SG 6: Energy & Fuel Cycle

Update A-LCA IWG

07/09/2023

Scope & definitions

SG6 goals and objectives:

A. Co-develop (and collect) different LCA methodologies for different types of fuels and energy

B. Align/translate the different methodologies into the levelling concept as defined by IWG A-LCA, submit this to the IWG A-LCA

Scope & definitions

Controversial topics list:

1. Allocation. Simplified, do we consider ISO 14040 sufficient with regards to the priority when assessing emissions from multifunctional processes:
   - Avoid allocation by system expansion.
   - Allocate according to physical quantifiable unit (MJ, kg etc.)
   - Allocate according to other quantifiable unit (economical or other).
   - To what extend will we be able to make the same allocations to the different fuel pathways?

   Since the 1st priority should always be to avoid allocation (and expand system boundaries instead), then complying with the ISO standards is quite uncommon?

2. Intermittency. How is storability to be methodologically considered in LCA. Currently modelled by either using average/marginal values for electricity. Opportunity for SG6 to at least clarify the discussion (this is where we are today) or to highlight which questions are not addressed in the LCA of today.

3. Product economic status i.e., is it by-products or determining products? Not considered in ALCA today which reduces the accuracy (though the precision is high) if consumer compares a by-product with a determining product. See for instance (Krantz, 2022).

4. ILUC. Whether or not this is included can often shift a renewable fuel from preferable to non-preferable.

Fuels List

Ongoing work (!)

Input is welcome:

romain@avere.org

Excel:

UNECE WIKI

	Synthetic Fischer-Tropsch diesel				olisis and HTL based gasoline and di				Gas	
Fuel:	**Gas-to-Liquid**	**Biomass-to-Liquid**	**Coal-to-Liquid**	**Power-to-Diesel**	**Gasoline**	**Diesel**	**CNG**	**LNG**	**Compressed biomethan**	**Liquefied biomethane**
Elements:										
Existing methodologies?		- JEC v5 - RED - ICAO CORSIA - etc.								
Existing limitations?		- the logistic upstream for the feedstock transportation could be a real game changer - depending on the design (centralised, decentralised), self consumption of energy could be possible, but also							- compression at source? At the station?	
Bounderies Level 4										
Production:										
Transport & Infrastructure:										
Storage:										
Leakage?:									yes	
Landuse emissions:		direct and indirect								
Other emissions:				CCS						
To consider:										
Preliminary Remarks										
>Missing expertise?		fuel producers		economic investers						
>Levels										
>>Level 1										
>>Level 2										
>>Level 3										
>Other remarks:		allocation		intermittency						

		Ethanol	Biodiesel		Methanol	Ethers	Electricity	Hydrogen
SNG	**LPG**		**FAME**	**HVO**				
								- JEC v5 - European DA for RFNBO
								- carbon intensity of the electricity consumed by electrolysers -
								eventually
		direct and indirect	direct and indirect					direct and indirect
CCS								- CCS, electricity sources
		allocation					produced or consumed? If consumed then on which timeframe basis? Hourly?	

Timeline

Draft Timeline for the coming months

September-December 2023:

- Approve goals and objectives
- Agree on fuels list and methodologies
- Finalize and solve controversial topics

January-March 2024:

- Agree and draft methodology-ies

April-Summer 2024:

- Draft, discuss and agree on draft methodology for fuels & energy

A-LCA IWG

Open questions to the IWG A-LCA

1. Where do we the system boundary and cut-off point between fuel and energy SG and other subgroups? (mostly SG3 & 4)
   - Charging equipment and fuel stations

2. Which leveling approach should we take into considerationn?
   - SG-members of SG6 are willing to go for level 4 but we should align with other SG's

3. Timeline for each SG?

Next meeting

Thursday 21 September at 12:00h-13:30h CEST

Still looking for additional co-chairs!

For any questions or remarks, please contact the SG-chair:

romain@avere.org

Thank you!