19-01-2015

Technical Workshop on Climate-Energy Policy Approaches for the Industrial Sector

BELGIUM

Erwin CORNELIS

Explaining Belgium

Federal issues

» Security of supply
» Nuclear issues
» Production and transmission / transport of energy
» Distribution and transport tariffs
» Energy statistics and balances
» Offshore wind energy

Regional issues

» Promotion of the efficient use of energy
» New and renewable energy sources
» Non-nuclear energy R&D
» Market regulation for the distribution
» Distribution of energy
» Recovery of waste energy from industry or other uses
» Regional energy statistics and balances
Explaining Belgium

» Some key energy figures

<table>
<thead>
<tr>
<th>Final energy consumption</th>
<th>Mtoe</th>
<th>Belgium</th>
<th>Flanders</th>
<th>Wallonia</th>
<th>Brussels</th>
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</thead>
<tbody>
<tr>
<td>Total 2012</td>
<td>36.6</td>
<td>22.9</td>
<td>11.7</td>
<td>2.0</td>
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<tr>
<td>Industry</td>
<td>13.3</td>
<td>9.2</td>
<td>4.0</td>
<td>0.1</td>
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<tr>
<td>Total 2020</td>
<td>35.0</td>
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<tr>
<td>Industry</td>
<td>10.9</td>
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</table>

» Industrial consumption in Belgium
  » 70% in Flanders – Harbour of Antwerp. Ghent
  » 30% in Wallonia – declining steel industry
  » Shrinking in Brussels Capital Region
Industrial climate / energy policy - Flanders

Flemish Energy Efficiency Action Plan

Savings 2020 (44.7 TWh)
- Buildings
- Energy
- Transport
- Agriculture
- Voluntary agreements
- Others

Measures in industry
- Mean
  - Voluntary agreements
- Other
  - Incentives to make new industrial estates carbon neutral
    - Covers only electricity consumption
  - Ecology premium
    - Also for some energy saving measures
  - Subsidies issued by distribution grid operators
  - Tax reduction (federal measure)
  - Green loans
  - Support to cogeneration
    - Not industry specific
Industrial climate / energy policy - Wallonia

Walloon Energy Efficiency Action Plan

Savings 2020 (12.0 TWh)

- Buildings
- Energy
- Transport
- Horizontal
- Voluntary agreements
- Subsidies to industry

Measures in industry

- Mean
  - Voluntary agreements
- Other
  - Facilitators
  - Subsidies
  - Smart metering: pilot phase
Voluntary agreements on energy efficiency in industry

- Important policy instrument in the field of industrial energy efficiency
- Currently operational in 11 EU Member States
  - Stopped
  - Operational
  - New
- As well as in the EU in other continents
Voluntary agreements on energy efficiency in industry

Some history of voluntary agreements on industrial energy efficiency in the EU

<table>
<thead>
<tr>
<th>Year</th>
<th>NL</th>
<th>MT</th>
<th>FI</th>
<th>IE</th>
<th>DE</th>
<th>SE</th>
<th>DK</th>
<th>FR</th>
<th>LU</th>
<th>UK</th>
<th>BE</th>
<th>SO</th>
<th>BG</th>
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<th>CZ</th>
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</table>
**Voluntary agreements on energy efficiency in industry - FLANDERS**

<table>
<thead>
<tr>
<th></th>
<th>Benchmarking Covenant</th>
<th>Auditing Covenant</th>
</tr>
</thead>
</table>
| Political acceptance  | Part of Flemish Climate Action Plan 2002-2005: focus on continuous improvement of energy efficiency in industry  
  • No absolute emission cap  
  • No equal relative emission reduction target for each company |
| Target group          | ![Diagram showing target group](image.png)                                             | ![Diagram showing target group](image.png)                                       |
| Annual primary energy consumption | ![Diagram showing target group](image.png)                                             | ![Diagram showing target group](image.png)                                       |

- **Benchmarking Covenant**
  - Part of Flemish Climate Action Plan 2002-2005: focus on continuous improvement of energy efficiency in industry
  - No absolute emission cap
  - No equal relative emission reduction target for each company

- **Auditing Covenant**
  - 2002 – 2012 (prolonged until end of 2014)
  - 2005 – 2013 (prolonged until end of 2014)
**Voluntary agreements on energy efficiency in industry - FLANDERS**

<table>
<thead>
<tr>
<th>Obligations</th>
<th>Benchmarking Covenant</th>
<th>Auditing Covenant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Determining <strong>benchmark</strong> (world’s leading edge) for each installation</td>
<td>Determine economic feasible energy saving options by auditing:</td>
</tr>
<tr>
<td></td>
<td>• Method 1: comparison and benchmark of process installations. get to top10% most efficient installations</td>
<td>- 1(^{st}) phase (2005-2009): implement all energy saving measures with IRR &gt; 15%</td>
</tr>
<tr>
<td></td>
<td>• Method 2: comparison and benchmark of regions. get to lowest average</td>
<td>- 2(^{nd}) phase (2008-2012): implement all energy saving measures with IRR &gt; 13.5%</td>
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<tr>
<td></td>
<td>• Best practice: get to best practice + 10%</td>
<td></td>
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<tr>
<td></td>
<td>• Auditing: implement all energy savings with IRR &gt; 15%</td>
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</table>
Voluntary agreements on energy efficiency in industry - FLANDERS

<table>
<thead>
<tr>
<th>Compensation for participation</th>
<th>Benchmarking Covenant</th>
<th>Auditing Covenant</th>
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</thead>
<tbody>
<tr>
<td>• No additional measures or policies on energy efficiency or GHG reduction: nor from Flemish, federal or EU level</td>
<td>• Free emission allowances under EU ETS</td>
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<tr>
<td>• Reduction in electricity and gas taxes</td>
<td></td>
<td></td>
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<tr>
<td>• Exclusivity in ecology premium scheme</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• No additional measures or policies on energy efficiency or GHG reduction: nor from Flemish, federal or EU level</td>
<td></td>
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<tr>
<td>• Reduction in electricity and gas taxes</td>
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<tr>
<td>• Priority in ecology premium scheme</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Administration</th>
<th>Benchmarking Covenant Verification Office: reports to Benchmarking Covenant Commission</th>
<th>Auditing Covenant Verification Office: reports to Auditing Covenant Commission</th>
</tr>
</thead>
<tbody>
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## Voluntary agreements on energy efficiency in industry - FLANDERS

<table>
<thead>
<tr>
<th>2012</th>
<th>Benchmarking Covenant</th>
<th>Auditing Covenant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of participants</td>
<td>Primary energy consumption (PJ)</td>
</tr>
<tr>
<td>Refineries Steel works</td>
<td>6</td>
<td>180.3</td>
</tr>
<tr>
<td>Chemical</td>
<td>54</td>
<td>229.7</td>
</tr>
<tr>
<td>Pulp and paper</td>
<td>4</td>
<td>17.1</td>
</tr>
<tr>
<td>Food</td>
<td>33</td>
<td>24.8</td>
</tr>
<tr>
<td>Technology</td>
<td>20</td>
<td>29.0</td>
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<tr>
<td>Ceramics</td>
<td>20</td>
<td>6.4</td>
</tr>
<tr>
<td>Textile</td>
<td>17</td>
<td>7.2</td>
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<tr>
<td>Wood</td>
<td>5</td>
<td>5.1</td>
</tr>
<tr>
<td>Others</td>
<td>13</td>
<td>8.0</td>
</tr>
</tbody>
</table>

Average primary energy consumption varies between:
- Benchmarking covenant: 0.3 – 30 PJ
- Auditing covenant: ~0.2 PJ
Voluntary agreements on energy efficiency in industry - FLANDERS

Benchmarking covenant: improvement of 0.84% / annum

Evolution in Energy Efficiency Index
Comparison with benchmark in 2012
Voluntary agreements on energy efficiency in industry - FLANDERS

- Benchmarking covenant: improvement of 1.4% / annum

Evolution in Energy Efficiency Index (2005: 100%)
Voluntary agreements on energy efficiency in industry - FLANDERS

Data suggest

» the less energy-intensive ⇒ the higher the improvement in energy efficiency

» Take this into account when designing a voluntary agreement (and its related benefits to the participants)

Blue: benchmarking – Green: auditing covenant

Average Energy Efficiency Improvement per year

Primary energy consumption per participant (PJ)
Voluntary agreements on energy efficiency in industry - FLANDERS

Realised primary energy savings:

» benchm cov.: 46.6 PJ – auditing cov.: 4.3 PJ – total: 50.9 PJ = 14.1 TWh

» Expected saving by 2010 (only non-ETS activities): 7.2 PJ – 2.0 TWh

CO₂-emission reduction: 4.6 Mton CO₂ reduced by 2012
Voluntary agreements on energy efficiency in industry - FLANDERS

Energy Governance Agreements succeed the covenants

» No more benchmarking – only auditing

Benchmarking Covenant
• Installation specific target

Auditing Covenant
• Commitment to implement all measures with IRR > 15% (13.5%)

Energy Governance Agreement
• Commitment to implement all measures with IRR > 14%

Energy Governance Agreement
• Commitment to implement all measures with IRR > 12.5%

» New:

» Annual recalculation of feasibility of energy saving measures with actual energy prices
» Mandatory feasibility study for CHP – connection to district heating grid
» Obligation to implement energy management scheme
» Obligation to inform employees council
Voluntary agreements on energy efficiency in industry - WALLONIA

Sector agreements

» Covers
   » 16 sectors
   » 173 companies
   » 203 production sites
   » 90% of industrial energy consumption

» Results
   » Energy efficiency improvement: 16.5%
   » Primary energy savings: 28 PJ = 7.9 TWh
   » CO₂ reduction: 19.3% or 2.2 Mton CO₂

» 1st generation: 2003-2013
» 2nd generation: 2014-2020
Voluntary agreements on energy efficiency in industry - WALLONIA