Italy’s route to Kyoto: a wishful thinking?

by
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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)

- Household and Services: 17%
- Industry: 20%
- Transportation: 21%
- Agriculture: 10%
- Others: 4%
- Electricity Generation and refineries: 28%
Italy and Kyoto: ambitions and reality

Ambitions

KYOTO TARGET - 6.5% with respect to 1990

521 Mton CO2 eq in 1990

- 6.5%

= 487.1 Mton CO2 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
A low energy intensity due to:

- Energy saving lifestyle originated by a strong energy dependence
- High energy prices
- Non energy intensive economic structure
- Climate, high population density
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 (MtCO2 eq)

2000 Emissions (546,8)

- Further measures (32,5 - 47,8)
- Reforestation (10,2)
- Further CDM – JI (20,5 - 48)

Already located measures (39,6) + CDM – JI (12)

Surplus (92,6)

2010 Reference Scenario (528,1)

2010 BASE Scenario (579,7)

TARGET (487,1)

Surplus (41)
Now we have “the number”

The gap is around 92.6 Mton CO2 eq

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>ASDP</td>
<td>39.8</td>
<td></td>
<td></td>
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<tr>
<td>ASCJ</td>
<td>12</td>
<td></td>
<td></td>
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<tr>
<td>FDP</td>
<td></td>
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<tr>
<td>FCJ</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>ET</td>
<td>40.8</td>
<td></td>
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</table>

$\text{Power Generation} = 26$

$\text{Household & services} = 6.3$

$\text{Transportation} = 7.5$

$= 92.6$
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/tonCO2
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
Degree of implementation of the Italian policies in 4 scenarios

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Already Specified Domestic Measures</th>
<th>Already Specified CDM-JI</th>
<th>Further Measures (Domestic and CDM-JI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenario 1</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
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<tr>
<td>Scenario 2</td>
<td>100%</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>60%</td>
<td>60%</td>
<td>0%</td>
</tr>
<tr>
<td>Scenario 4</td>
<td>30%</td>
<td>30%</td>
<td>0%</td>
</tr>
</tbody>
</table>
Scenario 1, 2, 3 and 4: annual total cost assuming different CO2 prices (5-15-40 Euro/ton CO2)
Scenario 1, 2, 3 and 4: weight of ET and other actions cost in millions of Euro (CO2 price: 15 Euro/tonCO2)

![Graph showing emissions trading and other actions cumulative costs (2002-2012 in MilEuro) for scenarios 1 to 4. The x-axis represents the scenarios, and the y-axis represents the costs in millions of Euro. The graph indicates the relative costs for ET and other actions across different scenarios.]
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

<table>
<thead>
<tr>
<th>Mton CO2</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-cogeneration power sector</td>
<td>105.6</td>
<td>103.2</td>
<td>98.9</td>
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<tr>
<td>Total</td>
<td>278.5</td>
<td>279.7</td>
<td>279.2</td>
</tr>
</tbody>
</table>
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)

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

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
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<tr>
<td>Kyoto Target</td>
<td>476.1</td>
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<td>BAU Scenario to 2010</td>
<td>607.7</td>
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<tr>
<td>Surplus in 2010</td>
<td>131.6 (+27.6%)</td>
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<tr>
<td>GHGs Abatement by NAP</td>
<td>24.4</td>
</tr>
</tbody>
</table>
CO2 Abatement Cost in UE
(4% discount rate, all sectors, EU15 – Euro/ton. CO2 eq.)

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!