February 26th, 2023

Internal Revenue Service (IRS)
REG-117631-23

RE: Section 45V Credit for Production of Clean Hydrogen; Section 48(a)(15) Election To Treat Clean Hydrogen Production Facilities as Energy Property.

CTE Recommendation

The Center for Transportation and the Environment (CTE) is pleased to submit the following comments. CTE is following the State of California and the Alliance for Renewable Clean Hydrogen Energy System's (ARCHES) lead regarding feedback to the US Department of Treasury and Internal Revenue Service (IRS) on the proposed rulemaking for section 45V Credit for Clean Hydrogen Production; Section 48(a)(15) Election To Treat Clean Hydrogen Production Facilities as Energy Property.

CTE, in alignment with the State of California, recommends the IRS incorporate language into the 3-Pillars (section (d)(1)) to allow an exception for states that have enacted legislative mandates to convert their grid to 100% renewable energy by 2050. Our suggested language would create an alternate compliance pathway for projects deployed in frontrunner states if they fulfill all three of the following conditions:

- The hydrogen production facility is located in a state with mandatory requirements for the production of 100% clean electricity by December 31, 2050;
- Any hydrogen production facility relying on grid power has the capability to increase or decrease electricity consumption on demand to follow grid needs; and
- The hydrogen production facility's electricity demand is accounted for in the state's energy planning system, including applicable system-level, state-mandated time-matching and deliverability requirements.

Additionally, CTE recommends adding the following text to Section 1.45V-5 to verify that entities meet the above conditions, "If the taxpayer claims an exemption from acquiring and retiring EACs pursuant to section 45V-5(d)(1), a statement that the hydrogen production facility meets the three conditions described in sections 45V–5(d)(1)(i)-(iii)."

This pathway enables projects to be integrated into a state's energy systems, enabling the grid connections that can help accelerate the transition to 100% renewable and carbon-free energy generation, which ultimately addresses the 3-Pillars' initial intent. Allowing this pathway holds critical importance, as it enables the hydrogen production market to rapidly expand during its formative years, significantly reducing the cost of hydrogen fuel. This approach is essential to establish an affordable supply of zero-emission fuel for transportation and other sectors, and encourage adoption of hydrogen technologies. Without such measures, the high costs associated with strict guidelines could deter investment in hydrogen production, stifling the market's growth. By making hydrogen more accessible and affordable, we can encourage wider adoption and investment in this clean energy source—which directly and substantially reduces end use emissions.

CTE Background

CTE is a 501(c)(3) nonprofit, membership-based planning and engineering organization. CTE's mission is to improve the health of our climate and communities by bringing people together to develop and commercialize clean, efficient, and sustainable transportation technologies. Since 1993, CTE has managed a portfolio exceeding $1.5 billion in team research, development, and demonstration projects. These projects have been in collaboration with governments, fleets, technology manufacturers, and fueling equipment suppliers. These initiatives, funded by various federal and state agencies such as the U.S. Departments of Transportation, Energy,

Defense, and Interior, along with the California Air Resources Board and the California Energy Commission, reflect our wide-reaching impact.

CTE staff are experts in developing and managing advanced zero-emission vehicle and infrastructure projects, with a focus on medium- and heavy-duty fleets. CTE excels at breaking ground in new vehicle markets by securing funding, assembling teams, and providing technical assistance and program management. CTE's three technical program areas encompass the entire commercialization process, ranging from initial prototyping to the full transition of fleets to zero emissions. We assist technology suppliers in entering the market, support fleet owners with deployment and infrastructure strategies, and offer comprehensive roadmaps for transitioning to a zero-emission fleet. This methodology has been successfully applied across various vehicles and markets, including transit and school buses, drayage trucks, delivery vans, utility vehicles, and port equipment. **CTE's policy positions are informed by hard-won experience with these zero-emission transportation technologies in the field.**

Relevant Hydrogen Experience

CTE's involvement in hydrogen and fuel cell technology started in 2005 when CTE established and managed the Southern Hydrogen and Fuel Cell Coalition under a cooperative agreement with the Federal Transit Administration (FTA). Through the program, CTE pulled together 34 private and public organizations to explore potential applications for fuel cell technology in the regional transportation system.

Since 2005, CTE has performed 18 projects deploying hydrogen fuel cell electric buses and the associated infrastructure; 13 projects focused solely on studying, developing, and deploying hydrogen infrastructure for medium and heavy-duty applications; 20 projects developing and managing the construction of light-duty hydrogen stations in California; and 10 projects deploying and demonstrating hydrogen fuel cell electric freight and logistics vehicles and the associated infrastructure.

Examples of this work include CTE's partnership with Proterra to develop and demonstrate Proterra's first prototype fuel cell electric bus in 2008 with Federal Transit Administration (FTA) funds. The bus was demonstrated in transit service in Columbia, SC, in collaboration with the Central Midlands Regional Transit Authority (The COMET) and the University of South Carolina. CTE led the station development team on the design and build a fueling station to support the bus in revenue service.

In 2018, CTE managed the development of Kenworth's First Zero Emission Class 8 Drayage Truck. CTE developed the truck in partnership with Kenworth, Ballard, and BAE Systems. The truck was demonstrated for two years between the Ports of Los Angeles and Long Beach, warehouses, and near dock rail yards. CTE was responsible for permitting and locating three temporary fueling stations to support this truck in the states of Washington and California.

In 2021, CTE received a grant to support the deployment of 30 Hyundai XCIENT Class 8 hydrogen fuel cell electric trucks (FCET) in northern California, called the NorCAL ZERO project. This project is the largest commercial deployment of Class 8 hydrogen FCETs in North America, servicing the entire northern California region. CTE managed the development of a high-capacity hydrogen refueling station with FirstElement Fuel. This station is capable of refueling 200 Class 8 trucks with 60 kg of hydrogen per truck per day.

CTE's Collaboration with California and ARCHES

CTE has a long history of successfully shaping and executing clean transportation technology demonstration programs in the State of California. Notably, CTE has an active role in supporting hydrogen transportation (buses and trucks) markets in California through its role in California's ARCHES program, one of the winning DOE Hydrogen Hubs. As part of ARCHES, CTE will work with industry stakeholders to establish demand for hydrogen within the transportation market. This includes CTE's "1,000 Bus Initiative," which has commitment from 13

transit agencies across northern and southern California to initiate or expand fuel cell electric bus (FCEB) deployments. In addition to managing the 1,000 Bus Initiative, CTE will assist with the deployment of thousands of Class 8 fuel cell trucks and supporting infrastructure. Beyond ARCHES, CTE has worked directly with the California Air Resources Board (CARB) and other California governing bodies on the development of the Innovative Clean Transit Rule (ICT), Advanced Clean Trucks Regulation (ACT), and Advanced Clean Fleets Regulation (ACF).

CTE appreciates the chance to contribute to this pivotal rulemaking process, which will significantly influence the future of clean hydrogen production in the United States. Should you wish to explore this topic in greater detail, our team is readily available for a meeting.

Sincerely,

Dan Raudebaugh
Executive Director
Center for Transportation and the Environment