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Dow, Inc. is pleased to submit the following comments on the Internal Revenue Services (IRS) proposal titled *Section 45V Credit for Production of Clean Hydrogen; Section 48(a)(15) Election to Treat Clean Hydrogen Production Facilities as Energy Property.*

Dow has a global footprint of large-scale operations, including 98 manufacturing sites in 31 countries, and employs approximately 35,900 people. Dow's portfolio of plastics, industrial intermediates, coatings and silicones businesses delivers a broad range of differentiated science-based products and solutions for customers in high-growth market segments, such as mobility, packaging, infrastructure, and consumer care.

At Dow we use approximately 10 gigawatts of energy from fuel to produce heat, power and steam at 25 major manufacturing sites worldwide. That energy powers more than 50 gas and steam turbines and boilers, as well as more than 100 furnaces around the world.

Dow is also a leading user of clean energy in the chemical industry and top-20 among global corporations, having secured over 1,000 MW of renewable power for use at Dow sites around the world.

Dow has committed to be carbon neutral by 2050 (Scope 1, 2, 3 plus product benefits). Dow has already reduced its greenhouse gas emissions by 15% in the past 15 years and is on track to reduce emissions another 15% by the end of the decade.

Dow strongly supports policy ideas that will help industrial manufacturers reduce greenhouse gas emissions and transition the United States to a sustainable economy. This includes investments in the research and development of new technologies that need to be deployed to meet 2050 decarbonization goals, including carbon capture and storage and clean hydrogen.

These policies and regulations must be based on sound science and realistic timelines so that the commercial availability of these innovative technologies is delivered to the country in a safe, affordable, and reliable manner. While balancing the need for lift-off in the hydrogen economy in the short-term, the long-term goal of policies and regulations around clean hydrogen production should also ensure that the increased amount of emission-free power needed for production does not exacerbate grid instability or intermittency issues. Such policies and regulations should support the need for steady, reliable low carbon power, such as that which could be provided with emerging technologies like Advanced Small Modular Reactors (SMRs).

With respect to this specific rule, hydrogen has a vital role to play in reducing emissions across the economy, particularly in hard-to-abate sectors. Hydrogen can drive economic growth, create new,

high-skilled jobs, and extend U.S. leadership in innovative clean energy technologies. Ensuring adequate financial support for this industry can spur rapid growth and continue to position the U.S. as a global leader in the energy transition. This rule will help lay the groundwork for hydrogen growth globally, so it must be done carefully so as not to cause problems that will hinder that growth.

Additionality & Temporal Matching

Congress has recognized the important role of hydrogen in the Infrastructure Investment and Jobs Act (IIJA) and followed with the tax incentives at issue here in the Inflation Reduction Act (IRA). Together, these Acts represent a Congressional recognition of the importance hydrogen will place in meeting our decarbonization objectives, as well as the deployment of this technology. A problematic part of the proposed regulation concerns requirements that Congress did not address in the language of section 45V and which are at variance with the overall policy intent.

Specifically, the requirements that clean hydrogen producers meet strict additionality and hourly time matching requirements are infeasible and unworkable.

The proposed rule generally requires that the energy attribute certificates (EACs) represent additional or incremental sources of electricity from clean power generation that began commercial operations no more than 36 months prior to the date the hydrogen facility was placed in service (or that the generating facility had an uprate within such timeframe).

The power industry is undergoing a transition to a low-carbon future. This requires the upgrade of existing infrastructure like transmission lines, as well as the building of new transmission. While zero emission technologies will continue to grow, constraints on how rapid that growth occurs are already becoming apparent with supply chain disruptions, interconnection and permitting delays. Additionality would only add to this backlog while failing to add new generation to the grid when Congress did not mandate this as a requirement.

Secondly, fossil fuel facilities seeking to add CCUS should receive the same treatment as non-fossil fuel generation for purposes of determining additionality. CCS retrofits clearly extend the life of existing thermal generators which would otherwise be retired and create *new* low-emissions dispatchable generation. Low-emissions retrofits should be recognized for a period consistent with 45V production credit. Therefore, if Treasury elects to retain its proposed “Induced Grid Emissions” requirement for use of “incremental” generation, fossil facilities adding CCUS should receive the same treatment as non-fossil generation plants.

Dow requests that Treasury eliminate the additionality requirements. The practical impact of an additionality requirement would limit hydrogen production to new emission-free power generating facilities and will delay the clean hydrogen roll out, which is much further behind than the deployment of emission-free electricity production.

The proposed rule requires that the electricity represented in the EAC be generated in the same hour that the taxpayer's hydrogen production facility uses electricity to produce hydrogen beginning in 2028. This is commonly referred to as temporal or hourly matching.

While the proposed rule does acknowledge the lack of hourly tracking systems needed to support deployment, the costs for individual investors to bring 24/7 generation to their region to support a new facility by 2028 may make many hydrogen projects uneconomic and prevent them from being built. In lieu of hourly matching, Dow suggests that monthly matching may be a more appropriate option to balance the cost of 24/7 emission-free generation, while still ensuring methodological rigor in matching emission-free electricity supply with demand.

Monthly matching will provide greater flexibility for hydrogen production facilities to adapt to market conditions and optimize costs. By partially decoupling hydrogen production from real-time electricity fluctuations, producers can strategically plan their operations based on long-term trends and pricing patterns. This approach enables better integration with electricity market dynamics, allowing hydrogen production to align with periods of lower electricity costs, ultimately enhancing the economic viability of the hydrogen industry. Additionally, monthly tracking would align with that which is proposed for European markets prior to 2030.

GREET Model

The proposed rule requires taxpayers to calculate the amount of 45V tax credits using the "most recent GREET model" (45VH2—GREET) to determine the lifecycle greenhouse gas emissions rate.

The development of a hydrogen facility will take years and is costly. In order to maximize the rule's greenhouse gas reduction potential, the IRS must allow hydrogen producers more flexibility to adjust or allow for partial grandfathering of parameters within the GREET Model. Taxpayers may not invest in the development of facilities unless they are confident that future versions of the model will not limit or prevent a hydrogen facility from qualifying for tax credits under 45V.

This section of the rule is exceedingly punitive and would prevent taxpayers from having the certainty needed when evaluating an investment decision about clean hydrogen facilities. The requirement in the proposed rule that taxpayers always use the most recent GREET model (even for facilities that were placed in service in prior tax years) would again introduce uncertainty in whether those facilities may be used to generate clean hydrogen in a way that qualifies for the tax credits under 45V.

Conclusion

Hydrogen is critical to achieving a net-zero economy, and the way in which we deploy this technology matters. To meet 2050 goals, we need to make sure we are looking at innovative ways hydrogen can be used. That will help unlock lower carbon emissions in hard-to-abate operations. This means we need smart policies to help drive technology development and cost-effective scale-up. This tax credit can help but it must be crafted in a way that encourages technology development, rather than hinders it.

Specifically, we urge Treasury to eliminate the additionality and stricter temporal matching requirements of the proposed regulation. These requirements have flawed rationale and will drastically reduce the ability of this technology to grow to meet the scale needed by 2050. Required hourly matching is not only impracticable but is also simply unavailable. These requirements further

burden industry at a time when it is trying to meet global emissions goals in face of growing demand.

We also urge flexibility around the GREET model. Again, inserting uncertainty in the development of a burgeoning technology will only discourage investment at a time when we are trying to scale investment with an eye on 2050.

We believe these regulations are currently written in a way that will severely limit the ability of this innovative industry to get off the ground and scale, thereby damaging U.S. global competitiveness at a time when all countries are watching our energy transition industry. We urge Treasury to revise the proposed rule to align more towards the Administrations' goals of decarbonization and be more inclusive of future technologies.