CEPS TF BENCHMARKING

BENCHMARK IN THE CEMENT INDUSTRY

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The “concrete” value chain: CO₂ emissions and products

Clinker

≈ 865 kg CO₂/tonne clinker

1 tonne clinker

Fuel 35%

Power 10%

Process 55%

Cement

≈ 650 kg CO₂/tonne cement

1.25 tonne cement

Fuel 35%

Power 10%

Process 55%

Concrete

≈ 70 kg CO₂/tonne concrete

1.87 tonne concrete

Allocation = Benchmark x Volume
LEVERS TO REDUCE CO$_2$ EMISSIONS IN CEMENT PRODUCTION

- Energy efficiency
- Alternative fuels / biomass
- Clinker substitution, blending
- CCS?
CEMBUREAU PROPOSAL: SINGLE EU WIDE CLINKER BENCHMARK

• Calculated on the basis of
  ▪ 10% best installation average performance in terms of energy efficiency, with fixed fuel mix
  ▪ Fixed process emissions factor

• No correction factors for technologies, moisture content of raw materials, ...

• Fuel CO$_2$ intensity on the basis of EU-average fuel mix, 0% biomass

• Benchmark of 837 kg CO$_2$/tonne clinker
WHY NOT A CEMENT BENCHMARK?

- Not in line with scope of EU-ETS Directive
- Would not meet requirement of simplicity
- Would not trigger additional reductions
- Would raise boundaries issues
- Would create complexities and potential loopholes in relation to international trade
- Available sectoral data (GNR) does not allow the establishment of a cement benchmark
- Not covered by EU Monitoring and Reporting Guidelines
Clinker production covered by free allocation in tonnes

<table>
<thead>
<tr>
<th></th>
<th>Plant 1</th>
<th>Plant 2</th>
<th>Plant 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinker production (in tonnes)</td>
<td>1000000</td>
<td>1000000</td>
<td>1000000</td>
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<tr>
<td>Equivalent Cement production (in tonnes)</td>
<td>2000000</td>
<td>1333333</td>
<td>1111111</td>
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<td>Clinker to Cement ratio plants</td>
<td>0.5</td>
<td>0.75</td>
<td>0.9</td>
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<td>Allowances under “Clinker” benchmark (tonnes CO₂)</td>
<td>837000</td>
<td>837000</td>
<td>837000</td>
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<td>Allowances under “EU Equivalent Cement” benchmark (tonne CO₂)</td>
<td>1200000</td>
<td>860000</td>
<td>670000</td>
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</table>
BENCHMARK IN A VALUE CHAIN?

EU ETS

Raw materials
- Limestone
- Iron ore

CO$_2$ intensive processes
- Clinker
- Pig iron

Basic Products
- Cement
- Steel

Articles
- Buildings
- Cars
- ...

EPBD, ...
CONCLUSIONS

- Debate clinker versus cement under the EU-ETS is a “purely distributional issue”
- Levers to reduce global CO₂ emissions are equally rewarded (except early actions)
- Only CO₂ intensive process shall be benchmarked under the EU-ETS – limited to direct emissions
- Benchmark is
  - not a question of product substitution
  - an indicator of « efficient » production in C0₂ intensive processes