40B Tax Credit & 45Z Clean Fuel Production Tax Credit for Sustainable Aviation Fuels: Crucial Safeguards for a Vital Earth

Introduction

The Inflation Reduction Act (IRA) includes a tax incentive intended to encourage greater use and production of sustainable aviation fuels (SAF), which will help reduce the aviation sector's climate impacts.

There is a risk, however, of causing net harm by trading one environmental threat for another. Producing certain alternative aviation fuels could generate detrimental unintended consequences that negate climate benefits and compound vulnerability for ecosystems and people. This is particularly the case for land-based biofuels, which can cause domino effects that propagate through land competition to become a dangerous global phenomenon felt far beyond the borders of any one fuel-producing country.

While SAF needs to develop swiftly as the key enabling technology to decarbonize aviation, it is critical to deploy only truly sustainable alternative fuels that meet robust safeguards.

The 40B SAF Tax Credits, applicable in calendar years 2023 and 2024, are already fully operational and rely on the robust environmental safeguards agreed in the IRA to determine which fuels qualify to receive the generous subsidies.[1] Soon, however, Treasury is expected to release an optional parallel ruleset that would be applicable to 40B and, most probably, also to 45Z credits for SAF.[2]

EDF's position is that any such optional rules must not undermine the original safeguards in the statute. Deploying alternative fuels without effective social and environmental safeguards would be a recipe for disaster and would frustrate aviation's flightpath to a sustainable future.

The original safeguards codified in the Inflation Reduction Act are the central navigation compass for aviation's climate efforts. While there can be a place for similar rulebooks, the content of the safeguards must be oriented consistently with the existing guidance. The requirement for similarity is enshrined in the IRA language applicable to SAF and applies both to the calculation of lifecycle greenhouse gas emissions reduction percentages under paragraphs 40B(e) and 45Z (b)(1)(B)(iii) and to the sustainability and traceability requirements under paragraphs 40B(f)(2) and 45Z (f)(1)(A)(i)(II).

[1] See notice 2023-06, available at: https://www.irs.gov/newsroom/treasury-irs-issue-guidance-on-new-sustainable-aviation-fuel-credit

[2] 45Z credits are activated immediately after the 40B credits expire and run through calendar year 2027. See notice 2022-58, available at: https://www.irs.gov/pub/irs-drop/n-22-58.pdf

In this context, granting, e.g., the use of Argonne National Laboratory's *Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation* (GREET) Model as a lifecycle assessment methodology without proper guidance from Treasury would not qualify as a "similar methodology" under the IRA. The GREET model is an analytical tool that provides a multipurpose lifecycle assessment platform, and as such could fulfil the requirements as a similar methodology if and only if detailed guidance is available. The architects of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), as adopted by the International Civil Aviation Organization (ICAO) with the agreement of the United States, have done precisely this – incorporated the GREET model as an integral calculator underpinning the CORSIA lifecycle assessment and, crucially, crafted defining guidance on usage of the model. As such, writing bounding conditions for applying the GREET model within a similar methodology for IRA purposes should be relatively straightforward, so long as the full ruleset remains aligned to the north star of sustainability.

EDF has offered several recommendations to Treasury to ensure similarity —and beyond that, additional recommendations to further refine the existing IRA statute as part of the continual improvement necessary in a dynamic landscape.[3] The existing IRA text represents a significant improvement over the ICAO CORSIA methodology, notably in IRA's 50% lifecycle reduction requirement and explicit exclusion of palm oil refining by-products. Still, while that guidance is robust for most pathways, further provisions are necessary to cover the remaining use cases. These provisions include (1) accounting for unchecked induced deforestation emissions from certain feedstocks such as animal fats, (2) precluding all feedstocks that trigger dangerous deforestation from qualifying unless that risk is actively mitigated, (3) refining the certification methodology to require proof of sustainable land management practices with low induced deforestation risk, (4) accounting for unchecked nitrous oxide emissions from excess nitrogen fertilizer use, (5) preventing adverse effects during feedstock-to-fuel conversion, such as dioxin pollution during gasification of unsegregated municipal solid wastes (MSW), and (6) ensuring the integrity and accuracy of the landfill methane emissions avoidance credit granted to MSW-based fuel.

The following reasons for disqualifying a candidate fuel exclusively focus on ensuring that the forthcoming guidance is "similar" to the existing ruleset.

Recommendations

To ensure that the parallel methodology remains similar to ICAO CORSIA's, as requested in the IRA 40B and 45Z credits for SAF, federal regulators need to watch out for several methodological traps:

- **No to lowering the integrity of sustainability certification standards.** Failing to implement a comprehensive list of sustainability criteria — particularly criteria against direct land use conversion – will erode the hard-won protections in the IRA.

- **No to cherry-picking lower emissions estimates for indirect land use change.** Failing to properly capture indirect land use change emissions means failing to safeguard against induced deforestation.

- **No to prematurely granting soil organic carbon and biomass sequestration credits** — the climate benefit is highly uncertain and non-permanent and, in the case of carbon

[3] EDF's submission is available at: https://downloads.regulations.gov/IRS-2022-0036-0036/attachment_1.pdf

enhancements in soils, difficult to demonstrate. This critical guidance also applies to certain carbon removals credits included in the default *induced land use change emissions* factors applicable to perennials such as miscanthus.[4]

- **No to rewarding any alternative aviation fuel that relies heavily on coal, gas, or oil as processing inputs—fossil fuels are not sustainable.** Relying on carbon capture and storage to cancel large carbon debts from fossil inputs in the production chain to meet the 50% lifecycle emissions reduction requirement contradicts the definition of sustainable aviation fuels.

- **No to relying on indirect book-and-claim accounting for process inputs**, as claiming climate benefits from inputs disconnected from the supply chain is not the purpose of a carbon intensity metric in the context of performance-based credits. Lifecycle assessments serve to document the real emissions embodied in a finished fuel product via tracing physical mass and energy flows.

- **No to choosing calculation parameters that under-represent lifecycle emissions** by altering how emissions burdens or benefits are split across co-products, or by spreading out land use change emissions over longer periods of time by means of longer amortization periods.

If we are to accelerate aviation's flightpath to a sustainable future, the Administration cannot water down the IRA safeguards. These protections are critical for channeling the tax credits toward truly sustainable fuels, catalyzing new opportunities, investing in promising technologies that spark private sector innovations, and creating new green jobs across the country. We can't afford to waste taxpayer dollars on low-integrity fuels.

EDF's High-Integrity SAF Handbook provides detailed guidance on how to deploy SAF with integrity.

[4] ICAO CORSIA's default induced land use change (ILUC) values for perennials include theoretical estimations for potential carbon removals (soil organic carbon and biomass enhancements). Under the ICAO CORSIA methodology, SAF carbon removals must meet strict eligibility criteria to safeguard against low-integrity claims, but no crediting methodology is yet agreed upon nor operational. Therefore, no credits for removals can be granted, and the applicable default ILUC values need to be adjusted accordingly. For instance, in the case of sugarcane plantations involving land conversion after 2007 (for which ICAO CORSIA sustainability criterion 2.2 sets a crucial safeguard) this adjustment will most probably reveal ILUC values large enough to disqualify the resulting sugarcane-based aviation fuels under the IRA, unless crop producers implement land management practices to mitigate indirect land use change emissions.