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February 25, 2024

VIA ONLINE PORTAL- www.regulations.gov

Office of the Associate Chief Counsel (Passthroughs and Special Industries)
CC:PA:LPD:PR (REG-117631-23)
Room 5203
Internal Revenue Service
P.O. Box 7604, Ben Franklin Station
Washington, DC 20044

RE: Douglas County Public Utility District Comments on Proposed Regulations Implementing Section 45v as amended by the Inflation Reduction Action of 2022 (IRS REG-117631-23)

Dear Sir or Madam:

Douglas County Public Utility District ("DCPUD") submits these comments to the Notice of Proposed Rulemaking for Section 45V Credit for Production of Clean Hydrogen; Section 48(a)(15) Election to Treat Clean Hydrogen Production Facilities as Energy. On December 26, 2023, the U.S. Department of Treasury ("Treasury") and the Internal Revenue Service ("IRS") issued a notice of proposed rulemaking and public hearing requesting comments with respect to tax credits ("Sec. 45V" or "Credit") for the production of clean hydrogen ("Proposed Rule") that stems from the Inflation Reduction Act of 2022 ("IRA").

DCPUD is a not-for-profit public utility in Washington State that owns and operates the Wells Dam, an 840MW hydroelectric project on the Columbia River serving 17,000 customer-owners with reliable, clean power. Guided by three elected Commissioners and a desire to support the longevity of Wells Dam, DCPUD recognized the potential for clean hydrogen production to complement its hydroelectric generation.

Working closely with DCPUD, in 2019 the Washington State Legislature unanimously passed legislation allowing for public utilities to advance hydrogen production. Following on the commitment to continue producing low-cost clean power while advancing new, green technologies, Commissioners approved construction of a hydrogen production facility in April 2020. In March of 2021, site preparation began for what will become DCPUD's green hydrogen project near Baker Flats in East Wenatchee, Washington. Project development will occur in phases.

DCPUD has so far committed $40 million to build a facility with the capacity to generate up to 80MW of green hydrogen. By harnessing the clean hydropower generated at Wells Dam, DCPUD is both pioneering green hydrogen production and safeguarding the project's turbines by cutting down on maintenance and repairs. These actions will create more value for ratepayers and contribute to the longevity of the hydro project.

Phase 1 buildout started with the acquisition of one 5MW electrolyzer which has the capacity to produce two tons of hydrogen per day. Phase 2 was initiated in February 2023 with Commission approval of the

purchase of a second 5MW electrolyzer. Site preparation for the hydrogen facility has been completed and construction is underway. DCPUD anticipates production to begin later in 2024.

General Comments

DCPUD has previously filed comments on April 28, 2023 related to Sec. 45V and engaged other relevant Administration and Agency officials that would provide options for IRS and Treasury to properly attribute lifecycle greenhouse gas emissions.

While we appreciate the recognition in the Proposed Rule of the unique attributes and characteristics of hydropower and its role as a non-emitting source of electricity for clean hydrogen production, as we stated in our April 28, 2023 comments, we remain deeply concerned that the Proposed Rulemaking fails to recognize the real-world market, regulatory, and grid functioning in applying incrementality (additionality), geographic, and temporal conditions on qualification for the 45v credit.

DCPUD operates within the cleanest grid in the country and one that is mandated by law to get cleaner. Under the Clean Energy Transformation Act ("CETA"), the State of Washington requires all electric utilities to eliminate coal-fired generation, whether owned or imported, from serving Washington state customers by 2025. By 2030, all electric utilities must achieve greenhouse gas emission "neutrality" and by 2045, utilities must generate 100% of their power from renewable or non-emitting generation sources. The balancing authority within which DCPUD operates, the DOPD, is recognized by the U.S. Department of Energy's National Transmission Needs Study of October, 2023[i] as contained completely within the jurisdiction of the State of Washington.

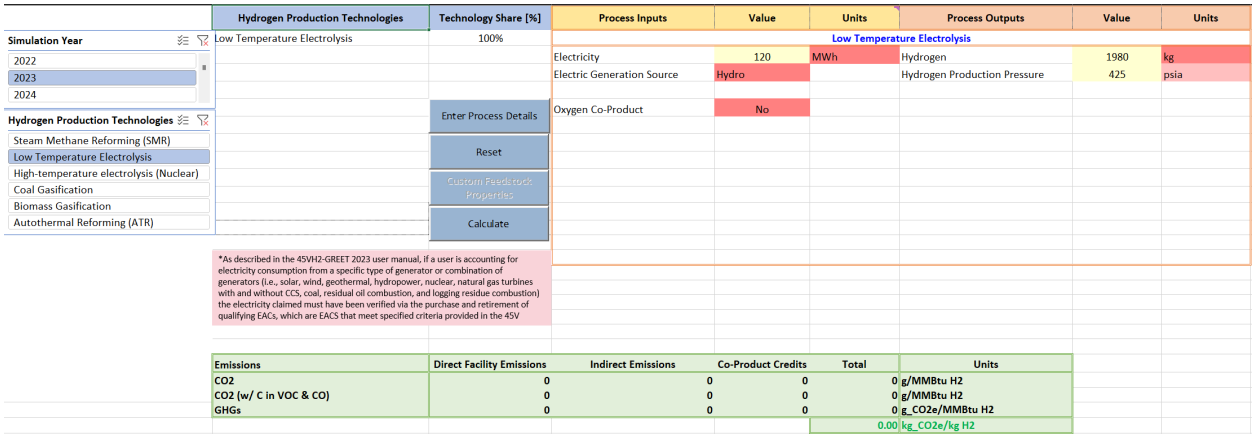
And indeed, the Western market, as defined by the Western Electricity Coordinating Council (WECC), is mandated by laws enacted within states (California, Oregon, and Washington) comprising the vast majority of the population to emit less greenhouse gas emissions and reach zero emissions by dates certain. Other states and utilities within the market have adopted laws or policies that further restrict emissions over medium term time horizons.

In describing the rationale for the incrementality or additionality provisions, the Proposed Rule states, "The EPA has advised that, based on its prior implementation of section 211(o)(1)(H) of the Clean Air Act in other contexts, it would be reasonable and consistent with the EPA's precedent for the Treasury Department and the IRS to determine that induced grid emissions are an anticipated real-world result of electrolytic hydrogen production that must be considered in lifecycle GHG analyses for purposes of the section 45V credit." The draft guidance goes on to say, "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."

The Proposed Rule wrongfully assumes that each increment of load from hydrogen production will likely increase emissions. For the State of Washington generally, and within our balancing authority specifically, this is not accurate and does not reflect the current state of law, regulation, the market we operate in, or the preponderance of renewable generation in the region's interconnection queue. Under the legal requirements of CETA, the risk of induced emissions resulting from hydrogen production within the DCPUD balancing authority

will be reduced to zero. DCPUD joins other hydroelectric interests in recommending that in reviewing comments that IRS and Treasury ensure that these facts are incorporated in any revisions captured in the Final Rule.

We join others in pointing out that nowhere in the IRA does Congress intend for limits to be placed upon a Qualified Clean Hydrogen Production Facility beyond those provided in §45V(c)(3). Generally, a hydrogen producer should be able to benefit so long as they produce Qualified Clean Hydrogen, as defined in §45V(c)(2), which is dependent on lifecycle emissions analyzed in the Greenhouse gases, Regulated Emissions, and Energy use in Transportation model ("GREET") model. We recently ran our production model through the GREET model provided by the 45VH2–GREET interface in compliance with the most recent version of the Guidelines to Determine Well-to-Gate Greenhouse Gas (GHG) Emissions of Hydrogen Production Pathways found at: www.energy.gov/45vresources. These are the results:



Simulation Year	Hydrogen Production Technologies	Technology Share [%]
2022	Low Temperature Electrolysis	100%
2023		
2024		

Hydrogen Production Technologies: Steam Methane Reforming (SMR); Low Temperature Electrolysis; High-temperature electrolysis (Nuclear); Coal Gasification; Biomass Gasification; Autothermal Reforming (ATR)

Enter Process Details | Reset | Custom Feedstock Properties | Calculate

*As described in the 45VH2-GREET 2023 user manual, if a user is accounting for electricity consumption from a specific type of generator or combination of generators (i.e., solar, wind, geothermal, hydropower, nuclear, natural gas turbines with and without CCS, coal, residual oil combustion, and logging residue combustion) the electricity claimed must have been verified via the purchase and retirement of qualifying EACs, which are EACS that meet specified criteria provided in the 45V

Process Inputs	Value	Units	Process Outputs	Value	Units
Low Temperature Electrolysis					
Electricity	120	MWh	Hydrogen	1980	kg
Electric Generation Source	Hydro		Hydrogen Production Pressure	425	psia
Oxygen Co-Product	No				

Emissions	Direct Facility Emissions	Indirect Emissions	Co-Product Credits	Total	Units
CO2	0	0	0	0	g/MMBtu H2
CO2 (w/ C in VOC & CO)	0	0	0	0	g/MMBtu H2
GHGs	0	0	0	0	g_CO2e/MMBtu H2
				0.00	kg_CO2e/kg H2

For the purposes of calculating the budget impact of the credit, Congress has assumed existing resources should be eligible. As others have also argued, Treasury and IRS should issue a Final Rule that allows for producers to benefit from the credit so long as the owner of the Qualified Clean Hydrogen Production Facility can prove that the Qualified Clean Hydrogen has a lifecycle emissions rate provided for in §45V(b).

While we fully appreciate that Treasury and the IRS need to have transparent and auditable accounting systems in place to ensure that only Qualified Clean Hydrogen is receiving the credit it deserves, the Proposed Rule misses an essential fact in its design: the value of a non-emitting generated electron from an existing facility in our efforts to decarbonize our economy.

What is the Value of an Electron?

The Proposed Rule fails to account for how grids actually work, and specifically those that are mandated by law to decarbonize. Due to seasonality, weather conditions, environmental mandates and regulations, market conditions, and other variables too numerous to list, electrons live in a dynamic and ever-changing environment. Energy is instantaneously generated based on the demands of energy customers. Often fuel, in our case water, is wasted because there is nowhere for the energy to go at a particular moment. For example, the following data shows how much energy the district spilled past unloaded generating units:

2020 – 103,040 MWh (above average water year)

2021 – 51,762 MWh (normal water year)
2022 – 61,438 MWh (normal water year)
2023 – 28,472 MWh (low water year)

These are verifiable and reportable occurrences were DCPUD is essentially curtailing renewable energy production that could be put to use for hydrogen electrolysis.

Consigning non-emitting generated energy from existing facilities to this fate as we attempt to decarbonize our economy puts us at further risk from achieving climate objectives. As more intermittent renewables come online (another policy objective supported by the IRA) the realities of wasted carbon free energy become more acute in ways we simply cannot afford.

DCPUD plans to convert this energy into a storable, transportable medium that would help our region further decarbonize, namely, green hydrogen. If implemented, the Proposed Rule would, at best, delay this effort and, at worst, cap it below its full potential.

DCPUD furthermore proposes to utilize an electrolyzer as an active demand response resource to capture the value of electrons that would otherwise be spent in a non-useful way. As we have previously submitted, and others have commented, this works perfectly in helping us harmonize and smooth the operational range of our hydroelectric facility, which in turn allows us to run the facility more efficiently and limit wear and tear on the mechanical components of the system allowing us to extend the life of this valuable non-emitting resource.

The Wells Dam is an important source of power generation for DCPUD and the Pacific Northwest. It has an installed capacity of 840 MW. The data below demonstrates the real time fluctuations in electricity delivery onto the grid:

The data demonstrate two things: 1) Wells Dam rarely operates at or near its nameplate capacity, and 2) the ability of hydropower to follow load by increasing and decreasing generation instantaneously.

A Behind-the-Meter Hydrogen Facility Does Not Necessarily Induce Emissions

Application of incrementality, temporal and geographic matching as designed in the Proposed Rule will negatively impact those regions that already have low carbon-intensity and have state mandated requirements to require future generation to be carbon-free. In these existing regulatory regimes, imposition of the "Three Pillars" would actually inhibit broader application of verifiably clean hydrogen by limiting the ability to fully apply

un- and under-utilized electrons to its production. As more intermittent renewables generation sources come online, this problem is compounded by the "Three Pillars" approach. While we believe the concept should be abandoned in its entirety, at a minimum, it should be tailored to recognize the differences in how the regional grids across the country actually function and the different regulatory environments they must adhere to.

Geographic Proximity/Deliverability/Geographic Matching

The Proposed Rule states, "Proposed § 1.45V–4(d)(2)(vi) would define the term ''region'' to mean a United States region derived from the National Transmission Needs Study (DOE Needs Study) that was released by the DOE on October 30, 2023.11 The DOE has mapped the DOE Needs Study regions to actual balancing authorities."

The Proposed Rule defines the Western "region" too narrowly. When considering deliverability, DCPUD recommends using the NERC identified regions. The territory captured by the WECC reflects how our grid operates and allows our region to maximize the value of its clean energy portfolio. In the WECC, for example, California and Arizona, tied into the Pacific Northwest, are better suited to utilize solar generation. The reservoirs behind Pacific Northwest dams act as a battery while solar generation in the southern reaches of our grid are at their maximum. Some of this "reserved" power could be utilized for clean hydrogen production. Conversely, when our hydroelectric facility is at its maximum, we could, in turn, utilize available solar or wind generated electricity that would otherwise be curtailed to process hydrogen using our electrolyzer.

Temporal Matching

The Proposed Rule would require the use of hourly matching beginning January 1, 2028. As the Proposed Rule and its incorporated reference material state, the Western Renewable Energy Generation Information System (WREGIS) is highly unlikely to be able to meet this timeline. For this reason, DCPUD does not believe the proposed timeline is appropriate. Additionally, as we and others have commented previously, an easier, more logical alternative is annual matching. Annual matching would help to remove the administrative and cost burdens associated with hourly matching and would provide Treasury and IRS with the same auditable and accountable data to support administration of the credit policy. If Treasury determines temporal matching should remain in the final rule, DCPUD recommends hydrogen projects in states that have statutory mandated clean energy policies, like Washington, be deemed as having met the temporal matching requirements.

The Use of EAC's

We agree with others that EACs are a reasonable contractual method to track sourcing of MWs from certain facilities. While utilizing EACs is one way to account for ensuring the production of Qualified Clean Hydrogen, it isn't enough. Producers should also be able to utilize Power Purchase Agreements and co-located Qualified Clean Hydrogen Production Facilities to benefit from Sec. 45V.

The ability of existing generating facilities to meet incrementality (additionality) criteria and how that should be accounted for Zero or Minimal Induced Grid Emissions Through Modeling or Other Evidence

Uprate

Treasury and IRS are considering granting incremental status to electricity produced from existing non-emitting facilities that claim an uprate in capacity in the 36 months prior to the hydrogen production facility coming online. While DCPUD could benefit from this approach as we are currently underway with a significant turbine replacement project, for the reasons articulated above and below, we believe this would unnecessarily abridge the deployment of clean hydrogen production by foregoing the benefits of utilize otherwise curtailed or spilled electricity which is likely to exceed the incremental value of capturing uprated capacity.

Curtailment/Spill

Established by the Northwest Power Act, the Northwest Power and Conservation Council is chartered to develop and maintain a regional "Power Plan" to meet the region's energy needs. The most recent version of the Power Plan was developed in 2021 and published in the *Federal Register* on May 27, 2022.

In developing its plan, the Council performs extensive modeling examining a broad cross section of scenarios and potential outcomes. In the baseline scenario for the most recent Power Plan, the Council employed the following approach:

> The baseline buildout simulations went through many iterations and were performed over many months (June 2020 through November 2020) in response to significant feedback from the System Analysis Advisory Committee and the Council. The reason for this extended timeline was that initial buildouts were not meeting policies, not adequate and building more gas plants than stakeholders thought reasonable. Significant modifications to default model assumptions and configuration were made throughout the process including the following: limiting gas plant builds in many parts of the WECC, developing a renewable energy credit price forecast based on the shadow price of meeting policy requirements, creating smoother trajectories for policy requirements, using top 120 peak hours to determine resource capacity contributions, and ramping in planning reserve margins for operating pools to smooth early study build rates.[ii]

In other words, the Council went to great effort to replicate the likeliest policy, financial, regulatory and load scenarios in modeling of its baseline projection for the most current power plan. The Council concluded that, "Over 81% of the new resource buildout was either stand-alone solar or solar plus battery hybrid resources, and almost 92% of the buildout was solar or wind."[iii]

The curtailment rate of all of this anticipated intermittent renewable generation is modeled to be tremendous. By 2031, The Council's modeling predicts that renewable curtailment will reach a maximum of approximately 140,000 megawatts in any hour of the day averaged.[iv] By 2041, that number is anticipated to rise to 220,000 megawatts.[v]

If Treasury and IRS want to honor the intent of the Congress to utilize clean hydrogen to help speed the process of decarbonizing the U.S. economy, you must recognize the need to harness electricity produced by existing non-emitting generating sources and to urgently catalyze their adoption of hydrogen production rather than allow it to be spilled or curtailed.

As noted above, DCPUD's existing Wells Dam facility operates below capacity and without peak efficiency due to the rapid and constant fluctuations placed on demand due to market conditions. These fluctuations and gyrations in the marketplace will increase as more intermittent renewable generation sources come online. The integration of wind and solar into the grid will need to be supported by a firming and load following generation resource like hydropower. These generating sources need to work in concert to keep the grid balanced, as well as to maximize the value of each electron. Putting those electrons to work when they would otherwise be wasted and securing the benefits of a steadier state in our operation is the goal of our clean hydrogen production initiative. DCPUD request Treasury and IRS issue a Final Rule that does not discriminate between new and existing carbon free resources. To do so would significantly delay, and possibly stop the development of green hydrogen production plants in the pacific northwest.

Percentage Basis

Treasury and IRS are also contemplating an approach to existing non-emitting generation facilities that would allow for a certain percentage of the generation from those facilities to be deemed non-inducive to additional emissions. The Wells Dam has a name plate generation of 774 MW and a peaking capacity of 840 MW. On average, the project generates 4,197,695 MW annual, which is approximately 38 percent below its name plate capacity. We anticipate this number to remain steady or grow as more intermittent generating resources come online in the WECC.

While we don't believe the incrementality or temporal provisions are appropriate for the regulatory regime we operate in, if Treasury and IRS are to move forward with these requirements, a percentage or formula-based approach could be the simplest and most straightforward. That said, a 5% threshold is too low, particularly for markets with mandated emissions reduction targets such as ours. An initial allowance of 10% would still be conservative but more in alignment with existing conditions. DCPUD would also strongly suggest a step up to 20% as we approach 2030 as a way to ensure that otherwise curtailed power can be put to use with the fewest possible barriers to productivity.

Foreseeability in the Adopted Tax Code

The proposed rule as drafted significantly hinders a project owners foreseeability in applying the credit under 45v. The application of the GREET Model by Treasury in the proposed rule creates economic risk and may create volatile pricing of hydrogen from year to year. Requiring a producer to use the most recent GREET model creates uncertainty for the producer and hinders their ability to strategically make decisions over the course of the tax credit period. DCPUD recommends the Final Rule allow 45v producers to use the 45VH2-GREET model in effect at the beginning of construction, or the model in effect the first day of the taxable year in which the hydrogen is produced.

Conclusion

DCPUD strongly encourages Treasury to consider the Congressional intent of the Inflation Reduction Act and adopt a final rule that does not penalize existing carbon-free energy sources from supporting a qualifying clean hydrogen production facility in their qualification of the full credit under 45v. Should Treasury and the IRS

maintain the Three Pillars approach in some form and function, DCPUD recommends that if a project meets the following criteria it will be deem to have satisfied the "three pillars":

1. The state in which the hydrogen production facility is located has enacted a 100% clean electricity standard that is enforceable;
2. The electricity used to meet the hydrogen production facility meets the carbon intensity requirement on an annual basis; and,
3. The electricity is sourced from within the hydrogen production facility's balancing authority or the NERC region.

DCPUD also strongly encourages Treasury to adopted a final rule that provides foreseeability that gives projects a reliable credit scenario to allow for predictability in the credit's value over the period the project is eligible.

Thank you for the opportunity to provide our comments and recommendations.

Sincerely,

Shiloh Burgess
Government Affairs Manger
Douglas County PUD

[i] DOE, National Transmission Needs Study, Oct. 2023, page 47. Available at https://www.energy.gov/sites/default/files/2023-10/National_Transmission_Needs_Study_2023.pdf
[ii] https://www.nwcouncil.org/2021powerplan_baseline-conditions-buildout/
[iii] https://www.nwcouncil.org/2021powerplan_baseline-conditions-buildout/
[iv] https://www.nwcouncil.org/2021powerplan_baseline-conditions-buildout/
[v] https://www.nwcouncil.org/2021powerplan_baseline-conditions-buildout/