HYCO1, Inc.
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Re: Comments on Proposed Guidance for Clean Hydrogen Production Credit

To Whom It May Concern,

I am writing on behalf of the HYCO1, Inc. to express our strong support for the proposed regulations for the Inflation Reduction Act's (IRA) 45V Clean Hydrogen Production Credit (45V), as outlined in the recent announcement from the U.S. Department of the Treasury (Treasury) and Internal Revenue Service (IRS). This letter also serves to provide our comments and requests with respect to changes we believe need to be made. A summary of these changes is included at the end of this letter.

We agree that the 45V program is an unprecedented opportunity to not only decarbonize hydrogen production in a technology-neutral manner as intended by Congress, but also to break the status quo limiting methane abatement from active and inactive mining operations. Including fugitive methane as a pathway for clean hydrogen production would encourage a standardized approach to managing CMM emissions and enable the kind of capital deployment needed to stop future CMM emissions. Stated simply, putting fugitive methane to productive use as a low carbon fuel resource through 45V would provide a market incentive to support the deployment of capture systems which in turn can support clean hydrogen projects.

The significant environmental benefits associated with 45V and mine methane capture (CMM) are crucial to fostering a strong and sustainable decarbonized future based on clean hydrogen. As the proposed rules rightly recognize, fugitive methane capture and utilization holds tremendous potential to reduce greenhouse gas (GHG) emissions, particularly through fugitive methane's role as a feedstock for hydrogen production.

Before sharing our specific comments, I would like to provide some background on our company and several first-of-its-kind projects we are developing.

About HYCO1

HYCO1 is a privately owned, CO_2-to-X company with headquarters in Houston, TX. Over the past several years HYCO1 invested over $20 million to develop and begin commercializing a breakthrough CO_2 utilization technology which utilizes CO_2 and methane (CH_4, including CMM) to produce high purity hydrogen (H_2) and carbon monoxide (CO) for the production of low carbon intensity syngas, fuels, chemicals, and various solid carbon products. When

the IRA was passed, we immediately began investing our own capital and raising capital from the private capital market to bring this important technology to market.

In our opinion, HYCO1 CUBE™ Technology (Carbon Utilization Best Efficiency) represents the lowest cost method available today to utilize CO_2 as a primary feedstock. With HYCO1 CUBE™ Technology, CO_2 can now be used as a primary feedstock instead of emitting it as a waste stream into the atmosphere which means that for the first time in the history of humanity CO_2 can be used to displace fossil carbon in a vast number of downstream production processes. Utilizing CO_2 as a feedstock lowers the carbon intensity of products such as hydrogen, carbon monoxide, methanol, amides, amines, acetic acid, SAF, diesel fuel, graphite, carbon black, graphene, etc.

HYCO1 Commercial Projects

HYCO1 is in advanced stages of development on several first-of-its-kind commercial projects, including but not limited to the following. Please note that each of these projects plan to use CMM as feedstock (CMM as recently approved in the GREET R&D model). Each project requires clear line of sight to Section 45V tax incentives and CMM as included in the GREET R&D model to reach financial close with third party capital providers.

Green Carbon Syngas Project (estimated capex $175 million)
Located in the U.S. Gulf Coast adjacent to an existing specialty chemicals plant.
125,000 tons per year of CO_2 currently being emitted to atmosphere will be converted and utilized for downstream chemicals production.
Benefits: Instead of being emitted to atmosphere, CO_2 and CH_4 are converted into H_2 and CO for use in downstream chemical production. The chemical company customer also needs additional H_2 and CO to de-bottleneck and expand its chemical plant production. This project represents both a decarbonization project and a de-bottlenecking project resulting in significant win-win outcomes.

Green Carbon Methanol Project (estimated capex $400 million)
Located in the U.S. Gulf Coast adjacent to an existing specialty chemicals plant.
300,000 tons per year of Zero CI (plant gate) methanol will be produced for the marine shipping industry.
Benefits: All CO_2 emissions from the methanol plant are utilized into methanol. Marine shipping customers are supplied with low cost, Zero CI methanol that enables decarbonization of the marine shipping industry.

Green Carbon Synthetics Project (estimated capex $1.2 billion)
Located in Kansas adjacent to an existing ethanol plant.
280,000 tons per year of CO_2 will be converted to 60 million gallons of fully synthetic base lubricating oils, SAF, and isoparaffinic solvents each with a 60% to 90% reduction in CI score.
Benefits: All CO_2 emissions from the ethanol plant will be utilized into high value synthetic products that are in high demand. The ethanol plant's scope 1 emissions are virtually eliminated and the resulting synthetic products have carbon scores that are reduced by 60% to 90%.

To complete the development of each of these projects and then secure and close third-party project financing (non-recourse debt and project equity), HYCO1 requires clear line of sight to qualify for Section 45V incentives and each project plans to use CO_2 and CMM as critical components of its feedstock to displace fossil natural gas.

The three representative projects represent $1.8 billion in total investment but the market opportunity is easily 10X this amount or roughly $18+ billion. We expect that all of the project level investment will come from the capital markets but the capital markets need to see clear, rational and thoughtful guidance from DOE and Treasury on 45V and CMM. The exact quantum of new permanent jobs that will flow from this level of investment is not known at this time but permanent jobs are expected to number in the thousands, potentially in the tens of thousands.

Provisional Emission Rate

Proposed §1.45V–4(c)(5) provides that an applicant may request an emissions value from the DOE only after a front-end engineering and design (FEED) study or similar indication of project maturity, such as project specification and cost estimation sufficient to inform a final investment decision, has been completed for the hydrogen production facility.

HYCO1 strongly opposes the requirement for a FEED study for two reasons. First, because it creates significant binary risks to developers. FEED studies often require tens of millions of dollars to complete and startups cannot afford to fund a $20 million or $30 million FEED per project just to find out the project didn't quite meet the DOE's requirements. Second, FEED studies also mean many different things to different parties which makes a FEED study the wrong requirement for all parties concerned.

HYCO1's counterproposal is that developers should complete the following "more reasonable and prudent" milestones in order to satisfy DOE requirements for an emissions value:

(1) a FEL-2 level engineering study (project cost estimate +/- 20%);
(2) a detailed financial model, and
(3) a life cycle analysis prepared by a qualified party.

These three development requirements still represent millions of dollars per project, but together they also better inform a decision by DOE and Treasury. These requirements also represent better clarity for developers than simply using the term "FEED study". HYCO1 believes that these three requirements accomplish the objectives of demonstrating project viability and supporting the request for an emission value from DOE.

Acceptance of GREET R&D to Assess Life Cycle Emissions

HYCO1 strongly advocates that the Treasury accept Argonne National Laboratory's GREET R&D model as the sole life cycle analysis tool under the program. If the Argonne National Laboratory's GREET R&D model is not the sole life cycle analysis tool, then at a minimum, Treasury should ensure that feedstocks like CMM and fugitive methane quickly translate into the 45V-H2 GREET model.

As currently drafted, the 45VH2-GREET model would exclude key low carbon intensity sources for H_2 production which have already been vetted and assessed through rigorous scientific review. The application of 45VH2-GREET as drafted would disincentivize the productive use of methane capture from sources like CMM and fugitive methane and the deployment of Carbon Capture and Sequestration technology. This is starkly in opposition to US Federal methane reduction pledges, not to mention counter to common sense.

Acceptance of the Book and Claim Model for CMM

The interstate natural gas pipeline transmission system is fully integrated across the country and is significantly different from the electric grid. Treasury should recognize precedent set by the Renewable Fuel Standard on common carrier pipeline provisions which enables national "book and claim" eligibility. Book and claim has proven to be a flexible model for verified information to flow — or chain of custody model — that allows clean fuel or materials producers to "book" the emissions savings of a good they've produced in one place, and customers to "claim" the emissions benefit from these goods for climate disclosures in a different place.

Because book and claim already exists for renewable natural gas (RNG) and because the molecules are the same, HYCO1 strongly advocates that the same book and claim model apply to coal mine methane and other low CI methane sources.

First Productive Use

HYCO1 wishes to highlight that certain provisions suggested by the Treasury in the proposed rule require strong refinement lest the program becomes unconducive to fugitive methane-based hydrogen decarbonization. One of these key areas is the First Productive Use requirement and how it is applied to CMM. Any CMM project that achieves meaningful methane abatement is necessarily expansive and spans multiple point sources for methane capture (i.e. boreholes).

Capturing new CMM source boreholes for beneficial use is an incremental, discrete investment decision that is unjustified economically today since the capture and collection infrastructure for each borehole has significant investment and ongoing operational expenditure demands. It is therefore extremely important that the final regulations recognize this important circumstance and establish that the First Productive Use requirement is applied on a borehole basis for CMM.

Anti-abuse and Causality

Due to a lack of incentive programs that accurately value the environmental impacts of productive use of CMM, its capture for productive use is not common industry practice.

The deployment of CMM capture technology is unrelated to mining activities. There is no evidence of causality between the inclusion of CMM in the 45V program and an increase in mining activity. These are completely separate investment decisions typically made by unrelated parties.

Each waste gas capture investment decision requires a separate waste business case evaluation. Incentives under the IRA would be a key factor in the deployment of waste methane capture infrastructure. Therefore, HYCO1 strongly encourages the Treasury to allow for the inclusion of a CMM pathway in clean hydrogen production that will encourage the reduction of fugitive methane emissions, increase capture for beneficial use, and drive capital investment supporting future methane mitigation.

Keys to Decarbonization and a Clean Hydrogen Economy

HYCO1 is an experienced technology and project developer that is bringing real projects to market using its own capital alongside private equity capital. Thus far we have not relied on the U.S. Government incentives to build our business. However, going forward we need DOE and Treasury help to clarify and revise the proposed regulations so that capital will flow and government objectives will be accomplished.

We are depending on DOE and Treasury to not only follow through with the promise of a clean hydrogen economy promulgated under IRA, but also to provide clear, unambiguous guidance that supports massive flows of new investment dollars in clean hydrogen and decarbonization projects that are well underway. These capital flows will in turn create good paying jobs and foster a clean hydrogen economy. In short, we need your help to keep things moving toward our mutual objectives and a better future for America and the world.

Decarbonization projects like those described in this letter need the market pull and push of 45V incentives in order to finish project development, close project financing, and commence construction. 45V incentives are absolutely crucial to both developers and capital providers to effectuate decarbonization and a clean hydrogen economy.

Decarbonization projects also need CMM to be a recognized, valued feedstock for the production of clean hydrogen.

Thank you for considering our comments. A summary of our recommendations is included on the following page.

Sincerely,

Jeffrey L. Brimhall
Chief Financial Officer and Chief Sustainability Officer
HYCO1, Inc.

Summary of Comments and Key Recommendations
In connection with 45V and CMM

- ✓ 45V incentives are absolutely crucial to both developers and capital providers to effectuate decarbonization projects that enable a clean hydrogen economy.

- ✓ Decarbonization projects also need CMM to be a recognized, valued feedstock for the production of clean hydrogen.

- ✓ Each HYCO1 decarbonization project requires clear line of sight to Section 45V tax incentives to bring each such project to financial close with third party capital providers.

- ✓ Each HYCO1 decarbonization project requires the use of CMM as a low CI feedstock to generate 45V tax incentives and such incentives are necessary to close financing with third party capital providers.

- ✓ The first productive use requirement as drafted, is overly burdensome and will unnecessarily restrict opportunities to decarbonize hydrogen production as well as curtail methane abatement at scale. HYCO1 strongly opposes this measure in the form proposed.

- ✓ HYCO1 recommends that First Productive Use requirement is applied on a borehole basis for CMM.

- ✓ HYCO1 recommends that DOE accept Argonne National Laboratory's GREET R&D model as the sole life cycle analysis tool under the program.

- ✓ Because book and claim already exists for renewable natural gas (RNG) and because RNG CH_4 molecules are the same as CMM CH_4 molecules, HYCO1 strongly advocates that the same book and claim model now in place for RNG apply to coal mine methane (CMM) and other low CI methane sources.

- ✓ HYCO1 strongly recommends the inclusion of a CMM pathway in clean hydrogen production that will encourage the reduction of fugitive methane emissions, increase capture for beneficial use, and drive capital investment supporting future methane mitigation.