ReFuelEU Aviation

T&E's recommendations for EU member states - May 2022

Context

Below are T&E's recommendations on how to best address these questions for the upcoming TTE Council. More information on our overall ReFuelEU recommendations can be found in our position paper.

Which feedstocks should be eligible?

The Commission's original proposal goes some way towards selecting the right types of SAFs. It excludes food and feed crop-based biofuels and instead focuses on advanced biofuels and synthetic aviation fuels. However, the latest French presidency compromise proposed changing the definition of SAFs (Art.3, point 6). Even with a cap on non-Annex IX biofuels, it risks flooding the market with biofuels from other sectors. **The change in definition would significantly weaken the sustainability of ReFuelEU, as it would open the door to the following feedstocks, which all have competing uses and would therefore cause displacement emissions:**

- **Animal fats cat III** - are by-products from the animal slaughter process and are already being used for the manufacture of oleochemicals (e.g. soaps, cosmetics), pet food and animal feeds. [1]
- **Palm Fatty Acid Distillate (PFAD)** - is a by-product of the palm oil refining process. It has a high value in other industries, such as oleochemicals. Its use for biofuels is likely to cause significant displacement emissions. [2]
- **Intermediate crops** - planted before or after the main crop. They create a major loophole as according to the ICCT, intermediate crops can include winter corn and soybean from Brazil.[3]
- **Molasses** - are by-products from the processing of sugar cane and sugar beet into sugar and are already being used for animal feed and in the yeast sector.

The change also proposes to include **recycled carbon fuels**. These are by definition not renewable and therefore should not be promoted. Their impact could even be worse than conventional kerosene. They could also compete with recycling or even prevent improvements in recycling practices.

T&E recommends that: **the definition of SAFs (Art.3, point 6) reverts back to the Commission's original proposal and remains strictly limited to synthetic fuels, as well as RED Annex IX part A & B feedstocks.**

[1] Ecofys (2016) Indirect emissions from rendered animal fats used for biodiesel
[2] Cerulogy (2017) Waste not want not
[3] ICCT (2021) Changes to the Renewable Energy Directive revision and ReFuel EU proposals: Greenhouse gas savings and costs in 2030

The latest compromise also proposes to include low-carbon fuels in the definition of synthetic aviation fuels (Art.3, point 9). Low-carbon fuels are by definition not climate-neutral and should therefore not be promoted at the cost of zero-carbon fuels. Secondly, it limits synthetic aviation fuels to drop-in fuels thereby excluding hydrogen and electricity. These fuels have an important role to play in the decarbonization of aviation when derived from renewable sources. Excluding them risks sending a wrong signal to the market and delaying their development and uptake.

T&E recommends that: **the definition of synthetic aviation fuels (Art.3, point 9) excludes low-carbon fuels and only covers climate-neutral fuels namely: RFNBOs, renewable hydrogen and renewable electricity.**

Are the SAF blending mandates sufficient?

The Commission's proposal does not currently prioritise the right type of SAFs: instead of focusing on synthetic aviation fuels, which are the only fuel type that can be sustainably scaled up to meet the fuel demands of the sector, **the proposal mandates unsustainably high volumes of part A & B biofuels,** as explained below:

- Advanced biofuels (part A of the RED's Annex IX): include wastes and residues, but also co-products and some primary products. There are few feedstocks that have no other uses and that could be used for SAF production without any significant impact on existing markets, the environment, and the climate[4]. **The target for part A biofuels should hence be set at a realistic and sustainable level, starting at 0.3% in 2025 (0.14 Mtoe)[5] and then 2.5% in 2030 (1.3 Mtoe)[6].** We have calculated the maximum availability of SAFs from part A feedstocks at 5.85 Mtoe, which is equivalent to about 10.3% of fuel demand in 2050.

- Used cooking oil (UCO) and animal fats categories 1 and 2 (part B of the RED's Annex IX): they are available in very limited quantities (limited to EU sourced feedstocks, to avoid driving unsustainable practices) and have a competing use with the road sector. As such, **the target for part B biofuels should be strictly capped at 0.65 Mtoe throughout the ReFuelUE period, which is equivalent to about 1.2% of aviation fuel demand.**

Instead, synthetic aviation fuels, including e-kerosene (produced from renewable electricity and captured CO_2) and renewable hydrogen and electricity, should be mandated already in 2025 with a sub-target of 0.1% (small, but meaningful to provide earlier incentives to invest in production capacity) and increasing it to 2% for 2030. Furthermore, a certain share of direct air capture (DAC) should be required from the first year of the mandate and rapidly progress to provide 100% of the CO_2 needed for e-kerosene production.

T&E recommends that: **ReFuelEU includes, alongside the already existing overall SAF target, 1): a maximum level for part B feedstocks, 2): a target for part A feedstocks, and 3): an increased**

[4] Transport & Environment (2020). RED II and advanced biofuels. Recommendations about Annex IX of the Renewable Energy Directive and its implementation at national level.
[5] Transport & Environment (2021). E-kerosene mandate: key steps for ReFuelEU success.
[6] International Council on Clean Transportation (2021). Estimating sustainable aviation fuel feedstock availability to meet growing European Union demand.

minimum sub-target for synthetic aviation fuels (including a mandatory sub-share of DAC CO_2). T&E's preferred numbers are detailed below in Annex I.

As Annex I shows, it will take time to reach 100% SAF. Thus fossil kerosene will remain in use for the foreseeable future. Therefore, we must minimise its climate impact as much as possible. This can be done by reducing and eventually eliminating their aromatics and sulphur content. These compounds contribute to soot formation which leads to lower air quality and the formation of persistent, warming contrail cirrus. Reducing these compounds will reduce aviation's climate impact and improve air quality as confirmed both by the EASA's non-CO2 report and a follow-up study on fuels.

T&E recommends that: **ReFuelEU Aviation requests the European Commission to publish an impact assessment study by 31 December 2023, outlining technical, economic and legislative pathways to lower the aromatics, naphthalene and sulphur content of fossil kerosene in order to mitigate contrail cirrus formation and improve air quality. ReFuelEU should also include a mandate for fuel suppliers to report annually to EASA the average aromatics, naphthalene and sulphur contents of the aviation jet fuel supplied by them, and to make this data public**. More information on T&E's specific recommendations on non-CO2 can be found here.

Further information

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Annex I: Preferred ReFuelEU targets

in Mtoe and percentage of aviation fuel demand (2.2% compound growth rate)

Year	Total	Part A biofuels	Part B biofuels	Synthetic aviation fuels
2025	0.86 (1.7%)	0.14 (0.3%)	0.65 (1.3%)	0.051 (0.10%)
2030	3.00 (5.7%)	1.30 (2.5%)	0.65 (1.2%)	1.05 (2.0%)
2035	12.36 (22.6%)	4.50 (8.2%)	0.65 (1.2%)	7.21 (13.2%)
2040	28.91 (51.8%)	5.70 (10.2%)	0.65 (1.2%)	22.56 (40.4%)
2045	43.37 (77.3%)	5.84 (10.4%)	0.65 (1.2%)	36.88 (65.8%)
2050	56.88 (100.0%)	5.85 (10.3%)	0.65 (1.1%)	50.38 (88.6%)