COMMENTS TO

Credit for Production of Clean Hydrogen, Election to Treat Clean Hydrogen Production Facilities as Energy Property

IRS and REG-117631-23

February 26, 2024

These comments are in response to the document containing proposed regulations to amend the Income Tax Regulations (26 CFR part 1) under sections 45V and 48(a)(15) of the Internal Revenue Code (Code), as added to the Code by section 13204 of Public Law 117–169, 136 Stat. 1818 (August 16, 2022), commonly known as the Inflation Reduction Act of 2022 (IRA).

Summary

Trans Permian H2Hub is uniquely qualified, among others, to provide conclusions and proposed changes to the Proposed Regulations. We are among the wildcatters in the nascent hydrogen industry with our portfolio alone of over $2 Billion in projects in the Permian Basin of West Texas. We are investing vast amounts of personal energy and working capital, creating from whole cloth our contribution to reduce the carbon footprint of energy production and consumption. Our projects will produce hydrogen from renewable power, convert that hydrogen to a product that can be easily transported such as ammonia, and, as needed, re-cracked back to hydrogen at the market's last mile. Our projects' economic viability in this long chain of infrastructure depends upon the tax credits in the IRA.

This Administration issued the U.S. National Clean Hydrogen Strategy and Roadmap pursuant to the Infrastructure and Jobs Act of 2021[1] followed by extraordinary legislative achievements under the Inflation Reduction Act of 2022 (the "IRA").[2]

[1] U.S. National Clean Hydrogen Strategy and Roadmap, https://www.hydrogen.energy.gov/docs/hydrogenprogramlibraries/pdfs/us-national-clean-hydrogen-strategy-roadmap.pdf . The draft document was released in September 2022 for public comment and revised for publication in June 2023

[2] See, "Building a Clean Energy Economy: A Guidebook to the Inflation Reduction Act's Investments in Clean Energy and Climate Action" January 2023 v.2. https://www.whitehouse.gov/wp-content/uploads/2022/12/Inflation-Reduction-Act-Guidebook.pdf

In order to achieve these goals, set forth by the Administration, the Proposed Regulations implementing the IRA must be drafted with the most liberal interpretation possible.

We are concerned that the Proposed Regulations in several sections do not support the fundamental tenets of the IRA by excessive focus solely on monitoring, testing and compliance of producing hydrogen with renewable power rather than the overall goals to be achieved.

The IRA does not contain provisions that prescribe or define (i) Incremental Generation (ii) Geographic Matching and (iii) Temporal Matching. And finally, the IRA does not dictate the interpretation of the GREET model and its "locked-in" assumptions to calculate carbon intensity. These are rule making interpretations to the legislation which can and should be drafted and modified as may be required by practicality.

The regulations adopted must provide for the most liberal use of renewable power and production of hydrogen to achieve the legislative and executive branch directives to achieve the Hydrogen Shot[3] goals. If not, the hydrogen production facilities will not be built and consequently this industry will fail, along with this massive and hard-fought legislative effort.

1.0 INTRODUCTION OF TRANS PERMIAN H2HUB & MMEX RESOURCES HYDROGEN PRODUCTION PROJECTS

The Trans Permian H2Hub, LLC (the "Trans Permian H2Hub") was formed by its sponsor, MMEX Resources Corporation ("MMEX") with geography including the Texas Permian Basin cities of San Antonio, San Angelo, Big Spring, Midland, Odessa, El Paso, Fort Stockton, Alpine, Presidio and Del Rio. With its abundant infrastructure and resources of natural gas pipelines; oil and natural gas; renewable energy of sun and wind; two transcontinental interstate highways; rail interconnection to all three Class 1 railroads; land availability; reusable water resources; planned hydrogen production and marketing projects; and location within the Electric Reliability Council of Texas ("ERCOT") , the Trans Permian H2Hub has all the requisites to be one of the major producer and distribution hubs of hydrogen in the U.S.

Trans Permian H2Hub filed with the Department of Energy for funding under the Regional Clean Hydrogen Hubs Funding Opportunity Announcement in September 2022, we were advanced to the final application stage in December 2022; we merged our application with the Port of Corpus Christi Clean Horizons Hub for the April 2023 filing, and jointly were chosen as an alternate in the October 2023 final selection for DOE funding.

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[3] U.S. Department of Energy Hydrogen Program, "Hydrogen Shot", U.S. Department of Energy 2021. https://www.energy.gov/eere/fuelcells/hydrogen-shot

Trans Permian and MMEX have continued to move forward on the development and funding for our two principal hydrogen production and distribution projects, which we have designated as the Green Hydrogen to Green Ammonia Project and the Blue Hydrogen to Power and Blue Ammonia Project. We are under discussions with other companies to design and build a Hydrogen pipeline to the Port of Corpus Christi from the Trans Permian H2Hub.

1.1 Green Hydrogen to Green Ammonia Project.

This is a 160 MW renewable power project to provide 55 tons per day of Green Hydrogen and to convert it to Green Ammonia, utilizing electrolyzers manufactured by an international technology leader. In addition, the Green Ammonia complex is developed by an international leader in ammonia technology. We plan to produce 209,000 tons per year of Ammonia for export to Europe through our relationship with the Port of Corpus Christi. We have plans to double that production capability requiring doubling of the renewable power component in a proposal to an international super major petroleum and chemical company in Europe.

1.2 Blue Hydrogen to Power and Ammonia

This is our multi-phased project utilizing natural gas reformed to H2 designed to produce low-carbon power by supplying H2 to H2-capable turbines with optionality to produce ammonia or methanol. The natural gas will be supplied by a super major petroleum company a short distance from the project site, reformed in separated facilities to produce Hydrogen and CO2. The project is designed to produce 424 tons per day of H2, with 99.9% of the CO2 captured and sold via pipeline to another super major petroleum company. The unit utilizes 50 MW of renewable power as input, reforming 61 million standard cubic feet of natural gas, and producing up to 365 MW of low carbon intensity power with optionality of producing up to 830,000 tons of Blue Ammonia by diverting Hydrogen to Ammonia production.

1.3 Green Hydrogen to Green Direct Reduction Iron

We are in discussions with potential partners to reassemble an internationally located DRI facility that has been idled and move it to our Permian Basin site. This DRI facility plans to utilize our production of Green Hydrogen to fire the DRI facility for production of Green DRI for shipment to U.S. steel production facilities.

1.4 Hydrogen Pipeline from the Permian Basin to the Port of Corpus Christi.

We are in discussions with potential partners to design and build a hydrogen pipeline from our geographic areas covered by Trans Permian H2Hub. We believe the pipeline

access to hydrogen producers in the Permian Basin will be a strategic advantage for domestic and exports of hydrogen and its byproducts.

2.0 Use of Energy Attribute Certificates in Section 45V

The Regulations establish the use of Energy Attribute Certificates ("EACs") to document a reasonable and administrative approach for hydrogen producers to document the lifecycle GHG emissions for the electricity use to produce hydrogen.[4] The creation of EAC's as proposed is entirely reasonable and offers a workable solution for documentation. We support the establishment of EACs.

The EAC's as proposed will contain three critical EAC criteria[5]:

(i) **Incremental Generation**. EACs must represent electricity generation produced from an incremental source, generally new power plants that have been placed in service within 36 months of the EACs buyers load or, under certain circumstances set forth, existing power plants.

(ii) **Geographic Matching**. Generation that created the ECAs must have occurred in the same grid region, or to be physically deliverable to the EAC buyer's load.

(iii) **Temporal Matching**. The generation that created the EACs must have occurred at the same time as the EAC buyer's load. This provision is on an annual matching up until January 1, 2028 and then hourly matching after January 1, 2028.

We find two of these proposed regulations too restrictive to support the goals of sufficient hydrogen production.

2.1 Incremental Generation. Our Projects are within the ERCOT regional power grid. As shown in this example, existing Solar and Wind generates a total of 65.1% of the ERCOT power on this date of February 24, 2024 (9:59 am CT), which is a Saturday. Solar and Wind have a total installed capacity rating for February 2024 of 59,367 MW (on a monthly basis) , and represents 38% of the total installed capacity rating for February of 153,501 MW in ERCOT. Note that as of this date, there is only 5,612 MW of monthly storage capacity. This

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[4] Credit for Production of Clean Hydrogen, Election to Treat Clean Hydrogen Production Facilities as Energy Property Paragraph V.C. "Use of Energy Attribute Certificates".

[5] "Assessing Lifecycle Greenhouse Gas Emissions Associated with Electricity Use for the Section 45V Clean Hydrogen Production Tax Credit." https://www.energy.gov/sites/default/files/2023-12/Assessing_Lifecycle_Greenhouse_Gas_Emissions_Associated_with_Electricity_Use_for_the_Section_45V_Clean_Hydrogen_Production_Tax_Credit.pdf December 2023 at 10-11.

example also shows that there are only 27,359 MW of renewable power being utilized at this hour on the ERCOT system, leaving 32,008 MW of capacity not being dispatched.

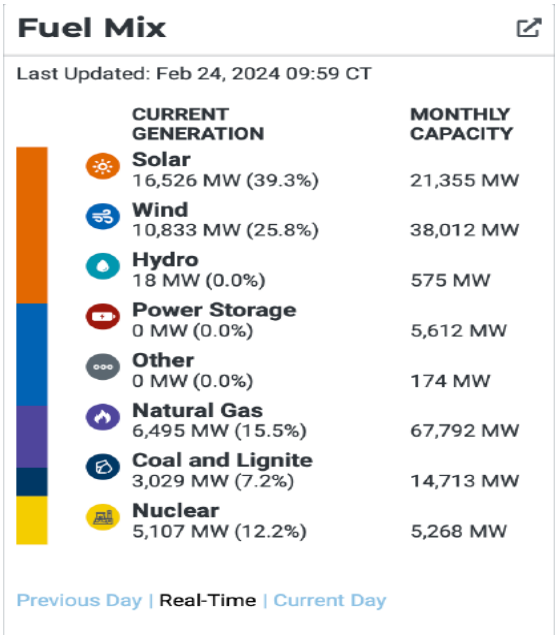

Figure 1. Source: ERCOT Dashboards February 24, 2024.

In order to produce Hydrogen at the scale required why would the regulations limit the hydrogen credits to just new facilities within the 36 months window? In our example, there is over 32,008 MW of idle capacity that could be dispatched at this hour. While capacity constraints may be part of this idle capacity, this does underscore that excess renewable generation capacity does exist in ERCOT today.

Moreover, This regulation can be a limitation to putting more hydrogen production facilities into commercial operation. It takes up to 36 months to implement a wind or solar project on an expedited schedule, once the site is identified, and the negotiation of leases. It takes a minimum of 2 years to obtain a new interconnection agreement with a power transmission line in ERCOT. We can build our hydrogen production facilities within 24 months once we issue the FID, which depends on achieving a financing commitment.

We have been approached by a wind power developer to build wind power capacity on our sites. The lease proposal contains four 12-month due diligence/testing phases, then if the testing proves out, it will take 18 months to build out the wind power turbines. So these time lines appear to be in the minimum range of 2 years to 5 years to implement a wind power project to serve our loads to produce hydrogen.

ERCOT is the perfect example of renewable power build out. It will continue to happen with the incentives provided for in the IRA and other existing favorable tax regimes. Whatever renewable power, irrespective of when placed in service, when dedicated to the hydrogen

production, will be replaced by new incremental renewable power. The net environmental impact will be positive, with additional renewable power and newly produced hydrogen. Think of renewable power, at least in ERCOT, as a manufacturing system with accounting of inventory on a First In-First Out accounting basis instead of a Last In-First Out accounting basis proposed in the Regulations. Additional inventory will be built to replace the older renewable power committed to new hydrogen production facilities.

The regulations should provide that renewable energy for production of hydrogen can be designated in an EAC irrespective of date of service of the renewable energy.

2.2 Geographic Matching. We have no issues with the Geographic Matching concept. In Texas, we are fortunate to have a robust regional power grid in ERCOT. ERCOT manages the flow of electric power to more than 26 million Texas customers -- representing about 90 percent of the state's electric load. As the independent system operator for the region, ERCOT schedules power on an electric grid that connects more than 54,100 miles of transmission lines and 1,250 generation units.

2.3 Temporal Matching. The Proposed Regulations provide that EACs should be tagged with the time they were generated and issued and thereafter matched with load. The Proposed Regulations provide:

> "Until relatively recently, EAC use cases have mostly required annual matching. However, more granular, and therefore more accurate, timeframes are likely to be available nationally over time, and hourly matching of EACs will provide greater certainty about lifecycle GHG emissions outcomes by ensuring that there is actual alignment between load and generation. As described earlier, an annual matching standard means that changes in supply on a month to month, day to day, and hourly basis during the year are not necessarily matched with load over these timeframes. That unmatched load can drive induced GHG emissions because of the significant temporal variation in the grid-system GHG emissions on a monthly, daily and even hourly basis. Given hourly changes in grid GHG emissions, an hourly energy-matching standard provides much stronger assurance that changes in load are matched by changes in supply.[6]"

An hourly matching system for renewable power generation makes no sense because the technical ability to produce renewable power on a 24X7 basis does not exist. The Sun does not shine nor does the wind blow 24 hours a day. If hourly matching is adopted, many hydrogen projects will not be built because hydrogen production must be shut in significantly impacting the cash flow of a project.

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[6] "Assessing Lifecycle Greenhouse Gas Emissions Associated with Electricity Use for the Section 45V Clean Hydrogen Production Tax Credit." https://www.energy.gov/sites/default/files/2023-12/Assessing_Lifecycle_Greenhouse_Gas_Emissions_Associated_with_Electricity_Use_for_the_Section_45V_Clean_Hydrogen_Production_Tax_Credit.pdf December 2023 at 11.

Take the example of ERCOT, which may be the most robust renewable energy production profile in the U.S. This actual production graph was posted on Friday, February 23, 2024 by ERCOT as it does on an hourly basis each day:

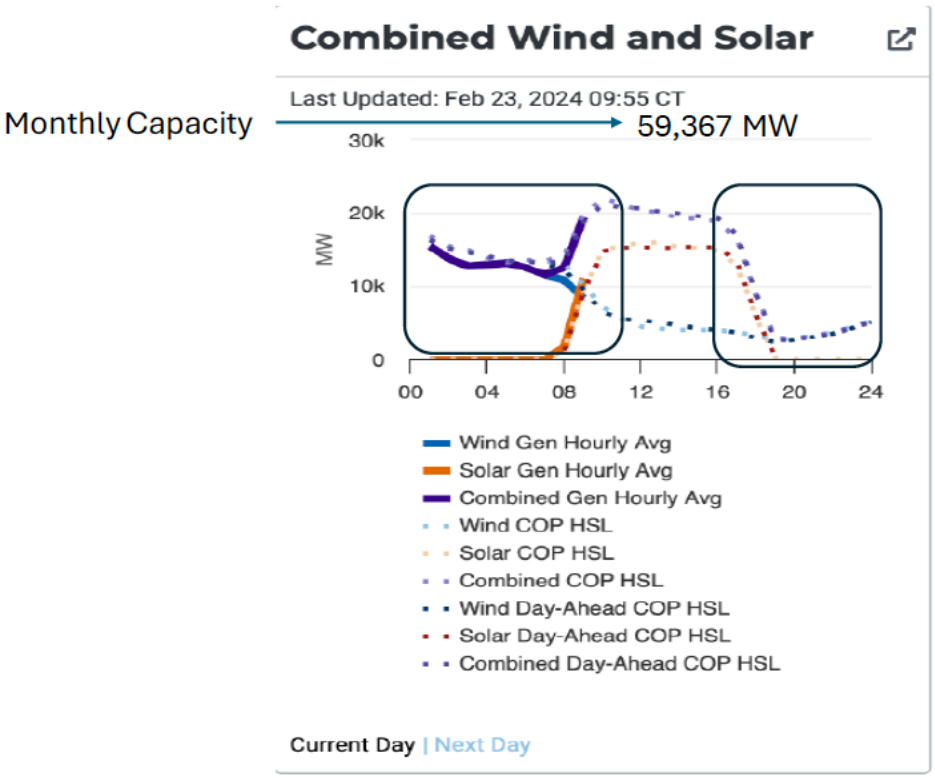

Figure 2 Source: ERCOT Dashboards February 23, 2024

What this graph shows is that between 12:00 Midnight and 9:00 AM, the renewables begin to ramp up on this day, and produce until 4:00 or 5:00 PM in the evening, and then drop off dramatically. So, there will be in a typical day several hours, whether 5 to 7 hours each day in this example, where the renewables production is significantly diminished or non-existing. This means that the hydrogen production plant must shut in or produce with non-renewable power and not achieve the Hydrogen Tax Credit. Most hydrogen projects will not work economically without the Hydrogen Tax Credit.

Moreover, the Energy Storage capability in ERCOT does not provide a solution as of now:

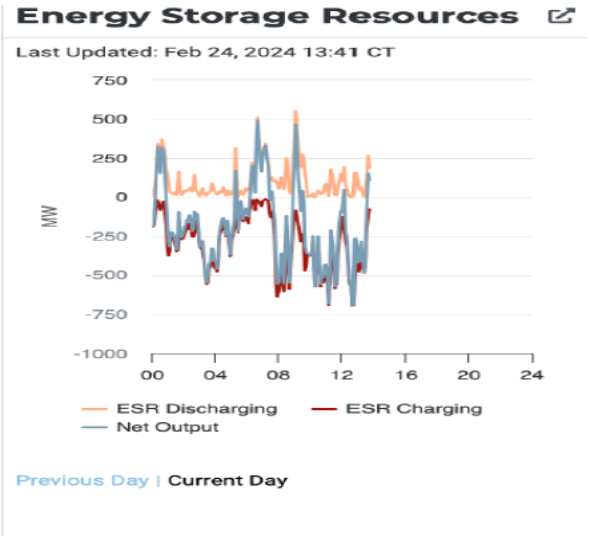

Figure 3 Source: ERCOT Dashboards February 24, 2024

While the Trans Permian H2 projects power requirements are in the ranges of 320 MW for Green H2 to ammonia only + 50MW for Blue H2 many of the Hydrogen projects are of GW size; it will be impossible to provide GW hours of renewable energy to these projects on an Hourly Matching basis. The land space and storage requirements space do not exist in most locations such as the Texas Gulf Coast.

The Proposed Regulations recognize the complexity of Hourly Matching, but state that the temporary solution is attributable to the lack of adequate tracking systems, and that this solution will be achieved by January 1, 2028, so in the interim between now and January 1, 2028, Annual Matching only need to be applied. This misses the fundamental point that Hourly Matching will never work irrespective of the tracking systems developed. Developers will not build Hydrogen Projects with an Hourly Matching concept mandate-simply because the numbers do not work.

Moreover, the Temporal Matching regulations are more restrictive than the European Union model, which requires monthly matching through 2029 and moves to hourly matching in 2030. The EU regulations also permit grandfathering of existing facilities while the Proposed Regulations do not.

This is why our Summary cautions that the overall goal of producing Hydrogen at Scale is the most important concept to be employed and the regulations must be liberalized to match the intent of the IRA. The IRA mandates production of Hydrogen at Scale with Renewable Power and mandates that the industry not be killed before it starts with hyper restrictive regulations.

The regulations should provide for Annual Matching throughout the life of the project. As an alternative, Monthly Matching will be required from January 1, 2030 forward. Any project in

commercial operation before January 1, 2030, is subject to Annual Matching for its productive life.

3.0 The GREET Model Allows Actual Emissions of Pipeline Delivery for Calculation rather than a Locked-In Assumption

We are developing a Blue Hydrogen Project that will utilize natural gas delivered by a short distance pipeline to our facilities. Our analysis provides that the emissions attributable to this pipeline delivery are minimal and well below the assumptions of the GREET Model. We want the Proposed Regulations to re-confirm that the GREET Model inputs on this issue may utilize our actual tests rather than assumptions in the GREET Model.

> "Users may also supplant 45VH2-GREET default properties for the natural gas (lower heating value (LHV), density, and carbon content) with properties specific to the feedstock they are using by selecting "Custom Feedstock Properties. For facilities with CCS, input of custom properties may be necessary to exercise the model if the facility's feedstock properties differ significantly from 45VH2-GREET defaults. 45VH2-GREET may display "Entry defies carbon balance." if the model is unable to calculate well-to-gate carbon intensity of the pathway being modeled. This error indicates that the amount of sequestered CO2 input by the user cannot be simulated given the other user inputs and the properties of the feedstock being simulated. The user must review the other values input to the model to ensure that they are correct, and/or input feedstock properties corresponding to their specific feedstock." [7]

We propose the Regulations confirm that a User of the 45VH2-GREET may use its own specifications with properties specific to the feedstock we are using.

In addition, an additional point to confirm, is that a party utilizing an Auto Thermal Reformer in its process technology, may still submit a separate calculus for purposes of the GREET Model if the party deems it is required. The IRS addresses this in most restrictive language which should be rejected:

> " A taxpayer may not use the PER process [Provisional Emissions Rate] if its feedstock and hydrogen technology are represented in 45H2-GREET, even if the taxpayer disagrees with the underlying assumptions (that is, background data) or calculation approach used by the most recent 45VH2-GREET."[8]

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[7] Guidelines to Determine Well to Gate Greenhouse Gas (GHG) Emissions of Hydrogen Pathways Using 45VH2-GREET 2023 December 2023 at 11.

[8] Credit for Production of Clean Hydrogen, Election to Treat Clean Hydrogen Production Facilities as Energy Property Paragraph IV B "Provisional Emissions Rate".

Respectfully submitted,

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