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December 3, 2022

SUBMITTED ELECTRONICALLY

Internal Revenue Service
CC:PA:LPD:PR (Notice 2022-47)
Room 5203
P.O. Box 5203, Ben Franklin Station
Washington, D.C. 20044

The Honorable Lily L. Batchelder
Assistant Secretary for Tax Policy
US Department of the Treasury
1500 Pennsylvania Ave., NW
Washington, D.C. 20220

Mr. William M. Paul
Principal Deputy Chief Counsel and Deputy Chief Counsel (Technical)
Internal Revenue Service
1111 Constitution Ave., NW
Washington, D.C. 20224

Re: Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production Under Section 45V and 45Z

Submitted via www.regulations.gov; Notice 2022-58

Enel North America, Inc. appreciates the opportunity to submit the following comments in response to the Internal Revenue Service's (IRS) *Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production Under Section 45V and 45Z*.

Enel North America, part of the Enel Group, is a clean energy leader in North America and is working to electrify the economy and build a net-zero carbon future by decarbonizing energy supply, electrifying transportation, creating resilient grids, and promoting a just, equitable transition. Enel North America serves over 4,500 businesses, utilities, and cities through renewable power generation, demand response, distributed energy resources, smart e-mobility solutions and services, energy trading, advisory and consulting services, and more. Its portfolio includes over 8 GW of utility-scale renewable capacity, 606.8 MW of utility-scale energy storage

and 63 MW of distributed energy storage capacity, 4.7 GW of demand response capacity, and 110,000 electric vehicle charging stations.

Enel is a leading developer, long-term owner and operator of renewable energy plants in North America. The company operates 65 plants with a managed capacity of over 8 GW powered by renewable wind, geothermal and solar energy. Enel is also developing and constructing a large portfolio of hybrid projects that pair renewable power generation with utility-scale battery energy storage. We are the fourth-largest owner of clean power capacity in the United States, where our projects have generated over $188 million in lease payments to landowners and over $89 million in new property tax revenue since 2016. We have invested more than $11 billion in the U.S. and Canada since 2000. Globally, Enel is a multinational energy company and a leading integrated player in the global power, gas and renewables markets. Enel is the world's largest private operator of renewables, with over 54 GW of wind, solar, geothermal and hydropower plants installed in Europe, the Americas, Africa, Asia and Oceania. It is the largest European utility by ordinary EBITDA and is present in over 30 countries worldwide (~65,000 employees), producing energy with around 92 GW of installed capacity. Enel distributes electricity through a network that spans over 2.3 million kilometers, and with around 75 million business and household end users globally, the Group has the largest customer base among its European peers.

Enel's experience in green hydrogen is at the international level. To date, our projects include a plant in operation since 2017 and a new plant beginning commercial operations by 2022. Additional projects have received funding and more still have received approval for funding and are under development in Italy, Spain, Chile, and the United States.

I. Comments

Additionality

To ensure that the buildout of the hydrogen industry in the United States does not lead to an increase in greenhouse gas emissions, adopting a principle of additionality with respect to implementation of the §45V credit is critical, requiring a power purchase agreement (PPA) or direct grid connection between the additional renewable power plant(s) and the electrolyzer(s). A required additionality principle is necessary to ensure the continuous reduction of greenhouse gas emissions in the power sector in concomitance with the increased direct electrification process and the new need for renewable electricity coming from the production of electrolytic hydrogen.

While initial flexibility in the implementation of §45V is desirable to allow the immediate development of projects and the scaling up of the electrolyzer industrial value chain, this flexibility should be limited. Specifically, we propose an interim period of 48 months beginning on January 1, 2023, wherein, on January 1, 2027, in order for an electrolyzer powered by a renewable energy facility to receive the §45V credit, the renewable energy plant must have come into service on a date that is, at most, 36 months prior to the electrolyzer's commercial operation date. This additionality standard should apply to all forms of renewable energy (*e.g.,* solar, wind, geothermal) and similarly ambitious and effective provisions should apply to nuclear energy. Enel proposes

this cutoff date as it aligns with the European Commission's currently discussed additionality standard. This period of 48 months also allows for sufficient time to conduct studies and analysis to define robust guidance for industry to use to comply.

Time Matching

(ii) What granularity of time matching (that is, annual, hourly, or other) of energy inputs used in the qualified clean hydrogen production process should be required?

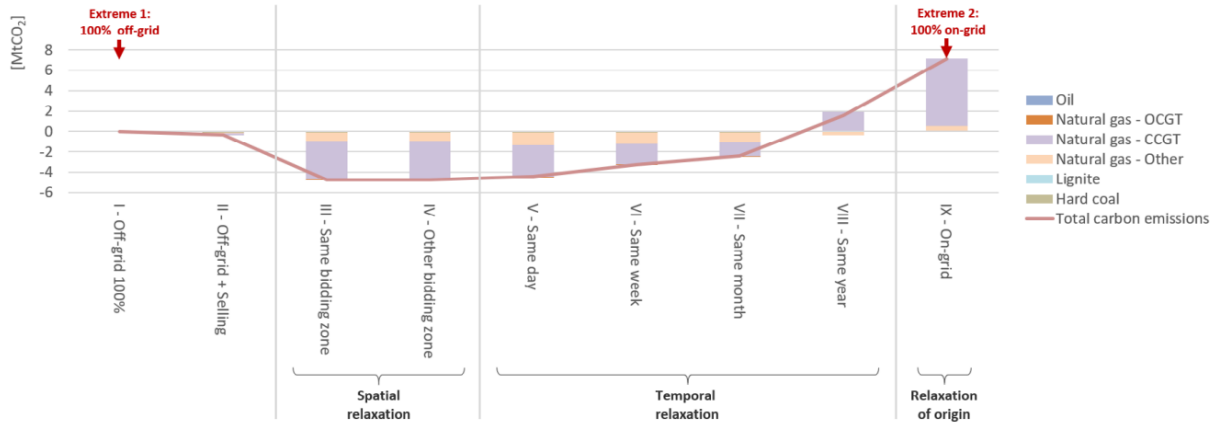
To maximize greenhouse gas emissions reductions from clean hydrogen production, in addition to the proposed additionality standard, a stricter requirement must be adopted regarding the granularity of time matching: the IRS should eventually establish a requirement for hourly time matching in order for facilities to receive the §45V credit. However, recognizing that an hourly matching standard is not yet cost effective for industry, the IRS should establish a more flexible time matching standard (e.g. annual or quarterly) within its initial guidance for the §45V credit. Given that the conclusions of research to date vary regarding the impact on the levelized cost of hydrogen (LCOH) from requiring a certain level of time matching, we propose that the Department of Treasury collaborate with the Department of Energy to create a joint task force to explore relative costs and benefits of various alternative time matching requirements between renewable electricity generation and hydrogen production. An annual or quarterly standard should be in effect until the task force determines that a more granular standard can be achieved cost effectively.

The benefits of an hourly time matching requirement are myriad for the US hydrogen industry. Most significantly, it will achieve maximal greenhouse gas emissions reductions as well as align the US with developing hydrogen regimes.

Effect of Time Matching on Emissions Reductions: Research analyzing the impact of various time matching regimes on carbon emissions utilizing Germany as a case study has shown that allowing a standard of annual time matching will ultimately increase carbon emissions, whereas requiring daily, hourly, or monthly time matching contributes to carbon emissions reductions (see figure below).[1]

[1] *See* "Green hydrogen–How grey can it be?" by Johannes Brauer, Manuel Villavicencio, Johannes Trüby, published on September 6, 2022, available on page 20 at https://cadmus.eui.eu/bitstream/handle/1814/74850/RSC_WP_2022_44.pdf?sequence=1&isAllowed=y.

Figure 8. Effect of regulation on carbon emission at the system level



Moreover, Ricks, Xu, and Jenkins similarly found that "enforcing a 100% Hourly Matching requirement . . . leads to consistently low hydrogen emissions intensities."[2] Regarding various use cases in electricity zones across the western United States, "attributional and consequential emissions rates are generally near zero or negative under a 100% Hourly Matching regime across a range of sensitivity cases."[3] This is compared to a scenario modeled for annual time matching, where "attributional emissions fall only slightly and consequential emissions can even increase relative to simply purchasing bulk electricity."[4]

Alignment with International Regimes: Given that the US is poised to be a competitive clean hydrogen exporter, it is in the best interest of the US to eventually mandate time matching on an hourly basis in order to align with anticipated international standards, such as the one currently discussed in the European Union that will impose an hourly time matching requirement after an initial less-stringent requirement. Ensuring alignment with the EU will further enable US hydrogen producers to benefit from the lucrative value of the PTC.

Task Force Formation: Enel recognizes that current studies, including those referenced in these comments, are limited in scope. Given that both Germany and the western interconnect have relatively high penetrations of renewables as compared to various markets within the United States, a task force is necessary to confirm the conclusions of these studies as well as the cost effectiveness for other jurisdictions.[5]

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[2] *See* "Enabling grid-based hydrogen production with low embodied emissions in the United States," by Wilson Ricks, Qingyu Xu, and Jesse D. Jenkins, published on October 10, 2022, available on page 7 at https://doi.org/10.5281/zenodo.7183516.
[3] Ibid.
[4] Ibid, 12.
[5] *See* https://www.destatis.de/EN/Themes/Economic-Sectors-Enterprises/Energy/_Graphic/_Interactive/electricity-production-renewable-energy.html and https://www.wecc.org/epubs/StateOfTheInterconnection/Pages/Capacity.aspx.

While Enel believes that a standard of hourly time matching should be the goal of a joint Treasury-DOE task force, we recognize that setting a deadline on the adoption of an hourly matching requirement is impractical given the substantial industry research and stakeholder engagement processes that must be undertaken.

In order to provide clean hydrogen stakeholders with certainty and transparency, we recommend that the task force be formed within 120 days of when §45V goes into effect on January 1, 2023, by May 1, 2023. We propose that the task force release initial results or provide an update to the public 180 days after its formation, by October 28, 2023, and in 90-day increments following. The task force should facilitate a collaborative stakeholder process with ample opportunity for engagement and comment, to explore the merits of various alternative temporal requirements between renewable electricity and hydrogen production.

The task force should also determine the state of tools and technology required to perform and verify various time matching regimes (e.g., M-RETs, EnergyTag, or Powerledger) to confirm the necessary accounting tools have sufficiently progressed. Enel looks forward to working with Treasury, DOE, and other stakeholders on weighing the respective benefits and limitations of these various alternative approaches.

Continuity of Existing Regimes: Should the task force determine a date wherein hourly matching is cost effective for new projects, projects placed in service prior to this date should continue to receive the same value of the §45V credit as projects placed in service that are newly required to abide by an hourly matching standard. This is necessary to provide regulatory and investment certainty for project developers and offtakers, who are currently developing projects to capture the §45V credit under which no time matching standard is currently required.

II. Conclusion

Enel North America is grateful for the opportunity to provide comments to the US Department of Treasury and the IRS and looks forward to further collaborating with the IRS and other stakeholders to finalize guidance for the new §45V Credit for Production of Clean Hydrogen. Please reach out to Ryan Prescott with any questions or comments regarding this response.

Sincerely,

/s/ *Ryan Prescott*

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