How can we decarbonize airplane flights? It’s a “hard to abate” sector of the economy, given that the usual transportation solutions like hydrogen or batteries will likely not work for long-distance flights, given their physics.

Instead, some advocates and policymakers are betting on carbon-neutral electrofuels (or “e-fuels”) as an alternative to fossil jet fuel. E-fuels are a type of synthetic petroleum, produced by chemically combining zero-emission hydrogen with captured carbon dioxide. Carbon-free power (like from wind and solar energy) can both produce the hydrogen and combine these elements to create the fuel.

In the gas turbine engines of airplanes, e-fuel burns like traditional petroleum, requiring no major modifications to planes or most of the existing fueling infrastructure. For the climate, e-fuel adds zero net carbon to the atmosphere. That’s a big deal, given that aviation accounts for roughly 3% (and growing) of the world’s carbon emissions and is one of the most carbon-intensive activities. And because it does not contain aromatics and sulfur found in fossil fuels, e-fuel can lead to less air pollution like soot and particulate matter, which otherwise disproportionately impact the disadvantaged communities that too often live close to airports.

But significant economic and policy barriers are preventing large-scale investment in and deployment of e-fuel production technology. Without more volume and scale, the price of this fuel will not become cost-competitive with fossil jet fuel.



To address the challenge, CLEE is releasing the new report, *E-Fueling Flight: How to Increase In-State Production of Electrofuels for Aviation in California and Beyond*. Based on a convening of experts and stakeholders, the report identifies the most pressing barriers that stand in the way of the development of a robust in-state e-fuel industry in California and beyond, and it offers solutions for policymakers to

consider, including:

- The legislature could create a **state-level production tax credit for e-fuels**
- The legislature, California Infrastructure Bank and Air Resources Board could **develop loan guarantee programs for e-fuels projects to leverage the state’s cap-and-invest proceeds**
- The legislature could **support e-fuel offtake agreements through a guaranteed revenue certainty mechanism** such as a contract-for-difference program
- The legislature and Governor’s Office could **develop a long-term aviation decarbonization industrial plan and designate “e-fuel zones” for production** with incentives for facilities that locate within them

As the world makes progress decarbonizing other modes of travel, aviation will continue to grow in its carbon impact, unless policy makers and industry take action. Given the potentially long time horizon to deploy e-fuel technology at scale to lower costs, along with the potential co-benefits to other hard-to-abate sectors like maritime shipping, policymakers would benefit from starting now.

Access the full report here**:** *E-Fueling Flight: How to Increase In-State Production of Electrofuels for Aviation in California and Beyond*.

To learn more, register for a free webinar about *E-Fueling Flight* on Tuesday, June 23rd, from noon to 1pm PT, featuring the report authors and the following experts:

- **Lillian Liu**, Program Manager of Hydrogen and Fuel Cell Market Development, California Governor’s Office of Business and Economic Development (GO-Biz)
- **Nikita Pavlenko**, Programs Director, Fuels and Aviation, International Council on Clean Transportation (ICCT)
- **David “DJ” Zaziski**, Vice President of Government Affairs & Policy, Infinium


UC Berkeley Center for Law, Energy & the Environment
Report Release Webinar
E-Fueling Flight: Increasing In-State Production of Electrofuels for Aviation in California and Beyond
Tuesday, June 23rd, 2026
12:00 PM - 1:00 PM Pacific Time
Registration is free but required.
Register via link in description.
Lillian Liu
Program Manager of Hydrogen and Fuel Cell Market Development, California Governor's Office of Business and Economic Development
Nikita Pavlenko
Programs Director, Fuels and Aviation, International Council on Clean Transportation
David "DJ" Zaziski
Vice President of Government Affairs & Policy, Infinium
Chloé F. Smith
Climate Change Research Fellow (former), UC Berkeley's Center for Law, Energy, and the Environment (CLEE)
Ethan Elkind
(Moderator)
Director, Climate Program, UC Berkeley's Center for Law, Energy, and the Environment (CLEE)