CARB LCFS Expert Workgroup
Carbon Emission Factors

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Goals and objectives of SubEWG on Carbon Emission Factors

The goal of this subEWG is to:

1) survey the existing databases of emission factors, methodology and assumptions, and
2) formulate a set of recommendations to improve the current emission factors used in the CARB ILUC analysis.

- The proposed work plan would have the following principles:
  - The issue is relevant and critical for the analysis
  - The assumptions can be validated
  - The issue can be addressed within reasonable amount of timeframe (short-term vs. long-term)
Key Topics

1) Identify and compare the existing datasets on carbon stock and fluxes, methodologies and assumptions used in ILUC analysis, and identify key gaps.

2) Identify additional datasets on carbon stock and fluxes and the methodology and assumptions that can be used to improve ILUC analysis

#1 Identification and Comparison of Existing Information

- Land types and associated covers (collaborative with sub-group #3 on land cover types)
- Identify potential circular references between data sets
- Data (and the spatial resolution) on C stock (biomass C and soil C), fluxes (sources and sinks) in the reference scenario
- Methodology and assumptions used to calculate emission factors
Sub-tasks within #1
(Methodology and Assumptions)

Specifically Investigate:

— rate and duration (and the spatial resolution) of biomass and soil C \textit{loss} after conversion,

— rate and duration (and the spatial resolution) of C \textit{uptake} (+/-) after land use conversion in the corresponding converted land use type(s)

#2 Identify Additional Datasets for Methodology Improvement

- Focus on improving spatial and temporal (mature vs. growing vegetation) resolution of the data and methodology/assumptions of calculating emission factors

- Quantify N2O emission factors

- Identify important GHG emission sources and sinks ignored in previous analyses

- Identify important GHG emission sources and sinks that will be modified by scenarios
Sub-tasks within #2
(Additional Datasets – Analysis Improvement)

GHG emission sources and sinks that are ignored or in need of modification:

— additional fertilizers that will be required to improve yield
— other inputs changes (e.g. energy inputs +/-) associated with yield and/or management changes
— higher grazing rates/yields on abandoned cropland
— credits for crops that sequester N2O
— GHG emissions from land that stayed in the same use category but changed management practices
— GHG emissions and/or energy input changes (+/-) associated with cropping, yield and/or management changes