Sectoral Approaches - Enel Presentation

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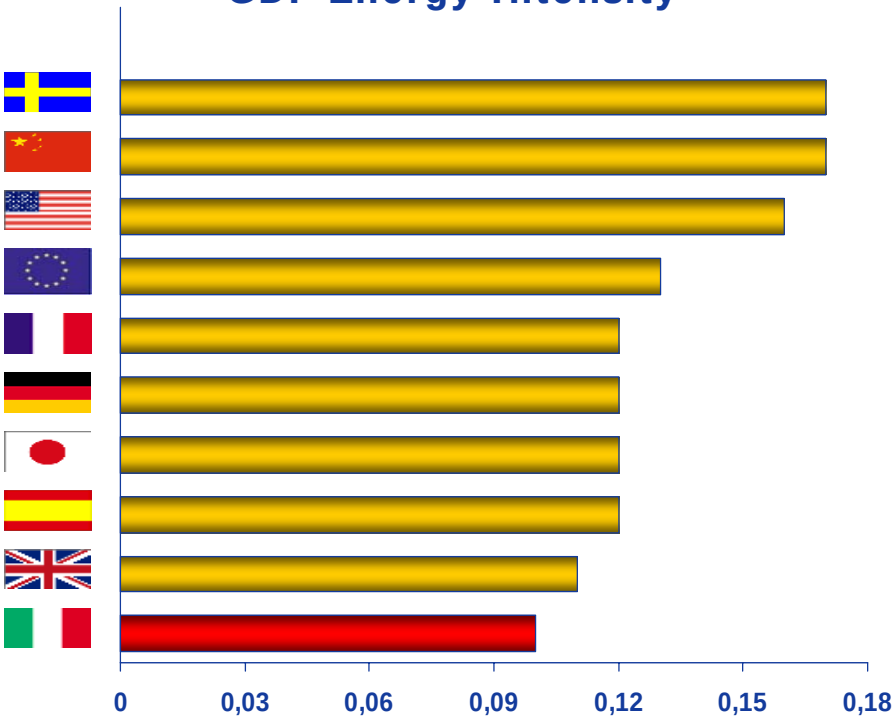
Overview

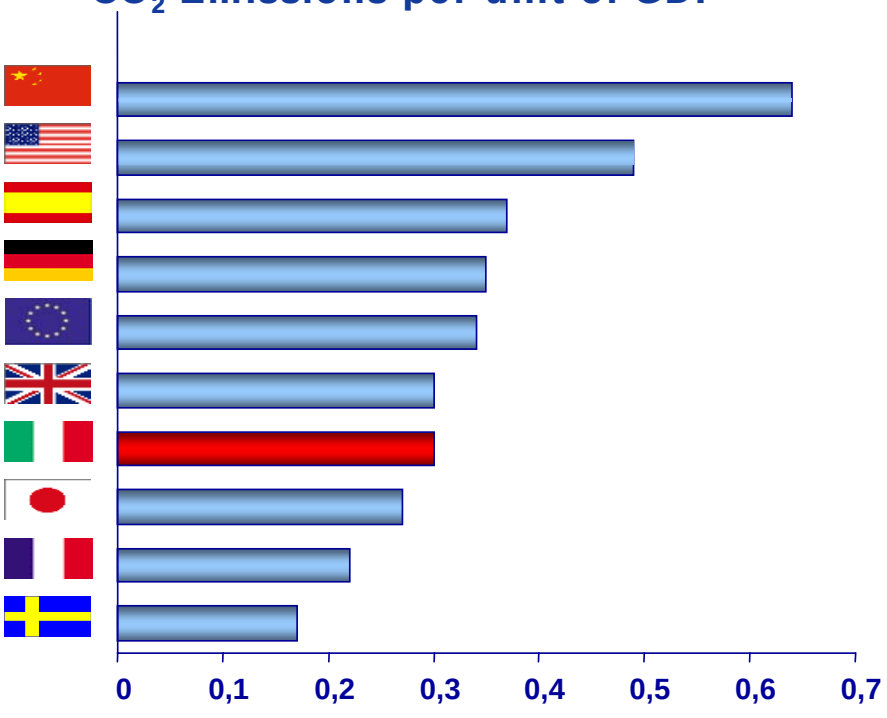
- ETS Trial Phase – what could be improved
- Italian overview
- Enel actions
- A new possible approach

Italian efficiency

GDP Energy Intensity*



CO_2 Emissions per unit of GDP**

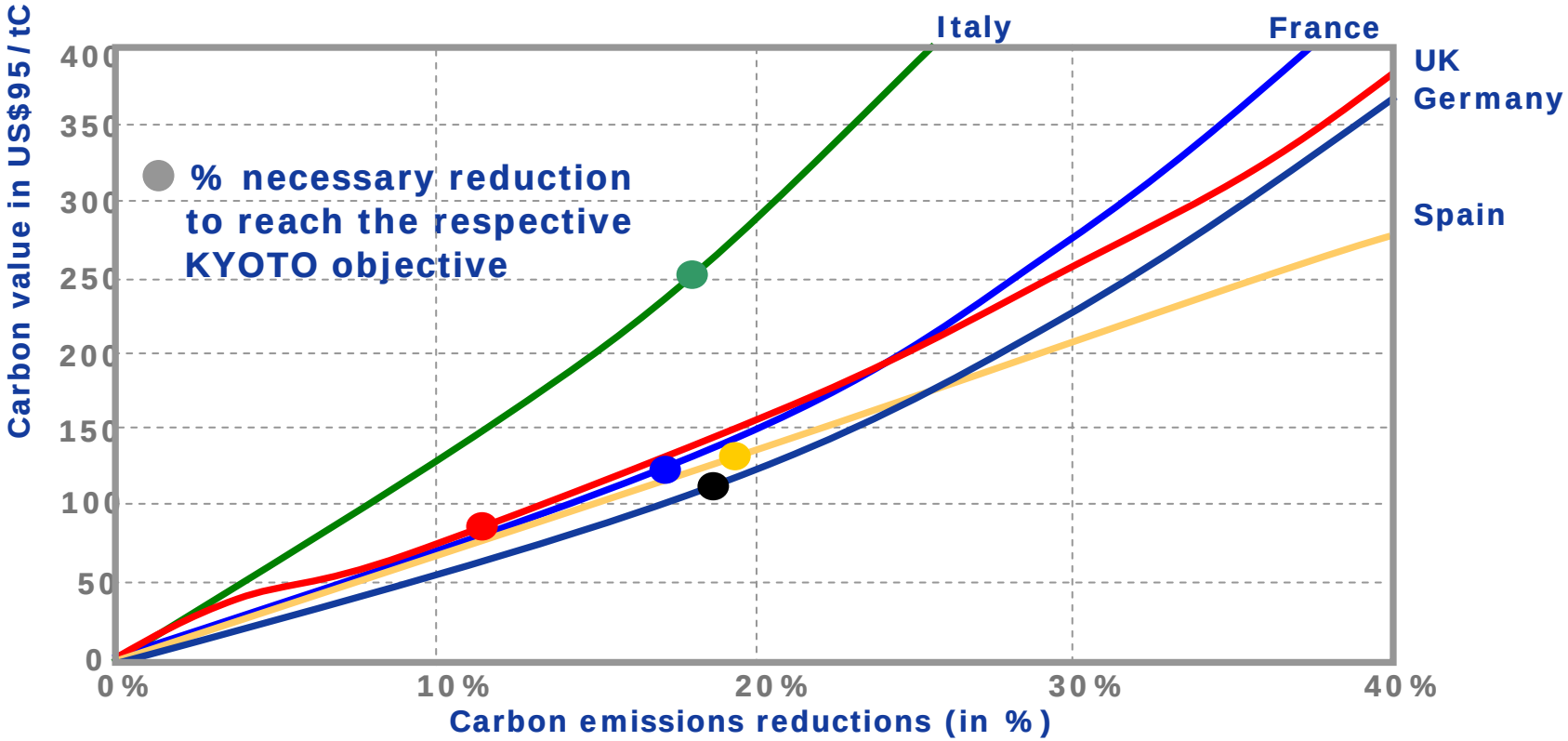


Italy's current high energy and emission efficiency levels make emissions reduction a very hard task

(*) Koe per $USA 1995

(**) Kg CO_2 per $USA

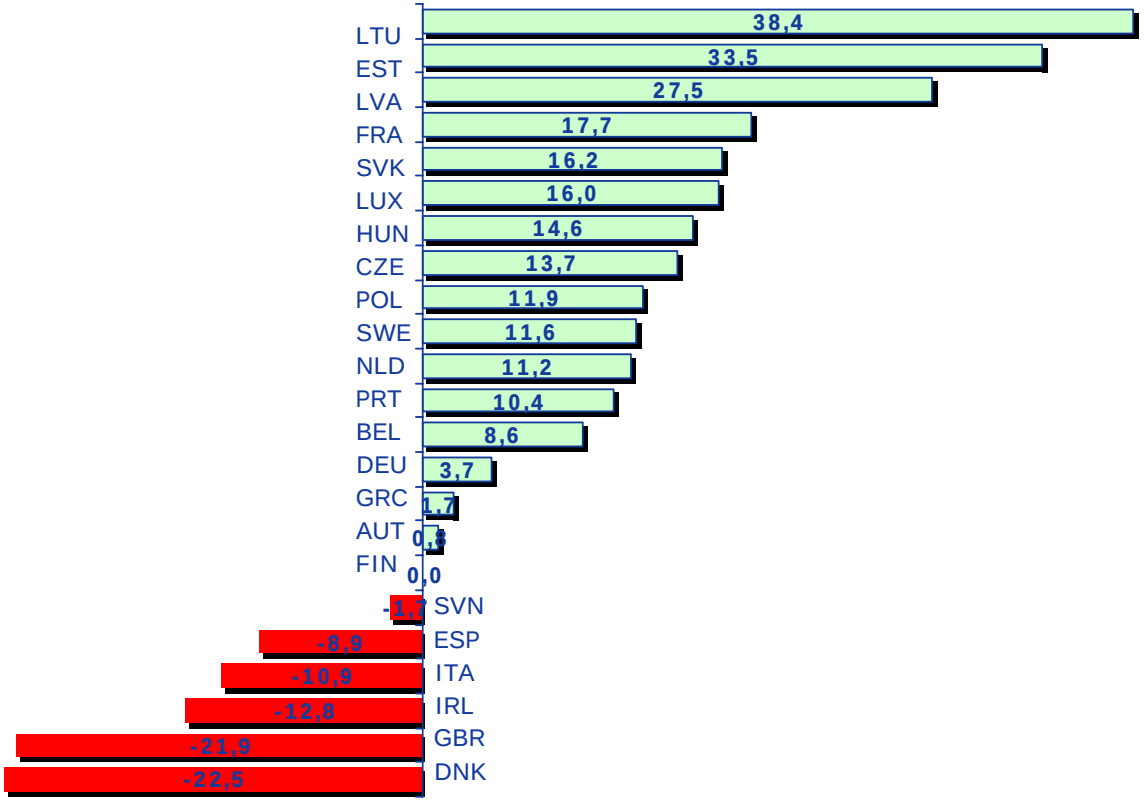
Examples of CO_2 abatement costs in 5 European countries



The Italian marginal CO_2 reduction cost is double the value of other main EU countries

Some lessons learned from the EU ETS trial period (1)

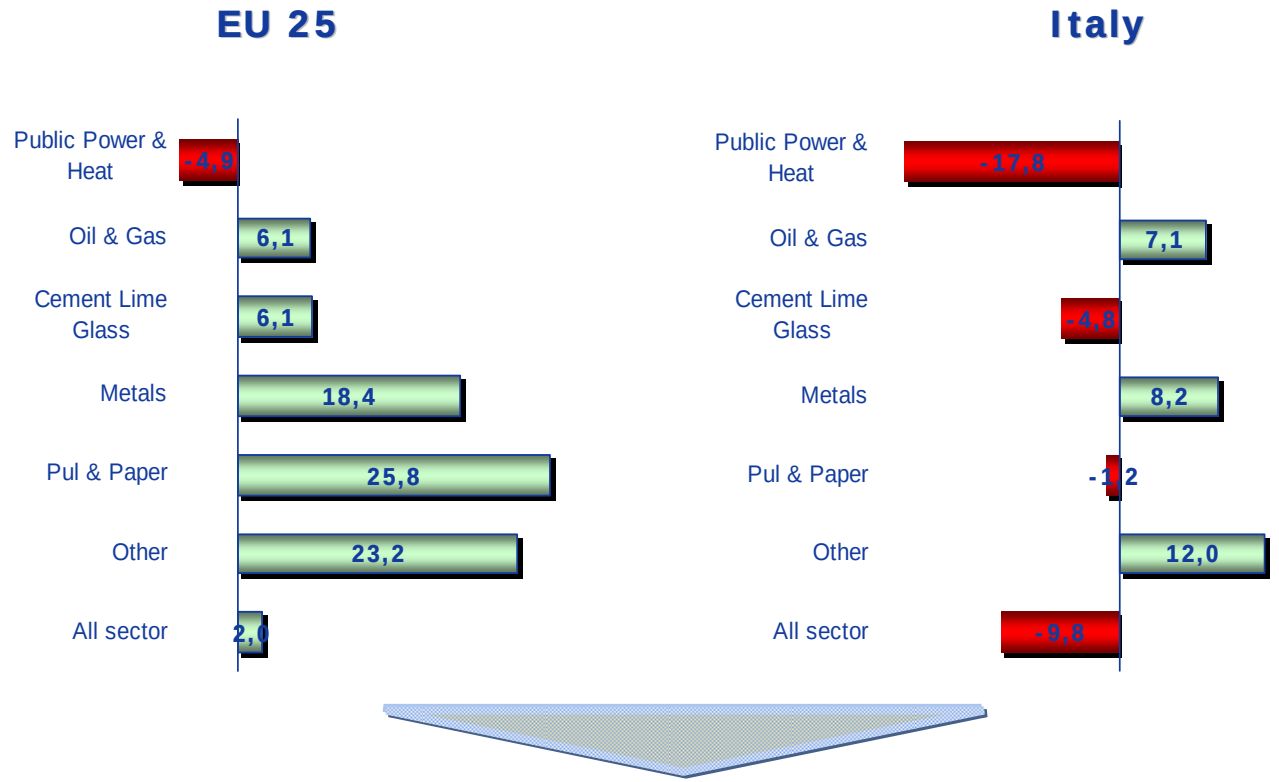
Comparison between allocated allowances and CO_2 emissions in 2006 (%)



Allocations across countries reflect non- homogeneity of an irrational Burden Sharing Agreement

Some lessons learned from the EU ETS trial period (2)

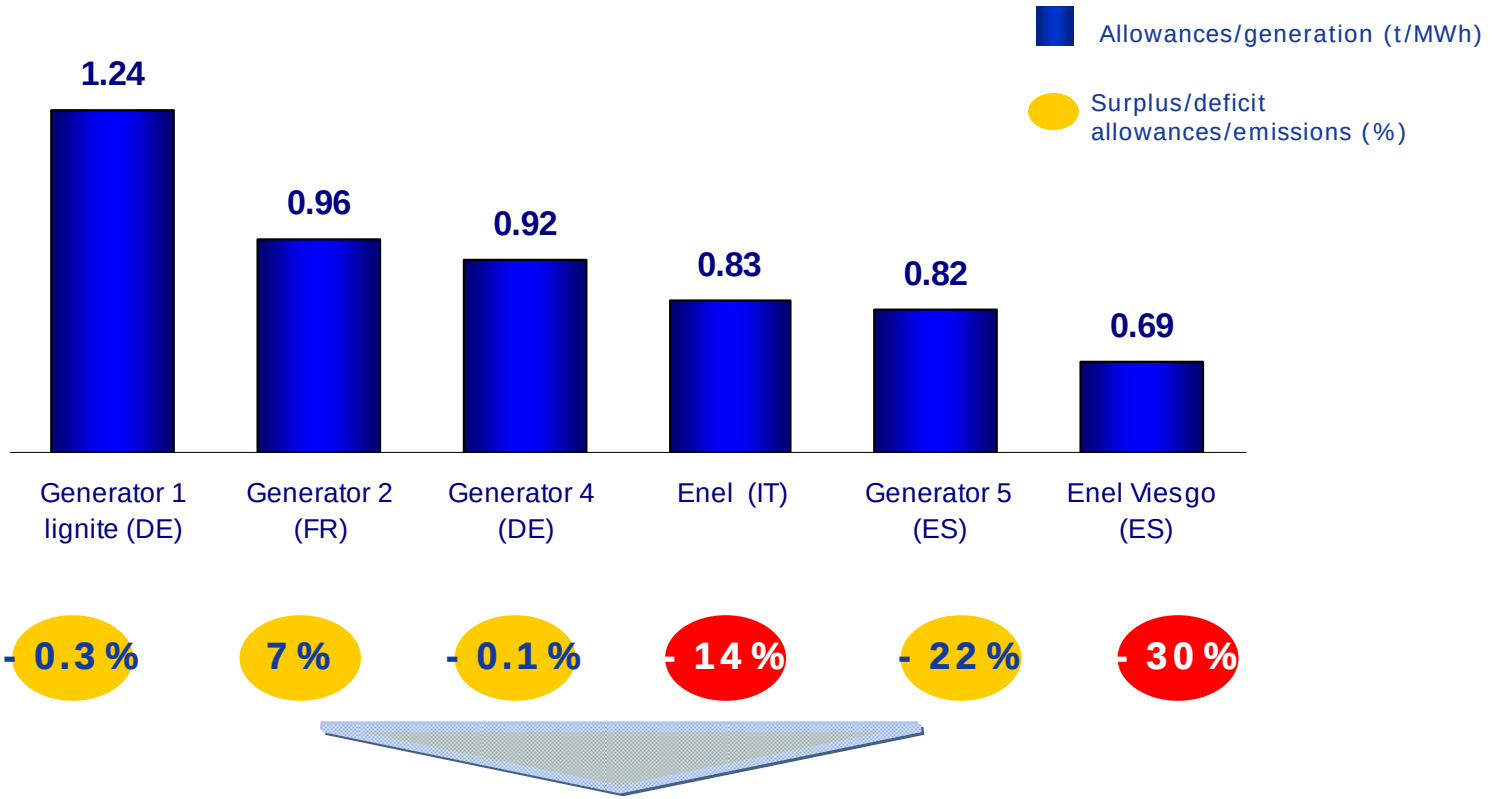
Sectoral difference between allocated allowances and CO2 emissions in 2006 (%)



Allocations reward overly all industrial sectors but electricity

Some lessons learned from the EU ETS trial period (3)

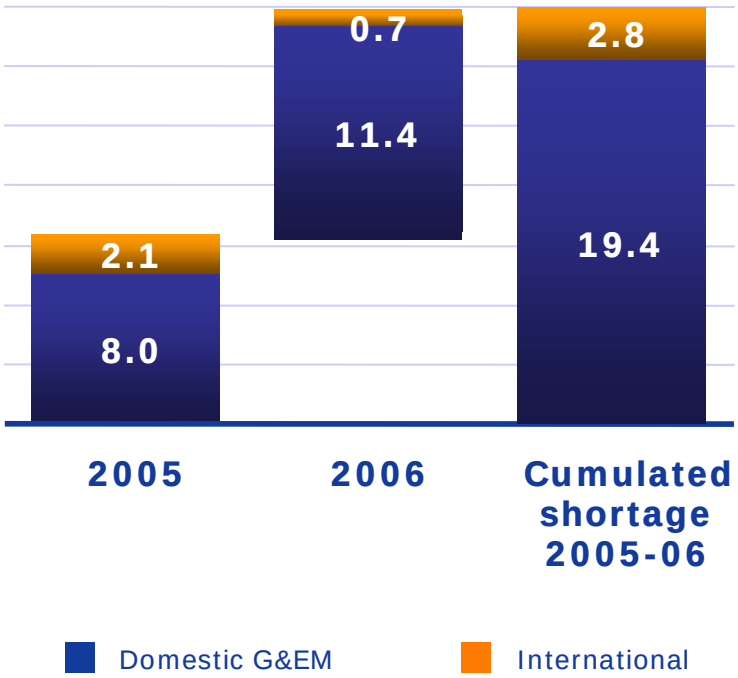
Coal generators (2005)



The criteria adopted in different NAPs penalized some operators independently from their environmental performance

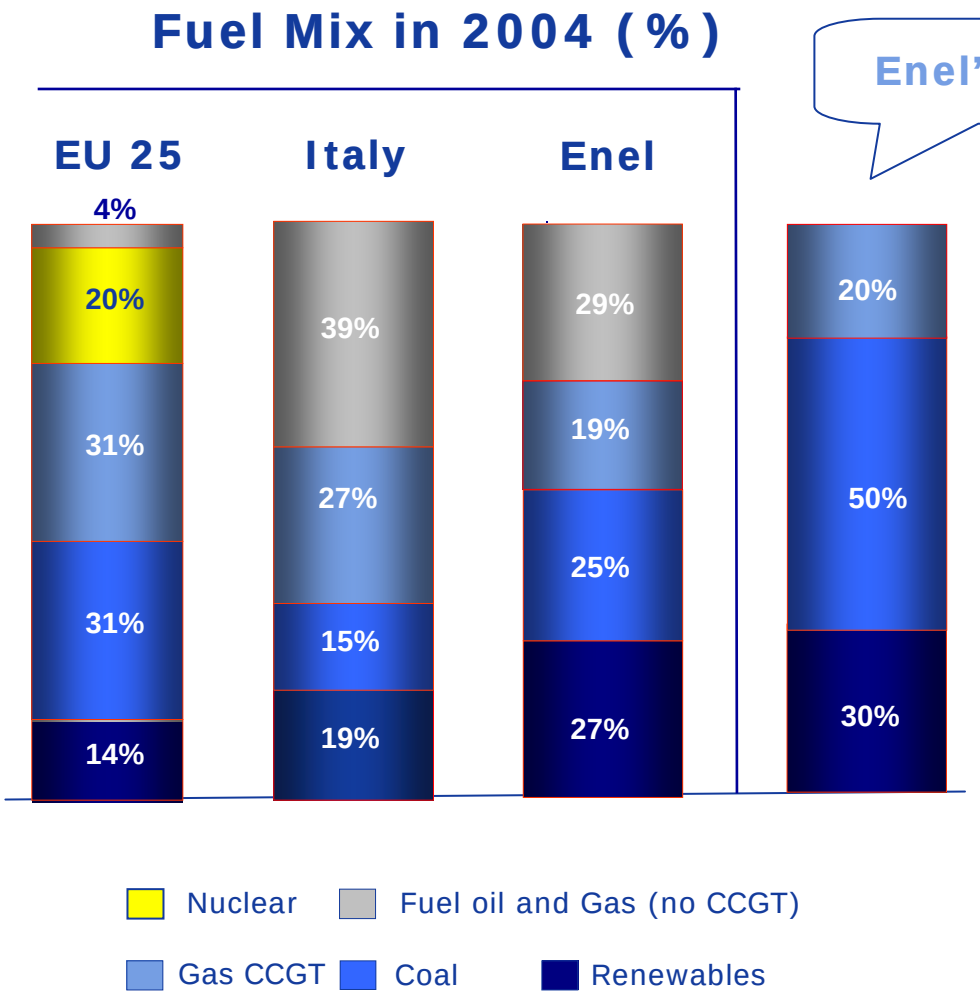
CO_2 Emission Trading Scheme: trial period

Enel Shortage (Mton)



- 2005-2006 already hedged through EUAs Acquired on the market
- 2007 expected shortage already largely hedged

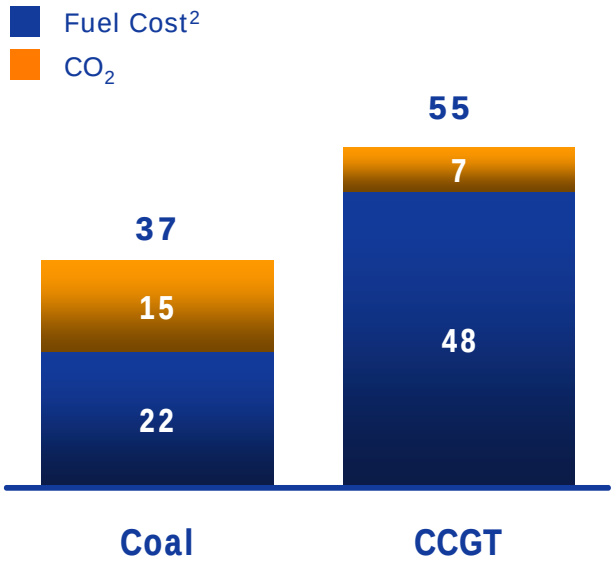
EU, Italian and Enel generation mix



- keep open nuclear option
- increase clean coal generation
- develop renewables
- eliminating fuel oil
- NG only in high efficiency CCGT

CO_2 Emission Trading Scheme: 2008-2012

Variable cost[1] @CO_2 = 20 €/ton



Italian NAP

- Based on 2005 production
- Best available technology benchmark differentiated by fuel
- Coal allowances partially sold
- CERs 15% limit

Sourcing initiatives

- More than 40 ERPAs signed for a global potential amount of 16 Mtons/yrs (single digit price)
- Further initiatives under negotiation

No major impact on Enel's strategy

1. €/MWh
2. Based on 2007 fuel costs

EU ETS review: outline of Enel position

Balanced targets	• Adopt a bottom-up approach based on benchmarks differentiated by fuel and technology
Security of supply	• The EU ETS should be compatible with an appropriate diversification of the energy mix
Predictability of regulatory framework	• Make the allocation period longer (10 years) • Earlier decisions on allocations (5 years)
Inclusion of other sectors	• Reduce overall costs • Select available options • Evaluate possible alternative policies

What should the European Union do?

External competitiveness

- Maintain its leadership, but give up the unilateral approach
- Be prepared to adjust policies and measures to the post 2012 architecture resulting from international negotiation

Internal fair competition

- Individual targets to be identified at sectoral level based on technology and fuel

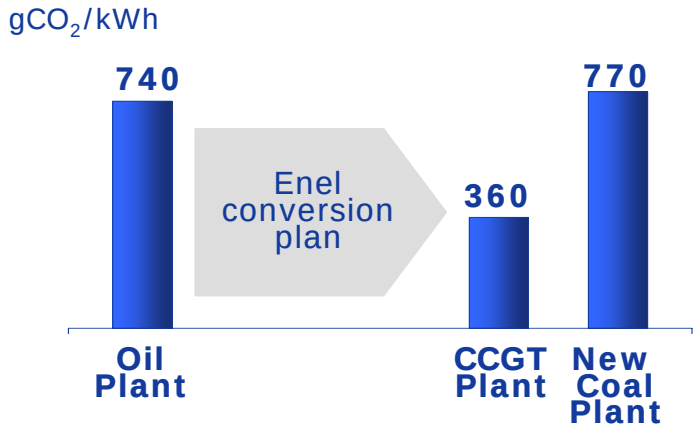
Carefully review the EU-ETS Directive

Enel commitment to reduce CO2 emissions

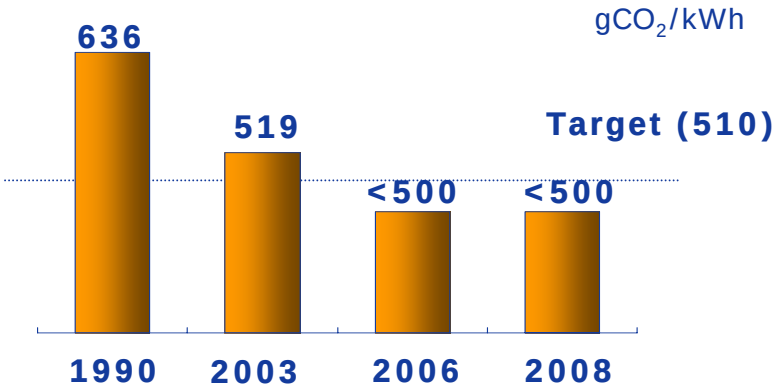
Voluntary agreement signed with the Italian Minister of Environment in 2000

Enel committed itself to reduce its specific emission to 510 g CO_2/kWh by 2006 [- 20% with respect to 1990]

Average CO_2 specific emission per technology



Enel specific emission trend



Overall conversion plan to achieve emission reduction (target exceeded) and fuel diversification (using most efficient technologies)

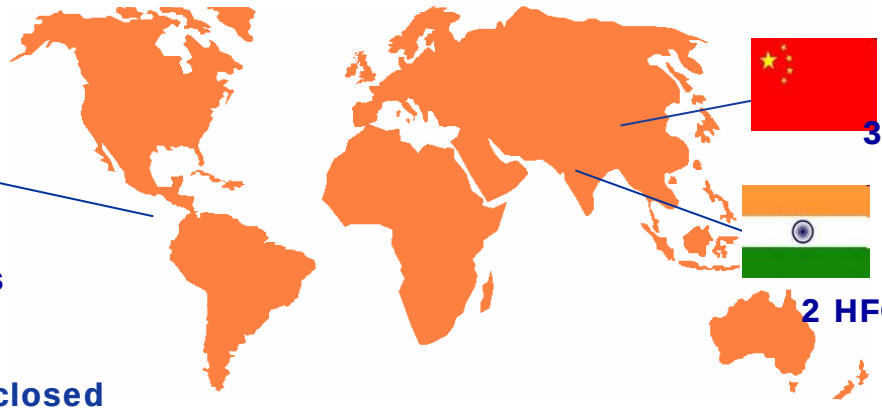
Enel's actions for combating climate change

1. Energy Efficiency	• "Smart consumption" • Distribution of low consumptions bulbs • Promotion of high efficiency electric devices • Efficiency of electric public lighting	Target 2009: Avoided CO2 emissions for more than **4Mton/year**
2. Renewable	• Invested 1.1 € Billion for the period 2003-06 • Further planned investments for 1.6 € Billion for next 5 years	Target 2009: 3TWh of Green Certificates **≈2MTon** of avoided CO2 emissions
3. Conversion thermoelectric plants	• Conversion Plan of thermoelectric plants from oil to high efficiency combined cycle gas and to clean coal	- Conversion plan of **5.000MW** to combined cycle gas - Under construction **2.000MW** clean coal plant (Civitavecchia); other activities under developing
4. CDM	• Sponsorship for industrial projects with the objective to reduce green house gases according to Kyoto Protocol procedures in developing countries	Currently activities for more than **15 Mton/year**
5. Research & Development	• Forefront research activities for electric generation from solar and hydrogen • Research activities on "carbon sequestration" technologies	A firm and persevering effort

Enel CO2 reduction projects in developing countries

Clean Development Mechanism projects signed or under negotiation by Enel

Contracts already signed



China
> 45 renewable energy projects
3 HFC-23 projects

Guatemala
2 hydro projects

India
2 HFC-23 projects

Deals already closed

($MtonCO_2$ eq./year)	2007	2008	2009	2010	2011	2012
TOTAL	5 -6	>15	>15	>15	>15	>15

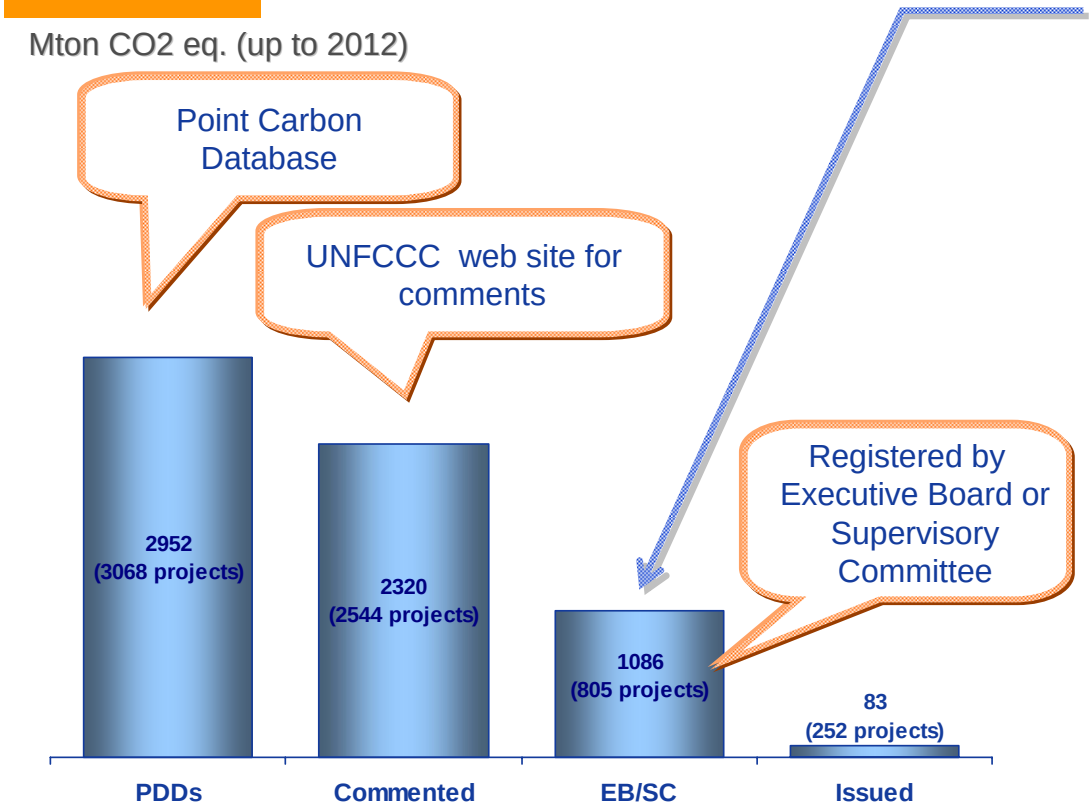
Contracts under negotiation

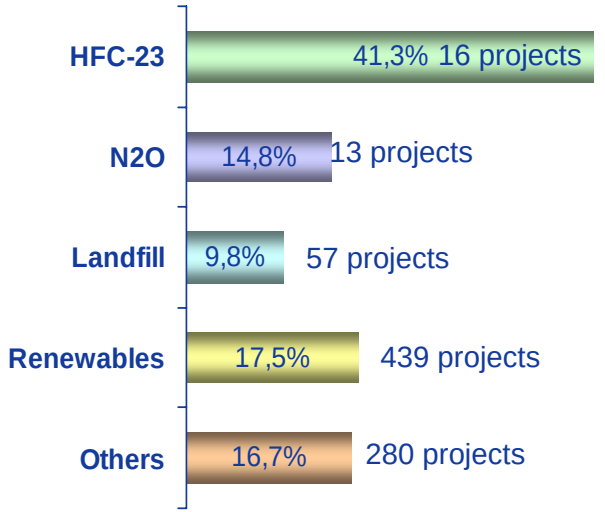
Countries: China, India, Brazil

Projects: more than 10 Renewable, 10 Iron & Steel (Energy efficiency), 4 Chemicals, 1 Coal Mine Methane.

CDM & JI – Present situation

4th October 2007

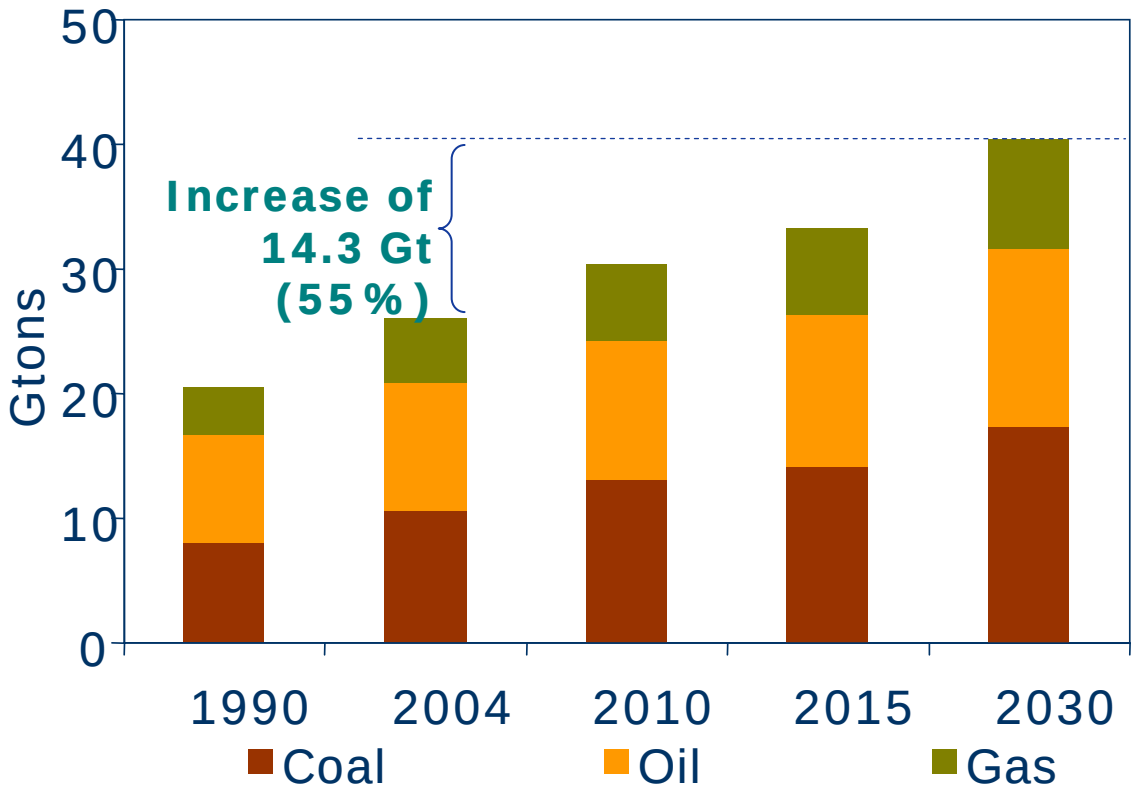




- Overall CERs market dimension is equal to 168 Mton CO2e/year;
- 56% of the volumes generated by only 29 projects.

IEA Reference Scenario

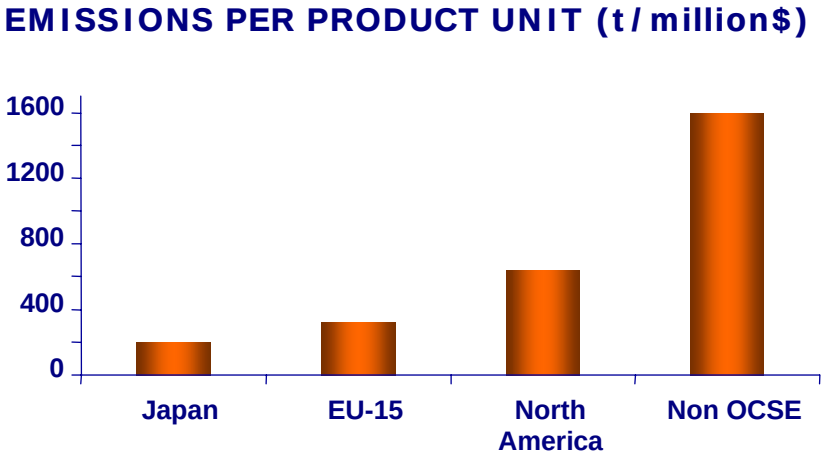
Energy-Related CO_2 Emissions by Fuel



Half of the projected increase in emissions comes from new power stations, mainly using coal located in China and India

The basis for a new approach

- Very high emissions per product unit in developing countries



- Bringing all countries to the level of most efficient countries represents an enormous reduction potential

World GDP 34.400 billion $ X Top Performance 200 t/million $ = Total hypothetical emissions 6.880 million tCO2

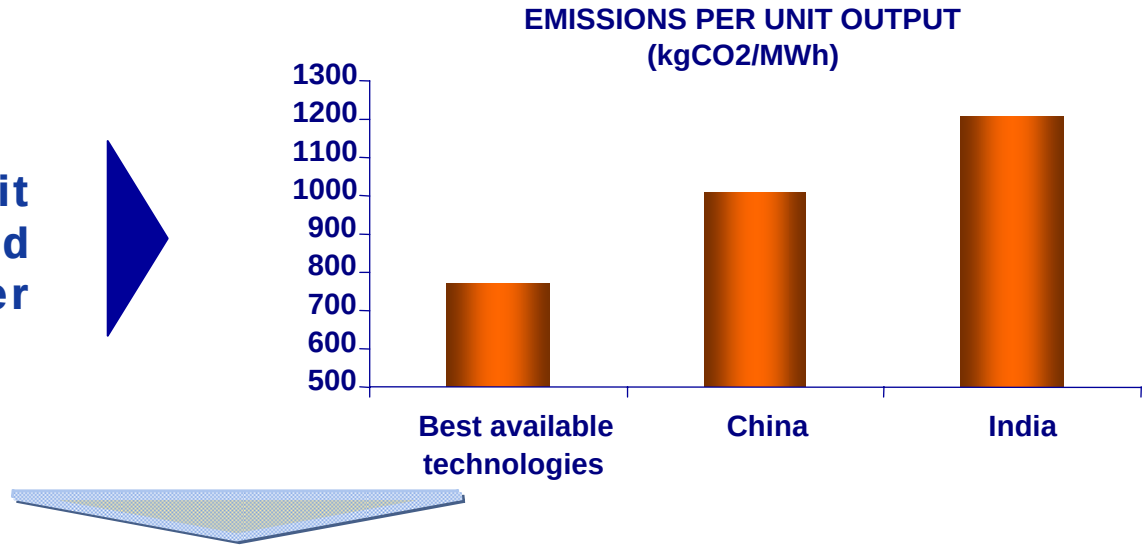
World real emissions 23.684 millions tCO2

Reduction Potential: 70%

These elements suggest a more flexible and less expensive approach may be possible

Potential of best available existing technologies in the power sector

- Emissions per unit output from coal-fired thermal power generation vary widely



- Bringing Chinese coal generation fleet to BAT could avoid over 800 million tons of CO_2 / year by 2020
- Bringing Indian coal generation fleet to BAT could avoid an additional 300 million tons of CO_2 / year by 2020

Post-2012: a few key elements

A new global approach to climate change

- Involvement of all countries including the USA and Developing Countries
- More incentives
- Less sanctions
- No constraints to development

Targets must be based on technological potential

- Set targets on a long term basis
- Short term: exploit best available technologies (deployment)
- Long term: promote new technologies (development)

Improve cooperation

- Private- public partnership
- Financial tools
- Regulatory frameworks to stimulate investments

Promotion of a new approach for post-2012

PRESENT APPROACH

- Top-down assignment of absolute caps
- Strict “cap and trade” model, only applied to few countries
- Insufficient results in terms of global emissions reduction
- High implementation costs for certain countries
- Flexible mechanisms still requiring strong political, financial and organizational efforts

A NEW, MORE EFFICIENT APPROACH

A new method capable of reconciling:

- **Economic Efficiency:** reducing emissions where it is less costly
- **Effectiveness:** producing significant results in terms of emissions reduction
- **Inclusiveness:** involving all countries, through objectives differentiated on the basis of economic and social contexts
- **Equity:** in targets allocation among sectors and countries
- Flexibility and easy implementation
- Incentives to the adoption of innovative technologies

Enel is working with several other interested parties to define the new approach