Experiences with PCR for wood products and EPDs for modified wood in Norway – The role of biogenic carbon

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Agenda

• Demand for EPDs in Norway

• Wood PCR development

• Modified wood EPDs

• Biogenic carbon issues
Demand for EPDs

- The Norwegian Government state building company
  - Strategy since 2010 to demand EPDs for 5-10 most used materials in projects
  - Revisited in 2011 to 10 most used
Demand for EPDs

- BREEAM-NOR as a national adaption of BREEAM was launched fall 2011
- Give credit if at least 10 products used at a large scale have EPDs
- About all projects includes this credit
NPCR015 wood and wood-based products revisited in 2013

- Adaptation of new standards
  - EN 15804 Core PCR for building products
  - ISO/TS 14067 Carbon footprint specification

- Goal was to be in line with EN 16485 PCR for wood and wood-based products – released in 2014

- Changes
  - Volume allocation to economic allocation
  - Biogenic carbon flows are included in global warming potential calculations
  - Benefits of recovery/recycling of wood at end-of-life
EPD for modified wood in Norway according to EN 15804

• Types of modified wood available:
  • Royal impregnated pine
    • Cu-impregnated and boiled in linseed and naptha based oil often with iron oxide pigments
  
• Thermally modified wood
  • Spruce, pine and ash. Manufactured in Estonia and imported to Norway

• Declared unit per m³

• Assumes 10% replaced in use phase
Example: Royal impregnated wood
## EPD results on global warming potential

<table>
<thead>
<tr>
<th>Type of product</th>
<th>NEPD nr.</th>
<th>Biogenic carbon</th>
<th>Production A1-A3</th>
<th>Maintenance and repair B2-B3</th>
<th>Waste processing C3-C4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Royal impregnated pine</td>
<td>294N</td>
<td>770</td>
<td>-652</td>
<td>60</td>
<td>824</td>
<td>232</td>
</tr>
<tr>
<td>Thermally modified ash</td>
<td>260N</td>
<td>1159</td>
<td>-430</td>
<td>90</td>
<td>1181</td>
<td>841</td>
</tr>
<tr>
<td>Thermally modified pine</td>
<td>259N</td>
<td>786</td>
<td>-258</td>
<td>64</td>
<td>801</td>
<td>607</td>
</tr>
</tbody>
</table>
Alternative methods for biogenic carbon

- Norwegian product category rules 2009-2012 NPCR015
  - Biogenic uptake and emissions have no impact

- NPCR rev1 2013-
  - Uptake during forest growth
  - Release during end-of-life
  - Timing effects can be separately reported

- ILCD
  - Benefit of delayed emissions until 100 yr

- GWPbio
  - Considers the time from carbon emission until regrowth of forest

*(Tellnes et al. 2014)*
Results on Scots pine

(Tellnes et al. 2014)
Conclusion

- Demand for EPD in Norway is mainly market driven
- PCR needs to include specification on use phase scenarios and product descriptions
- EPD for thermally modified wood shows large contribution from energy and transport
- Biogenic carbon needs transparency
  - Uptake and emissions of each module should be additionally documented in the EPD
  - Facilitate the option to include time-adjustment