



February 23, 2024

Internal Revenue Service  
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Reference: IRS and REG-117631-23

The State of Colorado submits the following comments on the U.S. Department of Treasury and Internal Revenue Service's (IRS) proposed "Section 45V Credit for Production of Clean Hydrogen: Section 48(a)(15) Election to Treat Clean Hydrogen Production Facilities as Energy Property" published in the Federal Register on December 26, 2023.

***Colorado supports the U.S. Department of Treasury and IRS's effort to promote the development of a clean hydrogen market which will reduce greenhouse gas pollution, especially in hard to decarbonize sectors, and which broadly align with Colorado's efforts towards a zero carbon future. Further, we urge this be accomplished without delay in order to provide market certainty and support for dependent state initiatives such as Colorado's Clean Hydrogen end-use tax credit<sup>1</sup>.***

Since 2019, Colorado has passed more than 100 pieces of legislation addressing climate change, a transition to clean energy, and a just transition for workers. Colorado's original *Climate Action Plan to Reduce Pollution*<sup>2</sup> and a legislative update in 2023, set economy-wide greenhouse gas (GHG) emission reduction targets of 26% by 2025, 50% by 2030, 65% by 2035, 70% by 2040 and net zero by 2050 from a 2005 baseline.<sup>3</sup> To begin working toward the initial emission reduction targets, in 2021, Colorado released the *Greenhouse Gas Pollution Reduction Roadmap* (Roadmap),<sup>4</sup>

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<sup>1</sup> See House Bill 23-1281, available at: <https://leg.colorado.gov/bills/hb23-1281>

<sup>2</sup> See House Bill 19-1261, available at <https://leg.colorado.gov/bills/hb19-1261>.

<sup>3</sup> See Senate Bill 23-016, available at <https://leg.colorado.gov/bills/sb23-016>.

<sup>4</sup> Governor Jared Polis, [Colorado Greenhouse Gas Pollution Reduction Roadmap](#) (2021), available at: <https://energyoffice.colorado.gov/climate-energy>.

which identified the leading sectors of GHG emissions in the state and laid-out a set of sector-based, near-term actions that the state would commit to with a particular focus on reducing emissions from the leading sectors including transportation, electricity generation, buildings, oil and gas production, and industrial pollution. A finding of the Roadmap was that low-carbon fuels such as hydrogen would be necessary for the state to reduce emissions in hard to decarbonize sectors.

Colorado then developed and released a low carbon hydrogen roadmap<sup>5</sup> which provided a number of recommendations including developing a regional hub. And, a short time later, Governor Jared Polis joined the Governors of New Mexico, Utah and Wyoming in signing the Western Interstate Hydrogen Hub (WISHH) MOU and to pursue DOE Regional Hydrogen Hub funding. While WISHH was not awarded, the Colorado legislature had passed HB 23-1281<sup>6</sup>, which included an end-use tax credit for the use of clean hydrogen in hard to decarbonize sectors.

Colorado's end-use tax credit's accounting method will be established through the Colorado Public Utility Commission. Colorado's credits will have two tiers that will align with the two highest emission rates in the federal standards. These credits are statutorily set to expire on Jan. 1, 2033. For these reasons of alignment, Colorado places great importance on the timing and methodology of the IRS Clean Hydrogen Production Tax Credits. Because Colorado's statutory requirements for our state tax credits incorporate the "three pillars" requirements, we are generally supportive of the proposed approach, which opens up the possibility of Colorado simply deeming that hydrogen that qualifies for the highest two tiers of federal tax credit also qualifies for Colorado's use tax credits.

Colorado submits these additional comments on several details of the proposal:

*Part V- Procedure for Determining Lifecycle Greenhouse Gas Emission Rates for Qualified Clean Hydrogen*

*Question:* The Treasury Department and the IRS seek comment on the readiness of verification mechanisms that could be utilized for certain background data in 45VH2-GREET if it were reverted to foreground data in future releases. For example, the upstream methane loss rate is background data in 45VH2-GREET, and the Treasury Department and the IRS seek comment on conditions, if any, under which the methane loss rate may in future releases become foreground data (such as certificates that verifiably demonstrate different methane loss rates for natural gas feedstocks, sometimes described as responsibly sourced natural gas).

**Colorado's Response:** There can be large differences in the GHG intensity of natural gas production and processing. There should be an ability

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<sup>5</sup> See the [Colorado Energy Office, Opportunities for Low-Carbon Hydrogen in Colorado: A Roadmap](https://drive.google.com/file/d/1wV2Xq1COF0BY77X_OSvkNSMKgPNemfcU/view) (2021), available at: [https://drive.google.com/file/d/1wV2Xq1COF0BY77X\\_OSvkNSMKgPNemfcU/view](https://drive.google.com/file/d/1wV2Xq1COF0BY77X_OSvkNSMKgPNemfcU/view).

<sup>6</sup> See House Bill 19-1261, available at <https://leg.colorado.gov/bills/hb23-1281>.

to use actual data on natural gas loss rates. The Treasury Department and the IRS should take into account state standards and regulations when making this determination. For example, [Colorado's Greenhouse Gas Intensity Verification Rule](#) should be taken into account. The new rule, announced in July of 2023 and goes into effect statewide in 2025, defines how certain oil and gas facilities must calculate their greenhouse gas intensity, monitor operations to ensure compliance with intensity standards, and keep records to accurately account for emissions from their operations. The term "intensity" refers to the ratio of a facility's amount of greenhouse gas emissions over the amount of oil and gas it produces. Both environmental and industry workgroups played a major role in developing the final rule.

The new rule includes several requirements, such as:

- All facility operators must use direct measurement to inform their emissions inventory.
- Certain facility operators must use a third-party auditor to review emissions reports. The auditor must be certified by the division.
- The division will confirm facilities' compliance with emissions standards. The division will incorporate its own aerial and ground air monitoring in emissions calculations.
- The division will maintain its [emissions database](#) based on a combination of reporting and direct measurements from facilities.

IRS Proposal: DOE has published a technical paper, *Assessing Lifecycle Greenhouse Gas Emissions Associated with Electricity Use for the Section 45V Clean Hydrogen Production Tax Credit*, which the Treasury Department and the IRS have reviewed, and which has informed the development of the proposed regulations. As discussed therein, incrementality, temporal matching, and deliverability requirements are important guardrails to ensure that hydrogen producers' electricity use can be reasonably deemed to reflect the emissions associated with the specific generators from which the EACs were purchased and retired. If hydrogen producers rely on EACs without attributes that meet these three criteria there is a significant risk that hydrogen production would significantly increase induced grid GHG emissions beyond the allowable levels required to qualify for the section 45V credit.

IRS Question: The Treasury Department and the IRS seek comments on whether and how to provide alternative approaches to identifying circumstances in which there is minimal risk of significant induced grid emissions for certain existing electricity generating facilities.

Colorado's Comment and Response: Colorado suggests the IRS take into consideration state emission regulatory frameworks. In states where there are legally mandated electricity sector reductions, such as Colorado's legislated

[Clean Energy Plans](#) for electricity generation, the IRS's proposed guardrails may not be necessary and/or less stringent than state regulations. However, we note that there are potential conflicts between state emissions reduction requirements from electric generation, and the proposed rules approach to regions. By basing the regions on the DOE Needs Study, there could be unintended consequences that will negatively impact states with statutory emissions frameworks. To provide an example: while Colorado has emissions reduction requirements for utilities, many neighboring states do not. A potential scenario would involve a large hydrogen producer locating within Colorado, but entering into an agreement to purchase EACs from a low cost wind facility in a neighboring state. The likely proximal impact would be an increase in dispatch of gas generation in Colorado, increasing emissions and potentially making it difficult to achieve state targets, or requiring greater investments from Colorado ratepayers to achieve these targets. For states with electricity sector GHG requirements, the IRS should consider requiring EACs to be generated from resources located within the state, unless state regulators agree to the use of out of state EACs.

*IRS Question and Approach:*

Question: The Treasury Department and the IRS seek comments on whether to provide an opportunity to demonstrate zero or minimal induced grid emissions through modeling or other evidence under specific circumstances.

Approach: There are several circumstances that may be covered under this pathway. Periods of curtailment or zero or negative pricing is one such circumstance. Hydropower plants sometimes "spill" water, a form of curtailment. Curtailment of minimal-emitting electricity generation tends to occur during times when wholesale electricity prices are zero or negative on a system-wide basis. Purchasing EACs from existing minimal-emitting electricity generators under these conditions would have limited or no induced grid emissions as these are times during which increased load would tend to be met by the otherwise curtailed minimal-emitting electricity generators rather than inducing increased generation from emitting electricity generators, and so is unlikely to significantly increase induced grid emissions.

Similarly, if in a particular region, all generation—including imported generation—comes from minimal-emitting electricity generators, then increased load is unlikely to significantly increase induced grid emissions. The same may be true if a region is subject to a state or local policy that ensures that new load is met with minimal-emitting electricity generation.

There may be limited risk of significant induced GHG emissions for islanded generation systems. Diversion of generation from a minimal-emitting electricity generator that has never been connected to the grid generally may not have the same induced GHG emissions effects as diversion from an electricity generator that is connected to the grid. Induced GHG emissions could occur, however, if the energy demand that the existing minimal-emitting electricity generator previously met is instead met by a different, emitting, energy source. For example, an onsite minimal-emitting electricity generator that powers an industrial facility could be diverted for

hydrogen production, in which case the induced GHG emissions would depend on what happens at the site to meet the power needs of the industrial facility (unless the industrial facility ceases operation).

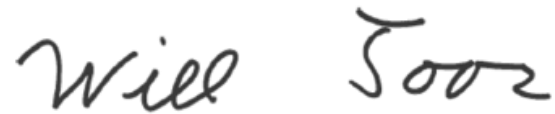
Colorado's Response and Reaction: Colorado advocates for this approach. In states that have legislative and regulatory requirements for the electricity sector, such as [Colorado's Clean Energy Plan](#) requirements, adding loads for hydrogen should not, in the aggregate, increase total sectoral emissions. However, as noted above, there are risks associated with hydrogen production using out of state EACs that should be addressed.

*IRS Proposed Approach for Addressing Incrementality from Existing Clean Generators:*

One such approach would deem five percent of the hourly generation from minimal-emitting electricity generators (for example, wind, solar, nuclear, and hydropower facilities) placed in service before January 1, 2023, as satisfying the incrementality requirement. This pathway may be appropriate because some circumstances (including periods of curtailment or times when generation from minimal-emitting electricity generation is on the margin) may make the resulting incremental generation difficult to anticipate or identify, or because the process for identifying the circumstances (such as avoided retirement risk or modeling of minimal-emissions) may be overly burdensome to evaluate for specific electricity generators or require data that is not available. In some instances, for example, in determining whether EACs come from electricity generation that would otherwise have been curtailed, these circumstances require understanding of counterfactual "what if" scenarios that depend on numerous assumptions. In other circumstances, for example, in determining whether EACs come from minimal-emitting electricity generators that otherwise would have retired or if policy regimes restrict increases in grid emissions in the face of growing electricity demand, they may require detailed assessment and pre-qualification based on applicant-submitted information and forecasts with related concerns about information accuracy. In still other cases, they may require complex geographically and temporally granular modeling and data (such as for marginal emission rates that consider operational and structural effects<sup>[17]</sup>) in concert with hourly EAC tracking infrastructure that is not yet widely available.

Colorado's Reaction: Because curtailment rates vary across regions, will most likely grow over time in areas with high renewable energy growth, and are not evenly temporally distributed, this could adversely impact uptake across the country. States with large amounts of renewable energy will have more curtailed energy available. For example, Colorado is projected to approach 80% renewable energy by 2028, and will likely have significantly more than five percent curtailed renewable energy in the late 2020s. Because Colorado is a state with significant wind and solar resources, which have different temporal distributions, use of curtailed electricity could allow time matched electrolyzer operations over significant time periods. Colorado suggests a more tailored, granular approach that will more accurately account for curtailment and incentivize this market. Or, at a minimum, regional average percentages should be used. If this level of tailoring is impractical, we

would suggest allowing a higher deemed percentage, such as 10%, in states that are able to demonstrate higher levels of projected curtailment.

A handwritten signature in black ink that reads "Will Toor". The signature is written in a cursive, slightly slanted style.

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Will Toor  
Executive Director, Colorado Energy Office