Date: February 19, 2024

To: United States Department of the Treasury

From: Jeff Hammons, NA Venture Manager Arcadia eFuels

Re: Comments on

To Whom it May Concern,

Arcadia eFuels applauds the United States Government, specifically the Department of the Treasury, for taking bold action to incentivize green technologies. Arcadia is a scale-up company focused on reducing greenhouse gas emissions through production of electrofuels (efuels) . We have three active projects under development across the globe and have received government funding, including most recently a UK grant from the Department for Transport. As an efuels company, Arcadia particularly supports incentivization for green hydrogen and clean fuels, which will play a vital role in abating harmful emissions of greenhouse gasses in hard-to-abate segments of the economy like long haul trucking and long-haul flights, where direct electrification technologies are not ready and may have structural disadvantages.

Arcadia has less common insight to the green hydrogen tax credit under 45V because we are not only a hydrogen producer, but also a consumer. With this vantage point, we are well positioned to consider the whole value chain from raw material input, through hydrogen production, and knock on effects on the consumption of hydrogen for end use.

Arcadia would like to note several concerns and provide suggestions for improvement in the currently proposed regulations:

1) Regarding proposed § 1.45V-1(a)(8)(ii), defining the "most recent GREET model" as “the latest version of 45VH2-GREET developed by Argonne National Laboratory (ANL) that is publicly available on the first day of the taxpayer’s taxable year...”, Arcadia foresees significant impact to risks on bankability of new projects with potentially yearly changes made to qualification models for this tax rebate. The 45V credit is likely to be material in all capital projects and the possibility of a change to the tax credit from an unknown future update will increase financial risks for projects. Arcadia urges the Department of Treasury to allow companies to maintain prior models used, including those at the time of investment decision, or adopt updated models as they are presented. Allowing this optionality will significantly reduce project economic risk associated with these potential changes to the GREET model.
2) Also regarding proposed § 1.45V-1(a)(8)(ii), defining the "most recent GREET model", Arcadia feels it is essential that the determination of the applicable GREET model used for determining 45V tax credits should remain within the authority of the Secretary. Maintaining governance under the Department of Treasury would guide a process more aligned to legislators needs and the private sector's ability to react and comment, rather than what could be a future risk of changes outside of standard legislative reviews. A more robust improvement to the process

would be to formally include a comment period in which concerned parties can provide feedback on new models before they come into official use.

3) Proposed § 1.45V-4(d)(3)(ii)(A) proposes hourly proration and matching of electricity generation to use. Arcadia sees this as an unnecessary drag on decarbonization efforts. As the requirements proposed in § 1.45V-4(d)(3)(i)(B) also prescribe incrementality of renewable energy, Arcadia foresees primary growth in wind and solar power to feed hydrogen production. Due to the intermittency of generation from these types of renewable sources and the need of most hydrogen-consuming processes for a steady supply, hourly matching will force over-installation of hydrogen generation capacity and storage (or, more costly, additional installation of renewable power storage such as batteries), significantly increase capital costs, and cause a significant reduction in viable hydrogen-based decarbonization processes. This proposal directly seeks to avoid small increases in emissions at the point of electricity for hydrogen production at the expense of the significant emission decreases that end-users can and will achieve in hard-to-abate industries, like trucking, and long-haul flights. Arcadia believes this policy is short-sighted, and yearly or monthly matching is a better system, at minimum, for impactful emissions reduction projects such as efuels or other decarbonization technologies.
4) As mentioned above, due to the potential intermittency of most renewable power generation, adherence to the hourly matching of power generation to hydrogen production will cause increased capital expense for the industry in the form of lower uptime of production units, leading to higher required instantaneous capacity and additional storage requirements. With added equipment significantly impacting industry economics, market forces will naturally push the industry to shift to lower capital solutions with higher operating costs. The need to compensate for the additional capital costs will incentivize the industry to use lower capital-cost foreign-made equipment like electrolyzers (e.g., Chinese-made) and reduce reliance on higher quality and higher-cost American-made equipment. Arcadia does not believe this proposal intends to increase dependence on foreign technology and again requests the implementation of yearly or monthly matching scheme for this regulation.
5) For the above reasons in concerns 3 and 4 above, Arcadia believes one solution may be to extend § 1.45V-4(d)(3)(ii)(B) indefinitely, or at least to 2039 or beyond, to allow time for infrastructure build out such as batteries, pipelines, and more extensive hydrogen storage to come online to help with the supply intermittency issues that are foreseen. Arcadia believes that the Treasury Department has focused on the wrong metric here – whether the technology exists for hourly tracking of energy attribute certificates (EACs) – and the better concept is whether supply consistency can be achieved, given the need for large-scale decarbonization processes to have a steady and reliable source of supply that uninterrupted at night, during periods of cloud cover or storms, or when the wind is not blowing. Extending § 1.45V-4(d)(3)(ii)(B) or shifting to yearly or monthly matching is one way to bridge this gap.

Arcadia sees enormous potential for the integration of green hydrogen into downstream transportation fuels like eKerosene and eDiesel, which can dramatically and directly reduce carbon emissions by having a net zero or even lower carbon output. Ultimately, as summarized in our four specific concerns above, Arcadia is concerned that the proposed guidance will push the green hydrogen industry to intermittent supply due to the strict ties to intermittent electricity generation. Running a fuel refinery with intermittent supply will not be competitive, or even possible, at a large scale. It will significantly harm industry efforts to decarbonize these critical but hard-to-abate markets.

Overall, Arcadia eFuels would like to reiterate our support for the 45V tax code regulation, and we hope our concerns will be heard and addressed. The tax credit should support ambitious decarbonization goals, support American ingenuity, and be controlled by the Secretary and supported by scientists rather than being controlled through a scientist model. Arcadia looks forward to being a part of this space for decades to come.

Sincerely,

Jeff Hammons

Venture Manager, North America

Arcadia eFuels