IFIEC Energy Forum 2013
Competitiveness of European EII in a globalised economy

Session III – Climate

Steel perspective

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1. Global competitiveness of the EU steel industry
2. Impact of EU climate policy on steel’s global competitiveness
3. Mitigation potential of the EU steel industry
4. European steel as a CO2 mitigator
5. Elements for a sustainable EU climate and energy policy
1. Global competitiveness of the EU steel industry

- Steel is one of the most traded goods in the world
- Trade intensity of EU steel industry over 30%
- EU proportion global steel production shrinking from 22% to 11%
- Global steel production to grow by over 70% by 2050
1. Global competitiveness of the EU steel industry

<table>
<thead>
<tr>
<th>Disadvantages</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to raw materials</td>
<td>Productivity</td>
</tr>
<tr>
<td>Labour costs</td>
<td>Skills</td>
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<td>Energy costs</td>
<td>Efficiency</td>
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<td>Protectionism by non-EU</td>
<td>Innovation</td>
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<td>Regulatory costs</td>
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1. Global competitiveness of the EU steel industry

<table>
<thead>
<tr>
<th>Disadvantages</th>
<th>EU’s possibility to do something about it</th>
</tr>
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<tbody>
<tr>
<td>Access to raw materials</td>
<td>X</td>
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<td>Labour costs</td>
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<td>XXX</td>
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</table>
2. Impact of EU climate policy on steel’s competitiveness

Costs of EU climate policy really matters

- Costs of CO2 (direct and indirect)
  - 2 tCO2 per tonne of primary steel
  - 0.5 tCO2 per tonne of secondary steel
- Costs of renewable energies

Example:
- €500 average sales price per tonne of steel
- 10% net profit margin in good times
- 0% net profit margin or negative in bad times (e.g. 2012)

- At profit margins between €0 and €50 a CO2 price of €3 or €30 has a real negative impact.
- Current climate policy creates uncertainty and frustration in industry, and keeps investment away
2. Impact of EU climate policy on steel’s competitiveness

**Climate policy costs 2005 to 2012**
- Due to crisis and unused allowances no direct costs for most companies
- This is by pure chance as crisis was totally unforeseen

- **But** high indirect costs (CO2-cost pass through by power sector): substantial costs in particular for electro-intensive steel scrap recycling (Electric Arc Furnace route) due to carbon price (even if relatively low) and RES policies

**Future climate policy costs** - Problem will become massive when
- Economic crisis is over and steel consumption grows
- Unused allowances are used up
- Carbon price will raise
- Correction factor cuts free allocation
- No free allowances post 2020 according to current ETS legislation (only 25% of the benchmark as free allocation in 2021 going down to 0% in 2027)
Moderate annual crude steel production growth of 0.8% from 2010-2050 expected if conditions are right

Historically, crude steel production stable in EU15 but declining in Eastern Europe

Going forward, slow growth expected for EU27, 2007 production level will be reached in 2032

Note: e = estimate.
Sources: World Steel Association; BCG analysis.
3. Mitigation potential of the EU steel industry

Emission reduction potentials are expressed in specific CO2 emissions relatively to 2010

- Maximum theoretical abatement without CCUS (DRI): -40% (economically not feasible)
- Maximum theoretical abatement with CCUS (BF-TGR): -57% (economically not feasible)

Economic CO2 reduction potential (best practice sharing, increased scrap availability, energy efficiency, process optimisation, BAT)

Source: BCG analysis; Commission Low Carbon Roadmap for the EU ETS declining path.
3. Mitigation potential of the EU steel industry

- 1990 – 2010 EU steel industry reduced total CO2 emissions by 25%
- 1990 – 2010 EU steel industry reduced CO2 emissions per tonne of steel by 14%

Results of study by The Boston Consulting Group and Steel Institute (2013):

<table>
<thead>
<tr>
<th>CO2 per tonne of steel compared to 2010</th>
<th>2030</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased EAF share and best practice sharing scenario</td>
<td>-6%</td>
<td>-11%</td>
</tr>
<tr>
<td>Economic scenario</td>
<td>-9%</td>
<td>-15%</td>
</tr>
<tr>
<td>44% Scrap-EAF, 45% DRI-EAF, 11% BF-BOF scenario</td>
<td>-19%</td>
<td>-40%</td>
</tr>
<tr>
<td>CCUS scenario</td>
<td>-9%</td>
<td>-57%</td>
</tr>
</tbody>
</table>
Steel is a permanent material

100% recyclable without losing its properties

Steel recycling massively contributes to CO2 mitigation

Source: World Steel Association
# 4. European steel as a CO2 mitigator

Case studies for EU27 result in annual CO₂ savings of ca. 440 Mt – over double of total direct emissions from EU steel production.

<table>
<thead>
<tr>
<th>Case study</th>
<th>Net CO₂ reduction potential²</th>
<th>Emissions in the steel production</th>
<th>Ratio between CO₂ reduction / emission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficient fossil fuel PPs</td>
<td>103.0</td>
<td>0.7</td>
<td>~ 155:1</td>
</tr>
<tr>
<td>Offshore wind power</td>
<td>69.7</td>
<td>3.0</td>
<td>~ 23:1</td>
</tr>
<tr>
<td>Other renewables¹</td>
<td>22.2</td>
<td>0.16</td>
<td>~ 148:1</td>
</tr>
<tr>
<td>Efficient transformers</td>
<td>19.6</td>
<td>1.2</td>
<td>~ 17:1</td>
</tr>
<tr>
<td>Efficient e-motors</td>
<td>6.9</td>
<td>3.2</td>
<td>~ 2:1</td>
</tr>
<tr>
<td>Weight reduction cars</td>
<td>165.9</td>
<td>42.1</td>
<td>~ 4:1</td>
</tr>
<tr>
<td>Weight reduction trucks</td>
<td>6.3</td>
<td>14.0</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Combined heat / power</td>
<td>49.6</td>
<td>5.3</td>
<td>~ 9:1</td>
</tr>
</tbody>
</table>


Note: PP = power plant
Source: BCG analysis
Quick fix of ETS with backloading or structural measures is damaging
EU needs to focus on reform post-2020 now!
A right 2030 energy and climate framework is crucial.

Recommendations

- Targets need to be technically and economically feasible (“bottom-up”)
- Best performers must not incur any direct or indirect costs
- Globally competitive energy prices are conditional to decarbonisation in Europe
- Set target to decrease gap in industrial energy prices between EU and its competitors
- Member States to provide low-carbon infrastructures (e.g. CCS)
- Increased support for R&D, pilot, demonstration, and market application
- Without comprehensive international agreement EU needs to rethink unilateral targets
- Future policies must recognise the positive role materials such as steel play as CO2 mitigator (integrated approach)
Europe needs a real policy for industry.

A policy for growth, jobs and innovation which other EU policies such as energy, climate and trade are part of and conditional on – and not vice versa

THANK YOU!