The Italian energy efficiency market

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ENEA - Technical Unit for Energy Efficiency Monitoring & Support to EE Policies

ENERGY EFFICIENCY MARKET AND CLIMATE CHANGE MITIGATION
Rome, October 29th, 2015
Overview

- EU 2020 targets for Italy
- Main energy efficiency policies
  - White Certificates
  - Tax Deductions
  - Thermal Account
- Achieved results
- Energy efficiency market at a glance
- Conclusions
<table>
<thead>
<tr>
<th>Sector</th>
<th>Measures to be implemented in 2011-2020</th>
<th>Expected savings at 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Energy Efficiency Directive - Article 7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Obligation Scheme</td>
<td>Alternative measures</td>
</tr>
<tr>
<td></td>
<td>White Certificates Scheme</td>
<td>Tax Deductions Scheme</td>
</tr>
<tr>
<td>Residential</td>
<td>0.15</td>
<td>1.38</td>
</tr>
<tr>
<td>Services</td>
<td>0.10</td>
<td>0.93</td>
</tr>
<tr>
<td>Public</td>
<td>0.04</td>
<td>0.43</td>
</tr>
<tr>
<td>Private</td>
<td>0.06</td>
<td>0.50</td>
</tr>
<tr>
<td>Industry</td>
<td>5.10</td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td>0.10</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>5.45</td>
<td>1.38</td>
</tr>
</tbody>
</table>

Source: NEEAP 2014
Technical assessment of more than 14,000 projects was completed in 2013.

Almost 40,000 GWh/year of energy savings at 2013 (preliminary assessment)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Standard</td>
<td>2,046.252</td>
<td>89.957</td>
<td>79.937</td>
<td>87.811</td>
<td>266.952</td>
<td>2,570.909</td>
<td>18.097</td>
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<tr>
<td>Ex-post calculation</td>
<td>270.650</td>
<td>384.779</td>
<td>396.442</td>
<td>924.108</td>
<td>303.180</td>
<td>2,279.159</td>
<td>21.433</td>
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<tr>
<td>Total</td>
<td>2,316.902</td>
<td>474.736</td>
<td>476.379</td>
<td>1,011.919</td>
<td>570.132</td>
<td>4,850.068</td>
<td>39.530</td>
</tr>
</tbody>
</table>

Source: elaboration by ENEA on GSE and AEEG data.
### Tax Deductions

#### Number of projects

<table>
<thead>
<tr>
<th>Project</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall renovation</td>
<td>3.180</td>
<td>5.700</td>
<td>5.600</td>
<td>1.917</td>
<td>1.450</td>
<td>3.579</td>
<td>3.566</td>
<td>24.992</td>
</tr>
<tr>
<td>Insulation of opaque envelope and replacement of windows</td>
<td>39.220</td>
<td>112.600</td>
<td>127.800</td>
<td>226.720</td>
<td>170.400</td>
<td>135.283</td>
<td>244.421</td>
<td>1.056.444</td>
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<tr>
<td>Replacement of electric boilers with solar panels</td>
<td>20.140</td>
<td>37.100</td>
<td>35.300</td>
<td>47.106</td>
<td>29.350</td>
<td>33.801</td>
<td>26.851</td>
<td>229.648</td>
</tr>
<tr>
<td>Efficient heating systems</td>
<td>27.560</td>
<td>57.700</td>
<td>68.000</td>
<td>129.883</td>
<td>79.500</td>
<td>72.571</td>
<td>81.123</td>
<td>516.337</td>
</tr>
<tr>
<td>Multiple selection</td>
<td>15.900</td>
<td>34.700</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>50.600</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>106.000</td>
<td>247.800</td>
<td>236.700</td>
<td>405.626</td>
<td>280.700</td>
<td>245.234</td>
<td>355.961</td>
<td>1.522.060</td>
</tr>
</tbody>
</table>

#### Energy savings (GWh/year)

<table>
<thead>
<tr>
<th>Project</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall renovation</td>
<td>68</td>
<td>163</td>
<td>121</td>
<td>46</td>
<td>35</td>
<td>30</td>
<td>64</td>
<td>527</td>
</tr>
<tr>
<td>Insulation of opaque envelope and replacement of windows</td>
<td>186</td>
<td>495</td>
<td>495</td>
<td>771</td>
<td>600</td>
<td>545</td>
<td>802</td>
<td>3.894</td>
</tr>
<tr>
<td>Replacement of electric boilers with solar panels</td>
<td>93</td>
<td>288</td>
<td>245</td>
<td>254</td>
<td>160</td>
<td>133</td>
<td>134</td>
<td>1.307</td>
</tr>
<tr>
<td>Efficient heating systems</td>
<td>268</td>
<td>614</td>
<td>626</td>
<td>961</td>
<td>640</td>
<td>552</td>
<td>658</td>
<td>4.319</td>
</tr>
<tr>
<td>Multiple selection</td>
<td>173</td>
<td>401</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>574</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>788</td>
<td>1.961</td>
<td>1.487</td>
<td>2.032</td>
<td>1.435</td>
<td>1.260</td>
<td>1.658</td>
<td>10.621</td>
</tr>
</tbody>
</table>
Incentives for renewable heating and cooling small scale plants (1 MW) and for energy renovation of public buildings.

- About 10,000 applications between July 2013-December 2014
- 26 M€ of investments
- Need to simplify and to strengthen the scheme

**Beneficiaries**

The incentive scheme is addressed to two types of beneficiaries:

- Public administrations
- Private parties i.e. individuals, buildings held in co-ownership and businesses or farms

Beneficiaries may implement the actions via an ESCo, by means of a third-party financing contract, an energy service contract or an energy performance contract.
# Achieved energy savings

## Savings (Mtoe/year) (2011-2013):

<table>
<thead>
<tr>
<th></th>
<th>Legislative Decree 192/05</th>
<th>White Certificates</th>
<th>55/65% tax deductions</th>
<th>Measures in transport sector</th>
<th>Other measures</th>
<th>Energy savings</th>
<th>Achieved at 2013*</th>
<th>Expected at 2020</th>
<th>Achieved target (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>0.75</td>
<td>0.29</td>
<td>0.33</td>
<td></td>
<td>0.01</td>
<td>1.31</td>
<td>3.67</td>
<td>35.7%</td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td>0.02</td>
<td>0.04</td>
<td>0.01</td>
<td></td>
<td></td>
<td>0.07</td>
<td>1.23</td>
<td>5.6%</td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td>0.06</td>
<td>1.28</td>
<td>0.02</td>
<td></td>
<td></td>
<td>1.36</td>
<td>5.10</td>
<td>26.6%</td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td>0.02</td>
<td></td>
<td></td>
<td>0.45</td>
<td>0.02</td>
<td>0.47</td>
<td>5.50</td>
<td>8.6%</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.83</strong></td>
<td><strong>1.61</strong></td>
<td><strong>0.35</strong></td>
<td><strong>0.45</strong></td>
<td><strong>0.03</strong></td>
<td><strong>3.21</strong></td>
<td><strong>15.50</strong></td>
<td><strong>20.7%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: ENEA elaboration
# Cost-effectiveness

<table>
<thead>
<tr>
<th></th>
<th>Investment (M€)</th>
<th>Lifetime (year)</th>
<th>Annual investment (M€/year)</th>
<th>Achieved savings (GWh/year)</th>
<th>Cost effectiveness (€/kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>White Certificates</strong></td>
<td>n.d.</td>
<td>10</td>
<td>n.d</td>
<td>39.530</td>
<td>0.017</td>
</tr>
<tr>
<td><strong>Tax Deductions 55/65%</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall upgrading</td>
<td>785</td>
<td>20</td>
<td>39</td>
<td>527</td>
<td>0.074</td>
</tr>
<tr>
<td>Thermal insulation</td>
<td>11.800</td>
<td>20</td>
<td>590</td>
<td>3.894</td>
<td>0.152</td>
</tr>
<tr>
<td>Heating system</td>
<td>6.417</td>
<td>12</td>
<td>535</td>
<td>4.319</td>
<td>0.124</td>
</tr>
<tr>
<td><strong>Weighted average</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.124</td>
</tr>
</tbody>
</table>

Source: ENEA elaboration
Italian EE market survey

Investment expectations for the next 3 years (relative to the last 3 years)
Whole sample (161 representative companies)

Barriers:
Survey on utilities

Average ROS
- 2009: 7.6%, 7.3%
- 2010: 9.6%
- 2011: 8.2%
- 2012: 6.5%

Average ROS of additional products

Sales unit
- 2009: 33%
- 2010: 8%
- 2011: 59%

External unit

Mixed model

Source: AGICI
Survey on SMEs: expectations

Importance of EU policies
- Yes: 39%
- No: 61%

EE interventions in the next future
- Yes: 87%
- No: 13%

EE interventions in the next future
- Within 1 year: 43%
- Within 3 years: 7%
- Within 5 years: 14%
- More than 5 years: 36%

Expected savings
- 0-9%: 57%
- 10-29%: 4%
- 30-49%: 7%
- 50-100%: 32%
Survey on SMEs: barriers

- Stopping of the activities
- Energy cost marginal relative to total cost
- Long pay-back periods
- No budget addressed to EE
- Lack of external (technical and economic) support
- No (time and human) resources
- Lack of knowledge about EE opportunities

![Bar graph showing the barriers to energy efficiency for Total, Medium, Small, and Micro SMEs.](image-url)
Financial EE products

Share of banks providing financial EE products (by sector)

- Energy upgrading of residential buildings: 100%
- Energy upgrading of public buildings: 33%
- Third parties financing through ESCOs: 17%
- EE in the industry sector: 67%
- Other projects: 17%

Source: ABI Lab
Barriers of banks

Perception of the level of instability of the normative framework

High or very high for the 86% of the sample

Source: ABI Lab
According to the Legislative Decree 115/2008, the ENEA Technical Unit for Energy Efficiency must write the annual report, in order to monitor and coordinate the available EE tools:

- Introduction (in English)
- National energy figures
- Sectoral technologies
- Achieved energy savings
- The Italian EE market
- The available financial tools
- The agro-food sector
- Regional figures

Conclusions

• The availability of disaggregated data and information on both the outcomes of different EE measures and the EE market are key elements for their monitoring and, if necessary, the timely update of measures themselves.

• To this aim, given our experience of ENEA EE Annual Report, higher the number of the involved stakeholders in this monitoring process, higher the quantity of gathered data and information... and better their quality!

• Thanks to the cooperation of all the involved stakeholders, better understanding about the choice of technologies, barriers faced, and (financial) tools and behaviours adopted and/or changed to cope with them.

• Final result: a continuous work in progress addressed to both stakeholders and policymakers.
Thank you!

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