



State of Oregon
Department of
Environmental
Quality

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Temporary fuel pathway: Alternative Jet Fuel

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According to Oregon Administrative Rule 340-253-0450 (11), the Department of Environmental Quality may approve a new temporary pathway for a fuel or feedstock-fuel combination not found in table 9 under OAR 340-253-8010. Therefore, this document provides carbon intensity values for a new temporary pathway for alternative jet fuel (aka sustainable aviation fuel or SAF). In addition, it includes the rationale for assigning the CI values to these particular temporary pathways.

Rationale

Pursuant to the OAR 340-253-0040(6), alternative jet fuel is defined as a drop-in fuel made from petroleum or non-petroleum sources, which can be blended and used with conventional petroleum jet fuel without needing to modify aircraft engines and existing fuel distribution infrastructure. Various technologies can be used to produce alternative jet fuel. The CI values in table 1 apply only to alternative jet fuel produced from hydroprocessing. DEQ may consider other fuel production technologies based on further review. The following feedstocks are considered within the Clean Fuels Program for alternative jet fuel pathways: fats/oils/grease residues; feedstock derived from plant oils, excluding palm oil and palm derivatives, as a sole feedstock or blended with other feedstocks.

Staff determined the CI values indicated in table 1 using data from the California Air Resource Board's low carbon fuel standard reference materials for these pathways¹ and current literature^{2,3,4}. Currently, DEQ's Clean Fuels Program approves the temporary CI values for alternative jet fuel shown in table 1 below⁵.

Table 1. Temporary CI for Alternative Jet Fuel

Fuel Pathway Code	Feedstock	Process Energy	CI (gCO ₂ e/MJ)
OAJF701T	Fats/Oils/Grease residues	Grid electricity, natural gas, and/or renewables	50
OAJF702T	Feedstock derived from plant oils (excluding palm oil and palm derivatives, as a sole feedstock or blended with other feedstocks)	Grid electricity, natural gas, and/or renewables	70
OAJF703T	Any other feedstock	Grid electricity, natural gas, and/or renewables	Baseline (2010) CI value for ultra-low sulfur diesel

¹CARB LCFS. (2019). Low Carbon Fuel Standard Proposed New Temporary Fuel Pathway: Alternative Jet Fuel. URL: https://ww2.arb.ca.gov/sites/default/files/classic/fuels/lcfs/fuelpathways/comments/ajf_temp.pdf.

²De Jong, S., Antonissen, K., Hoefnagels, R., Lonza, L., Wang, M., Faaij, A., & Junginger, M. (2017). Life-cycle analysis of greenhouse gas emissions from renewable jet fuel production. *Biotechnology for biofuels*, 10(1), 64.

³Zhao, X., Taheripour, F., Malina, R., Staples, M. D., & Tyner, W. E. (2021). Estimating induced land use change emissions for sustainable aviation biofuel pathways. *Science of the Total Environment*, 779, 146238.

⁴Pavlenko, Nikita, Searle, S. Fueling flight: Assessing the sustainability implications of alternative aviation fuels. URL: <https://theicct.org/sites/default/files/publications/Alternative-aviation-fuel-sustainability-mar2021.pdf>

⁵Staff will continue to review any new data on indirect emissions (e.g., land-use change) and feedstock sources related to these pathways.