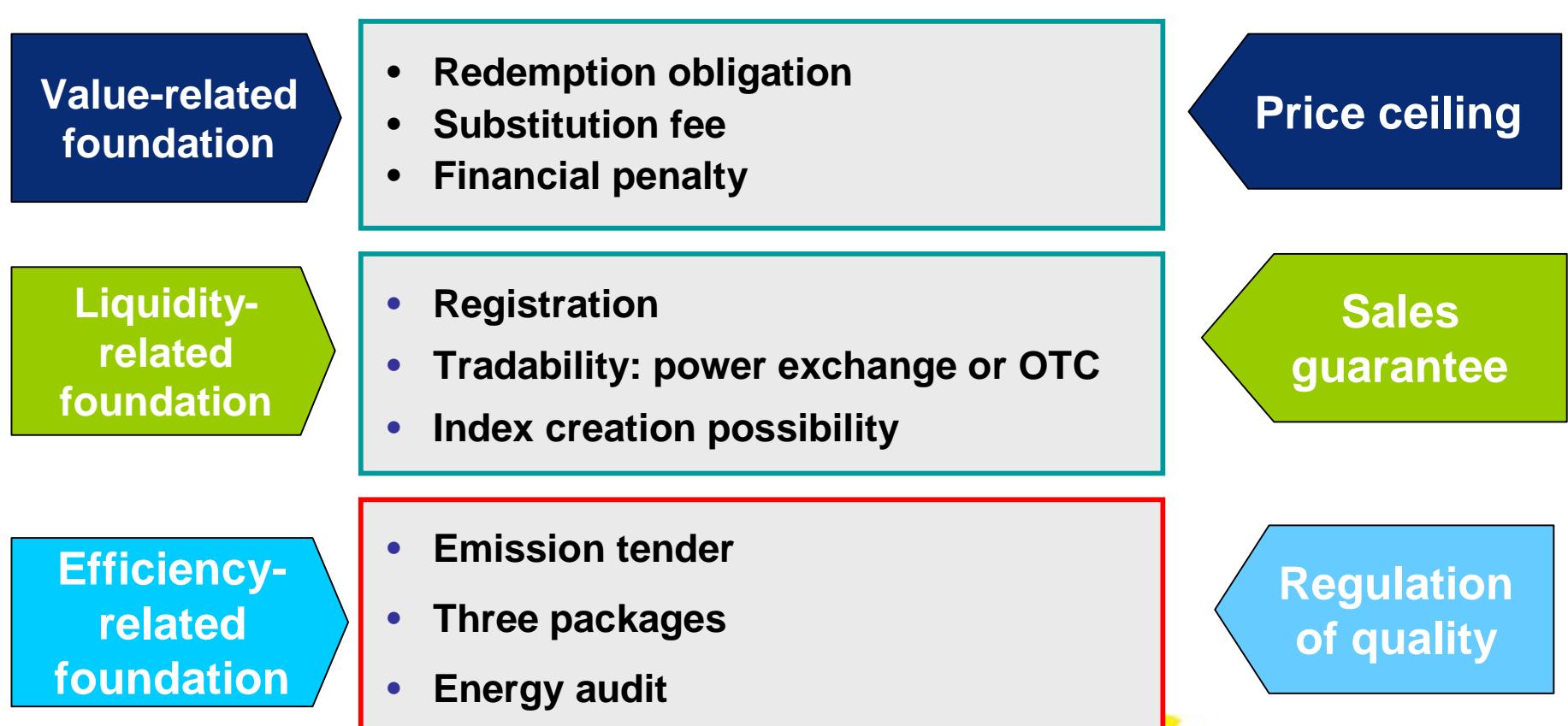
- Mechanism stimulating pro-efficiency investments
- Certificates granted for investments aiming at:
 - reduction of energy consumption,
 - increase of energy generation efficiency,
auxiliary services only
 - reduction of losses on transmission and
distribution.
- Property rights from energy efficiency certificates
may be sold on Power Exchange

White certificates – a catalogue, an audit, and a tender

- Catalogue of pro-efficiency investments
- Obligatory audit: full-scope or *proforma*
- Number of allocated energy efficiency certificates determined as a result of tender procedure
- The tender is announced by the President of the Energy Regulatory Office, and is implemented by *TGE S.A. [Polish Power Exchange]*

White Certificates system's foundations

Three dimensions



RESULTS

Synergy !

Poland's perspective

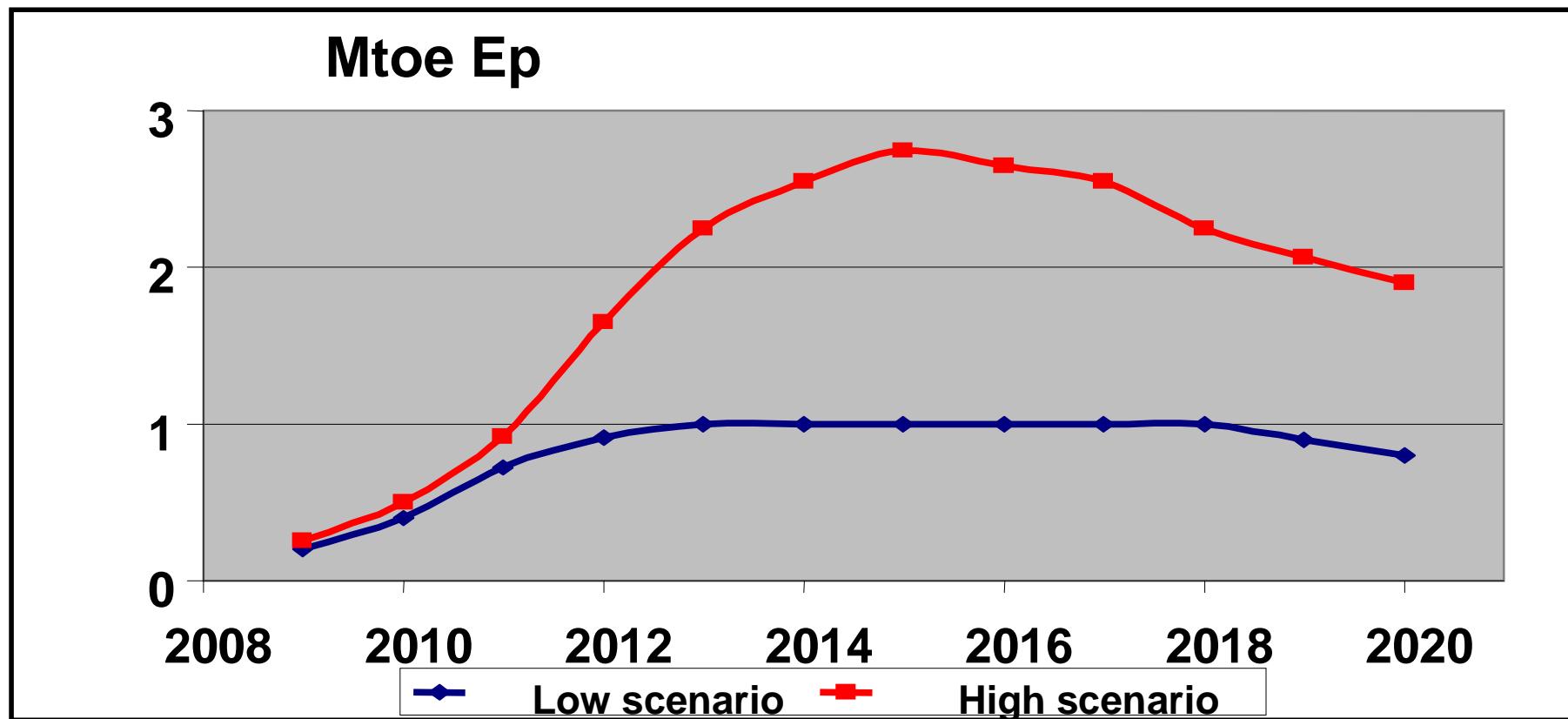
IMPROVED ENERGY
EFFICIENCY OF THE
POLISH ECONOMY

ACHIEVEMENT OF
SIGNIFICANT
SHORTENING OF SPBT

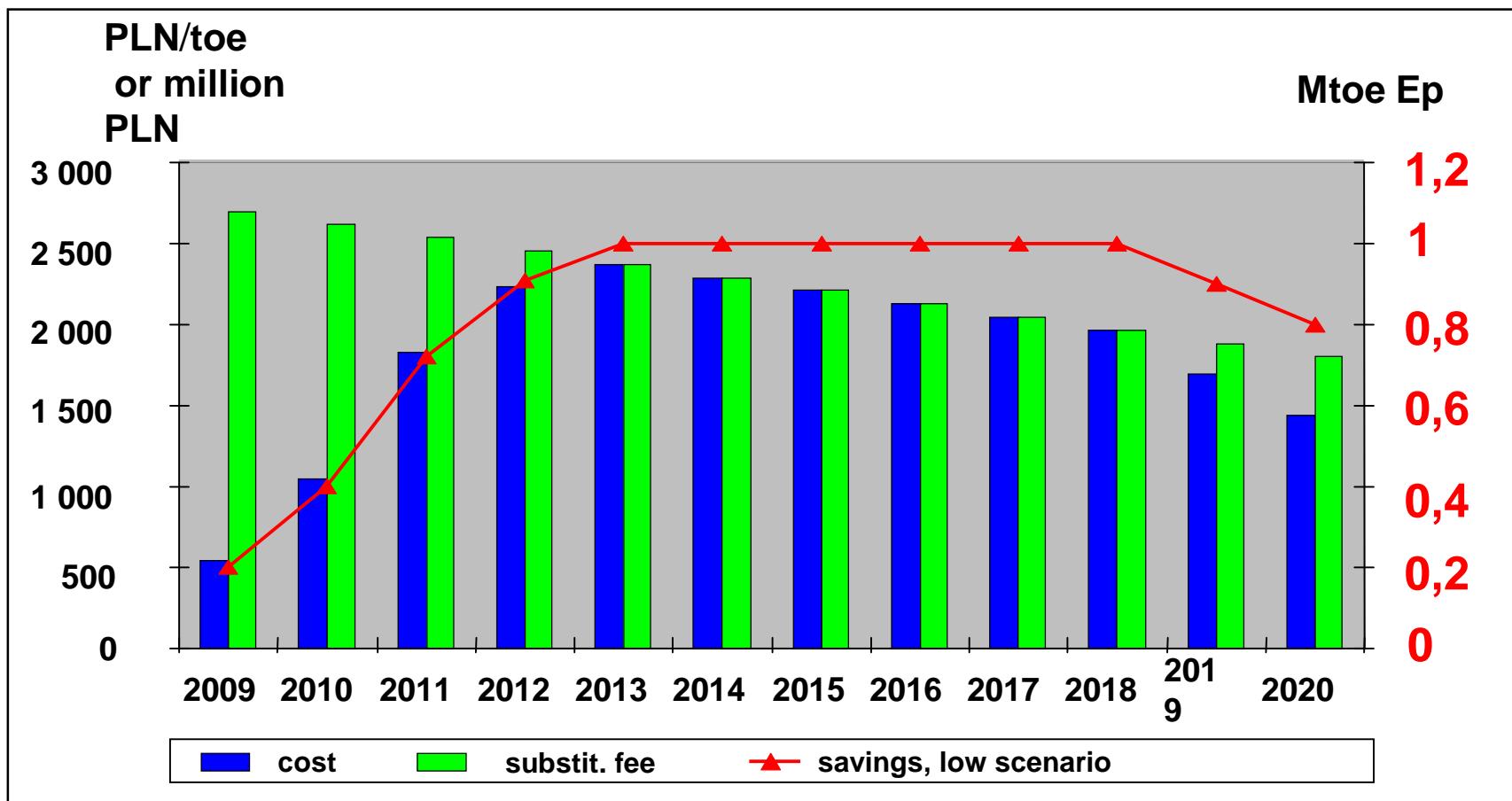
Investor's perspective



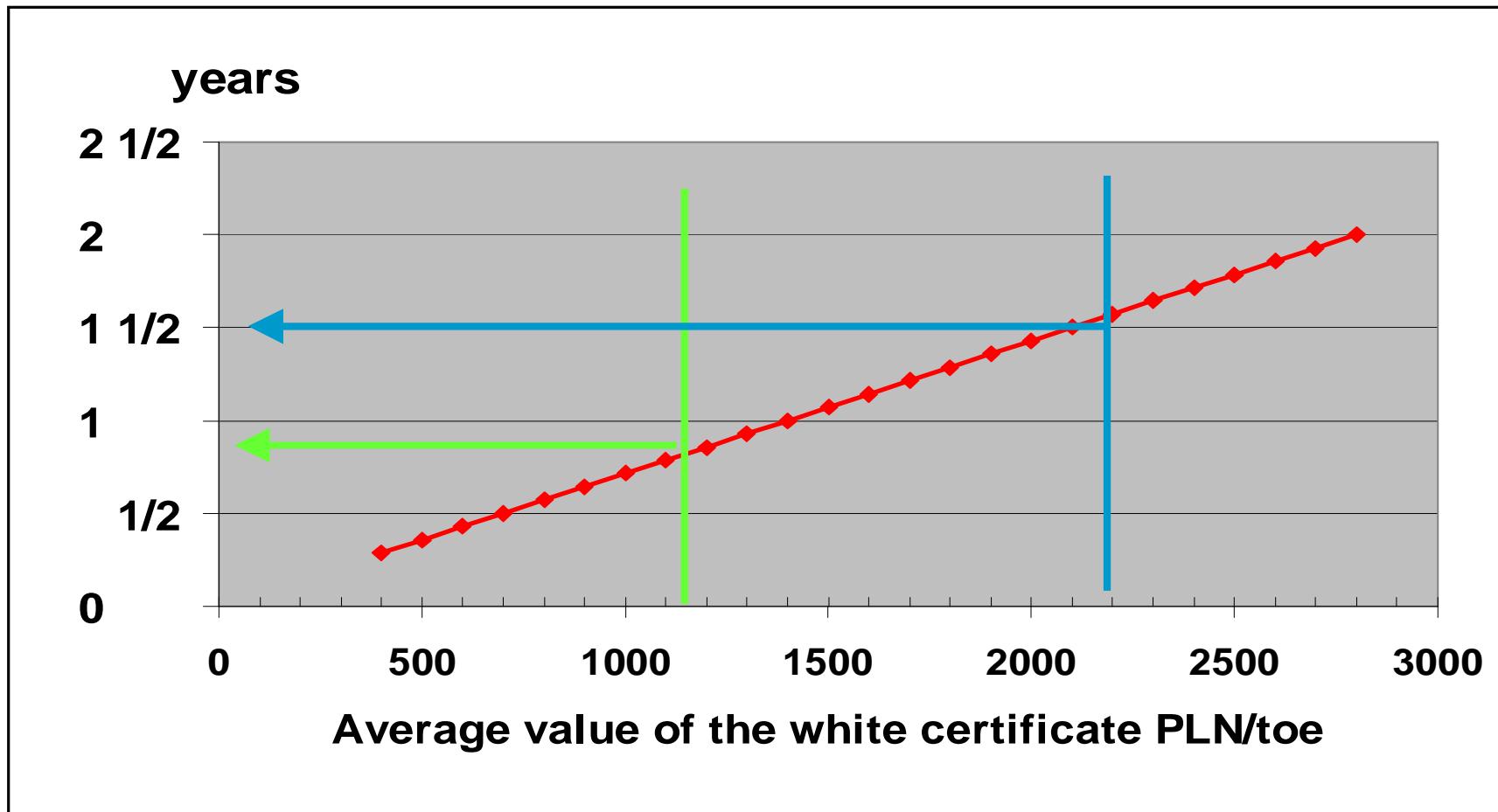
Primary energy savings level corridor



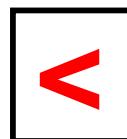
Simulation of low scenario



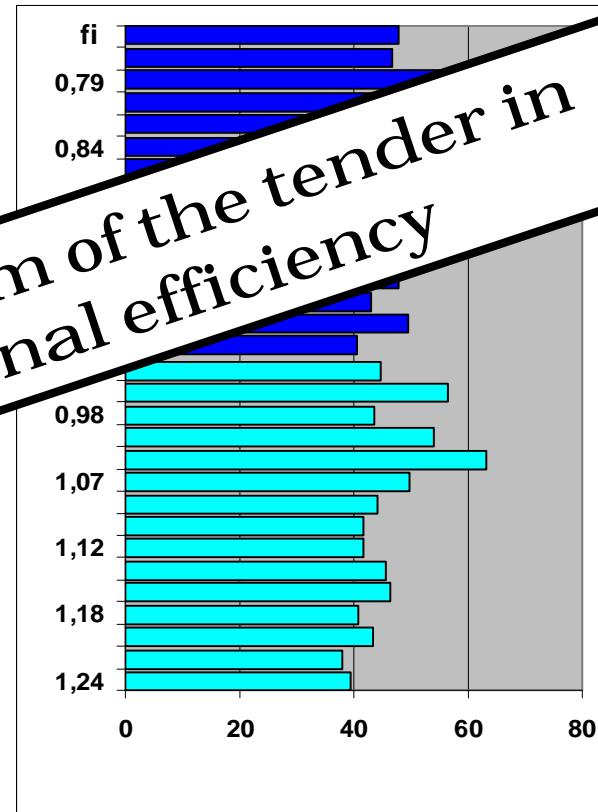
Shortened investment payback time



Certified energy



Saved energy



We created the mechanism of the tender in order to rise its internal efficiency

644 Mtoe

$\Phi_{gr} = 0,96$

693 Mtoe



Voluntary commitments

Definition

- Concluded between governmental or self-governmental administration bodies and interested entities

Scope

- The commitment will determine rules and conditions on which the interested entity will have to implement a given pro-efficiency project

Financing

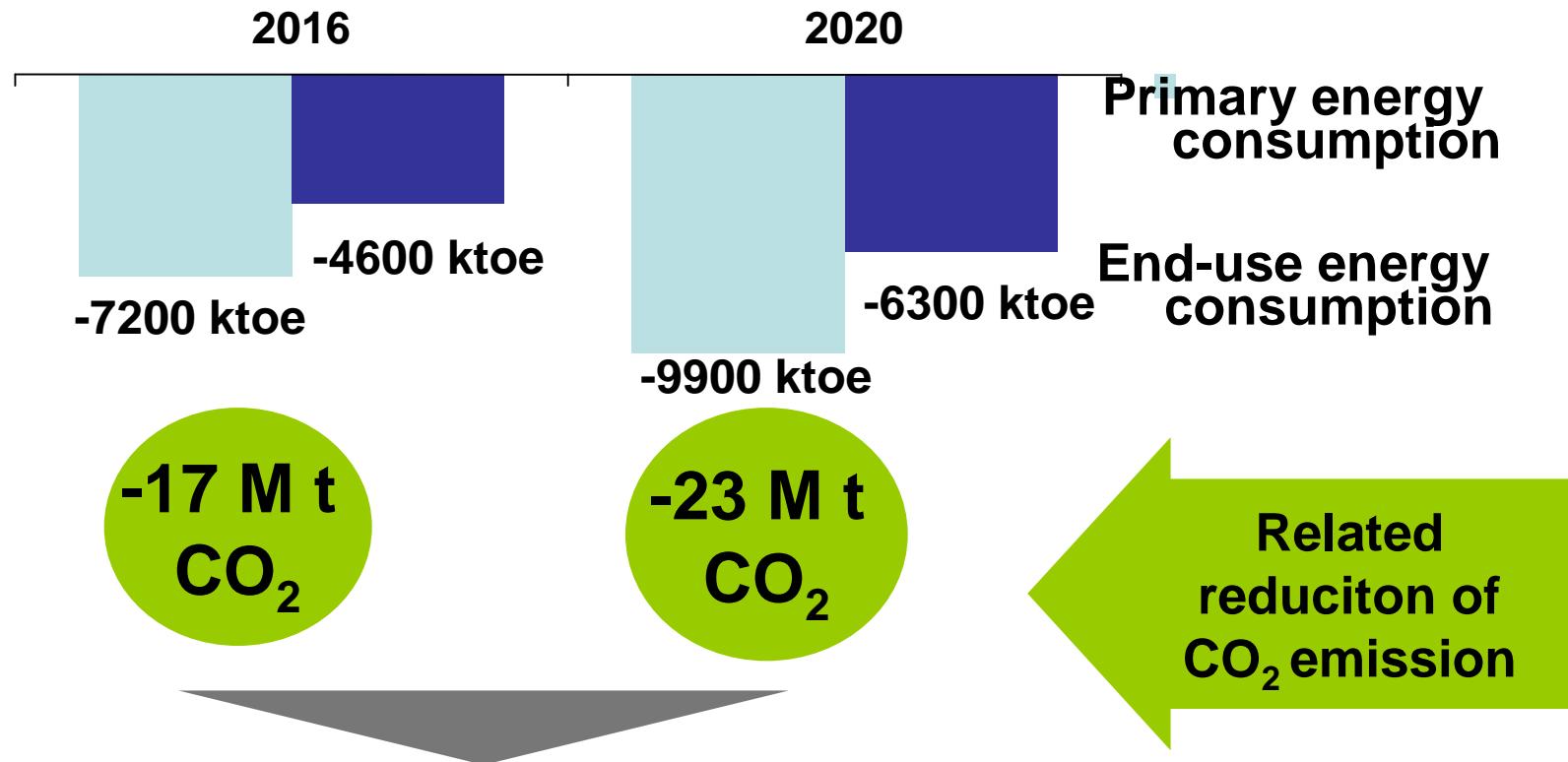
- Support financed out of part of income from the substitution fee on white certificates



Results & Conclusions



Expected results:

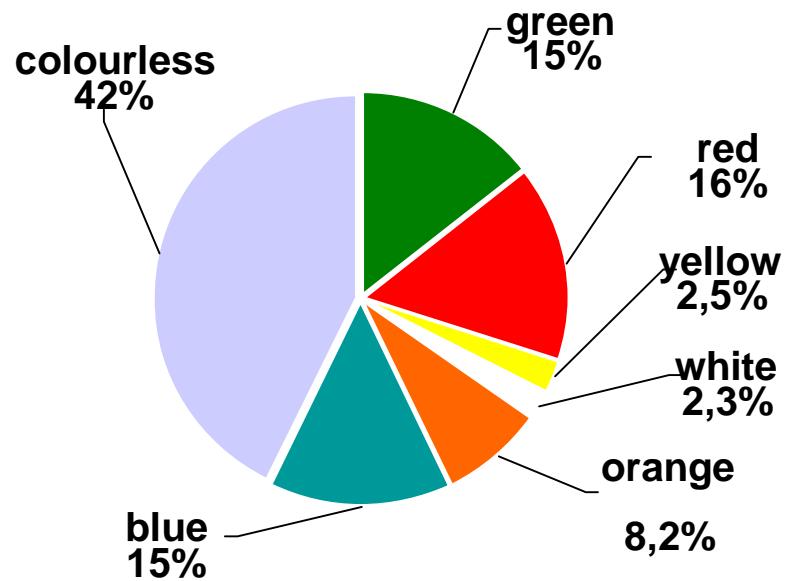


Energy security increase



The answer to the regulation dilemma:

rainbow certification –regulation through market tools



- green
 - renewable
 - cogeneration
 - gas & small CHP
- red
 - efficiency
- yellow
 - zero-emission
- white
 - super generation
- orange
 - without support
- blue
- colourless

Keep the dreams cost low

Conclusion 1

A

&

B

=

We are not the richest

but

We want to develop

We have to optimise
development costs



Conclusion 2

1

Everybody should have
a chance to try

2

but

3

The best ones should win

3

The „winning” criteria
should be publicly discussed



Conclusion 3

A

The competitors are
market companies

&

but

B

There is nothing wrong
in openly seeking profit

=

The process should be
open (transparent)



**Keep the dreams cost low!
Efficiency is the key.**

20

20

20

Thank you

Krzysztof Żmijewski



How to calculate the efficiency improvement?

- reduction of primary energy consumption by 20% by the year 2020, in relation to *Business As Usual*, as a result of efficiency improvement.
- efficiency is:
$$\frac{GDP}{E_p}$$
- yet, we do not know exactly what *Business As Usual* for 2020 is for Poland, as the Union has not defined it!

Efficiency improvement by 20% in relation to 2005

