Exploring Export Opportunities for Waste and Residue-Based Raw Materials and Biofuels

Waste/Residue Classification and Double Counting in the Different EU Member States

Shanghai, 13 November 2017
Dr Jan Henke, ISCC System GmbH
### Key learning points

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<td>Classification of waste/residue material depends on EU member states</td>
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<td>2</td>
<td>Member states implement double-counting in a non-harmonized way</td>
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<td>The share of waste/residue based biofuels in the EU is constantly increasing</td>
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<td>4</td>
<td>ISCC is the most widely used certification system for biofuels in the EU</td>
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Definition “Waste”: Material that is to be discarded (e.g. to a landfill)

- Definition “Waste”*:
  - “Any substance or object which the holder discards or intends or is required to discard”
  - Raw materials or substances that have been intentionally produced, modified or contaminated do not qualify as waste
  - Examples: Used Cooking Oil (UCO), Waste Wood, etc.

* Definition according to Art. 3 (1) of EU Waste Framework Directive (WFD)
Definition “Residue”: Two categories of residues exist

General definition “Residues”: Substances not being the end product(s) that a production process directly seeks to produce

Agricultural, aquaculture, fisheries and forestry residues:
- Residues directly generated by agriculture, aquaculture, fisheries, forestry
- Must comply with the sustainability requirements for cultivation (certification including the farm/plantation)
- Zero GHG emissions for cultivation
- Examples: straw, bagasse, husks, cobs, nut shells

Processing residue:
- Production is not the primary aim of the production process; process has not been deliberately modified to produce it
- Examples: Crude glycerine, tall oil pitch
- Definition of processing residues in the RED does not exist in the EU Waste Framework Directive
RED Article 21 (2) allows for **double-counting**. Member States implement double-counting in a non-harmonized way

**RED, Article 21 (2) and Annex IX**

- ... the contribution made by biofuels produced from
  - Waste
  - Residues
  - Non-food cellulosic material
  - Ligno-cellulosic material
  shall be considered to be **twice** that made by other biofuels
- **Annex IX** of the amended RED contains examples of double-counting materials
- Examples: Palm Oil Mill Effluent (POME), Empty Palm Fruit Bunches, straw, etc.

**Examples of Member State implementation**

- **Double-counting of waste derived biofuels**
- **Switch from double-counting to GHG reduction quota in January 2015**
- **modalités du double comptage**
- **Regeling dubbeltelling betere biobrandstoffen**
- **Bekendtgørelse af lov om bæredygtige biobrændstoffer og om reduktion af drivhusgasser fra transport**
- **Decree 23/01/12**
National positive lists help to distinguish if a specific raw material is considered as product, waste or residue in a Member State.
**ISCC list of materials** eligible for certification. Information from Member States regarding waste/residue status has been included.

<table>
<thead>
<tr>
<th>Material</th>
<th>Classified as waste/residue material in the following EU Member States</th>
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</thead>
<tbody>
<tr>
<td>Sprouts</td>
<td>UK, NL</td>
</tr>
<tr>
<td>Starch slurry (low grade) **</td>
<td>For specific requirements in the UK, please see UK positive list.</td>
</tr>
<tr>
<td>Straw (specification of crop)</td>
<td>Agricultural crop residue acc. to RED</td>
</tr>
<tr>
<td>Sugar beet</td>
<td>UK</td>
</tr>
<tr>
<td>Sugar beet residues*</td>
<td>Tops, tails, chips and process water. Residual streams from the processing of sugar beet. Not including the “crown” of the sugar beet</td>
</tr>
<tr>
<td>Sugar cane</td>
<td>UK, NL</td>
</tr>
<tr>
<td>Sunflower</td>
<td></td>
</tr>
<tr>
<td>Tall oil pitch *</td>
<td>Residue acc. to Commission Communication (2010/C 160/02)</td>
</tr>
</tbody>
</table>

**Triticate**

- **Used cooking oil (UCO) entirely of veg. origin * | Oil that has been used to cook food for human consumption; Waste oil acc. to RED | DE, UK, NL, FR |
- **Used cooking oil (UCO) entirely or partly of animal origin | Oil that has been used to cook food for human consumption; Waste oil acc. to RED, not eligible for Germany | UK, NL, FR |
- **Waste pressings (from production of vegetable olive) ** | When a vegetable material such as olives is pressed to produce veg. oil, the pressed material consisting of pits, skins, flesh etc. remains. Unsuitable for human or animal consumption. | UK |

- **ISCC does not certify eligibility for double counting and does not classify material as waste or residue**
- **Official classifications taken into account**
- **Materials which are not on the list cannot be certified:**
  - **ISCC to be contacted first**
  - **Also non waste/residue material must be listed prior to certification**
ISCC process to determine if the ISCC EU waste/residue certification process can be applied

1. Was the material deliberately produced?
   - YES ⇆ NO

2. Is a further use of the material certain (other than bioenergy)?
   - YES ⇆ NO

3. Can the material be used directly without any further processing other than normal industrial practice?
   - YES ⇆ NO

4. Is the material produced as an integral part of the production process?
   - YES ⇆ NO

5. Is the further use of the material lawful in the sense of Article 5 (1) lit. (d) WFD?
   - YES ⇆ NO

Certification process and GHG calculation for wastes/residues is much simpler compared to products/co-products

**FFAs as co-product: Regular ISCC certification process**

- Oil Crop
  - Farm Plantation
  - First Gathering Point
  - Oil Mill / Refinery
  - FFAs (co-product)
  - Biofuel producer
  - Quota obligated party

**FFAs as residue: ISCC EU w/r process**

- FFAs (residue)
  - No upstream certification
  - No upstream GHG emissions
  - No traceability
  - Oil Mill / Refinery = Point of origin
  - Collecting Point / Biofuel producer
  - Quota obligated party
The share of biofuels based on waste/residues supplied to the UK increased tremendously

Percentage of biofuel supplied

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</thead>
<tbody>
<tr>
<td>Waste</td>
<td>12%</td>
<td>15%</td>
<td>35%</td>
<td>51%</td>
<td>40%</td>
<td>46%</td>
<td>50%</td>
<td>59%</td>
</tr>
<tr>
<td>Biofuel</td>
<td>88%</td>
<td>85%</td>
<td>65%</td>
<td>49%</td>
<td>60%</td>
<td>54%</td>
<td>50%</td>
<td>41%</td>
</tr>
</tbody>
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Source: RTFO
Biodiesel in the UK is dominated by UCO, ethanol by crops

Renewable Fuels (meeting sustainability criteria) 1,565 million litres

Bioethanol 789 million litres 50%

Biodiesel 733 million litres 47%

Biomethanol 31 million litres 2%

Others 12 million litres 0.75%

Volume of sustainable renewable fuels 2015/2016 (Figures may not add up to 100% due to rounding)

Source: RTFO

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The share of biofuels based on waste/residues accounts to a third in Germany and is increasing.
The share of biodiesel based on waste/residues has doubled in Germany between 2012 and 2016.

Amounts of biofuels supplied in 2016 (Figures may not add up to 100% due to rounding)

Source: BLE

Biodiesel supply by feedstock

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<thead>
<tr>
<th>Feedstock</th>
<th>2012</th>
<th>2016</th>
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<tbody>
<tr>
<td>Rape/canola</td>
<td>62.8%</td>
<td>43.1%</td>
</tr>
<tr>
<td>Waste/residues*</td>
<td>22.4%</td>
<td>43.5%</td>
</tr>
<tr>
<td>Palm</td>
<td>7.9%</td>
<td>13.2%</td>
</tr>
<tr>
<td>Soy</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Sunflower</td>
<td>0.17%</td>
<td></td>
</tr>
<tr>
<td>Bioethanol</td>
<td>26.60%</td>
<td>+100%</td>
</tr>
<tr>
<td>Other</td>
<td>7.77%</td>
<td></td>
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Total amount 113.528 TJ

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The share of waste/residues feedstocks from Asia has almost tripled in the German market in the last three years.

**Biodiesel feedstocks of Asian/Australian origin (TJ)**

- **Palm**
- **Waste/residue**

**Feedstock origin for all biofuels (TJ)**

- **Europe**
- **Asia**
- **USA**

Source: BLE
The **largest raw material** contribution for biofuels in the Netherlands in 2016 has been **UCO**

Distribution of the main raw materials for biofuels in 2016

Source: Nea
**ISCC is the major certification scheme – Shares in different markets**

- **UK**: ISCC 93%, Other 3% (Ensus 3%), No Scheme 1%
  - Source: RTFO (2016/2017)

- **DE**: ISCC 50%, Others 2%
  - Source: BLE (2013)

- **Netherlands**: ISCC ca. 96%, RSB ca. 2%, NTA8080 ca. 2%
  - Source: Nea (2016)

- **Germany**: ISCC ca. 50%, REDcert 48%
  - Source: BLE (2013)
Supply chain and market challenges

- **Classification** of materials as waste/residue and application of double counting depends on EU Member State

- **ISCC list of materials** provides information on waste/residue status

- Increasing demand for waste/residue materials for global biofuel markets

- **Asia as a supplier** of feedstock and biofuel from waste/residue is getting more and more important

- ISCC is the **most widely used certification system** for biofuels in the EU
Many thanks for your attention!

Dr Jan Henke
ISCC System GmbH
Hohenzollernring 72
D-50672 Cologne, Germany
Email: henke@iscc-system.org

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