BLUEGREEN ALLIANCE

CREATING GOOD JOBS, A CLEAN ENVIRONMENT, AND A FAIR AND THRIVING ECONOMY

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Response to Notice of Proposed Rulemaking (NPRM) for the Section 45V Credit for Production of Clean Hydrogen

On behalf of the BlueGreen Alliance (BGA), a coalition of the nation's largest labor unions and environmental organizations, collectively representing millions of members and supporters, we thank the president and his administration for prioritizing emissions reduction across the economy as a means to address the climate crisis, support and create good union jobs, advance environmental justice, and build a stronger, fairer economy. Additionally, we thank the U.S. Department of the Treasury (Treasury) and the Internal Revenue Service (IRS) for seeking input on the implementation of the Section 45V Credit for Production of Clean Hydrogen.

Our coalition is committed to supporting the administration in our shared goal of transforming our economy in a way that reduces greenhouse gas (GHG) emissions, improves health and environmental outcomes in communities harmed by environmental injustice, and creates and maintains good-paying jobs across the United States. Implemented carefully, we believe hydrogen can play a critical role in achieving these goals and establishing a stronger, cleaner, and more equitable economy. Hydrogen is an exciting opportunity to put people to work in the clean energy economy within their existing careers and using the skill sets that they have today. Hydrogen is currently produced in a number of energy-intensive sectors in the U.S. and reducing emissions from its production will allow workers to retain jobs while we make progress on climate goals.

Hydrogen will also be a critical technology for reducing emissions in hard to abate sectors of the economy. Clean hydrogen is one of the most promising pathways to reduce emissions from heavy industry. The industrial sector represents a significant and growing source of U.S. emissions, accounting for 30% of GHG emissions in 2021 when including its electricity use.[i] Additionally, the economic stakes of decarbonizing and reinvesting in the industrial sector—of which manufacturing is the largest part—are enormous. Manufacturing directly employs about one in 11 U.S. workers and contributes $2.3 trillion a year to the gross domestic product (GDP).[ii] At the same time, decades of bad policy, offshoring, and outsourcing have weakened supply chains and lost jobs, and the United States has not been taking full advantage of the opportunity to support and strengthen domestic manufacturing. Overseas, competitors are already deploying early-stage clean hydrogen in steelmaking. In Hamburg, Germany,

ArcelorMittal launched a pilot project in 2019 to test steelmaking with hydrogen-based direct reduced iron on an industrial scale. In Sweden, SSAB—a global steel company—joined with LKAB—Europe's largest iron ore producer— and Vattenfall—one of Europe's largest electricity producers—on a project to produce steel using clean hydrogen that is on track to be produced commercially by 2026. The U.S. must keep up.

As Treasury evaluates final rules for the 45V tax credit, they should assess the inclusion of provisions allowing existing zero-carbon generation facilities to qualify under specific conditions. This can involve recognizing uprated zero-carbon power as incremental, extending qualification to nuclear plants that adequately prove they are facing retirement, and acknowledging the utilization of would-be curtailed zero-carbon power for hydrogen production. Treasury should also examine tailored flexibilities around the most stringent three pillar requirements at select times when the grid meets exacting requirements for zero-carbon power, as well as address methane and hydrogen leakage rates and set requirements to ensure durable carbon capture and storage for fossil-based hydrogen production.

Incrementality (Additionality)

Treasury should set a rigorous overall framework that establishes specific, strict criteria in the final rules to guard against potential loopholes or unintended consequences that could compromise the environmental objectives of the tax credit. In select, well-defined circumstances, the incrementality requirements should be narrowly adjusted to allow for more zero-carbon power to supply hydrogen production. As detailed in paragraphs below, zero-carbon power that: results from capacity uprates; is generated at facilities facing retirement risk; would otherwise be curtailed; or meets emissions criteria indicating a very clean grid should meet incrementality requirements. For instance, ensuring that nuclear energy can qualify for the clean hydrogen production tax credit at certain times will be important in scaling the hydrogen industry and enhancing its contributions toward decarbonization efforts economy wide. Ensuring that the rules governing hydrogen produced from zero-carbon power are carefully crafted can help maintain the climate integrity of the tax credit.

Nuclear Energy resulting from capacity uprating for hydrogen production should qualify as incremental.

One essential criterion for nuclear energy to qualify as incremental in hydrogen production is capacity uprating. Per Treasury's current proposal, existing nuclear energy plants that uprate energy production should meet incrementality requirements. When nuclear plants undergo capacity uprating, the resulting energy should be deemed incremental. This means that existing nuclear facilities can increase their output to support hydrogen generation while ensuring that zero-carbon power is not being diverted from the grid. Existing nuclear energy plants that uprate energy

production should meet incrementality requirements if the electricity represented by the Energy Attribute Certificate (EAC) is the result of an uprate no more than 36 months before the hydrogen production facility is placed into service. The uprated generation should be eligible for the hydrogen facility's use over the course of its production.

Avoided retirements should qualify as incremental.

Nuclear plants that demonstrate that revenue from the hydrogen production tax credit would allow them to avoid retirement should meet Treasury's incrementality requirements, provided any such facility is deemed fully compliant with all necessary safety and environmental standards. This would have the dual benefit of ensuring that existing clean generation remains on the grid as demand on the grid increases and that hydrogen production does not strain other existing energy resources more than would otherwise occur.

This tailored exception to incrementality must be grounded in rigorous economic assessment. Nuclear plants must substantiate their economic necessity for revenue from hydrogen production to forestall retirement, akin to the stipulations outlined in the 45U tax credit framework. This necessitates a comprehensive demonstration of annual revenue insufficiency, encompassing all operational costs such as capital expenditures, fuel procurement, operations, maintenance, and adherence to regulatory standards. Plant operators should also provide an analysis of their market conditions and their contractual obligations. Any calculations regarding the risk of retirement must incorporate all sources of revenue, including the potential receipt of the 45U tax credit. Eligibility for the 45V tax credit should only be considered after a nuclear plant has demonstrated its susceptibility to retirement, even with the assistance of the 45U tax credits. This sequential approach ensures that the allocation of tax incentives is prioritized for facilities genuinely at risk of closure.

Would-be curtailed zero-carbon power for hydrogen production should qualify as incremental.

Zero-carbon power that would otherwise be curtailed but is instead used for hydrogen production should meet 45V incrementality requirements. This encourages added clean hydrogen production while ensuring the grid does not face any added strain. Curtailment refers to the reduction or limitation of electricity generation from zero-carbon power sources, such as wind or solar, often due to oversupply or transmission constraints. Treasury should recognize the potential benefits of allowing would-be curtailed power to be redirected towards hydrogen production.

Zero-carbon power that would have been curtailed holds significant promise for bolstering clean hydrogen production. The eligibility of would-be curtailed zero-carbon power can safeguard against diverting clean power away from the grid,

ensuring that hydrogen production does not result in spikes in energy prices for ratepayers while also maintaining grid stability and reliability.

Allowing for tailored exceptions to incrementality requirements for hydrogen production facilitated by would-be curtailed zero-carbon power offers hydrogen producers much-needed zero-carbon power while maintaining the stringent climate integrity of the statute.

Tailored flexibilities in a clean electricity grid.

Treasury should allow for flexibility in circumstances where power directed toward hydrogen production will not result in increased GHGs, namely when the grid is exceptionally clean. Such exceptions should be carefully structured to ensure that any relaxation of requirements is contingent upon robust evidence demonstrating that emissions levels will not increase and that ratepayers will not face additional costs. By striking this balance, Treasury can incentivize investment in clean hydrogen infrastructure while upholding the highest standards of environmental stewardship and energy efficiency.

Treasury should draw examples from the European Commission and their regulations of clean hydrogen production. In particular, Treasury should consider adopting the EU's qualification of hydrogen production as green (achieving the $3 per kg credit in the case of the U.S.) under certain conditions. The European Commission allows hydrogen production to qualify as green where hydrogen is produced in a region with an average renewable electricity share exceeding 90% in the previous calendar year, if the hydrogen production does not exceed the proportion of renewable electricity in the region.[iii] The European Commission also exempts incrementality mandates when the average carbon intensity of the electricity grid falls below specified carbon-intensity thresholds that indicate a very clean grid (18gCO2e/MJ or 5gCO2e/kWh).[iv] These tailored exceptions promote the scalability of clean hydrogen production without compromising environmental integrity.

Mitigate methane and hydrogen emissions.

Blue hydrogen production facilities are eligible to apply for the hydrogen tax credit and numerous hydrogen hubs are poised to produce it. Treasury must ensure all components of a blue hydrogen facility's emissions—including upstream methane—are adequately accounted for in the final rules to ensure the accuracy of emissions accounting.

Methane is a GHG that is many times more potent than carbon dioxide (C02) and is one of the largest contributors to climate change.[v] Reducing methane emissions can reap economic benefits for workers and communities across the country. Plugging methane leaks is a low-hanging fruit in terms of improving public health, protecting workers, mitigating climate change, and realizing the intention of the 45V tax credit.

At the same time, low-cost solutions already exist to plug industrial methane leaks and provide more energy to homes and businesses.[vi] A report from ICF International, *Economic Analysis of Methane Emission Reduction Opportunities in the U.S. Onshore Oil and Natural Gas Industries*, explores what sources are responsible for a large portion of the emissions at existing facilities and what existing technologies can be used to reduce them. One key finding was that energy sector methane emissions could be cut dramatically—40%—at an average annual cost of less than one cent per thousand cubic feet of produced natural gas by adopting available emissions-control technologies and operating practices.[vii] These costs could be further offset by recovering the full market value of recaptured natural gas. A BlueGreen Alliance analysis on the economic impacts of the U.S. Environmental Protection Agency's (EPA) supplemental methane rule released in November 2022 found the adoption of leak reducing technologies and practices at new, modified, and existing oil and gas facilities would create over 136,000 job-years through 2035.[viii]

A final 45V rule must include comprehensive consideration of methane emissions in blue hydrogen production. The extent of methane leakage during the extraction and transportation phases of the gas feedstock is a pivotal aspect of the climate impact of blue hydrogen. Research conducted by the Environmental Defense Fund underscores that elevated methane leakage rates—compounded with hydrogen leakage—could render fossil-based hydrogen development more detrimental to the climate in the short term compared to the direct utilization of natural gas.[ix] To enhance the climate integrity of the rule, and blue hydrogen production, Treasury should initiate a science-based collaborative effort among agencies to revise methane assumptions and methodologies. Mitigating methane emissions upstream during natural gas extraction and transportation for blue hydrogen production is essential for any such facility to qualify for 45V.

The final 45V rule must also include hydrogen emissions in its emissions considerations. Climate impact assessments determining tax credit values need to incorporate hydrogen emissions because of its warming potential. As an indirect greenhouse gas, hydrogen holds more than 35 times the warming potential of CO2 within the first twenty years of emission.[x] Leakage of hydrogen can result in wasted resources, environmental repercussions, and pose risks to communities and workers. Therefore, it's imperative for producers to validate the effectiveness of their hydrogen emissions management plans to prevent costly leaks and ensure they aren't claiming credit for wasted hydrogen.

Carbon Capture

With proper safeguards and standards in place, carbon capture can play a critical role in limiting greenhouse gas emissions from blue hydrogen production. Blue hydrogen producers must ensure the durability of their CO2 storage and establish rigorous monitoring and verification protocols for CO2 storage. Transparent monitoring

processes build public trust by ensuring that blue hydrogen production contributes responsibly to climate change mitigation. Ensuring the long-term sustainability of blue hydrogen hinges on the durability of carbon storage, emphasizing the need for safe, permanent storage with robust safeguards in place.

Carbon capture and storage (CCS) can also maintain the climate integrity of the hydrogen industry after the expiration of the 45V tax credit by ensuring that fossil hydrogen production is not left to continue producing unabated emissions once the 45V incentive to reduce emissions expires. To prevent such an occurrence, however, Treasury should disallow any pollution offsets within the 45V framework. Investing in gray hydrogen production facilities which can rely on offsets to make them eligible for the most lucrative level of the tax credit for a decade, only to be left without an incentive to reduce their emissions after the credit expires. This would fail to deliver climate-aligned infrastructure investment while undermining innovation in truly low-carbon technologies.

Conclusion

The integration of more zero-carbon power into the 45V tax credit, alongside updated methane and hydrogen leakage considerations and requirements for carbon capture, presents a pivotal opportunity to propel the hydrogen industry towards substantial growth while advancing economy-wide decarbonization objectives. By adopting these measures, Treasury can help scale up clean hydrogen production and ensure its pivotal role in reducing emissions. These rules can drive innovation and investment toward hydrogen production while reinforcing commitments to sustainability and climate leadership.

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