COLORADO
Energy Office

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Internal Revenue Service
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P.O. Box 7604, Ben Franklin Station
Washington, DC 20044

Submitted electronically to: www.regulations.gov

RE: Credits for Clean Hydrogen and Clean Fuel Production

To Whom It May Concern,

Enclosed please find the state of Colorado's comments on the U.S.Department of Treasury and the Internal Revenue Service's guidance on the Clean Hydrogen Production Tax Credit, developed to meet the requirements of the Bipartisan Infrastructure Law (BIL). Thank you for the opportunity to provide comment.

Sincerely,

Will Toor

Executive Director

Colorado Energy Office

Introduction:

The U.S. Department of Treasury and Internal Revenue Service released draft guidance proposing a Clean Hydrogen Production Credit) under new § 45V and new § 45Z of the Internal Revenue Code (Code), as added to the Code by §§ 13204 and 13704, respectively, of Public Law 117-169, 136 Stat. 1818 or, the Bipartisan Infrastructure Law (BIL). The proposal

establishes how to calculate the tax credit. This memo contains the State of Colorado's comments on those provisions.

The development of the clean hydrogen production supply chain is important to successfully achieving goals for deep reductions in economy-wide greenhouse gas emissions. Colorado has legislatively adopted targets of a 50% reduction below 2005 levels by 2030 and a 90% reduction by 2050. The bulk of these reductions will come from decarbonizing electricity generation through retiring coal generation and replacing it with low cost wind and solar, and using this clean electricity to displace fossil fuel combustion by electrifying transportation, buildings and some industrial processes. However, there are a number of areas - high heat industrial applications, dispatchable zero carbon electricity generation to complement wind and solar, and potentially applications in heavy duty transportation - where clean hydrogen, if cost-effective, could play an essential role.

Over the long term, it will be important to have rigorous standards for clean hydrogen production, to ensure that the emissions associated with hydrogen production are low enough to truly contribute to economy-wide emissions reduction targets. However, we are in the very early days of the industry, and some flexibility is warranted in order to ensure that the industry can develop to a scale that allows the benefits of clean hydrogen to be realized, and that creates a stable enough supply that potential users of clean hydrogen can count on the supply, and make the capital investments and long-term contractual agreements that will be needed especially in hard to decarbonize industrial applications who are often most sensitive to fuel costs and have implications for the economic competitiveness of domestic industries. Because of this, we would encourage the IRS to develop initial guidelines that reflect the current state of the market, but look at phasing in more rigorous requirements over time. It will also become easier for more rigorous requirements as the background electric grid gets cleaner, especially in states like Colorado where the governor has set a goal of 100% carbon free electricity by 2040, or the other states with legislation requiring 100% clean electricity by a target date.

One way to think about this is an analogy with the electric vehicle (EV) market. In the early years of EVs, actual emissions were not necessarily lower than internal combustion vehicles in areas with a relatively dirty grid, but federal investment and tax credits were necessary to drive the EV market. By the time the number of EVs on the road was large enough to have a material impact on emissions, the grid mix evolved towards much lower emissions; and over the long term, a near-zero emissions grid paired with widespread electrification of vehicles will enable near-zero emissions transportation. If the IRS had required that EV owners demonstrate emissions reductions for each vehicle based upon the grid mix at time of purchase, the system would have been unworkable, and would not have enabled the evolution of the car market towards widespread electrification. Similarly, the IRS should think about the long term development of the clean hydrogen market while developing the implementation rules for the production tax credit.

History has shown that the intended effect of any federal subsidy for clean energy production and end-use technologies is to drive down the costs and build scale economics to meet or

exceed cost parity with substitute goods. In the case of green hydrogen, the effects of the PTC and requirements in early years for its full use need to consider the potential impact of the guidelines for clean hydrogen on the relative competitive position of green and blue hydrogen. Over the longer term, green hydrogen, once powered by zero carbon electricity, can be truly zero emissions, while blue hydrogen, due to the inherent inability to capture 100% of carbon dioxide or methane leaks, can not achieve zero emissions. Given the interplay of the 45Q tax credits for CCUS with the clean hydrogen production tax credits, it is important that the standards for hydrogen to not inadvertently discourage investment in green hydrogen and lock the industry into higher emitting blue hydrogen over the long term. In addition, green hydrogen can become a substitute for natural gas in the power sector and industrial processes. The IRS should carefully consider project economics, and changing project economics, over time. We should assume that any project is considering the relative total delivered cost, including subsidies, of choosing between blue or green hydrogen, or the status quo use of natural gas, batteries, or other substitute fuels. These considerations will have long-term implications for the early areas of investment in hydrogen, as well as the overall success of the hydrogen PTC to achieve the Congressional intent of such a regime.

With this as context, our more detailed comments are:

1) The most straightforward way for a producer to comply will be by the use of zero carbon electric generation that is “behind the meter”. However, in practice this will likely only be possible in a very limited set of circumstances. This is particularly true since the high capital cost of electrolyzers will require that they be operated close to continuously to make economic sense at least in the early years of hydrogen production. It is unlikely that many sites would have the mix of zero carbon resources available behind the meter to allow near continuous operation. Thus, use of behind the meter zero carbon generation should be permitted but not required.

2) For the purposes of demonstrating the use of zero carbon electric generation for hydrogen production unbundled Renewable Energy Credits (RECS) should not be used in GHG accounting. Because unbundled RECS are not directly linked to the power use by a hydrogen producer, and are not necessarily even from the same regional grid, purchase of unbundled RECs does not actually reduce the carbon intensity of the electricity being used by the hydrogen producer.

3) However, both the use of direct Power Purchase Agreements (PPAs) for zero carbon generation and the purchase and retirement of RECs that are “bundled” with the energy purchase should be allowed. Hydrogen producers should be able to use PPAs or bundled RECs to show that, on an annualized basis, they are purchasing sufficient zero carbon generation to offset their electricity use.

4) Many states have legally binding emissions standards for the electricity generation system. As an example, here in Colorado statute requires utilities to reduce total GHG emissions by a minimum of 80% below 2005 levels by 2030, and prescribes a clean

energy planning process at the state Public Utility Commission to ensure that these targets are achieved. This is a mass based target, not an intensity target, so even if hydrogen production increased loads substantially, total emissions would still be constrained by this mass based limit. In practice, utilities would need to reflect this increased load into their resource planning and ensure enough zero or low carbon generation to continue to meet the required emissions targets. Because of this, we do not see a need for explicit “additionality” requirements, at least within states that have similar emissions requirements to Colorado’s. If the IRS chooses to consider an additionality requirement for full capture of the green hydrogen PTC (where new-build renewables must be constructed contemporaneously with the deployment of electrolyzers), we would suggest seeking an exemption to this requirement in states where the decision-making around renewables deployment through the power grid is established in law and where utilities are liable for meeting their emissions targets irrespective of system load, whether electrolyzers or other demands on the grid.

5) In order to assure that there is a correlation between the energy being purchased and the energy being used to power the hydrogen production, there should be a requirement that the electricity generation take place within the same “region.” By region, we mean a portion of the grid that is both physically connected by transmission and has market structures that allow this electricity to be delivered to the hydrogen producer. In the case of Colorado, we would describe this as being within the same balancing authority. Given the variety of market structures across the country, some additional level of definition of regionality may be needed.

6) In the initial years of the credit, we do not believe that 24/7 temporal matching of zero carbon generation and hydrogen production should be required. There are substantial near term obstacles to this approach including cost, complexity, and the nascent state of many storage technologies and technologies for dispatchable zero carbon generation, which would make this too limiting in the near term. However, this may be an appropriate approach over the longer term, as technical and market developments make it more achievable at reasonable cost.