Status of Implementation of RED GHG Requirements

Dr Jan Henke, ISCC System GmbH
The original RED and FQD set the framework for the implementation of renewable energy regulations for the transport sector in the EU.

**Renewable Energy Directive (RED)**

- **2009/28/EC from 2009**
  - **10% mandatory target** (2020) for the use of renewable energy in transport
  - **Minimum GHG savings** for biofuels according to original RED/ FQD:
    - 35% for existing installations until Dec 2016
    - 50% from 1 Jan 2017
    - 60% for new installations from 1 Jan 2017
  - Use of **voluntary certification schemes**

**Fuel Quality Directive (FQD)**

- **2009/30/EC from 2009**
  - **Decarbonization** strategy: Obligation for mineral oil companies to gradually reduce life cycle greenhouse gas emissions by a minimum of **6% by 2020**
The RED/ FQD Amendment 2015/1513/EC published in October 2015 will affect biofuel policy until 2020

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>2015/1513/EC from 2015</td>
<td>2015/1513/EC from 2015</td>
</tr>
<tr>
<td>• 7% cap on food/feed crop biofuels</td>
<td></td>
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<tr>
<td>• Reference value for national targets: 0.5% for advanced biofuels</td>
<td></td>
</tr>
<tr>
<td>• Provisional iLUC factors, only for reporting by member states</td>
<td></td>
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<tr>
<td>• Minimum GHG savings for biofuels:</td>
<td></td>
</tr>
<tr>
<td>• 35 % for existing installation until Dec 2017</td>
<td></td>
</tr>
<tr>
<td>• 50 % from 1 Jan 2018</td>
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<tr>
<td>• 60% for new installations* directly</td>
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</table>

* New installation: Physical production of biofuels/-liquids started after October 2015
The Amendment 2015/1513/EC includes changes in GHG saving thresholds for biofuels

Renewable Energy Directive (RED)  
Fuel Quality Directive (FQD)

2015/1513/EC from 2015

<table>
<thead>
<tr>
<th>Year</th>
<th>GHG saving requirements for biofuels:</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015/1513/EC from 2015</td>
<td>35% for existing installation until Dec 2017</td>
</tr>
<tr>
<td>2018</td>
<td>50% from 1 Jan 2018</td>
</tr>
<tr>
<td>2020</td>
<td>60% for new installations directly</td>
</tr>
</tbody>
</table>

% GHG saving compared to fossil fuel

- 60% until 5 Oct 2015
- 50% after 5 Oct 2015
- 35% in 2017
- 50% in 2018
- 60% for new installations directly

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In the transport sector, a maximum GHG emission of 54.5 g CO2e/MJ of biofuel is possible to still reach the 35% GHG saving threshold.

Fossil reference GHG value*: 83.8 g CO2e/MJ

Minimum GHG saving: 35%

Maximum possible GHG value for biofuels:
- 2018: 50% - 41.9 g CO2e/MJ
- New installations: 60% - 33.5 g CO2e/MJ

* Value comes from the Renewable Energy Directive (RED). Currently no other value can be applied.
In the next years also the switch from energetic quota (RED) to GHG reduction quota (FQD) will have an effect. Example Germany

<table>
<thead>
<tr>
<th>Year</th>
<th>Energetic biofuels quota</th>
<th>GHG reduction quota of total fuel market</th>
<th>Min. GHG saving requirement for biofuels based on RED 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010 - 2014</td>
<td>6.25%</td>
<td>n/a</td>
<td>35%</td>
</tr>
<tr>
<td>2015</td>
<td>n/a</td>
<td>3.5%</td>
<td>35% for existing and 60% for new installations</td>
</tr>
<tr>
<td>2017</td>
<td>n/a</td>
<td>4%</td>
<td>35% for existing and 60% for new installations</td>
</tr>
<tr>
<td>2018</td>
<td>n/a</td>
<td>4%</td>
<td>50% for existing and 60% for new installations</td>
</tr>
<tr>
<td>2020</td>
<td>n/a</td>
<td>6%</td>
<td>50% for existing and 60% for new installations</td>
</tr>
</tbody>
</table>

- The GHG reduction quota is seen as a technology neutral instrument
- Biofuels are used to fulfill the target. The cap for food/feed crop biofuels as well as GHG saving requirements still apply
  - Importance of actual GHG calculations and performance of biofuels will increase
  - Market size dilemma
High GHG savings must be reached to be competitive

**BLE Evaluation Report for 2015 (based on NABISY)**

- Leap in GHG savings with the implementation of the GHG quota in Germany in 2015
- Biodiesel achieves 70%, HVO 62% average GHG savings
- Low GHG emissions of CPO are crucial
- Traditional biofuels reach high GHG savings
- Under the GHG quota in Germany this reduces the biofuel market size

The GHG Note from the EU Commission, which must be implemented by end of 2016 will change the GHG methodology tremendously.

GHG Note from the Commission

1. Information transfer of individual GHG calculation formula elements along supply chain
2. Calculate and forward GHG value per dry-ton matter (applicable for all materials including crude and refined oils and ethanol)
3. Feedstock factor
4. Guidance on emission allocation
5. Further specification on CCR, CCS, and methane capture
6. Further requirements on competences of auditors and reporting
7. Compulsory use of EC lower heating values and emission factors
8. Third country reports with typical emissions from cultivation
9. Expiration of NUTS2-requirements
According to new requirements from the European Commission the way of forwarding GHG information in supply chain will change.

Today:
- **SD:** kg CO$_2$eq/ton crop
- **SD:** kg CO$_2$eq/ton product

Future:
- **SD:** $e_{ec}$ in kg CO$_2$eq/dry-ton crop
- **SD:** $e_{ec}$, $e_p$, $e_{td}$, in kg CO$_2$eq/dry-ton product

Flowchart:
- **Farm/Plantation/Central office/FGP** → **Processing unit 1** → **Processing unit 2** → **Transport & distribution emissions ($e_{td}$)**

SD: Sustainability declaration

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Third countries can submit to the Commission reports with data on typical emissions from cultivation of feedstock

GHG note from the Commission

• Member States or competent authorities of third countries may submit reports with typical GHG emissions from cultivation

• Reports are treated similar to “NUTS2”-reports from EU Member States

• Values need to be reported in kg CO$_2$eq/dry-ton feedstock

• ISCC allows system users to use those values as alternative to actual GHG values for cultivation

• GHG values can be used by system users cultivating crops within the defined area

• In case of interest ISCC must be contacted
EU Member state implementation of the RED/FQD Amendment still unclear

- Some Member States have contradicting legislation to the new requirements of the amended RED/FQD and to the requirements under the re-recognized voluntary certification schemes

- As usual, it will take time until the RED/FQD Amendment is implemented by all Member States

- ISCC will remain flexible with respect to the differing requirements between Member States, will inform all system participants and certification bodies of any changes and will try to install generous transition periods
Overview on shortcomings regarding GHG calculations and audits (based on key learnings from ISCC Integrity Audits)

• Incorrect, inaccurate or non-transparent calculation of GHG emissions

• Use of software allowing only the visualization of inputs and final GHG results. Calculation method and correctness of GHG calculations cannot be verified

• Incorrect emission factors and missing sources of emission factors

• Incorrect allocation of GHG emissions to main output product and to co-products

• Incorrect or inconsistent use of conversion factors

• Missing waste water treatment emissions

• Units of emission factors are missing

• Specific input data (e.g. amount of N fertilizers, sodium hydroxide) not realistic in relation to the amount of processed material or outputs

• Individual calculations of farm/first gathering point or processing emissions provided by company do not result in the processing emissions stated in the audit procedure

• Adjusted GHG calculations not send to CB. CB must adjust audit procedure and send to ISCC
On November 30, the EC published the RED 2 proposal – comparison of GHG savings between current RED and proposed RED 2

- **60 % minimum GHG savings for new operations after October, 5 2015**
- **50 % minimum GHG savings from 1 Jan 2018**
- **35 % minimum GHG savings**
THANK YOU!

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