Case study: chemicals production site

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A chemical site

Numbers used in this example are fictitious! If not otherwise stated.

General information

- Is the installation eligible for free allocation? Yes
- Is the installation an electricity generator pursuant Art. 3(u)? No
- What is the chosen baseline period? 2005-2008
- Did the installation operate at least one day in each calendar year in the baseline period? Yes
- Greenhouse Gas Emissions and Energy input from fuels

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Energy Input from Fuels</th>
<th>CO2e/year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>195,000</td>
<td>161,000</td>
</tr>
<tr>
<td>2007</td>
<td>180,000</td>
<td>176,000</td>
</tr>
<tr>
<td>2008</td>
<td>176,000</td>
<td>176,000</td>
</tr>
</tbody>
</table>

Relevant technical connections

Number of sub-installations

<table>
<thead>
<tr>
<th>Product benchmark</th>
<th>Fuel</th>
<th>Waste gases</th>
<th>Net heat</th>
<th>Electricity</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDPE plant</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Installation outside ETS</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Measurable heat</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Export</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Plant Export</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>District heating network</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

...
**Attribution of measurable heat**

- For allocation,
  - Exact data for measurable heat consumption/export is necessary for heat benchmark sub-installation

The data collection template contains a 'simple' and a 'complex' tool to determine the balance of measurable heat flows.

**HAL – how to establish**

**Product Benchmark**

- In this example the production stops 1st of January 2008. Significant capacity changes in the period between 1-1-2005 and 30-6-2011 impact the HAL. Is there a 'significant change in capacity' in this case?
- No. Because there is NO physical change in the installation and therefore the ‘change in capacity rule’ does NOT apply.
- However, partial cessation of operations will apply (article 23, 2.) meaning that preliminary allocation will have to be changed as of 2013.
- So still: no allocation for closed sub-installation!

**HAL – how to establish**

**Heat benchmark-CL**

- In this example the HDPE compounding installation (<100 t/day) significantly increases production (but still <100 t/day) and associated heat demand. Is this also regarded as a significant increase of the heat benchmark subs installation?
- See guidance document 6, section 4.2:
  - In this example, the additional amount of heat is delivered by using existing spare CHP capacity without any physical change at the CHP.
  - Due to the absence of physical change at the CHP, this significant change of HDPE heat consumption does not constitute a capacity increase of the HBM-CL sub installation.
  - Therefore, standard calculation of HAL: median values of the annual historical activity levels in the baseline period
HAL
Fuel benchmark – Carbon leakage exposed

Historic Activity levels and disaggregated production details

<table>
<thead>
<tr>
<th>Fuel benchmark sub-installation 3</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel benchmark sub-installation 2</td>
<td>HBM-CL</td>
<td>HBM-CL</td>
<td>HBM-CL</td>
<td>HBM-CL</td>
</tr>
</tbody>
</table>

HAL: example capacity increase

- For both heat and fuel benchmark sub-installation: \( C_{\text{new}} / C_{\text{initial}} > 1.1 \)
- Physical change at Resins production.
Therefore, significant extension of both heat and fuel benchmark sub-installation.

HDPE compound. (<100 ton/d)

HAL: example capacity increase