GHG Calculations for Global Supply Chains – An Update

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From virtual GHG savings to GHG abatement investments

- Grandfathering clause
- Use of default values
- NUTS 2 values/disaggregated default value for cultivation
- Actual calculation processing emissions; Detection of core impact and improvement potentials
- Actual calculation farm/plantation Third country reports
- Investments into GHG abatement technology

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GHG savings in Germany (similar data available for NL and UK)

% GHG savings

Source: German Federal Office for Agriculture and Food (2018).
ISCC data shows a reduction in processing emissions

Sum of GHG processing emissions per t

-15% reduction in GHG processing emissions

Source: ISCC.
Successful implementation of GHG Note from the EC

GHG Note 2017 and Letter from the EC to the VS*

- Transfer of all individual GHG calculation formula elements along supply chain
- Dry-ton
- Feedstock factor
- Third country reports with typical emissions from cultivation
- Combustion emissions methanol
- Competences of auditors
- …

* Implementation by the voluntary schemes until end of August 2017 is a “prerequisite for continued recognition”!!
Biofuels lead the way – GHG calculations for global supply chains

Biofuels is the only industry with actual GHG calculations

SD crop:
\[ e_{ec}: \_\text{kg CO}_2\text{eq/t}_{\text{dry}} \]

SD product:
\[ e_{ec}: \_\text{kg CO}_2\text{eq/t}_{\text{dry}} \]
\[ e_{p}: \_\text{kg CO}_2\text{eq/t}_{\text{dry}} \]
\[ e_{td}: \_\text{kg CO}_2\text{eq/t}_{\text{dry}} \]

SD for biofuel:
\[ e_{ec}: \_\text{g CO}_2\text{eq/MJ} \]
\[ e_{p}: \_\text{g CO}_2\text{eq/MJ} \]
\[ e_{td}: \_\text{g CO}_2\text{eq/MJ} \]

SD: Sustainability Declaration
Tremendous investments into actual GHG emissions avoidance
Typical cultivation GHG values for Member States and third countries

Pre-ILUC Directive NUTS2 cultivation emissions values

Recognition Australian and Canadian typical GHG values for canola

Implementing Decisions (CAN, AUS)

Source: EC transparency platform.
GRAS provides all NUTS2 values in the correct unit

Source: gras-system.org
Regional GHG values for cultivation of canola in Australia and Canada

Source: gras-system.org
Letter from the EC: Inclusion of combustion emissions fossil methanol

Default GHG emissions RME plant

g CO2eq/MJ

- So far inconsistent requirements in MS
- Clarification by EC
  - Level playing field between VS and system users
  - Higher emissions (larger GHG quota market)
Challenge of GHG calculations for co-processing

- Co-processing not yet part of the recognition process of VS
- Quantity determination (Energetic, efficiency/losses, C14)? Precedence of Member State regulation
  - UK: case-by-case decision, energetic balance or C14, no free attribution
  - Germany: until 2020, only C14
- GHG calculation: Default values or individual calculations (overall process or only hydrotreating step)
Continuously improve quality of GHG data, calculation, verification

ISCC Integrity Program

1. Random and risk based selection. GHG calculation to be send to ISCC
2. Desk-audit GHG calculation & comparison with value from CB
3. Verification on site and comparison with sustainability declaration

- Increase overall quality of GHG calculation and verification
- Key learnings

ISCC trainings and communication

- GHG Updates
- Regular ISCC Trainings:
  - ISCC Basic Training
  - ISCC GHG Training

Upcoming dates:
https://www.iscc-system.org/trainings-events/trainings/
Full implementation via transparent and customized GHG calculators

<table>
<thead>
<tr>
<th>General Data</th>
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<tbody>
<tr>
<td>Name of the processing unit</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td></td>
</tr>
<tr>
<td>Street, Number</td>
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<td>Postal code, City</td>
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<tr>
<td>Contact person</td>
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<tr>
<td>Production capacity</td>
<td>metric tons (Mt)/Year</td>
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<tr>
<td>Production capacity of the processing unit</td>
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<tr>
<td>Time period of data input</td>
<td></td>
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<tr>
<td>Initial date</td>
<td>mm/dd/Year</td>
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<tr>
<td>Ending date</td>
<td>mm/dd/Year</td>
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</tbody>
</table>

| Outputs Processing Unit |  |
| Production main product |  |
| Bioethanol | Mt/Year |
| Production co-products |  |
| Carbon dioxide captured | Mt/Year |
| Corn oil | Mt/Year |
| Dried Distillers Grains with Solubles (DDGS) | Mt/Year |
| Moisture content of DDGS | % |
| Wet Distillers Grains (WDG) | Mt/Year |
| Moisture content of WDG | % |
| Residues/ waste | 0.0 Mt/Year |

Best practice audit preparation

- Customized calculator
- Based on RED
- Transparent calculation
- Easy to update
- All data sources, evidence, references, literature documented
- Usable for certification audits

Source: Meo Carbon Solutions GmbH.
Integrity of GHG savings should be further improved

• **Data forwarding**: Clear rules by all VS on mandatory GHG data for SD

• **Procedures and audit reports** with good coverage of GHG issues essential

• Implementation of **trainings** and **integrity** program

• Clear rules regarding use of **emission factors**

• **Pre-audit** of calculator and calculation, only afterwards **on-site audit**

• Sound analysis & implementation of **innovative** feedstock and processes

• Use of transparent and customized **calculators**
Thank you

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