Update EU market developments for biofuels –
Double counting and introduction of GHG quotas
### Key issues of ISCC development in the last twelve months

<table>
<thead>
<tr>
<th>System use</th>
<th>System and processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>✤ 6,500+ certificates being issued</td>
<td>✤ ISCC EU, ISCC EU Waste and Residues</td>
</tr>
<tr>
<td>✤ 2,900 system users</td>
<td>✤ ISCC DE, ISCC DE 36(^{th}) BImSchV</td>
</tr>
<tr>
<td>✤ System users in 91 countries</td>
<td>✤ ISCC PLUS</td>
</tr>
<tr>
<td>✤ 27 certification bodies</td>
<td>✤ Procedures, checklists and tools being developed</td>
</tr>
<tr>
<td>✤ 590+ ISCC auditors</td>
<td>✤ Updates / Improvements</td>
</tr>
<tr>
<td>✤ 26 regular 3-day ISCC Basic Trainings in 9 countries</td>
<td>✤ Counselling-“Hotline“</td>
</tr>
<tr>
<td>✤ 3 GHG, 3 waste, 2 Nabisy trainings</td>
<td>✤ Internet platform</td>
</tr>
<tr>
<td>✤ 1,300+ participants in trainings</td>
<td></td>
</tr>
<tr>
<td>✤ Integrity program</td>
<td></td>
</tr>
<tr>
<td>✤ Terms of use and rules for non compliance</td>
<td></td>
</tr>
<tr>
<td>✤ Participation in benchmarkings</td>
<td></td>
</tr>
<tr>
<td>✤ 250+ stakeholders involved in ISCC development</td>
<td>✤ 5 Technical Committees to facilitate regional stakeholder dialogue</td>
</tr>
<tr>
<td>✤ 70+ ISCC e.V. members</td>
<td>✤ General assemblies and sustainability conferences in Europe and overseas</td>
</tr>
<tr>
<td>✤ 5 Technical Committees to facilitate regional stakeholder dialogue</td>
<td></td>
</tr>
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<td>✤ General assemblies and sustainability conferences in Europe and overseas</td>
<td></td>
</tr>
</tbody>
</table>

### Quality

- 26 regular 3-day ISCC Basic Trainings in 9 countries
- 3 GHG, 3 waste, 2 Nabisy trainings
- 1,300+ participants in trainings
- Integrity program
- Terms of use and rules for non compliance
- Participation in benchmarkings

### Governance

- 250+ stakeholders involved in ISCC development
- 70+ ISCC e.V. members
- 5 Technical Committees to facilitate regional stakeholder dialogue
- General assemblies and sustainability conferences in Europe and overseas
ISCC offers solutions for different markets

**Energy**
- Biofuels
- Bioliquids
- (Solid biomass)

**Waste & Residues**
- UCO
- Animal fat
- Spent bleaching earth
- Palm sludge oil
- ...

**Food**
- Cereals
- Sugar
- Vegetable oils (canola / rape, soy, palm)
- Potatoes
- ...

**Feed**
- Canola / rape meal
- Soy meal
- DDGS
- ...

**Chemicals**
- Sugar
- Vegetable oils
- Starch
- Cellulose
- ...

**Certifications**
- ISCC EU
- ISCC DE
- ISCC PLUS
- ISCC EU (with Guidance Waste & Residues)
- ISCC DE 36th BImSchV
- ISCC PLUS
- ISCC PLUS
- ISCC PLUS
- ISCC PLUS
ISCC is used by companies in 91 countries
More than 6,500 ISCC certificates have been issued – sharp increase since June 2013 mostly due to certificates for waste biofuels

* Numbers as of September 01, 2014
ISCC cooperates with 27 certification bodies. More than 590 auditors have been ISCC trained.

Certification bodies using the ISCC scheme

- ABCert.
- AGUTcert
- DEKRA
- CertRom
- Intertek
- DNV-GL
- Baltic Control
- Kiwa
- CERT ID
- DQS
- SCS Global Services
- PCU Deutschland
- TÜV THÜRINGEN
- TÜV SÜD
- ICIM
- Cape International
- TÜV Nord Zertifizierung
- RINA
- ASG CERT
- agroVet Certification
- TÜV Rheinland
- SGS

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ISCC e.V. - the different stakeholders are united in one association
Different technical committees to discuss national and biomass specific adaptations

TC North America
Last meeting: 08/07/14 in Chicago
Working groups:
- National adaptations
- ISCC PLUS

TC Europe
Next meeting: 04/11/14 in Berlin
Working groups:
- National adaptations

TC South East Asia
Last meeting: 23/04/14 in Bangkok
Working groups:
- Land use
- Waste and residues
- Smallholders

TC Wood
Last meeting: 2013
Issues:
- Sustainability certification solid biomass

TC Latin America
Meeting: 10/09/14 in Porto Alegre, Brazil
Working groups:
- National and biomass specific adaptations
- Biodiverse grassland
- ISCC PLUS

as of September 01, 2014
Development of biofuel consumption for transport in the EU between 2002 and 2013

Data from 2002 to 2011 (Eurostat 2013), data from 2012 to 2013 (EurObserv’ER 2014) in Biofuels Barometer – EurObserv’ER July 2014/ Graphical formatting by ISCC

Conversion factors: Bioethanol 27 MJ/ kg = 0.6449 toe per t and 21 MJ/ l = 0.5016 toe per m³; biodiesel 37 MJ/ kg = 0.8837 toe per t and 34 MJ/ l = 0.8121 toe per m³
Biofuel consumption for transport in Europe in 2012 and 2013 – Drop in overall consumption but share of certified material is increasing

<table>
<thead>
<tr>
<th>Year</th>
<th>Country</th>
<th>Bioethanol*</th>
<th>Biodiesel*</th>
<th>Total consumption*</th>
<th>% certified sustainable</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>Germany</td>
<td>805 460</td>
<td>2 190 767</td>
<td>3 048 587</td>
<td>100 %</td>
</tr>
<tr>
<td></td>
<td>France</td>
<td>417 014</td>
<td>2 268 977</td>
<td>2 685 992</td>
<td>100 %</td>
</tr>
<tr>
<td></td>
<td>Spain</td>
<td>201 445</td>
<td>1 899 294</td>
<td>2 100 789</td>
<td>0 %</td>
</tr>
<tr>
<td></td>
<td>Italy</td>
<td>79 597</td>
<td>1 263 288</td>
<td>1 342 885</td>
<td>100 %</td>
</tr>
<tr>
<td></td>
<td>United Kingdom</td>
<td>388 220</td>
<td>497 349</td>
<td>885 570</td>
<td>100 %</td>
</tr>
<tr>
<td></td>
<td><strong>Total EU 28</strong></td>
<td><strong>2 801 027</strong></td>
<td><strong>11 660 993</strong></td>
<td><strong>14 607 881</strong></td>
<td><strong>79.8 %</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Country</th>
<th>Bioethanol*</th>
<th>Biodiesel*</th>
<th>Total consumption*</th>
<th>% certified sustainable</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>Germany</td>
<td>777 730</td>
<td>1 954 811</td>
<td>2 768 3343</td>
<td>100 %</td>
</tr>
<tr>
<td></td>
<td>France</td>
<td>393 541</td>
<td>2 293 324</td>
<td>2 686 865</td>
<td>100 %</td>
</tr>
<tr>
<td></td>
<td>Spain</td>
<td>180 274</td>
<td>816 461</td>
<td>996 735</td>
<td>0 %</td>
</tr>
<tr>
<td></td>
<td>Italy</td>
<td>56 234</td>
<td>1 169 175</td>
<td>1 225 409</td>
<td>100 %</td>
</tr>
<tr>
<td></td>
<td>United Kingdom</td>
<td>410 791</td>
<td>603 755</td>
<td>1 1014 546</td>
<td>100 %</td>
</tr>
<tr>
<td></td>
<td><strong>Total EU 28</strong></td>
<td><strong>2 715 685</strong></td>
<td><strong>10 750 984</strong></td>
<td><strong>13 615 387</strong></td>
<td><strong>86.5 %</strong></td>
</tr>
</tbody>
</table>

*In tonnes of oil equivalents (toe)
Source: Biofuels Barometer – EurObserv’ER July 2014/ Graphical formatting by ISCC
Minimum biofuel quota targets in energy content for 2014 for the major EU countries – Targets are not harmonized on EU level

<table>
<thead>
<tr>
<th>Country</th>
<th>Quota target in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>7.57%</td>
</tr>
<tr>
<td>Germany</td>
<td>6.25%</td>
</tr>
<tr>
<td>Italy</td>
<td>4.50%</td>
</tr>
<tr>
<td>Spain</td>
<td>4.10%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>3.90%</td>
</tr>
<tr>
<td>Mean target</td>
<td>5.15%</td>
</tr>
</tbody>
</table>

Data from APPA press release, 20 May 2014 in Biofuels Barometer – EurObserv’ER July 2014/ Graphical formatting by ISCC
Biodiesel makes up the largest share of all types of biofuel in total biofuel consumption by energy content for EU transport in 2013

- Biodiesel 79,0%
- Bioethanol 19,9%
- Biogas 0,9%
- Others 0,2%

Source: Biofuels Barometer – EurObserv’ER July 2014/ Graphical formatting by ISCC
Production capacities of the main biodiesel producers in Europe in 2013

- Diester Industrie & Diester Industrie International (Sofiprotéol) (France) - 2,500,000
- ADM Biodiesel (Germany) - 975,000
- Infinita (Musim Mas) (Spain) - 900,000
- Marseglia Group (Italy) - 560,000
- Verbio AG (Germany) - 450,000
- Cargill/ Agravis (Germany) - 250,000
- Petrotec (Germany) - 185,000

Source: Biofuels Barometer – EurObserv’ER July 2014/ Graphical formatting by ISCC
Production capacities of the main bioethanol producers in Europe in 2013

- **Abengoa Bioenergy (Spain)**: 1.281 million litres
- **Tereos (France)**: 1.260 million litres
- **Crop Energies (Germany)**: 1.200 million litres
- **Cristanol (France)**: 550 million litres
- **Vivergo (UK)**: 420 million litres
- **Verbio (Germany)**: 340 million litres

Source: Biofuels Barometer – EurObserv’ER July 2014/ Graphical formatting by ISCC
Biofuels consumption for transport in the EU in 2013 – Respective shares of each sector

Source: Biofuels Barometer – EurObserv’ER July 2014/ Graphical formatting by ISCC
The Renewable Energy Directive (RED; 2009/28/EC) contains important GHG requirements for biofuels and bioliquids

- **GHG saving requirements:**
  - Today: 35 %
  - 2017: 50 %
  - 2018: 60 % for installations in which production started from 2017 onwards

- **Methodology:**
  - The RED contains “default values” and “disaggregated default values” that can be used in certain cases*
  - The RED contains a calculation methodology for “actual values”

* Certain restrictions are in place for the use of the disaggregated default value for cultivation.
In addition, the FQD implements a decarbonization strategy for transport. Importance of individual GHG calculations will rise further.


<table>
<thead>
<tr>
<th>Year</th>
<th>GHG per energy unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>6%</td>
</tr>
<tr>
<td>2015</td>
<td>10%</td>
</tr>
<tr>
<td>2020</td>
<td>10%</td>
</tr>
</tbody>
</table>

**Decarbonization strategy for the transport sector**

- **European Union:**
  FQD requires a 6 % GHG reduction per unit of energy from fuel supplied*

- **Germany:**
  Switch from energetic quota to GHG reduction quota already in 2015 (2015: 3.5%; 2017: 4%; 2020: 6%)
  
  - The importance of the individual GHG performance of biofuels will increase tremendously and will impact prices
  
  - Individual calculations and audits of individual calculations will increase
  
  - Fraud potential

* Obtained through the use of biofuels, alternative fuels and reductions in flaring and venting at production sites (additional 4% by CCS, electric vehicles and CDM possible).
A new proposal from the European Council to amend the FQD and RED on iLUC is on the table

iLUC proposal*

Main points:

1. Mitigation of iLUC emissions through a threshold of 7% of the final consumption of energy in transport in 2020 for conventional biofuels
2. Incentives for advanced biofuels (e.g. UCO) by inviting MS to promote the consumption by setting national target (reference value: 0.5 %)
3. A list of feedstocks and advanced biofuels that count double towards the target (UCO listed in Annex IX)
4. iLUC reporting on GHG emission savings carried out by the EC. Introduction of provisional estimated iLUC factors
5. A review clause is established that includes the possibility of introducing adjusted estimated iLUC factors into sustainability criteria

*Proposal by the Council of the European Union, 2012/0288 (COD)
Recently, a proposal on defining biodiverse grassland was published by the EC

Grassland proposal

- “Grassland” means terrestrial ecosystems dominated by herbaceous or shrub vegetation for at least five years continuously. It includes meadows or pasture that is cropped for hay but excludes land cultivated for other crop production and cropland lying temporarily fallow.

- The dominance of herbaceous or shrub vegetation means that their combined ground cover is larger than the canopy cover of trees.

- “Human intervention” means managed grazing, mowing, cutting, harvesting or burning.

- Comprehensive information on geographic ranges of highly biodiverse grasslands is not available at international level. Regulation entails information on certain regions in the EU to be considered as biodiverse.
Natural highly and non-natural highly grassland are differentiated in the regulation proposal (I)

- **Natural highly biodiverse** grassland means grassland that:
  
  - would remain grassland in the absence of human intervention; and
  
  - maintains the natural species composition and ecological characteristics and processes.
Natural highly and non-natural highly grassland are differentiated in the regulation proposal (II)

**Non-natural highly biodiverse** grassland means grassland that:

- would cease to be grassland in the absence of human intervention; and
- is not degraded, that is to say it is not characterized by long-term loss of biodiversity due to for instance overgrazing, mechanical damage to the vegetation, soil erosion or loss of soil quality; and
- is species-rich, that is to say it is:
  - (i) a habitat of significant importance to critically endangered, endangered or vulnerable species as classified by the International Union for the Conservation of Nature Red List of Threatened Species or other lists with a similar purpose for species or habitats laid down in national legislation or recognised by a competent national authority in the country of origin of the raw material; or
  - (ii) a habitat of significant importance to endemic or restricted-range species; or
  - (iii) a habitat of significant importance to intra-species genetic diversity; or
  - (iv) a habitat of significant importance to globally significant concentrations of migratory species or congregatory species; or
  - (v) a regionally or nationally significant or highly threatened or unique ecosystem.
Currently, a biofuel quota of 6.25% is in place in Germany. The volume target will be replaced by a GHG reduction quota from January 2015 onwards.

- Since January 2007, the BioKraftQuG (Biokraftstoffquotengesetz, biofuels quota law) is in Germany in place, obliging fuel companies to fulfil certain minimum volume blendings.

- Currently, the biofuel quota is 6.25%, calculated on energy content.

- This obligation is the only driver for the use of biofuels in the German market. The total market size for biofuels in Germany was 3.4 Mio. t in 2013.

- In addition, a double counting system is in place (36. BImSchV) since January 2013. The market share of double counting biofuels was 22.4% in 2012.

- The current system will come to an end with the implementation of the GHG reduction quota from 1.1.2015 onwards. Volume targets (based on energetic content) and double counting will no longer exist in 2015.
At the time being, a draft decree is in an inter-ministerial consultation process

**Draft document BImSchG**

- Confirmation of defined GHG reduction quota till 2020 to give economic operators planning reliability. Some associations argue that time for preparation is not sufficient

  - GHG reduction quota:
    
    2015: 3% (likely to be increased to 3.5%)
    2017: 4.5% (likely to be decreased to 4%)
    2020: 7% (likely to be decreased to 6%)

- Options to transfer GHG emission savings from one year for next year and to account the emission reduction of electricity used for transportation against the quota

- Continuous non acceptance of fats and oils of animal origin as feedstock for biofuels

- Penalty payment for missing GHG emission savings: 0.47 €/kg CO$_2$eq
The size of the biofuels market will depend on the GHG reduction quota and on the average GHG emission savings of all biofuels.

*Calculation based on fuel consumption 2013*
Results from actual calculations show that GHG savings are normally higher than suggested by the default values (example biodiesel)*

* Exemplary figures of conducted actual calculations (Source: Meo Carbon Solutions). Default values from RED.
With the switch to a GHG reduction quota, the GHG performance of biofuels becomes a most important product characteristic, fraud potential is high

- Fuel companies will be very keen on biofuels offering highest GHG emission savings. This will allow them to reduce the biofuels volume to be blended in
- Premiums will be paid for biofuels with a good GHG performance. This will set incentives for producers to offer such biofuels
- Consequences: Instead of defaults, companies will use individual GHG calculations to improve the GHG value of their products to achieve higher prices in the market
- Fraud potential is seen to be very high (taking also current experience with some individual GHG calculations into account)
- Ministries and authorities are discussing possible rules and regulations to avoid a situation in which fraud would undermine the overall positive impact the climate quota is expected to have

* Draft document from the BMUB (Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety)
Independent third party auditors must always verify the GHG emission value. Values can only be used after successful certification.

Third Party Audit

Audit by:
- independent third party CB
- recognized by national authority or accreditation body
- cooperating with ISCC

Verification of:
- Correct default value application

Or for individual calculation:
- inputs and outputs
- conversion factors
- emission factors
- heating values
- methodology of calculation
- results, provision of correct value
ISCC sets certain requirements for all kinds of GHG calculations. These must be closely followed. Compliance needs to be verified.

- The calculation must be based on RED and ISCC methodology.
- Calculation and documentation must be transparently displayed and verifiable.
- The calculation must be updated on an annual basis!
- For all input values and emission factors as well as default values, data source or reference to evidence is needed.
- Detailed reference to literature or databases used!

Source: Calculator from Meo Carbon Solutions
Become part of the ISCC family. www.iscc-system.org