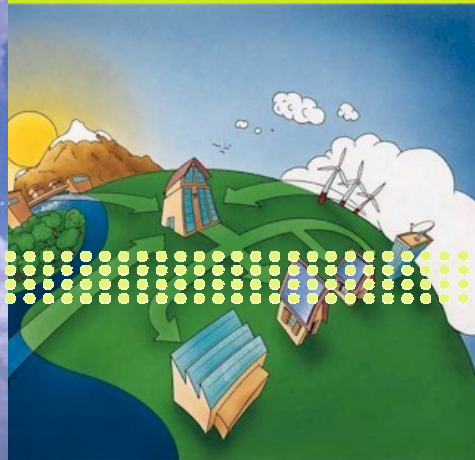


# Promotion of RES-E in the new EU Member States –the example of Poland



Artur Wyrwa - AGH

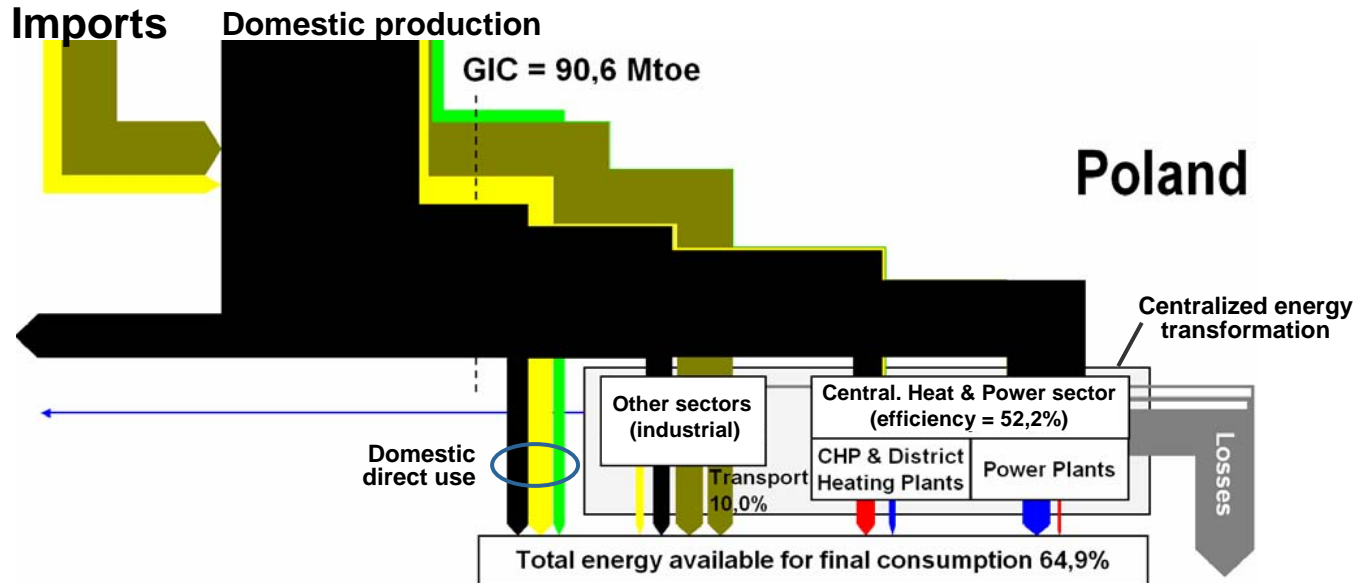
Maribor 2006  
May 10/11

Second International Workshop of the REALISE-Forum Project

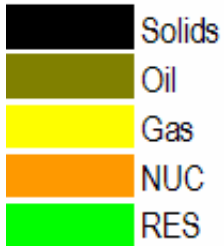
# Presentation outline

- Polish Context
- Evolution of RES-E support system
- Present RES-E support scheme
- Conclusions

# Poland & EU-15 Energy Flows in 2000



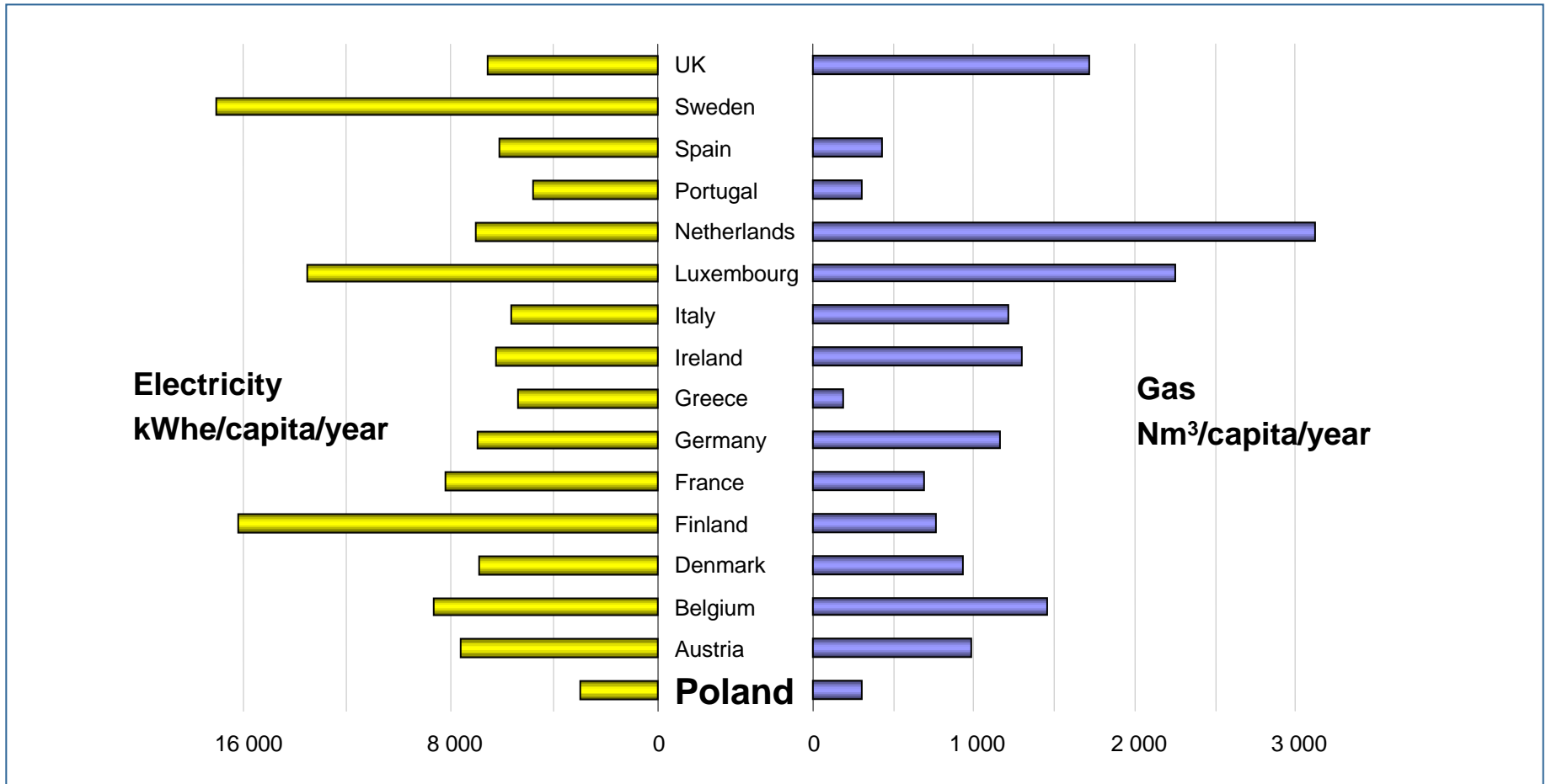
GIC



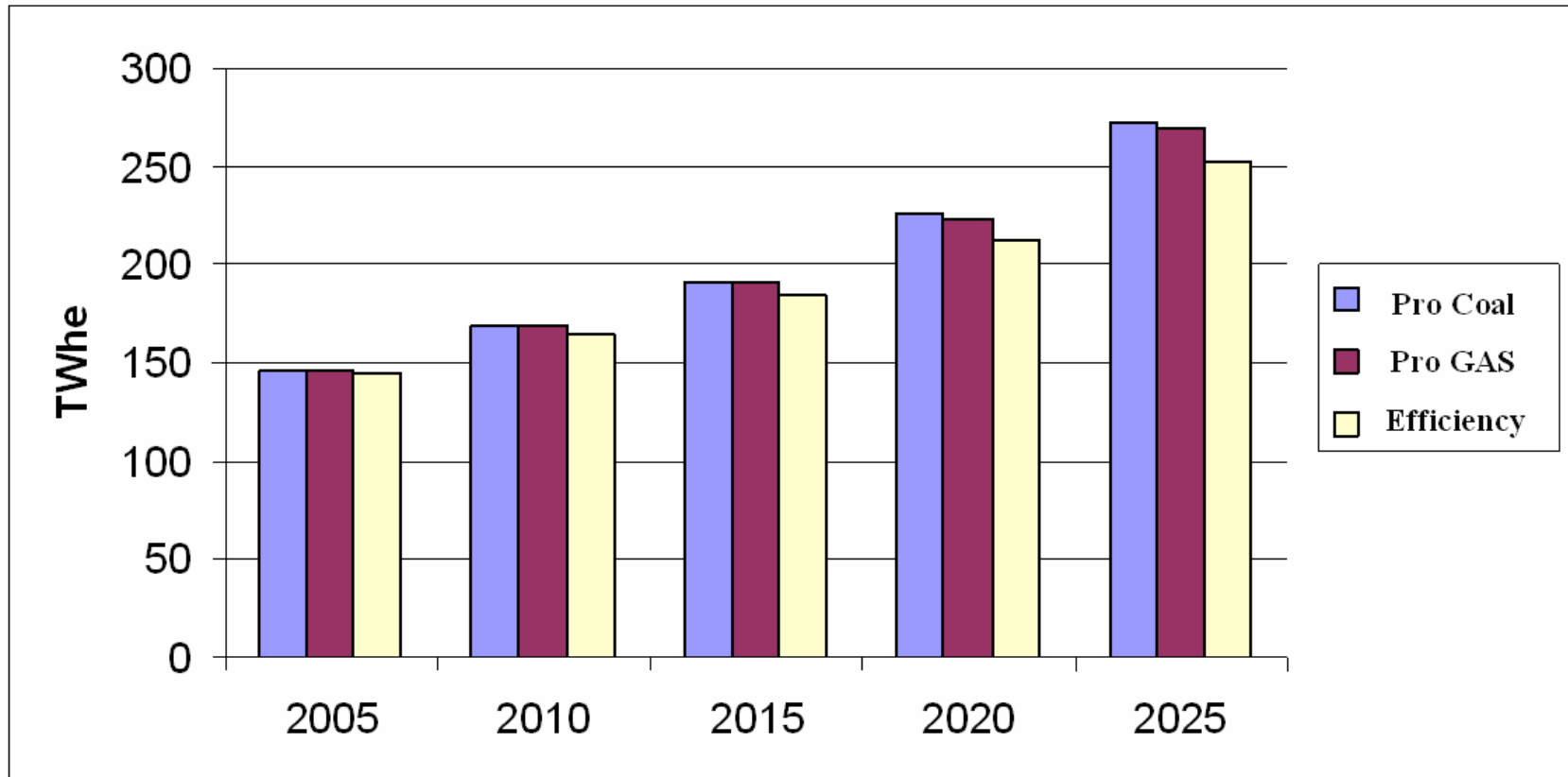
Poland		EU-15	
Mtoe	%	Mtoe	%
56,3	62%	212,4	15%
20,0	22%	586,9	41%
10,0	11%	338,7	23%
0,0	0%	222,8	15%
4,3	5%	88,1	6%
<b>90.6</b>	<b>100%</b>	<b>1 448.9</b>	<b>100%</b>

# Electricity & gas annual consumption per capita

Source: ENERDATA 2001



# Future electricity demand scenarios



Source: Polish Energy Policy till 2025(Draft)

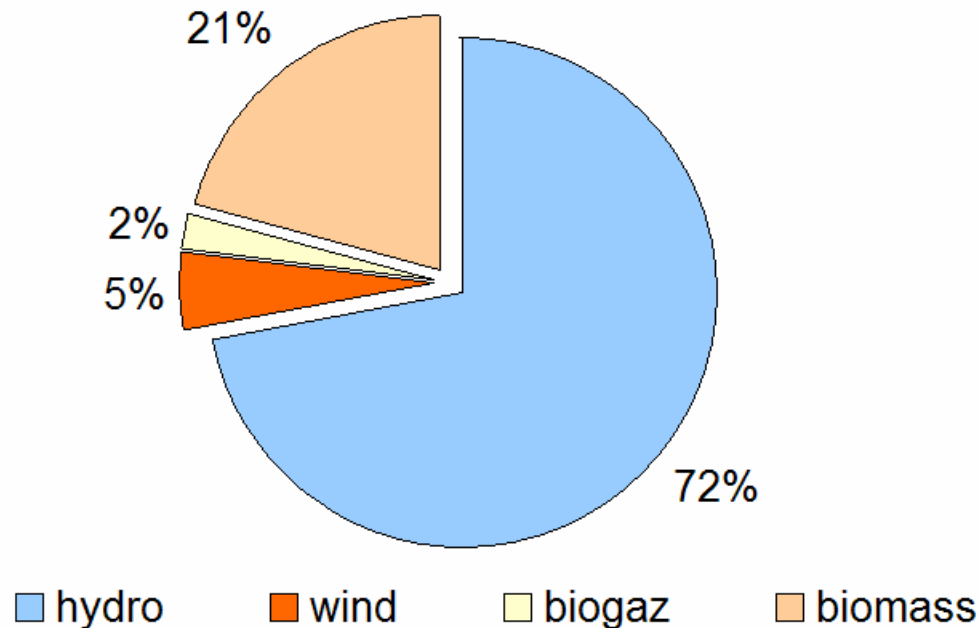
# RES-E Production in Poland (2004)

Gross electric energy production 154, 1 TWh

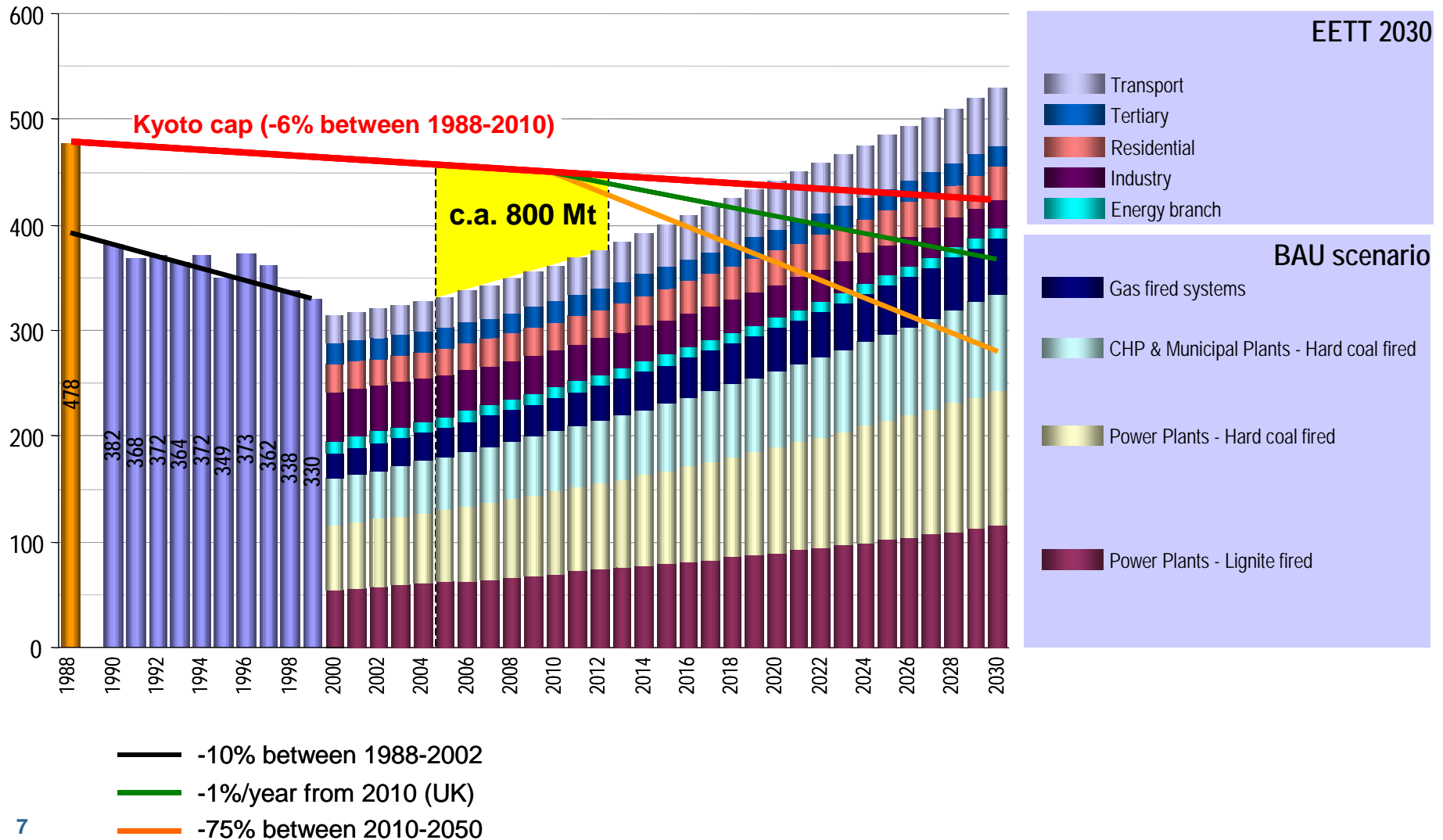
Total RES capacity installed 1 026,4 MW

Total RES electricity generation 2,8 TWh

**RES production by sources**



# BAU scenario (Mt CO2)



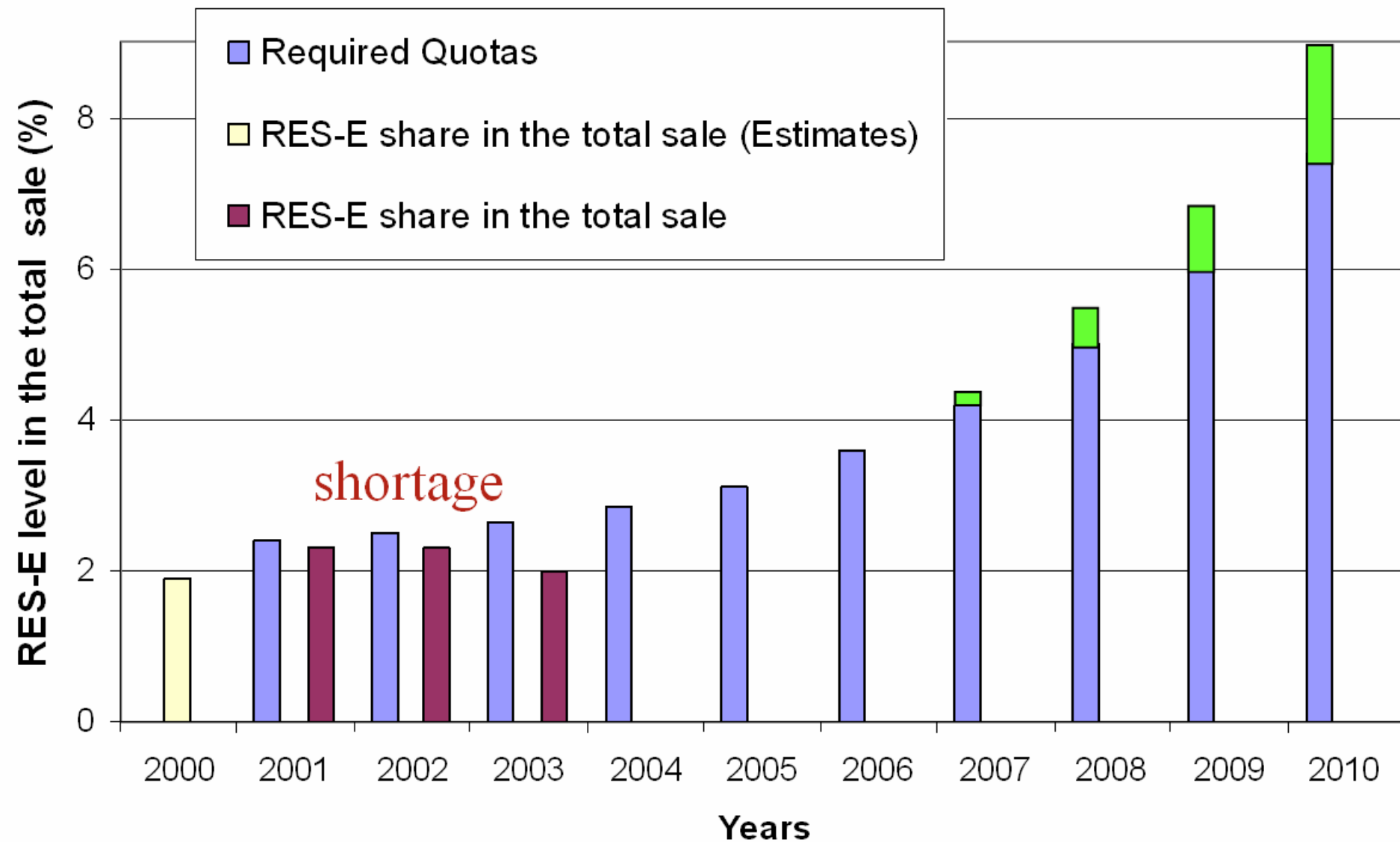
# RES Support – history & present

- 1997 Polish Energy Act
- 1999 First Ordinance (electricity from unconventional sources)
- 2001 Development Strategy of Renewable Energy Sector
  - **7.5** % RES in **2010**
  - **14** % RES in **2020**
- 2001 Ordinance of the Minister of Economy on RES Electricity Purchase Obligation ( 2001, amended 2003)
- Accession Treaty: ~ 9 % RES in the total electric energy sale 2010
- 2004 – New Ordinance, guarantee of origin (PEA)
- New situation after October 2005

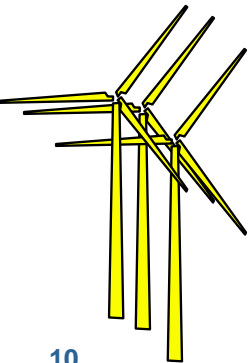
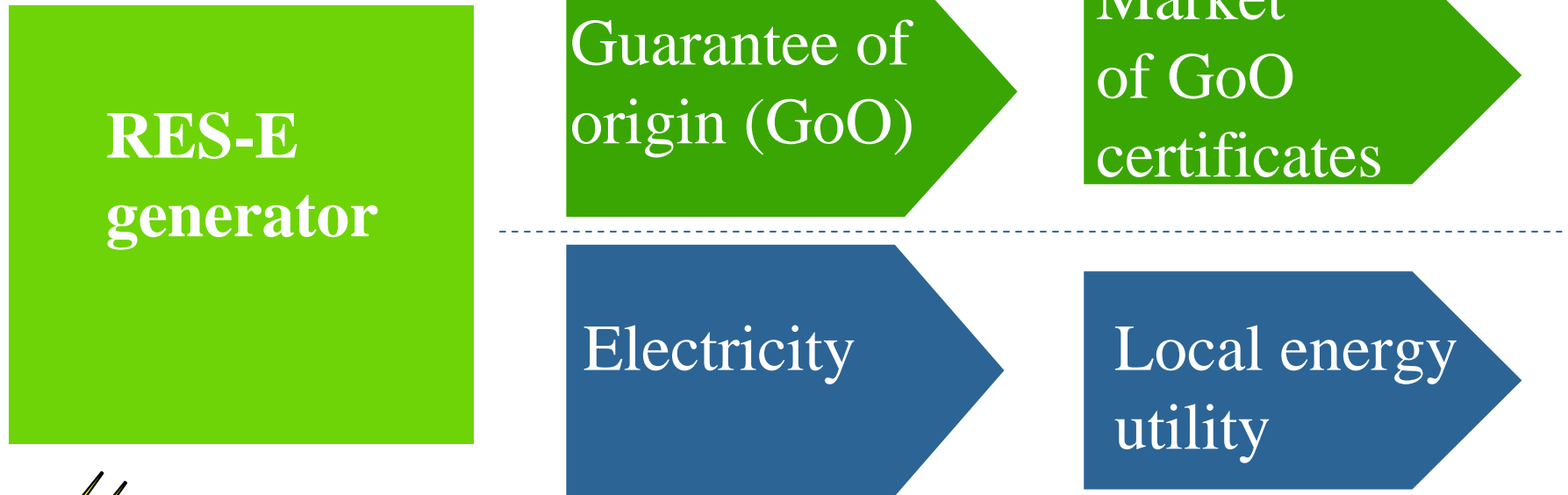
Primary Energy



# RES-E Quotas



# Present RES-E support scheme



# Present RES-E support scheme

## Local energy utility is oblige

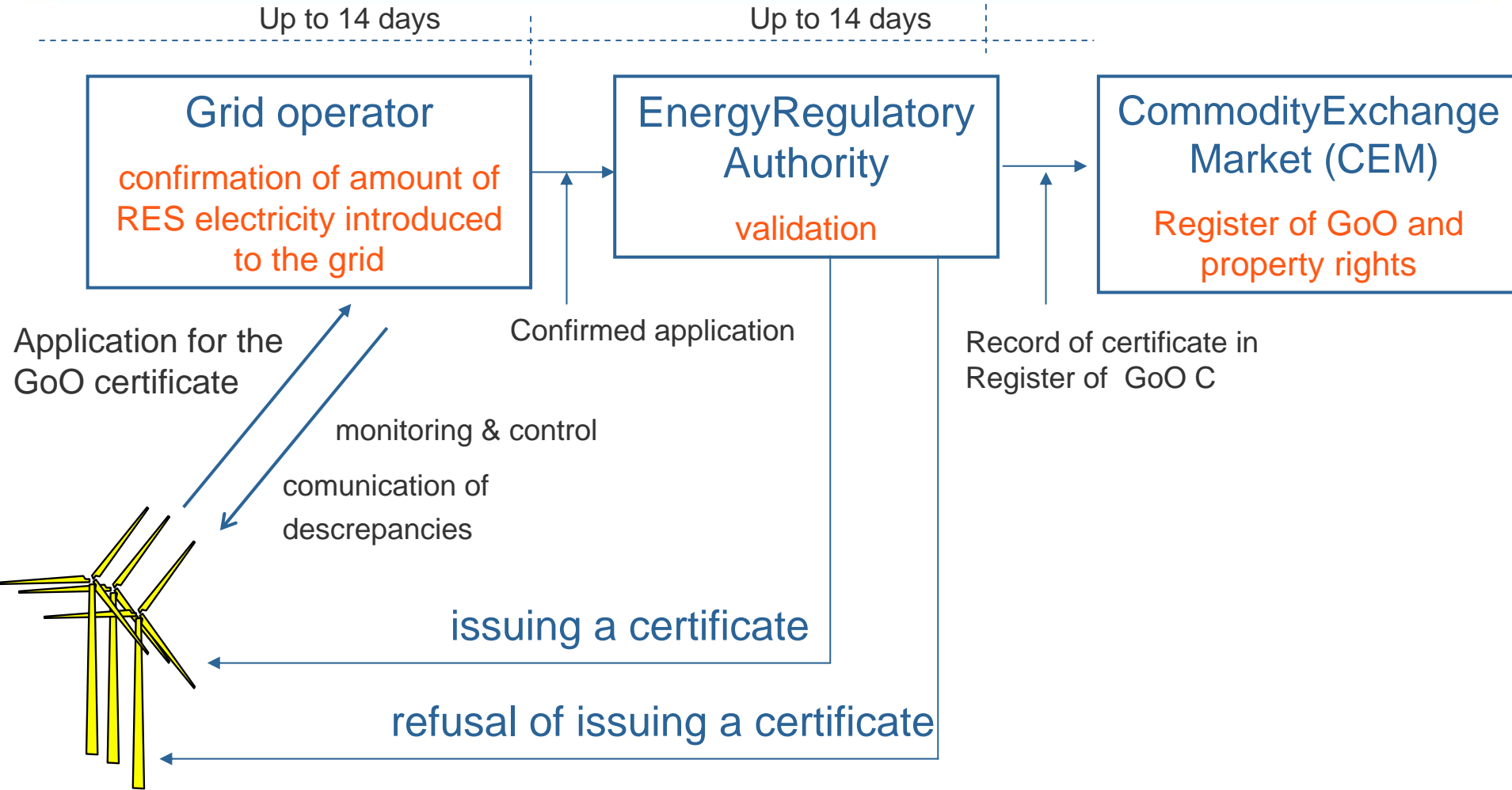
- to purchase electricity from RES power generators (possessing a license) connected to the grid in its area of activity
- the price of green electricity is equal to the average electricity price from the previous calendar year
- penalty for incompliance imposed by ERA not lower than the product of amount of electricity that utility evades to buy multiplied by the average electricity price on the competitive market from the previous year

## Present RES-E support scheme

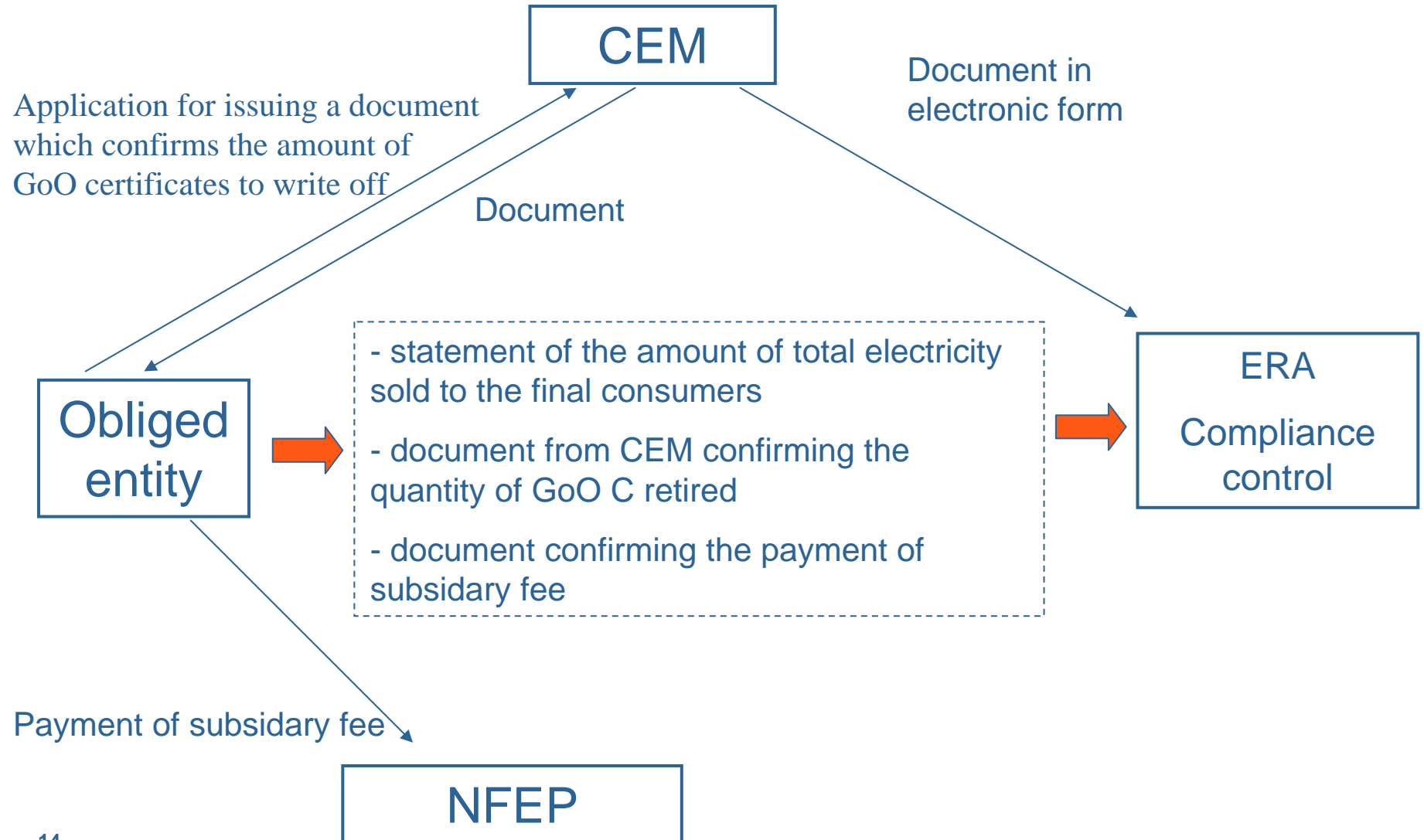
**Energy utility that produces or turnovers electricity and sells it to the final consumers is obliged to:**

- obtain and present guarantee of origin certificates (to write off) to director of Energy Regulatory Authority
- pay a subsidiary fee respectively to the shortage in GoO C
- a subsidiary fee is equal to 240 PLN/MWh (approx. 60 EUR) (and since 2007 is subjected to valorization)

# Penalty for incompliance



# Accounting



# Penalty for incompliance

- if energy utility **does not present sufficient** amount of GoO certificates, then the minimal penalty for incompliance is calculated from the equation:

$$\text{Penalty} = 1.3 * (\text{Sub. Fee to pay} - \text{Sub. Fee paid})$$

- money goes the budget of the National Fund for Environment Protection and Water Management and must be used to support RES development.

# Projections of RES-E production

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Projected gross energy production [TWh/yr]	145,8	150,3	154,8	159,3	163,8	168,3	172,9	177,5	182,2	186,9
Projected final sale [TWh/yr]	106,1	109,3	112,6	115,8	119,1	122,4	125,7	129,1	132,5	135,9
Required quotas [%]	3,1%	3,6%	4,3%	5,4%	7%	9%	9%	9%	9%	9%
RES-E [TWh/yr]	3,29	3,93	4,84	6,25	8,34	11,01	11,31	11,62	11,92	12,23

Sources: CEM



# Conclusions

## Previous systems were malfunctioning

- unclear rules (double counting)
- not sufficient penalties
- lack of investment into new RES capacity
- only RES-E quotas, no TGC market

## New system since October 2005

- obligatory quotas and
- tradable GoO certificates
- subsidiary fee (240 PLN) ~ 60 EUR/MWh
- guaranteed RES-E price (130 PLN) ~30 EUR/MWh
- penalties for incompliance

