

# Prospects for energy demand and energy efficiency in Poland

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**Secretary General**  
**Public Board for**  
**National Programme for Emissions Reduction**

**Energy in Poland.**  
**Current situation and prospects**

**10.06.2011**  
**Paris University DAUPHINE, CGEMP**



# Sustainable methods



**Environment**

**Economy**

**Society**



# Energy Efficiency

**Mitigation of misuse of energy**

**Improvement of efficiency of technology**

**Improvement of efficiency of generation**

**Transformation from industrial to post-industrial**

**Reduction or change of consumption pattern**



# Energy Efficiency

Actions	POLAND	EU-15	EIA
Mitigation of energy misuse	+/-	+/-	positive
Improvement of technology	+ BE - SME	+ BE + SME	positive
Improvement of generation	-	+	positive
Emigration of industry	-	+	negative
Reduction of consumption	+/-	-	positive



# In front of us

**Improvement of energy efficiency**

**Reduction of emissions**

**Infrastructure modernisation**

**Diversification of fuels & destinations**

**Reduction of energy consumption**

# New Marshall Plan

## Marshall Plan

13,5 billions \$<sub>1948</sub>

90 billions €<sub>2009</sub>  
22,5 billions € per year

## Modernisation and Emissions Reduction Plan

**265 ÷ 320 billions €**

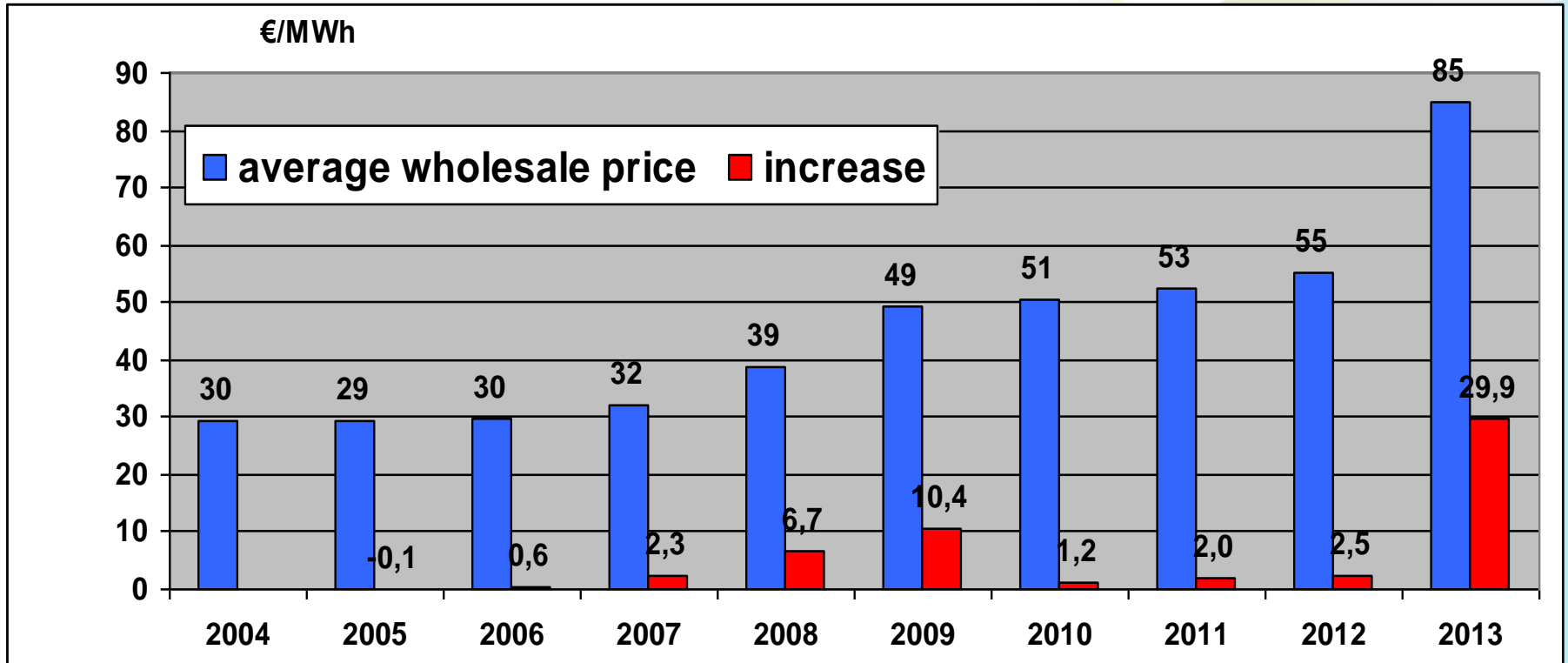
**13,5 ÷ 16 billions €**

# Program's dimension

billions €		sector
90	100	Electroenergetics
15	20	Gas
≈ 80	100	Heating and buildings
≈ 80	100	Transport
<b>265</b>	<b>320</b>	<b>by 2030</b>
13,5 per year	16 per year	anually

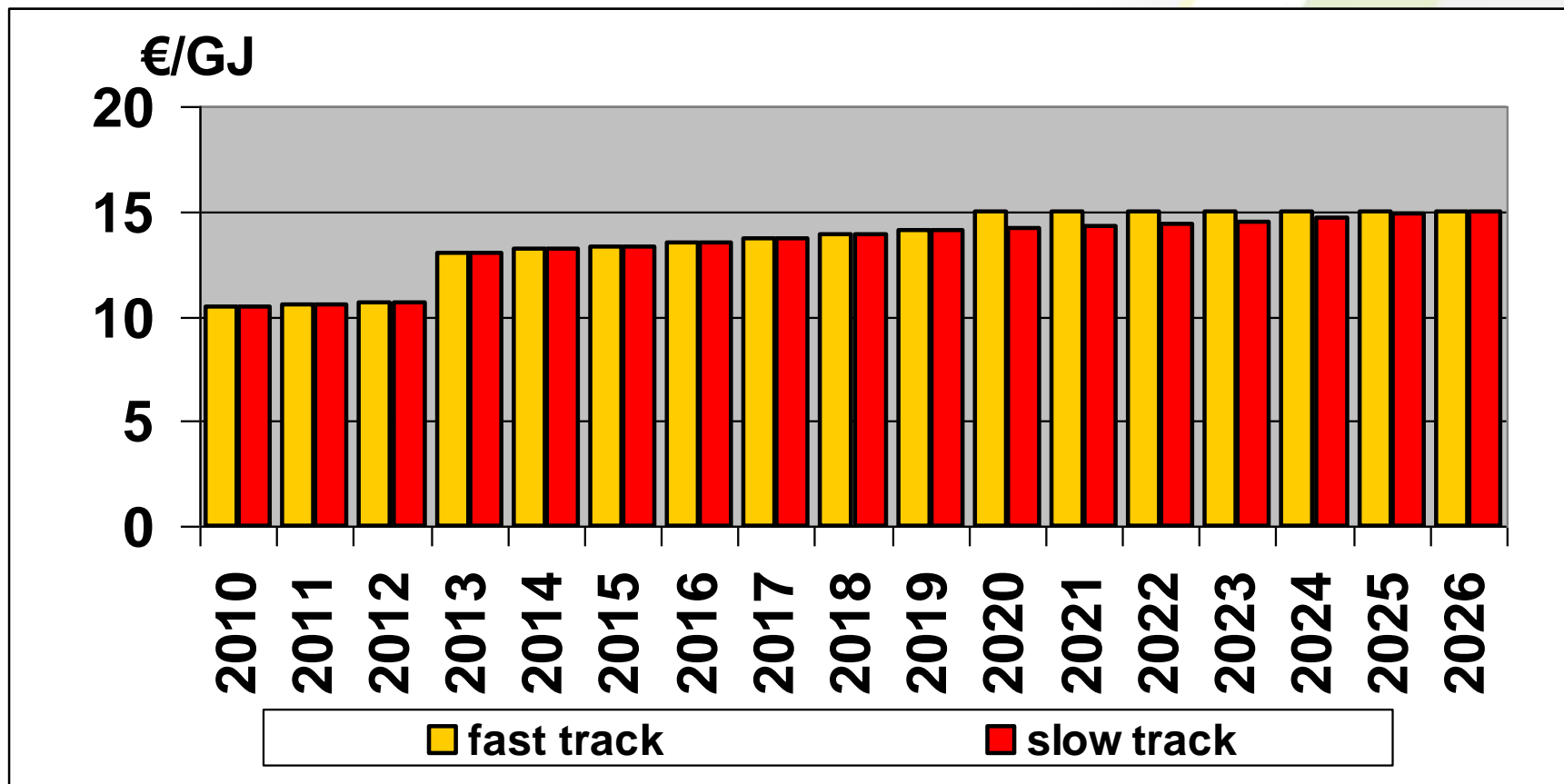


# Forecast – power





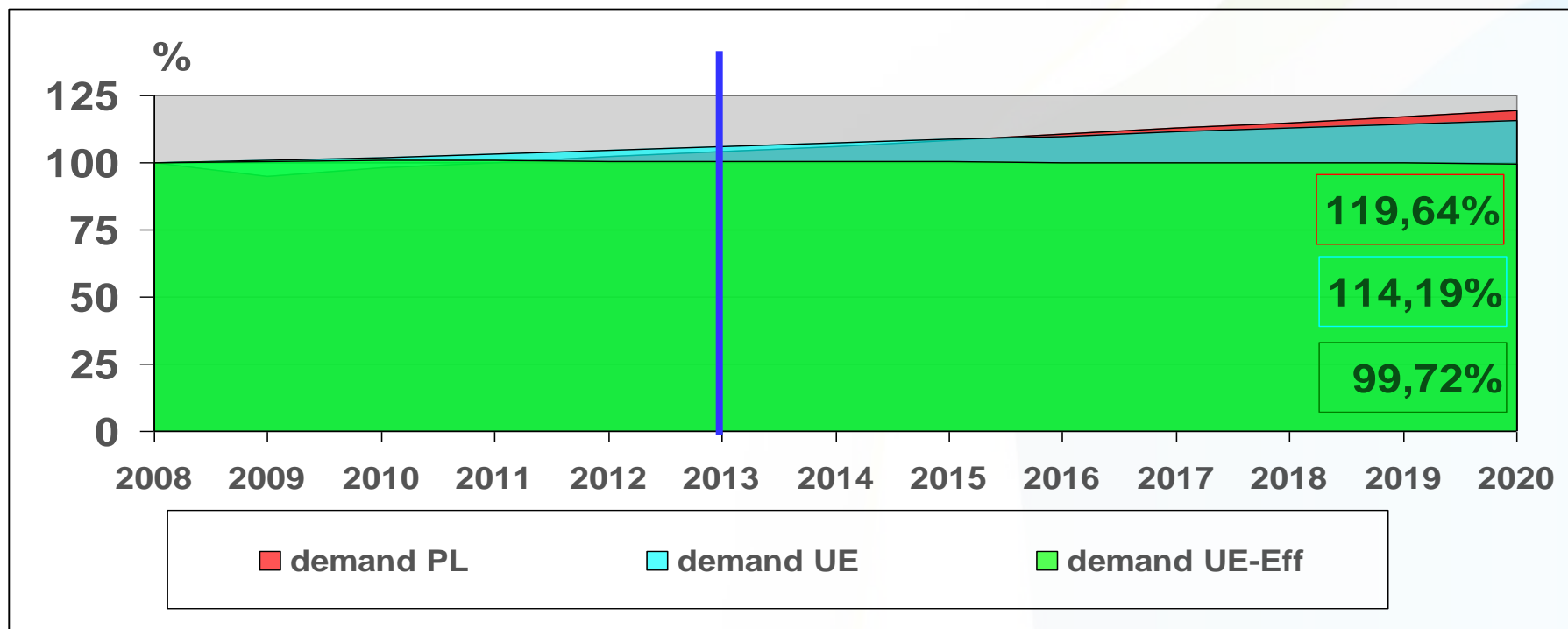
# Forecast – heat



# Power forecast

## Demand for power

Source: European commission & author's analysis



2,00%

1,27%

-0,11%

10/37

# Energy savings 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 BAU

YES WE HAVE!

YES WE HAVE!

## Support mechanisms:

- Energy efficiency certificates
- Energy efficiency funds
- Voluntary commitments
- Domestic offset
- Other mechanisms

YES WE NEED!

# White certificates

## Three dimensions

### Value-related foundation

- Redemption obligation
- Substitution fee
- Financial penalty

### Price ceiling

### Liquidity-related foundation

- Registration
- Tradability: power exchange or OTC
- Index creation possibility

### Sales guarantee

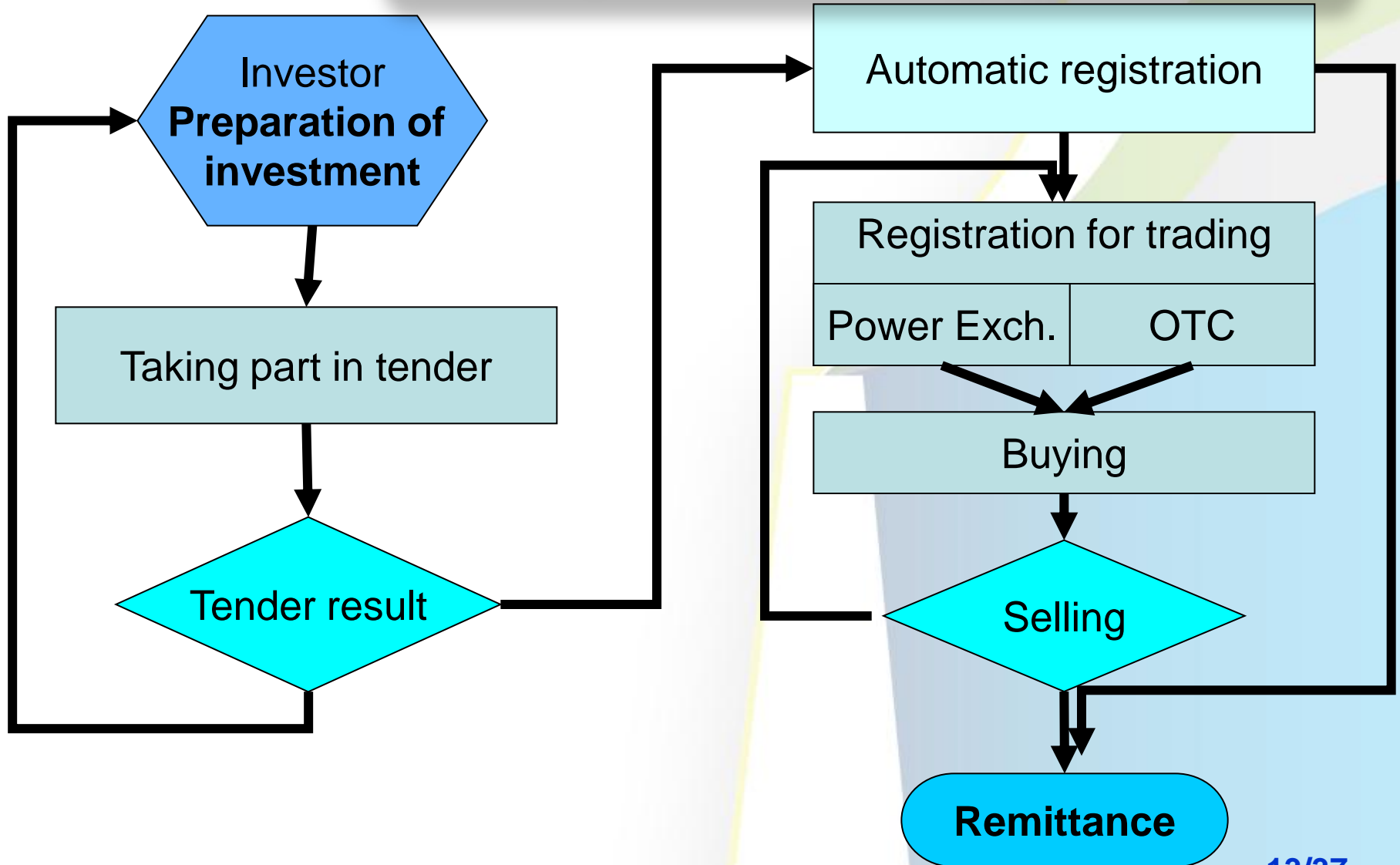
### Efficiency-related foundation

- Emission tender
- Three packages on tree floors
- Energy audit

### Regulation of quality

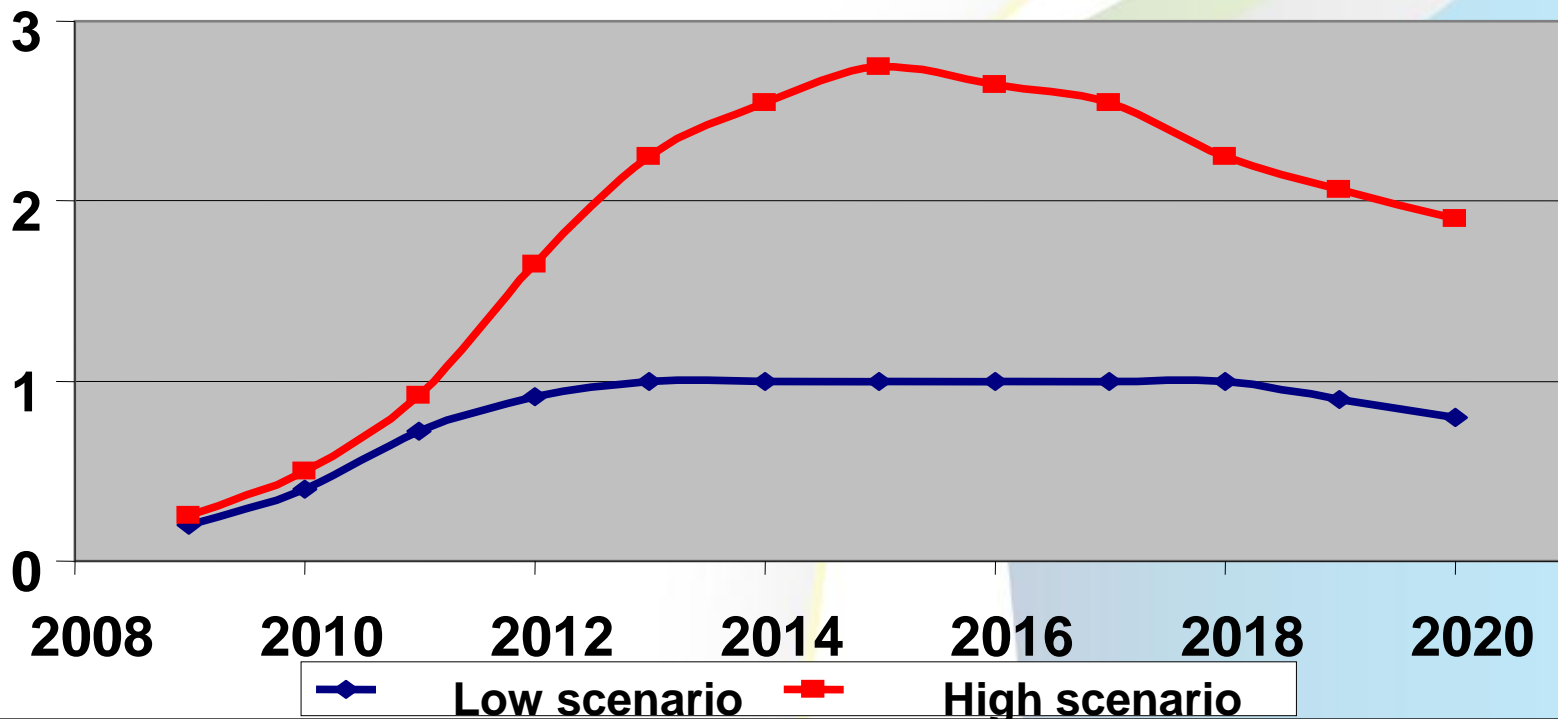


# System's organization

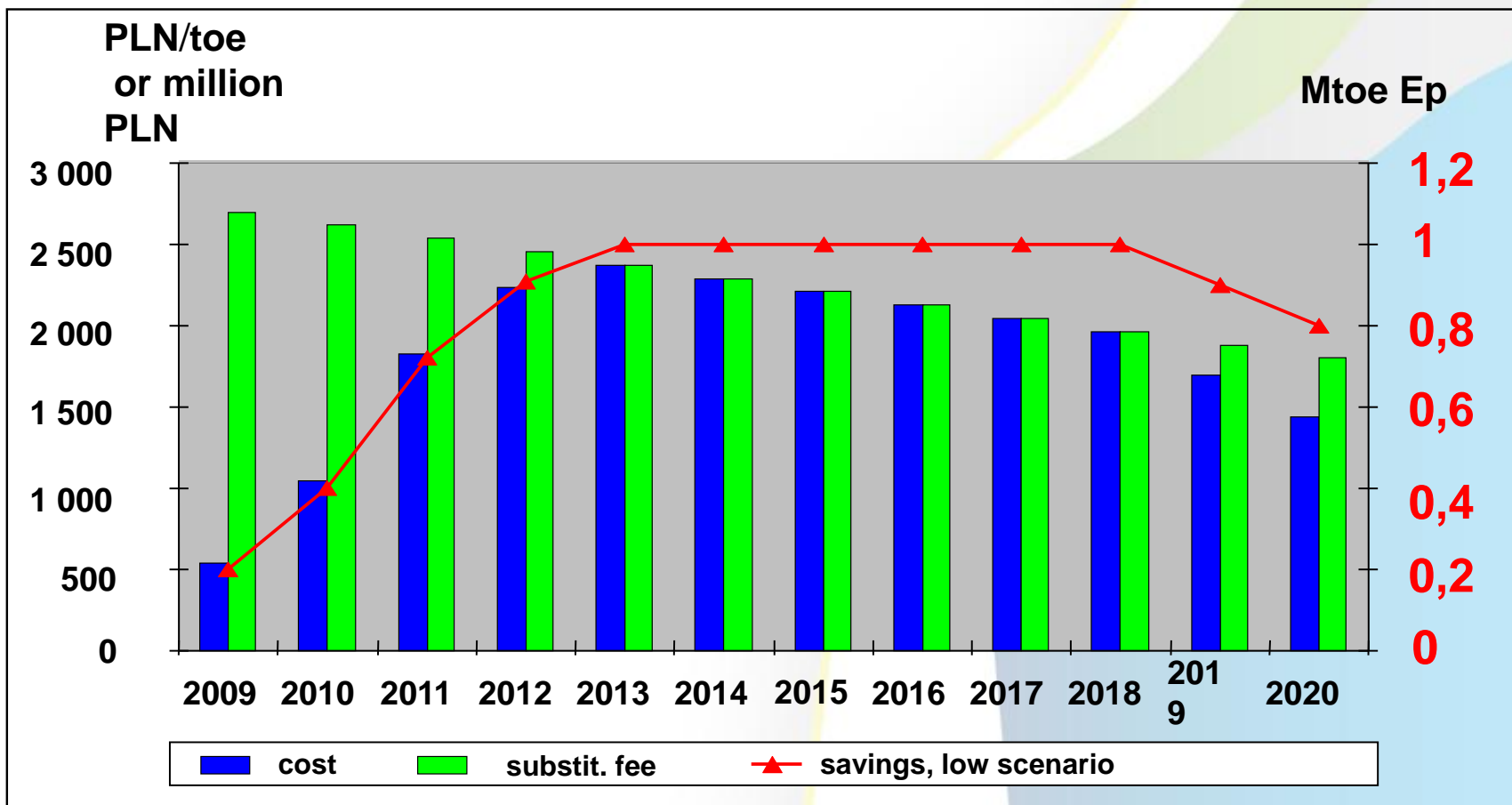


# Primary energy savings level corridor

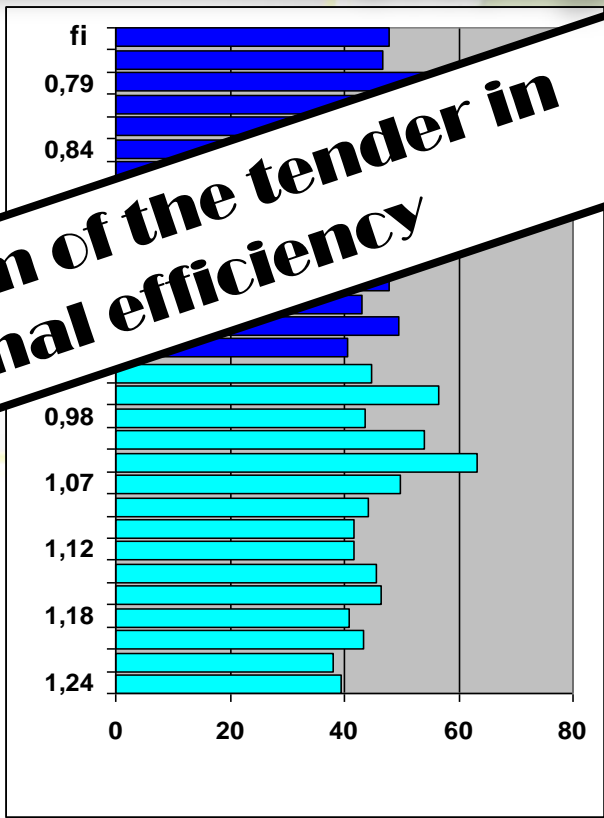
Mtoe Ep



# Low scenario



# Certified vs. saved energy



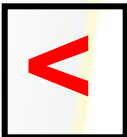
**We created the mechanism of the tender in order to rise its internal efficiency**

644 Mtoe

$$\Phi_{gr} = 0,96$$

693 Mtoe

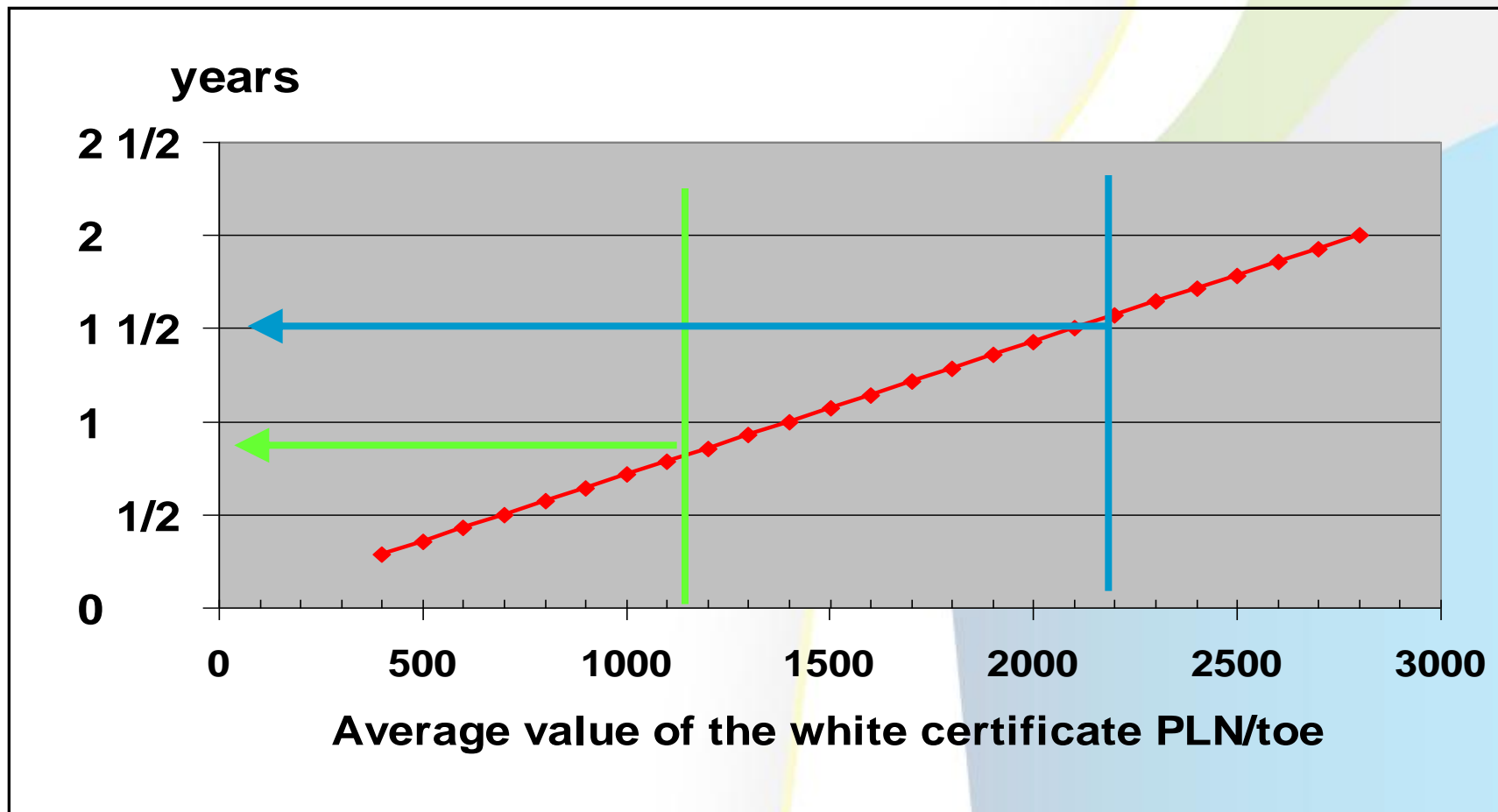
Certified energy



Saved energy

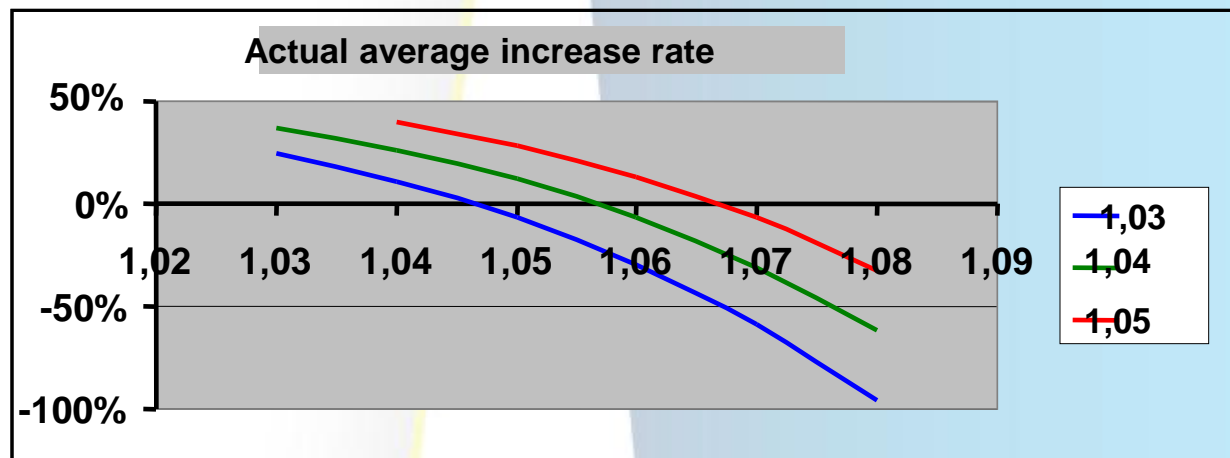


# Shortened investment payback time

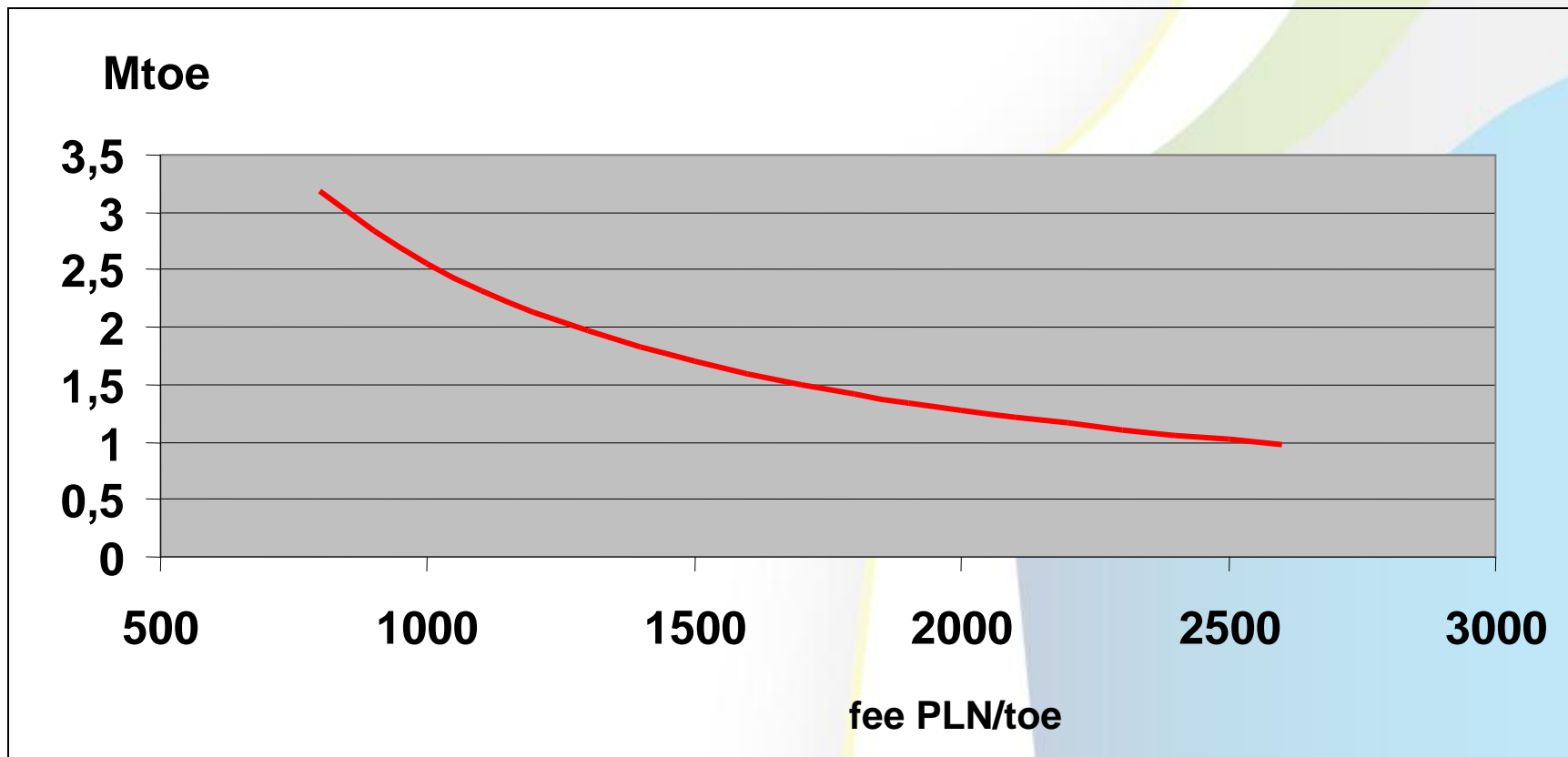


# Simulation of savings rate

Simulated incr.rate		GDP baseline increase rate		
GDP	Cons.PrimE	3%	4%	5%
3	1,5	24,64	37,10	
4	2	11,10	26,39	39,63
5	2,5	-6,67	<b>12,05</b>	<b>28,26</b>
6	3	-29,61	-6,73	<b>13,08</b>
7	3,5	-58,08	-30,55	-6,78
8	4	-95,84	-61,81	-32,35

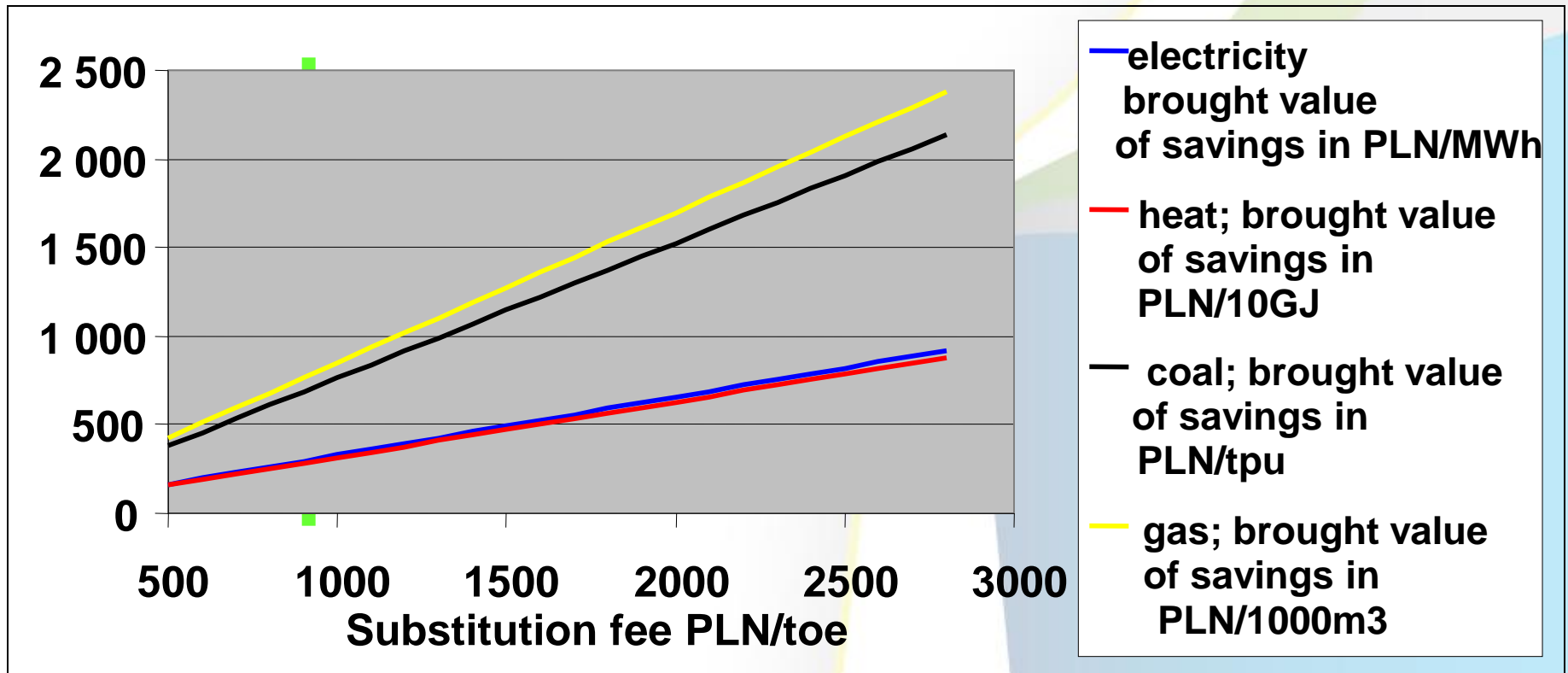


# Issued certificates volume





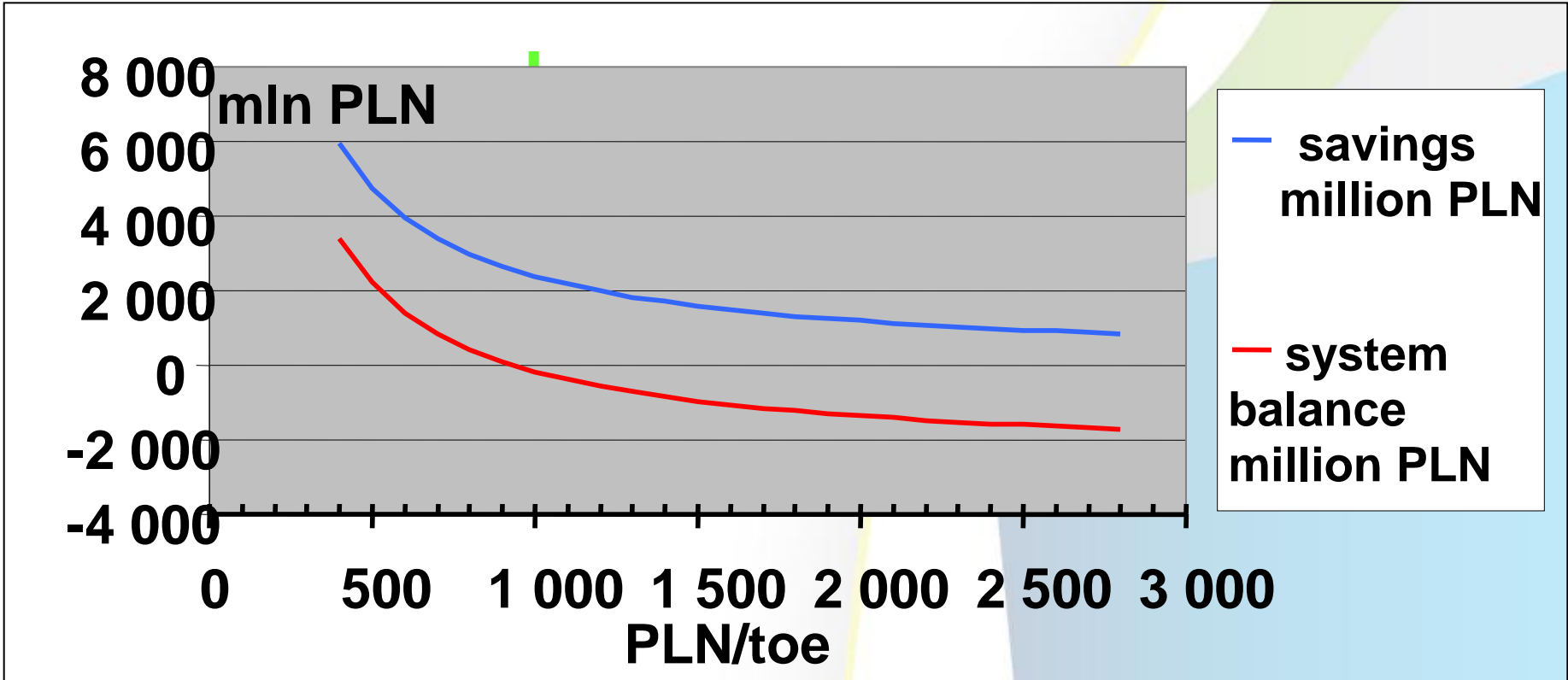
# Brought of value of savings





# Overall savings value 1/2

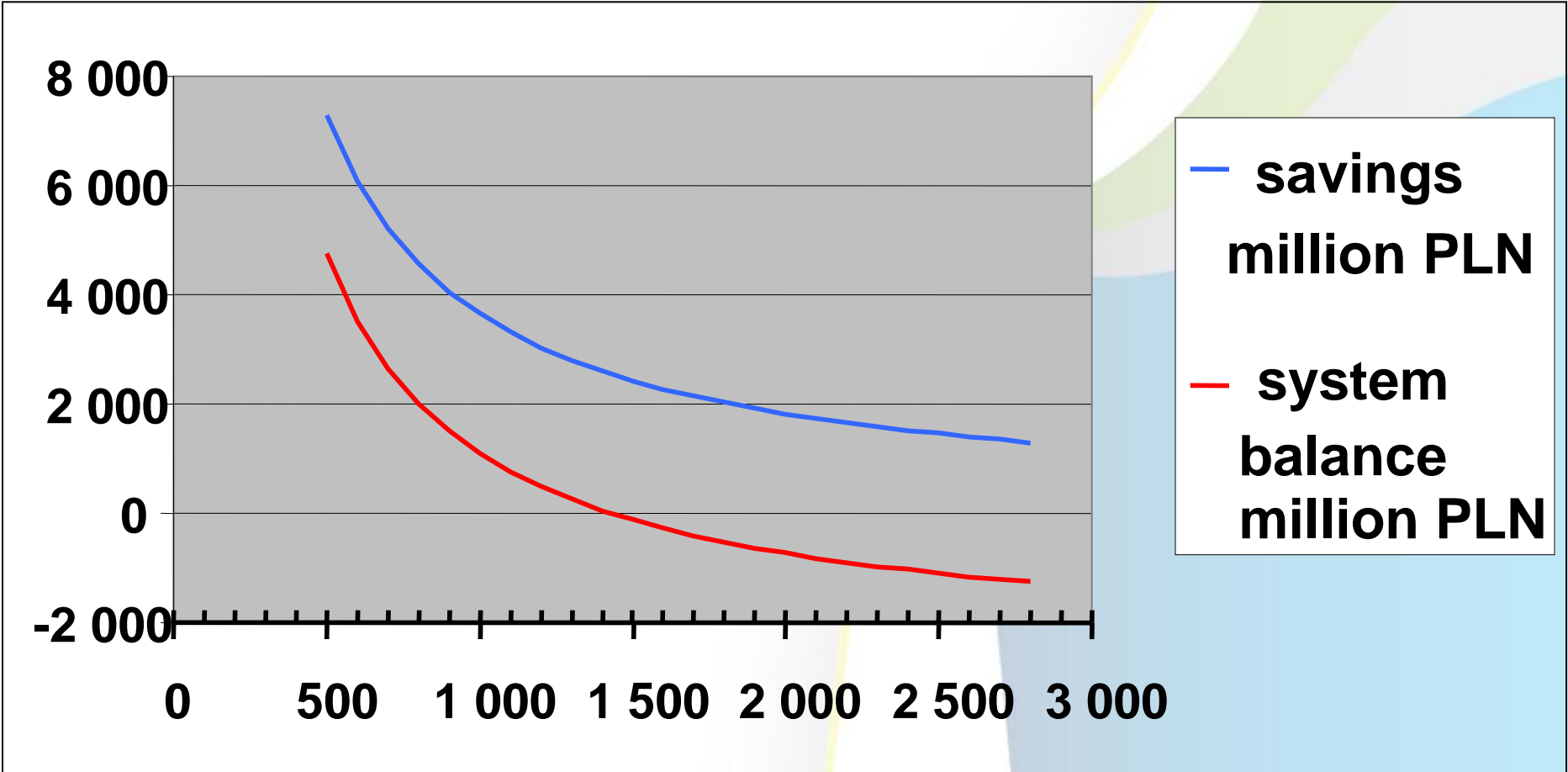
Average energy cost 900 PLN/toe





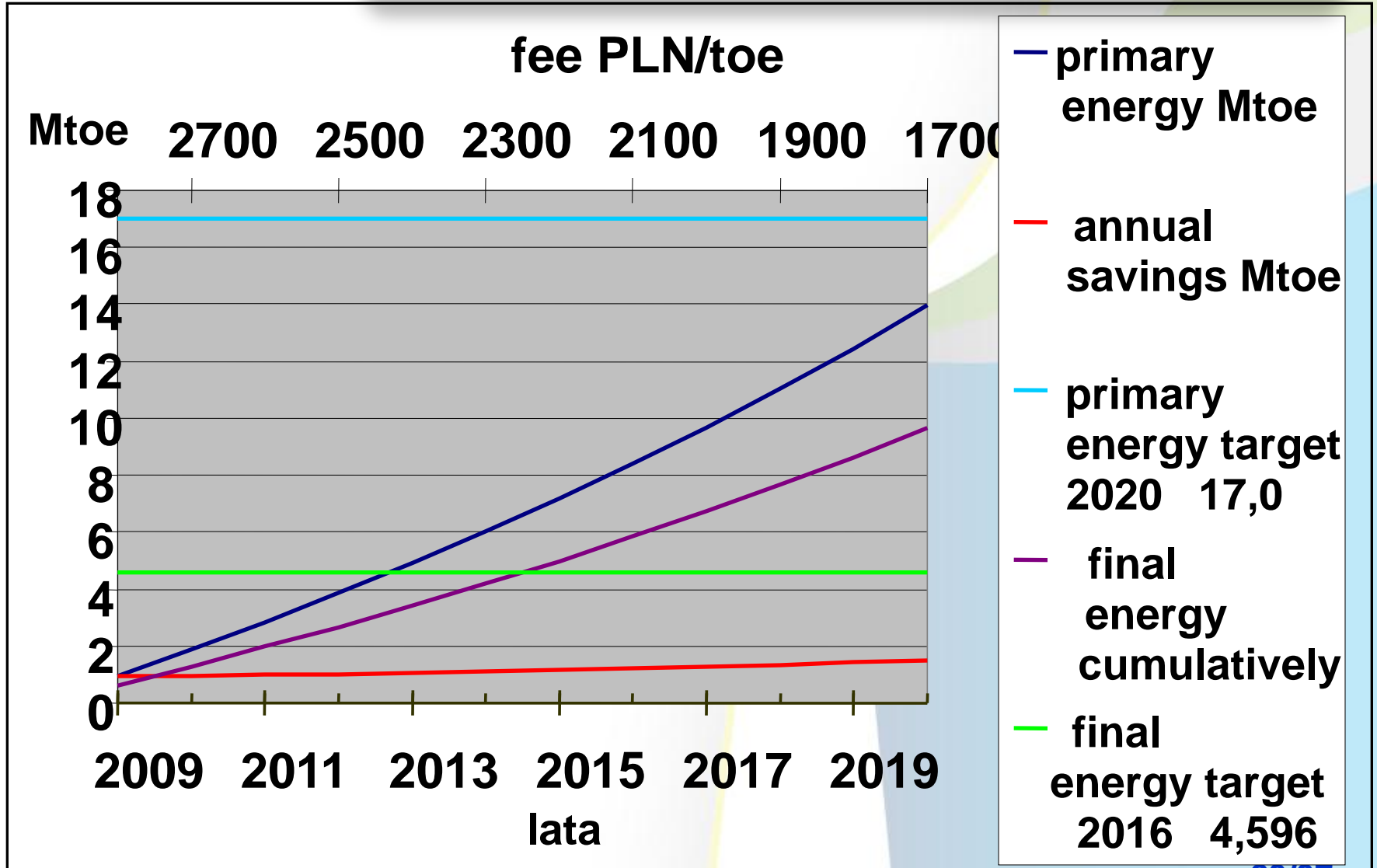
# Overall savings value 2/2

**Average energy cost 1400 PLN/toe**





# System results



# System results 3/3

**Poland's  
perspective**

**IMPROVED ENERGY  
EFFICIENCY OF THE  
POLISH ECONOMY**

**ACHIEVEMENT OF  
SIGNIFICANT  
SHORTENING OF SPBT**

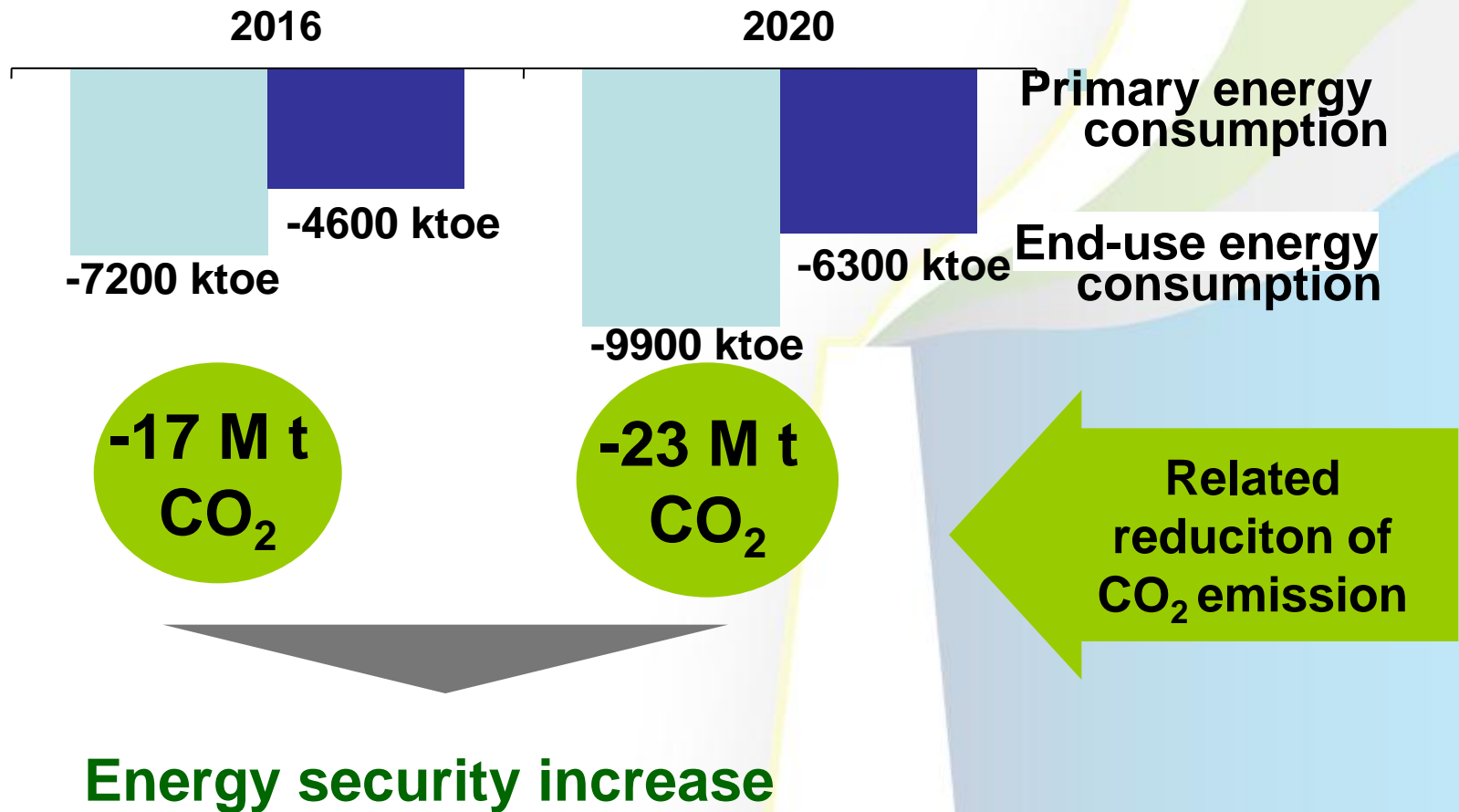
**Investor's  
perspective**

**Synergy !**



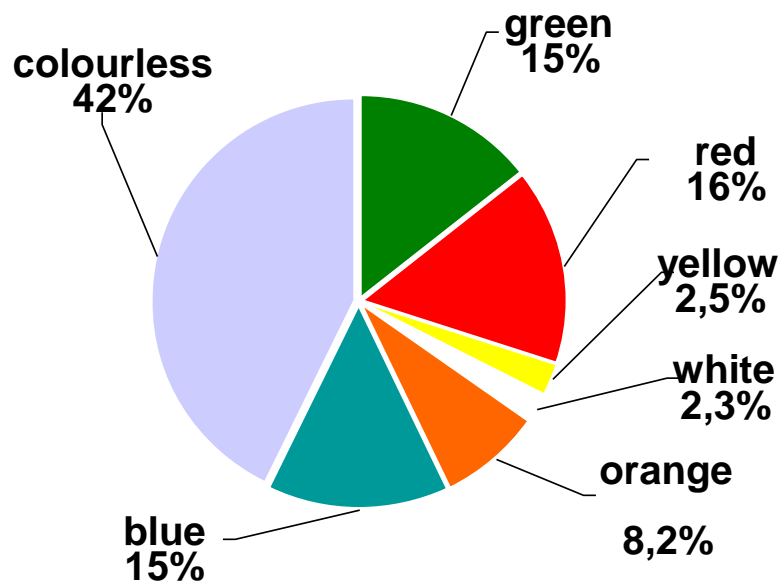


# Expected results





# Innovativeness



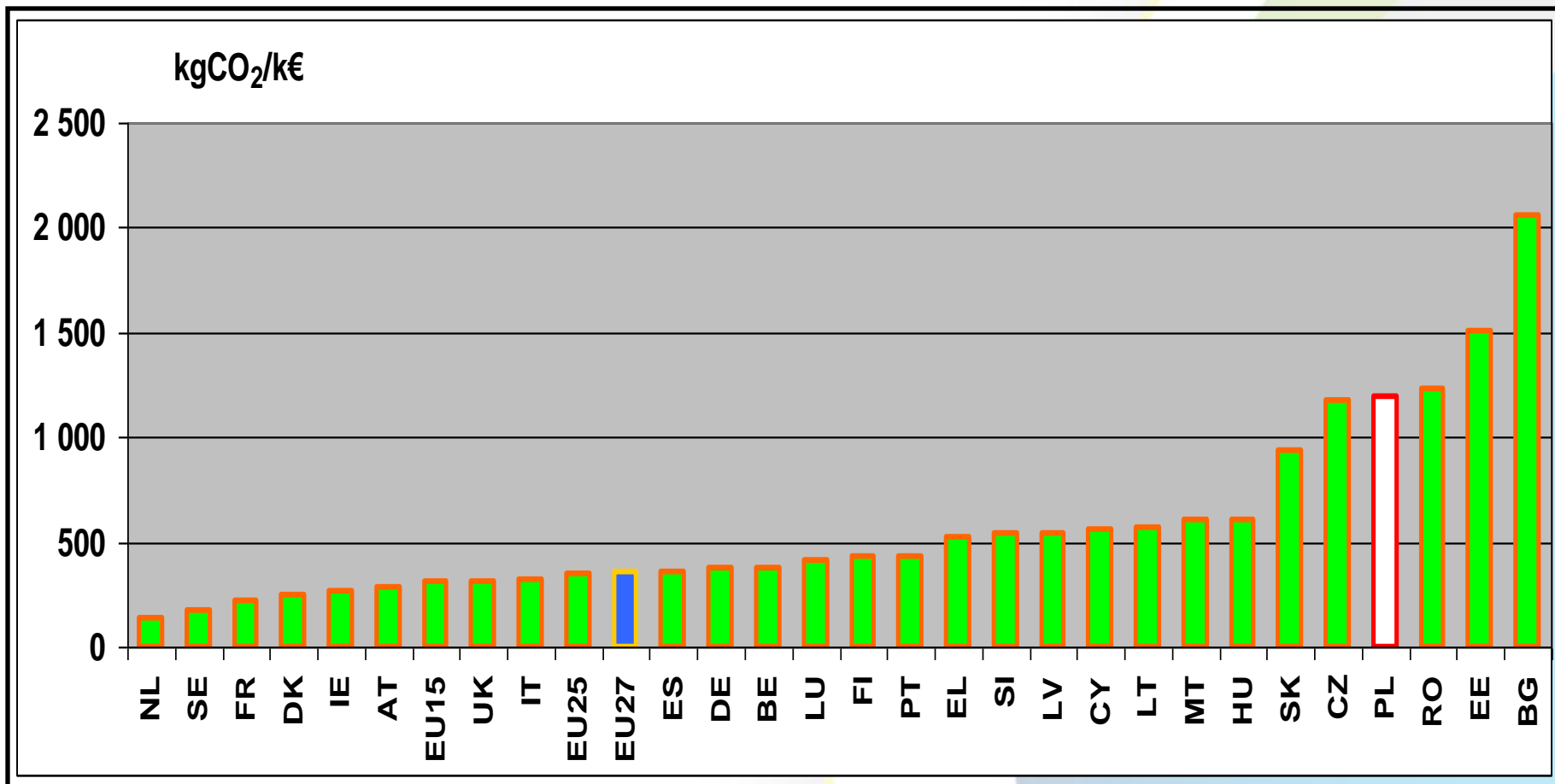
- **green** - renewable
- **red** - cogeneration
- **yellow** - gas & small CHP
- **white** - efficiency
- **orange** - zero-emission
- **blue** - super efficient generation
- **colourless** - without support

rainbow certification – regulation through market tools

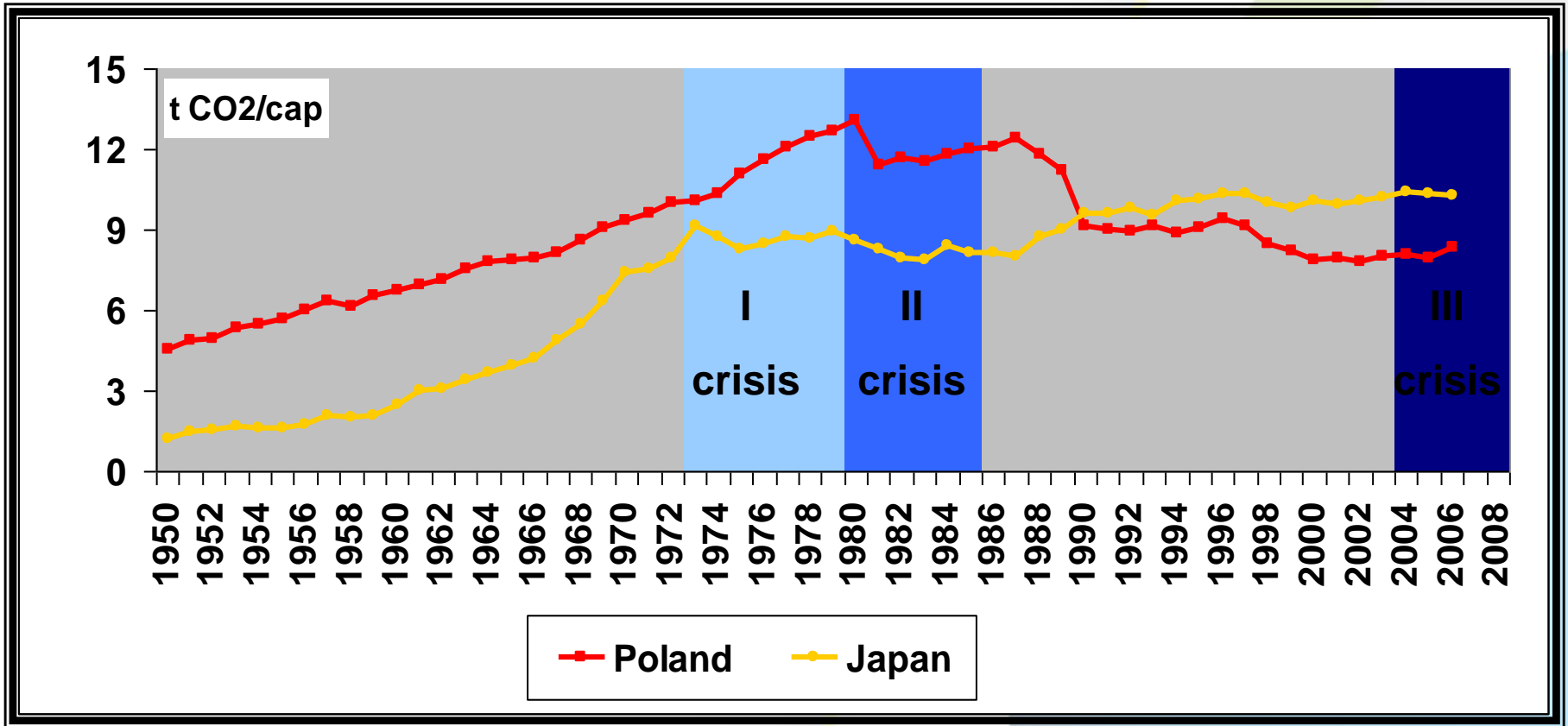
**Keep the dreams cost low**



# CO<sub>2</sub> emissions

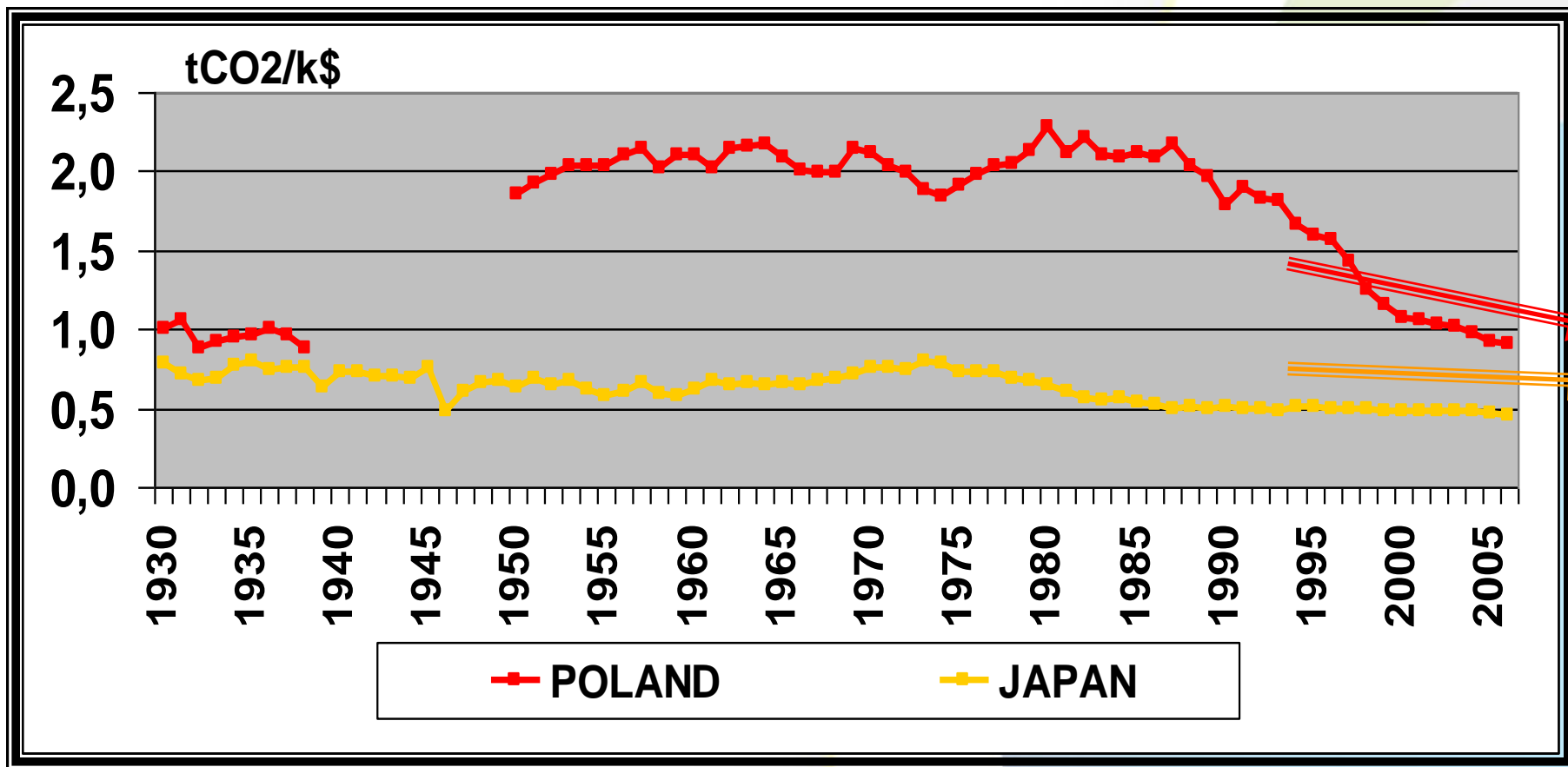


# Poland already went green



emission per capita is the most ethic measure

# Poland is approaching



emission per GDP shows only the structure of the economy

# Conclusions - tools

- Domestic offset
- Carbon label/Carbon footprint
- Smart grid/ prosumer led
- Energy efficiency drive
  - EE Fund
  - White Certificates
  - Energy Performance Contracting
  - Energy Efficiency Obligations
  - Energy Efficiency Renovation
  - Energy Efficiency Audits
  - Energy Efficiency Incentives
  - Energy Efficiency Labels
  - Energy Efficiency Agreements
  - Energy Efficiency Voluntary Agreements

**Why not use them?**



# NPRE 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 (39€/MWh) than availability of fuels (20 €/MWh).**

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



# Conclusion 1/4

A

&

B

=

**We are not the richest**

**but**

**We want to develop**

**We have to optimise  
development costs**





# Conclusion 2/4

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 3/4

**A**

**The competitors are  
market companies**

**&**

**but**

**B**

**There is nothing wrong  
in openly seeking profit**

**=**

**The process should be  
open (transparent)**



## Conclusion 4/4

**A**

**&**

**B**

**=**

**We expect 500 mln € per year for the needs of energy efficiency**


**This 500 mln will generate investments worth**

**2 – 3 bln €**



SPOŁECZNA RADA  
NARODOWEGO PROGRAMU  
REDUKCJI EMISJI

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- » Z prac Grup Roboczych
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- » Analizy / Raporty
- » Publikacje
- » Akty Prawne
- » Centrum Prasowe

### prof. Jerzy Buzek o propozycji redukcji emisji CO2

piątek, 05 marca 2010

Zachęcamy do zapoznania się z wypowiedzią prof. Jerzego Buzka Przewodniczącego Rady dotyczącą propozycji ograniczenia emisji CO2 przez kraje Unii Europejskiej do roku 2020.

Więcej informacji w zakładce Centrum Prasowe.

### Spotkanie ministra Kraszewskiego z dyrektorem Delbeke

wtorek, 02 marca 2010

Zachęcamy do zapoznania się z informacją dotyczącą spotkania ministra Kraszewskiego z dyrektorem Delbeke, które odbyło się w Brukseli.



Ministerstwo Gospodarki



**Thank you**



**Krzysztof Żmijewski**

**Secretary General**

**the Public Board  
of the National Programme  
for Reduction of Emissions**