

USAEE/IAEE – Washington DC, July 2004

# Italy's route to Kyoto: a wishful thinking?

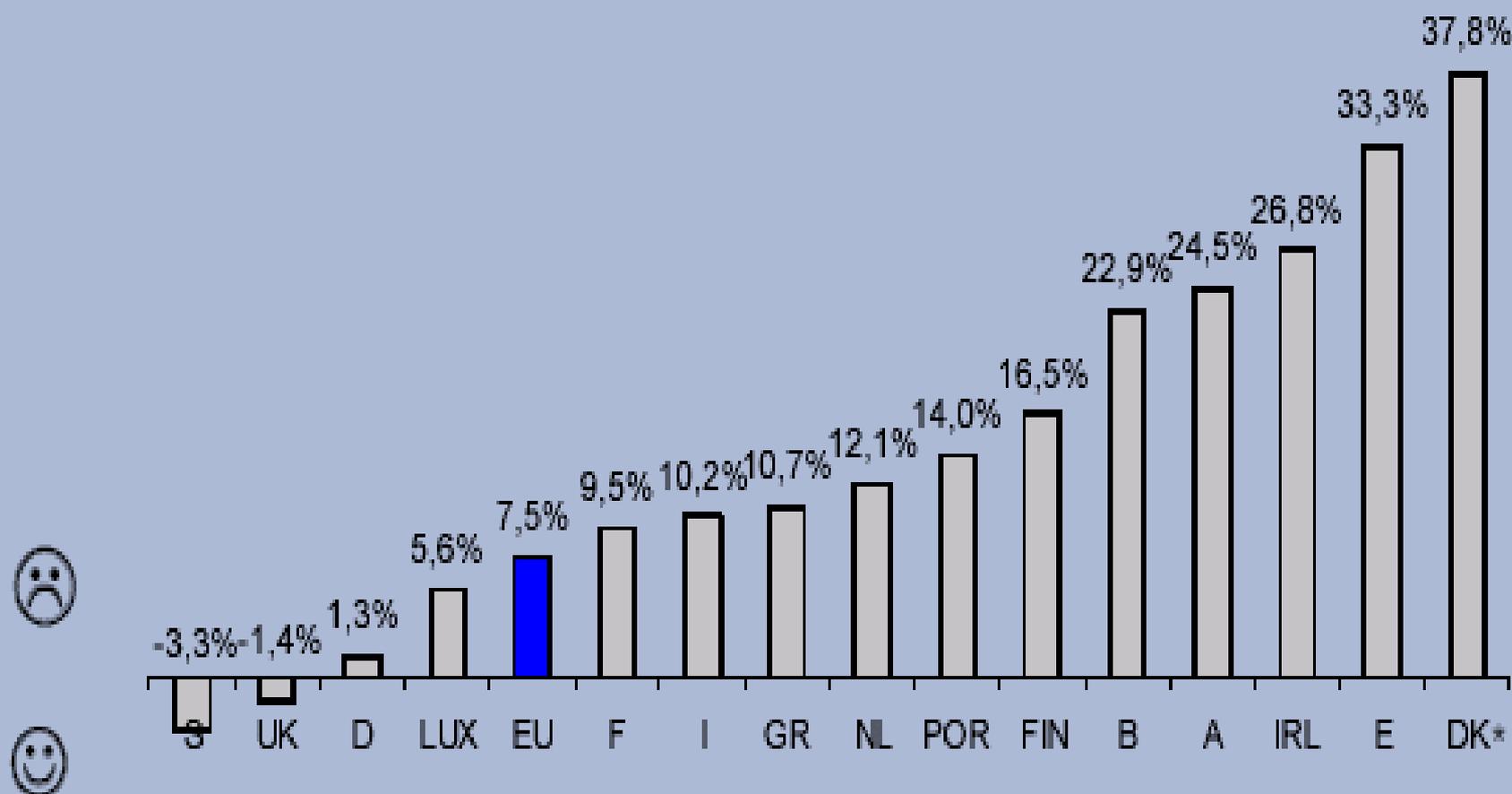
by

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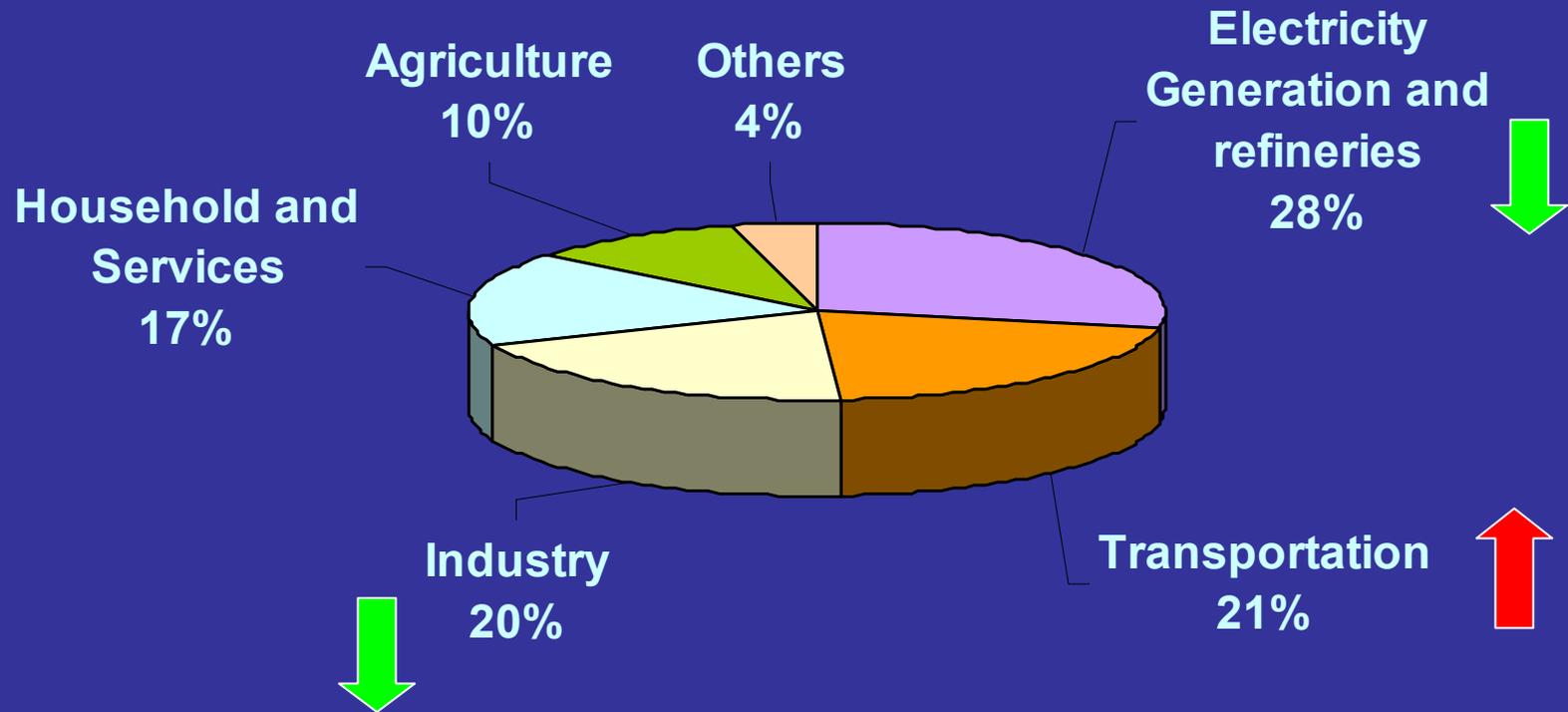
Alessandro Vaglio – University of Bergamo

By how many percentage points will the EU and Member States over- or undershoot their burden sharing targets in 2010 with existing domestic policies and measures?



# Which sectors are mainly responsible?

## GHGs Emissions in 2001 (EU Countries)



# Italy and Kyoto: ambitions and reality



## Ambitions

**KYOTO TARGET**  - 6.5% with respect to 1990

521 Mton CO<sub>2</sub> eq in 1990

- 6.5%

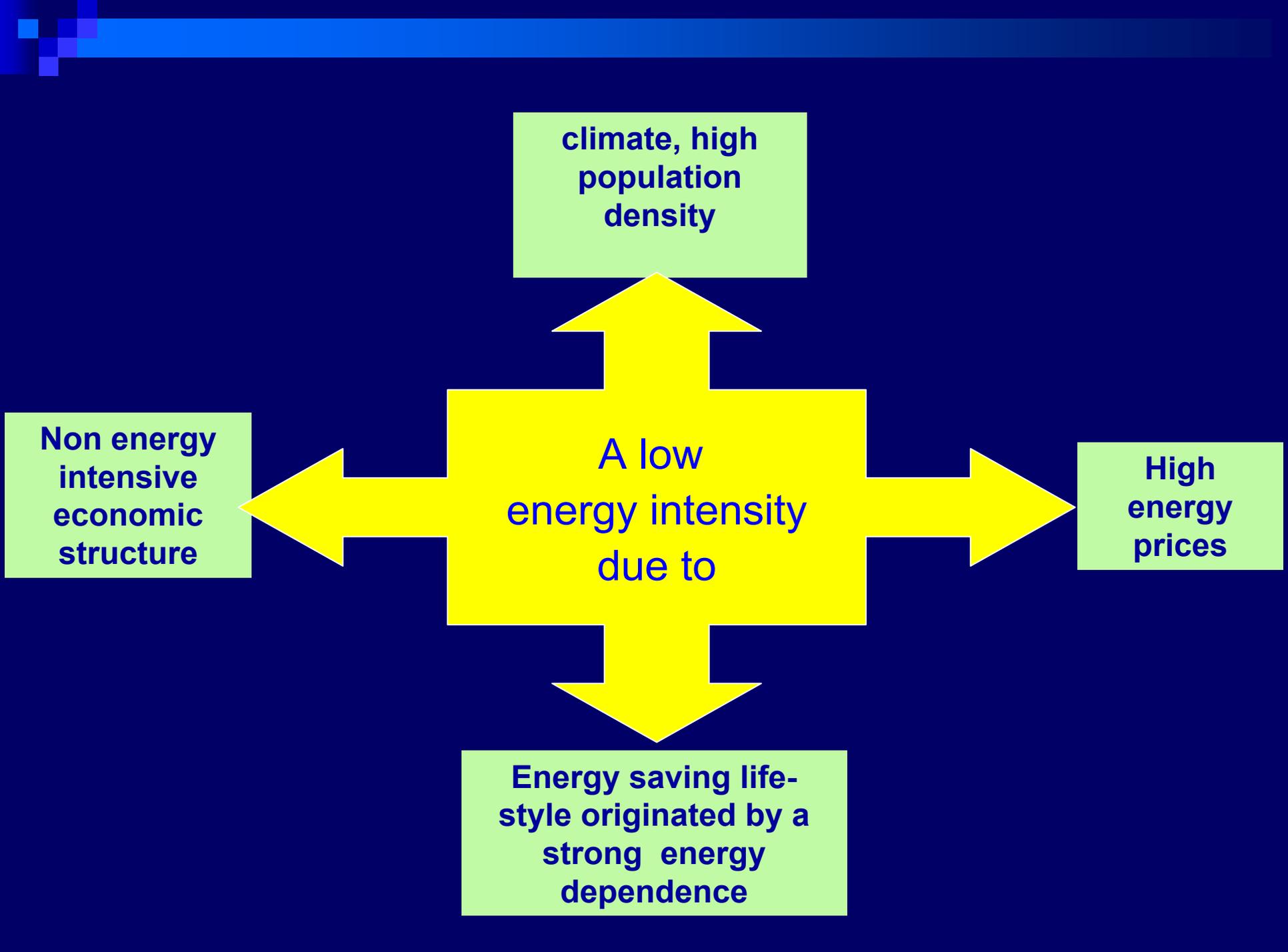
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**= 487.1** Mton CO<sub>2</sub> eq in the first commitment period 2008-2012

# Reality

## Distinctive features of Italian Energy System

- Dependent abroad
- No nuclear
- The “cool” question
- Privatization-liberalization-regulation



# Political Actions

## ■ 2002

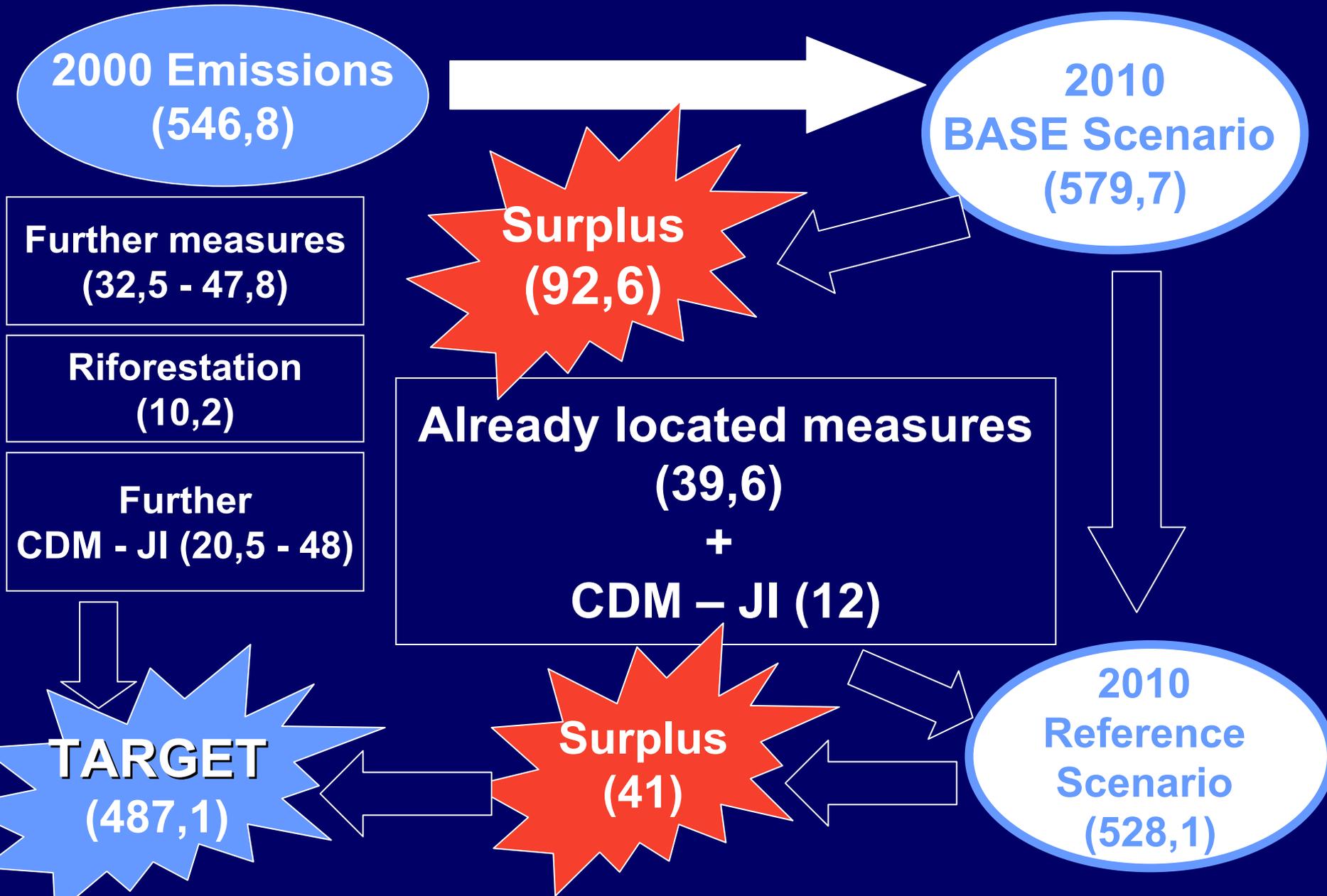
- Law 39/2002 to enforce the EU Directive for the promotion of renewables
- June: Italy ratified the Kyoto Protocol
- December: the new CIPE resolution

## ■ 2004

- 20 April a draft National Allocation Plan

Is it enough?

# Cipe Resolution 2002 (MtCO<sub>2</sub> eq)



# Now we have “the number”

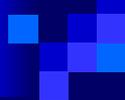
The gap is around 92.6 Mton CO2 eq

ASDP	39.8
ASCJ	12
FDP	
FCJ	40.8
ET	

**= 92.6**

<b>Power Generation</b>	<b>26</b>
Household & services	6.3
Transportation	7.5

Renewable  
Combinated  
Cycles  
Import



# How much CDM and JI?

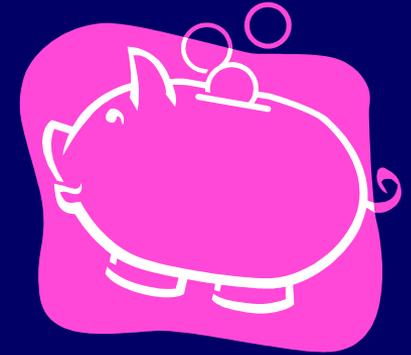
- Italian firms have a low propensity to invest abroad
- FDI towards Developed countries and service sector
- Which policies and measures could support CDM and JI decisions?



**2004...**

**Time to wake up !**

# How much will it cost?



## Model specifications:

- discount rate 5%;
- the net cost of most P&M is assumed to be zero;
- simulations from 2002 but policies effective from 2004;
- the abatement grows linearly;
- price for ET = 15 Euro/tonCO<sub>2</sub>

# TIME plays a crucial role:

- Opportunity cost
- Technical limit



We want to estimate the cost of reaching Kyoto assuming different degree of implementation of CIPE Guidelines

**R SUR**

0.00000  0.30000

0.04415

**R TRANS**

0.00  0.40

0.02

**CO ET**

15.000

15.000

**CO TRANS**

9

9

**R CC**

0.00  0.30

0.02

**R CDM**

0.00  0.50

0.00

**CO CC**

0

0

**CO CDM & JI**

U  10

10

**R RENEW**

0.00  0.30

0.02

**R FOREST**

0.00  0.50

0.00

**CO RENEW**

0

0

**CO FOREST**

1

1

**R IMP**

0.00  0.40

0.02

**R OT P&M**

0.00  0.50

0.00

**CO ELE IMP**

0

0

**CO OTHER P&M**

5

5

**R RES**

0.00  0.40

0.02

**R OT CDM**

0.00  0.50

0.00

**CO RES**

0

0

**CO OT CDM&JI**

3

3

**P&M + CDM&JI**

NEW CC Graph

NEW RENEW Graph

NEW IMP Graph

RES Graph

TRANS Graph

CDM&JI Graph

SWITCH ELE SWITCH R&T SWITCH CDM&JI SWITCH ET SWITCH THE OTHERS

**CO2 PRICE**

CO ET Graph

**THE OTHERS**

FOREST Graph

OTHER P&M Graph

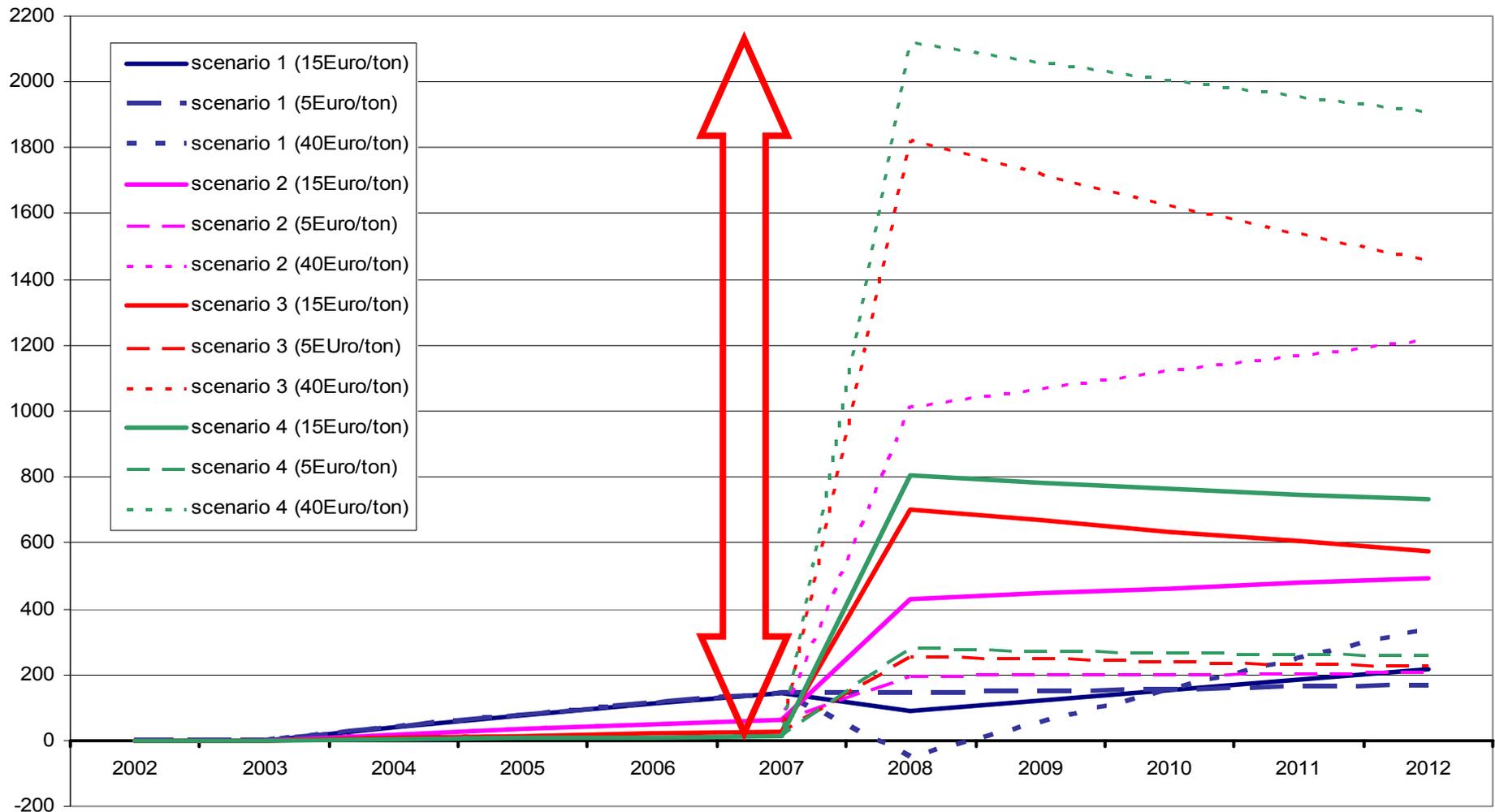
OTHER CDM&JI G...

# Degree of implementation of the Italian policies in 4 scenarios

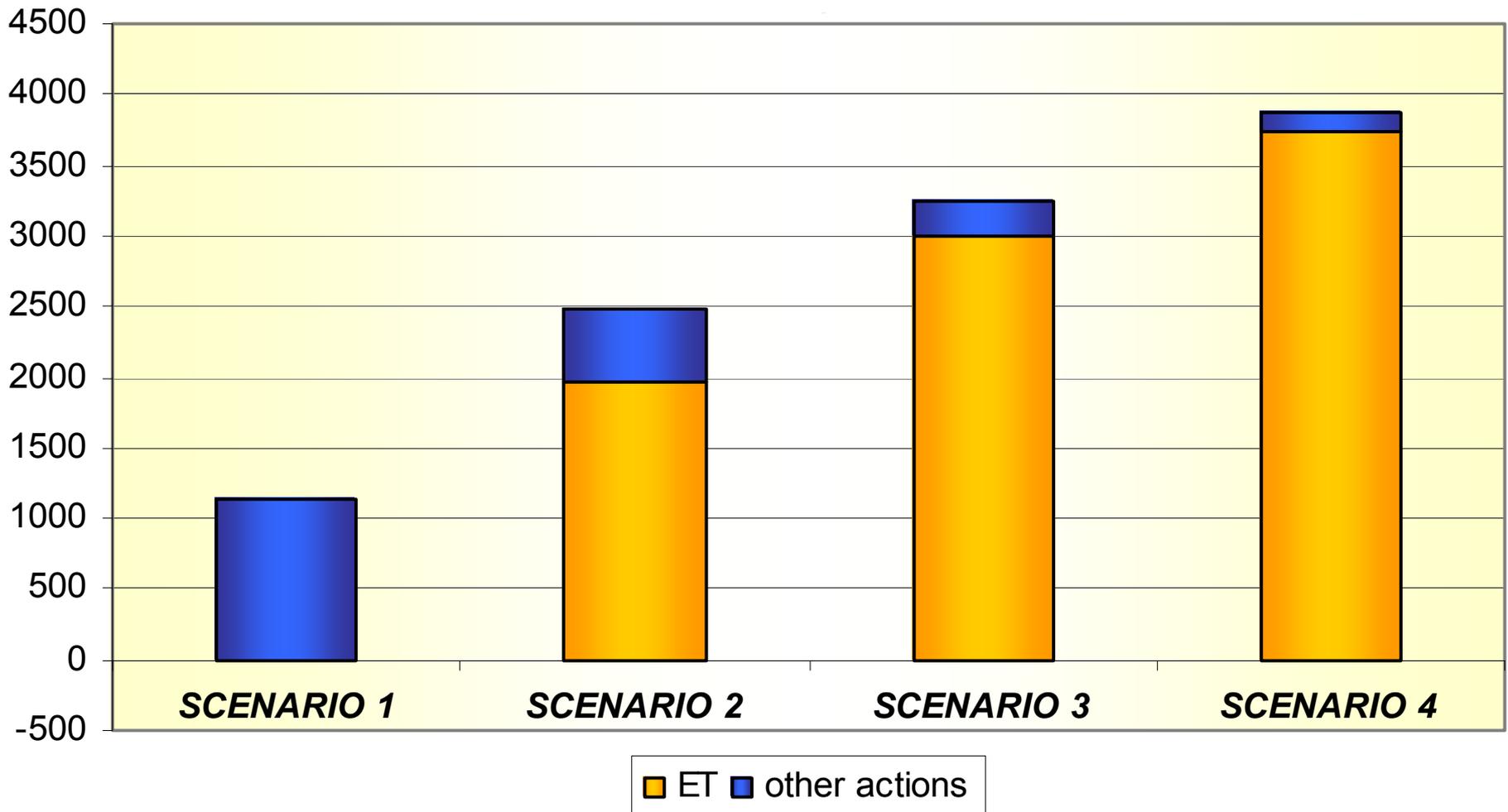
	Already Specified Domestic Measures	Already Specified CDM-JI	Further Measures (Domestic and CDM-JI)
Scenario 1	100%	100%	100%
Scenario 2	100%	100%	0%
Scenario 3	60%	60%	0%
Scenario 4	30%	30%	0%

# Scenario 1, 2, 3 and 4: annual total cost assuming different CO2 prices (5-15-40 Euro/ton CO2)

Total cost in different Scenarios (MilEuro)



# Scenario 1, 2, 3 and 4: weight of ET and other actions cost in millions of Euro (CO2 price:15 Euro/tonCO2)



# The Italian NAP

Italy published on 20 April 2004 a draft National Allocation Plan (NAP) under the EU emissions trading scheme.

The non-cogeneration power sector gets the larger share

The new entrants' reserve is based on sectorial level

<b><i>Mton CO2</i></b>	<b><i>2005</i></b>	<b><i>2006</i></b>	<b><i>2007</i></b>
Non-cogeneration power sector	105.6	103.2	98.9
Total	278.5	279.7	279.2

# Allocation criteria

- **Historical emissions**  
*paper, refining, glass*
- **Historical production**  
*Iron and steel, lime, clay, cogeneration*
- **Emissions projections**  
*Power sector*

# CIPE 2002 vs. NAP 2004

## (Mton GHGs)

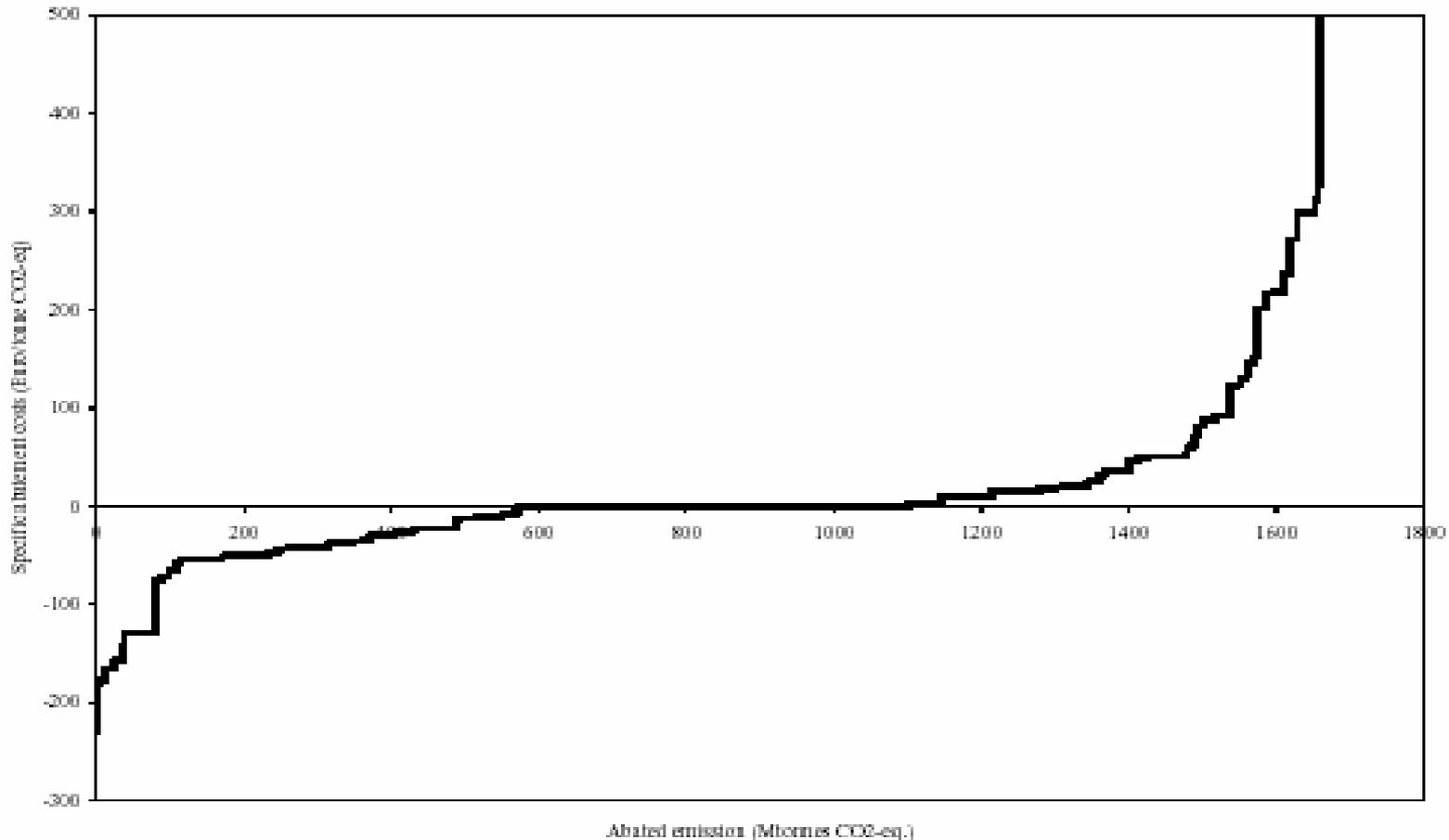
	<b>Cipe 2002</b>	<b>Nap 2004</b>	<b>Delta</b>
<b>Emissions in 1990</b>	521.0	508.0	-13
<b>Kyoto Target</b>	487.1	476.1	-11
<b>Emissions in 2000</b>	546.0	544.0	-2
<b>BAU Scenario to 2010</b>	579.7	607.7	28
<b>Distance from Kyoto target</b>	92.6	131.6	39
<b>Scenario with P&amp;M to 2010 (with CDM)</b>	517.9	541.1	23.2
<b>Power Industry Reference Scenario</b>	144.4	172.7	28.3
<b>Industry Reference Scenario</b>	80.2	82.2	2
<b>Transportation Reference Scenario</b>	134.7	136.7	2
<b>Residences Reference Scenario</b>	68.0	68.0	0

# A New Surplus

<b>Kyoto Target</b>	<b>476,1</b>
<b>BAU Scenario to 2010</b>	<b>607,7</b>
<b>Surplus in 2010</b>	<b>131,6 (+27,6%)</b>
<b>GHGs Abatement by NAP</b>	<b>24,4</b>

# CO2 Abatement Cost in UE

(4% discount rate, all sectors, EU15 – Euro/ton. CO2 eq.)



Source: EU 2001, "Bottom-up Analysis of Emission Reduction Potentials and Costs for Greenhouse Gases in the EU"

# Conclusions

- Surplus in 2010: about + 27%
- Domestic P&M cannot solve the problem because of...
  - time and costs,
  - current political orientation
- CDM-JI ? .... maybe, but let's avoid exaggerations
- Thus, Emissions Trading: how much does it cost?



*Thank you  
for your attention!*