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# Biofuels Certification: Chances and Challenges in North America

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# Biofuels Certification

- US production capacity of ethanol and renewable diesel, and biodiesel exceeds renewable volume obligations under the Renewable Fuel Standard (RFS).
- Protein demand and continual yield increase for corn and soy will leave starch and oil co-products looking for non-edible markets.
- Ethanol, renewable diesel and biodiesel feedstocks will continue to look for additional market outlets. These may include ISCC EU, PLUS and CORSIA.

# Which Biofuels may seek certification?

- Anything waste-based, raw materials like:
  - Used cooking oil
  - Animal fats
  - Food waste
  - Processing residues
  - Municipal Solid Waste
  - Manure

# What about agricultural commodities?

- Corn
- Sorghum
- Soybean & soybean oil
- Forestry Residue

# Advantages of Waste

- Lower GHG score
  - No ILUC under CORSIA
- Double counting under EU REDII
- Point of Origin can be audited on a sample basis

# Challenges for agricultural commodities?

- 50% GHG threshold under EU
- CORSIA threshold is only 10%, but also includes ILUC
- Lengthy farm audit checklist
- Direct business relationship between farmer and the final certified biofuel.

# Direct business relationship between farmer and the final certified biofuel.

- Ethanol can be certified, because they buy corn direct from farmers.
  - Corn farmers are also soybean farmers
- Interests exists in SAF and renewable diesel from soybean oil
  - Soybean crush plants and soy aggregators must get certified
    - ISCC markets are still a small portion of the outlet for soy
      - 50% of soy get exported as whole beans
      - Bean that do get crushed domestically, produce 20% oil
      - 70% of that oil goes to edible markets.
      - That leaves 3% of the soybean crop going to biofuels or industrial uses.
  - Canola industry has invested in ISCC.

# Potential large demand for certified oils

- Vegetable oils are easily converted into renewable diesel and Sustainable Aviation Fuel.
- Vegetable oils are also prime ingredients for biobased materials under PLUS.

# U.S. SAF Tax Credit adds incentive for CORSIA

- U.S. SAF tax credit: \$1.25/gal for GHG reduction of 50%, and up to \$1.75. 1 cent for each percent GHG reduction beyond 50%.
  - Tax credit not limited to international flights
  - CORSIA certification is one avenue available to verify the GHG score
  - The IRS has yet to develop their own GHG verification tools. USEPA may be stepping in to help.
  - Industry is advocating for a GREET alternative, because they disagree with the ILUC value in CORSIA
    - EPA is most likely to retain ILUC penalty.

# Which Biofuels may seek certification?

- Anything waste-based, raw materials like:
  - Used cooking oil
  - Animal fats
  - Food waste
  - Processing residues
  - Landfill gas
  - manure
- These may be exported as:
- Feedstocks for EU biodiesel production
- US Ethanol
- Biomethanol or LGN via Biomethane
- SAF based on any of the above

# Biomethane

- Lots of interest in Biomethane produced from
  - landfills, manure, food waste, etc.
- They all rely on mass balance across the pipeline grid
- Lots of question on calculating GHG:
  - Default values
  - Transport issues
    - Must account for methane leakage

# Other GHG Questions

- Allocation of process emissions to co-products
- Determination of Waste & Residue versus co-products
  - When the material is a raw material under ISCC, the “conservative” position is to declare a material a co-product.
    - Because waste get preferential treatment, including double counting.
  - When the material leaves the ISCC system, the “conservative” position is to declare it a processing residue.
    - Because processing emission can be allocated to co-products therefor lowering the GHGs for primary ISCC material.

# Other GHG Questions

- Emission factors
  - We see a number of emission factors that are not up-to-date or properly referenced.
  - We have rejected USEPA's eGRID model, because it is GHG Inventory model, not a lifecycle model. It only included emission of the electricity sector and not the upstream emission of extracting and transporting fuel.

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