UNECE – SG6
ILUC Workshop

JRC presentation

1. General overview of CORSIA methodology related to ILUC.
2. General overview of IMO methodology related to ILUC.
3. Position of the European Commission on ILUC.

26.11.2024

How is ILUC handled in ICAO CORSIA?

Please have a look at the ICAO CORSIA webpage

European Commission

Induced LUC (ILUC) calculation in CORSIA

- The measurement of ILUC emissions usually consists of two steps
  - The global land use change is first estimated through an economic equilibrium model,
  - and then GHG emissions associated with the estimated land use changes can be measured by applying an emission accounting model.
- An emission accounting model accounts for at least three major sources of emissions released to the atmosphere due to ILUC, including
  1. emissions due to changes in vegetative living biomass (natural vegetation and average agricultural landscape) carbon stock,
  2. emissions due to changes in soil carbon stock,
  3. emissions debt equivalent to forgone carbon sequestration

Process for ILUC accounting in CORSIA

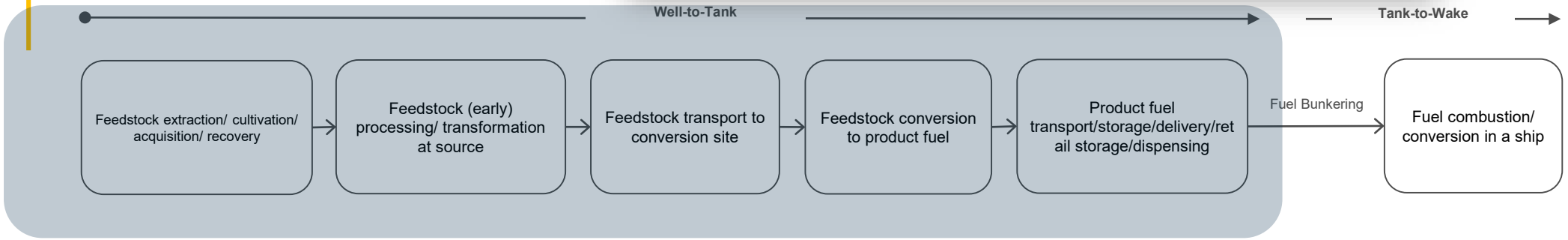
- **iLUC in CORSIA stands for induced Land Use Change and only default values are considered**
- When a new region/feedstock/pathway combination is evaluated, ILUC results will be requested from both GTAP-BIO and GLOBIOM models.
- Each model must be made available to the members of the CAEP Fuels Task Group (FTG), so they can perform their own analysis.
- However, only the results from model simulations agreed by FTG will be used in calculating new ILUC values.
- If the ILUC emission results between the two models differ by 8.9 gCO2e/MJ or less, the average value will be used.
- When the difference is greater than 8.9 gCO2e/MJ, the lower of the two values plus 4.45 gCO2e/MJ will be used.

How is ILUC handled within IMO?

European Commission

Well-To-Tank

$$GHG_{WtT} = e_{fecu} + e_l + e_p + e_{td} - e_{sca} - e_{ccs}$$



e_{fecu} Emissions associated with the feedstock extraction/cultivation

e_l Emissions [annualized emissions (over 20 years) from carbon stock changes caused by direct land-use change] * ***Pending further methodological guidance***

e_p Emissions associated with the feedstock processing and/or transformation at source and emissions associated with the conversion to the final fuel product, including electricity generation

e_{sca} Emissions [annualized emission savings (over 20 years) from soil carbon accumulation via improved agricultural management] * ***Pending further methodological guidance***

e_{td} Emissions associated with the feedstock transport to conversion plant emissions associated with the fuel transport and storage, local delivery, retail storage and bunkering

e_{ccs} Emissions credit from carbon capture and storage (e_{ccs}), that have not already been accounted for in e_p.

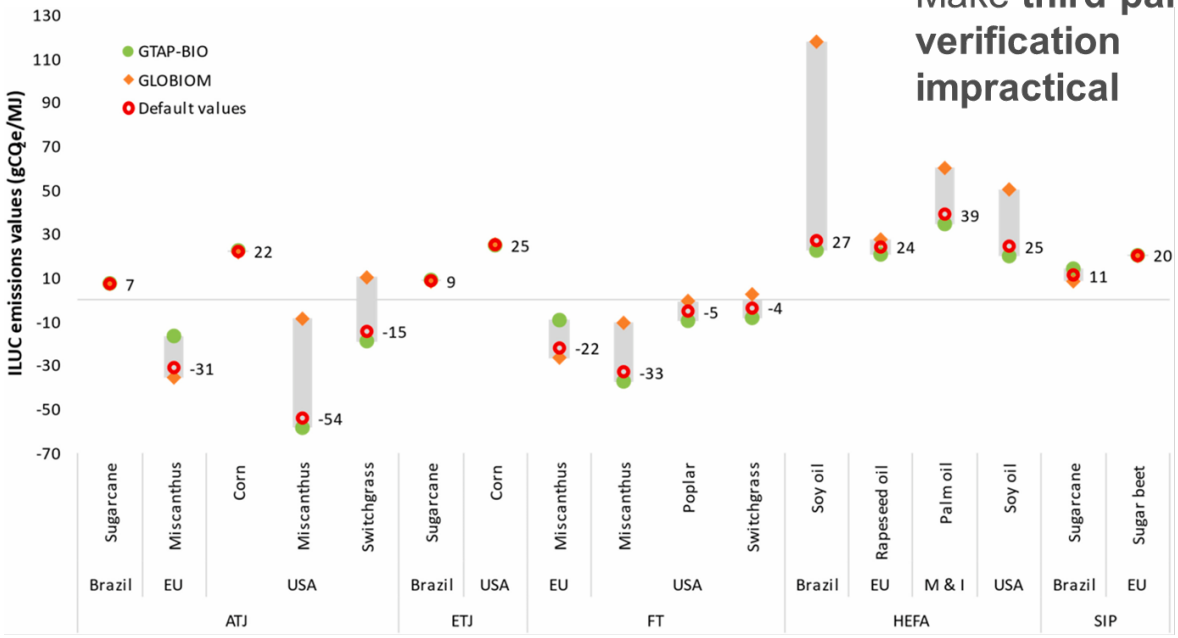
Qualitative risk-based approach to ILUC

- **Low-ILUC** risk qualifies and characterizes biofuel production **projects** that **supply additional feedstock without disrupting existing land uses**. When productivity is increased on an area which is in agricultural production, only additional yields should be considered as low-ILUC rather than the entire production;

- **High-ILUC** risk qualifies and characterizes **biofuel production projects based on**, or displacing, **food and feed crops resulting in a significant expansion** of the feedstock production area shifting into land with high carbon stock.

High variability in the **models**

- strong **uncertainities**
- Make **third-party verification impractical**



Prussi, M., Lee, U., Wang, M., Malina, R., Valin, H., Taheripour, F., ... & Hileman, J. I. (2021). CORSIA: The first internationally adopted approach to calculate life-cycle GHG emissions for aviation fuels. Renewable and Sustainable Energy Reviews, 150, 111398.

European Commission

How is ILUC regulated in the EU and EC position at UNECE

European Commission

Commission position on Indirect LUC (ILUC)

- The Commission supports inclusion of ILUC using a **risk-based approach** to all fuels traded in the EU market, i.e. to any feedstock.
- Quantified approach is not reliable as ILUC values is not sufficient to justify their inclusion in the LCA methodology. The great variability and uncertainty of these values, as well as the availability, accuracy and stability of data over time, makes it impossible to deliver reliable result.
- The Commission entirely recognises the issue of ILUC that could significantly impact the final GHG emissions results. In this context the Commission supports a risk-based approach, such as used by the **RED framework**, defining sustainability criteria and sustainable pathways/feedstock (as spelled out in relevant legislation ILUC DA 2019/807 and IR 2022/996). This risk-based approach should be properly acknowledged by the LCA methodology and spelled out in the relevant documentation.

- As recognised by IEA (2024), direct calculations of ILUC cannot deliver univocal[1], nor verifiable data.

[1] *IEA (2024). Carbon Accounting for Sustainable Biofuels. https://www.iea.org/reports/carbon-accounting-for-sustainable-biofuels*

Commission overview on ILUC

- We should consider the approaches taken and discussions taking place in other relevant **international initiatives** developing LCA guidelines for maritime (IMO) and aviation fuels (ICAO), as well as the International Energy Agency (IEA). In this regard, it is important to note that:
  - **IMO adopts a risk-based approach to ILUC**, like RED. Now this is still being refined to make it operational. See: Guidelines on life cycle GHG intensity of marine fuels (LCA Guidelines) (imo.org).
  - **CORSIA** considers a quantification for the ILUC values, using the average (defined in a specific manner) values from GTAP (Purdue University, US) and GLOBIOM (IIASA, AT/international). Only default values are allowed, as these calculations are complex and leading to divergent results, therefore needed a relevant alignment work. See: the document with agreed default values as well as the guidelines to calculate actual values https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Eligible-Fuels.aspx.
  - The recent **IEA report** (Carbon Accounting for Sustainable Biofuels – Analysis - IEA) recommends that ICAO moves away from this approach to risk-based.
  - Furthermore, ICAO has witnessed first signs of movement in this direction with an ad-hoc group tasked to scan approaches.

Keep in touch


ec.europa.eu/


europa.eu/


@EU_Commission


@EuropeanCommission


European Commission


europeancommission


@EuropeanCommission


EUTube


EU Spotify

European Commission

Thank you

European Commission