To whom it may Concern:

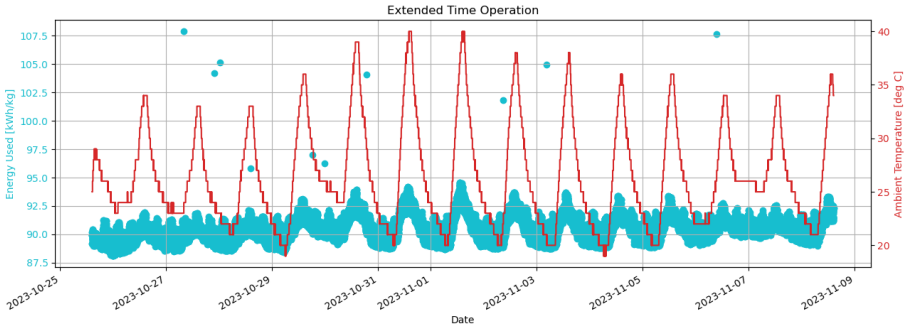
DasH2energy, d/b/a Dash Clean Energy, is pleased to submit our comments on the Section 45V credits for production of clean hydrogen; section 48(a)(15) Election to Treat Clean Hydrogen Production Facilities as Energy Property.

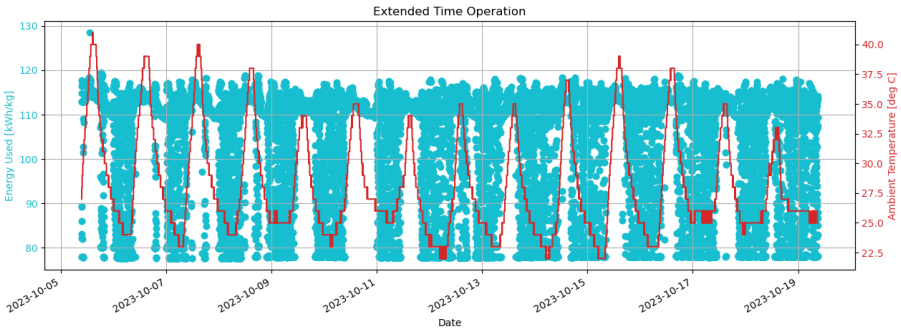
1. Lifecycle GHG emissions will be calculated through the point of production (well-to-gate) using the most recent version of the 45VH2—GREET (Greenhouse gases, Regulated Emissions, and Energy use in Technologies) model, considering hydrogen production pathways and feedstocks included in the new 45VH2-GREET model.

Response: The current GREET model does not take into account hourly simulations associated with different generation resources including electrolyzers that might use a combination of wind, solar, and the grid. The current GREET model only looks at annual production of resources. Additionally, production of hydrogen from electrolyzers is a highly thermodynamic process whereas stack temperature, ambient temperature, pressure and part load conditions all impact the performance of the electrolyzers.

Dash Clean Energy is collaboration with the California Energy Commission (CEC), University California Irvine, the Advance power energy Institute have developed an alternative to the GREET model, called HydroDATUM, that looks at all thermal and electrochemical factors to actually determine the amount of power required to produce 1 kg of hydrogen.

For example, in Figure 1 shows actual data from our electrozler which simple shows that the full production of hydrogen consumes anywhere from 85-102 kwh/kg. Whereas the stack was rated at 72kwh/kg. Figure 2 shows the electrozler operating at minimum load of 34.5% and as demonstrated the efficiency charts have significant variations in performance.





Dash Clean Energy request that the Treasury Department and the IRS allow for private companies to petition for their software as an alternative methodology to the GREET model. To ensure accuracy and validation, we request that any new software tools go through a 3rd party validation either through an accredited university or a national lab.

2. **3 Pillars of new clean energy supply, regionality, and hourly matching.**

Response:

The IRA provides a generous production tax credit under 45V, for up to $3/kg of for a period of ten years for projects that meet strict guidelines known as the 3 pillars.

In business school we are all taught one major lesson, you must solve a customer's problem or pain point if you want to grow your business, and we discussed this strategy when assessing your business. In a HBR article Kim & Mauborgne further describe the six possible traps businesses can fall into while seeking a new business strategy. We believe two of them are extremely important to the current state of play in the hydrogen industry:

- **Confusing technological innovations for new markets**: Every time we hear about new innovation, we tend to assume that there's a market for it. We live in a society where technological innovation is considered a key driver of market expansion. But in reality, value innovation, not technology innovation, is what launches commercially compelling new markets.

- **Utilize low cost as a market creation strategy**: When organizations see market-creating strategies as synonymous with low-cost strategies alone, they focus on what to eliminate and reduce in current offerings and largely ignore what they should improve or create to increase the offerings' value.

While creating a new market for the hydrogen industry, we need to take into account both differentiation and low pricing. If your product is not differentiated but priced at a lower level, you will only start a price war. The idea is to create pricing strategies not only against your immediate competitors but also against substitutes your non-customers are using across industries. The IRA can effectively make clean hydrogen cheaper to produce than fossil-based hydrogen, which is creating tremendous excitement around the energy industry. Unfortunately, this credit will not have long term benefit because it does not contribute to driving down the cost of electricity which is a major part of the operating costs. The IRA may drive capital costs down but at $45/MWh the production cost of hydrogen will average $2.50/kg well above the current cost of fossil-based hydrogen.

What is going to happen to all of these projects after the ten-year period and tax credits are over? Do the off-takers just go back to cheaper hydrogen produced from hydrocarbons? Will the project will operate at a negative operating margin without the credit after year 10.

Our view is that there is significant merchant risk with the current subsidized economic model that could lead to a number of stranded assets ten years from now with significant negative operating economics.

In our opinion we feel that us government should stick to the current form of the 3-pillars to ensure developers and off-takers are all aligned with value, profit, and environmental stewardess.

3. **3 Pillars of new clean energy supply, regionality, and hourly matching.**

    a. **New Clean Supply**:

Requires newly developed clean energy supply that is not already serving the grid will be allowed to qualify.

The United States has no shortage of wind and solar projects interconnecting into the nations grid. Lawrence Berkely National Labs (LBNL) estimates there are over 1,250 GW of new zero-carbon generating capacity is currently seeking transmission access. 947 GW of Solar, 300 GW of wind (113 GW for offshore wind). History tells us that 21% of the projects and 14% of capacity will actually get built.

On July 28th 2023 the Federal Energy Regulatory Commission (FERC) issued a new rule to reform procedures and agreements that electric transmission providers use to integrate new generating facilities into the existing transmission system, sometimes referred to as the "electric grid". Designated as Order No. 2023, FERC adopted these reforms to reduce backlogs

for projects seeking to connect to the transmission system, improve certainty in the interconnection processes managed by the dozens of transmission providers around the country, and ensure access to the transmission system for new technologies.

The final rule will take effect on **November 6, 2023**. Originally, transmission providers had until December 5, 2023 to file compliance filings with FERC. However, in response to requests for extension, FERC extended the compliance deadline to **April 3, 2024.**

In these compliance filings, transmission providers, including regional transmission organizations (RTOs) and independent system operators (ISOs), will propose how they would implement the requirements outlined in the final rule. Once the Commission issues orders approving these compliance filings, the transmission providers will be required to implement the final rule's new requirements

FERC has created a pathway to unlock 1,250 GW of new incremental clean energy supply, and in our opinion the federal government to stick to the requirement for new generation.

b. Hourly Matching

The primary objective of green hydrogen is to decarbonize hard-to-abate sectors such as ammonia production, steel manufacturing, and oil refining. For developers, off-takers, utilities, and governments to understand their effect, we need to have a tool that analyzes carbon impacts based on a 24/7 basis to make a proper assessment. Companies such as Google, Meta, Microsoft have reached 100% renewable energy on a yearly basis, but recent reports have shown the disconnect between a company's claims of 100% renewable energy and reality of their carbon emissions could jeopardize global efforts to stop climate change, and the same could be derived for "green" hydrogen.

The intent behind designing HydroDATUM, helps to analyze and maximize the performance of hydrogen electrolysis projects while also providing clarity on how much carbon is being generated from grid electrolysis. Knowing this hourly carbon impacts helps to make a better decision on how clean hydrogen production really is. Figure 1 shows the inputs into HydroDATUM

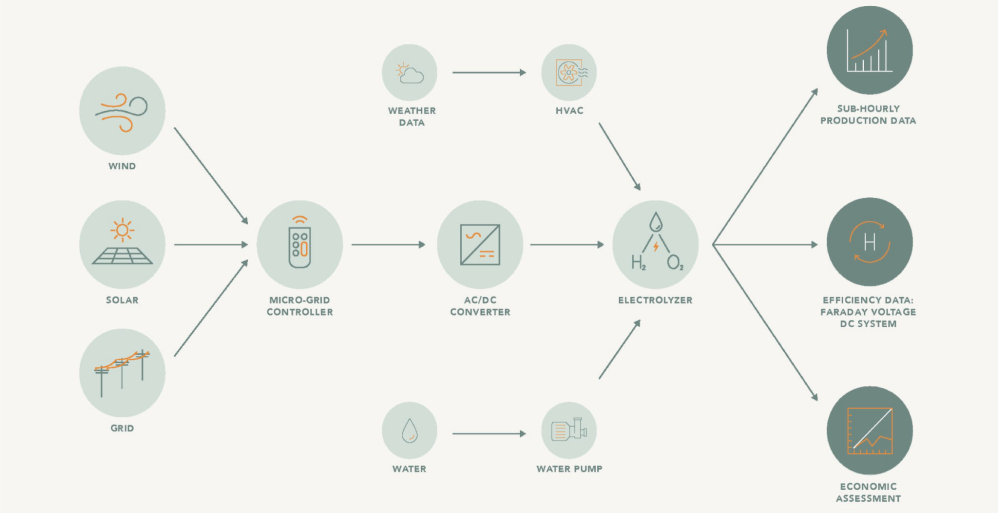
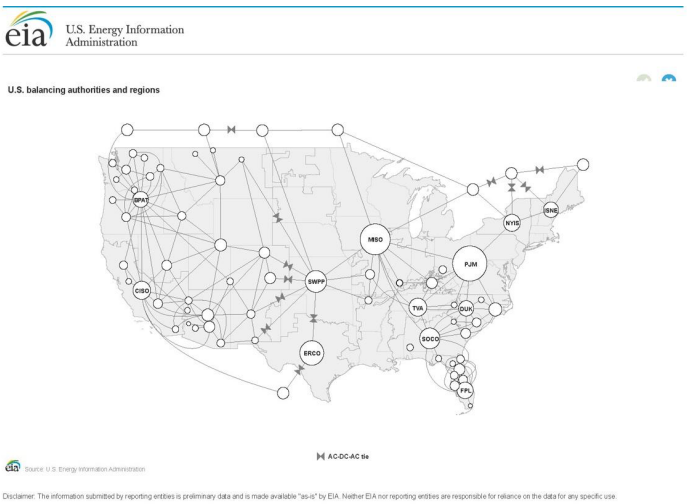


Figure 1

The United States electric grid is broken into 66 balancing authorities in the United States, each responsible for balancing and maintaining grid reliability. Each region has a different source of energy servicing the grid at any given time at any given hour of the day, see Figure 2.

Dash Clean Energy's HydroDATUM software has a built-in algorithm to analyze each grid balancing authority and their generation mix. It uses this data to design an hourly carbon intensity score for feeding electricity at any given hour of the year.

For example, we calculated the carbon intensity of grid electrolyzers assuming a 24/7 operation.



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CARBON Intensity of Grid Electrozler.

Electric Service Territory	Carbon Intensity kg CO2/kg H2
Bonneville Power Administration (BPAT)	1.7
California Independent System Operator (CISO)	12.11
Southwest Power Pool (SWPP)	24.4
Electric Reliability Council of Texas (ERCOT)	20.15
Midcontinent Independent System Operator (MISO)	28.21
Tennessee Valley Authority (TVA)	15.48
PJM Interconnection, LLC (PJM)	20.86
New York Independent System Operator (NYISO)	11.82
ISO New England (ISNE)	12.89
Duke Energy Carolina (DUK)	15.69
Southern Company Services, Inc (SOCO)	23.32
Florida Power & Light Co. (FPL)	14.28
Public Service of Colorado (PSCO)	28.09

Utilizing the grid electricity to produce “green” hydrogen clearly shows that the carbon intensity of grid produced hydrogen can actually increase carbon emissions by up to 2.5 times standard versus standard SMR.

In contrast, if hydrogen electrolyzers are tied directly to both wind and solar facilities supported by the grid then the carbon footprint will decrease in most regions of the country by over 50% of the baseline SMR projects. NOTE: Assumes 40% capacity factor for wind and 20% for solar respectfully.

There is an argument that allowing grid tied electrolyzers will spur the market, but private industry and the Federal government cannot predict the future of the market, and in encourage the Federal government to stick to the current requirements of hourly matching

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c. Deliverability

The final pillar is requiring hydrogen projects to be delivered in the same region that they are produced. As described in time matching every grid across the US has different carbon intensities and we encourage the Federal government to keep the requirement of deliverability.

One final point we will make and why the 3-pillars should be implemented, is there is a high probability that localized emissions will be increased. A majority of electrolyzer projects will be placed at industrial facilities that burning fossil fuels for power generation. This creates emissions of sulfur dioxide (SO_2), nitrogen oxides (NO_X), particulate matter (PM), carbon dioxide (CO_2), mercury (Hg), and other pollutants. NO_X and SO_2 emissions contribute to the formation of ground-level ozone and fine PM, which can lead to respiratory and cardiovascular problems, and exposure to mercury can increase the possibility of health issues ranging from cancer to immune system damage.

Minority, low-income, and indigenous populations frequently bear a disproportionate burden of environmental harms and adverse health outcomes, including the development of heart or lung diseases, such as asthma and bronchitis, increased susceptibility to respiratory and cardiac symptoms, greater numbers of emergency room visits and hospital admissions, and premature deaths.

Two-thirds of Peaker power plants in the U.S. are located near communities with a higher percentage of low-income households than the national average, represented by populations where at least 29 percent of household incomes are less than or equal to twice the federal poverty level. On average, nitrogen oxide emissions rates are higher for Peaker's located near these lower-income populations. These findings are based on Clean Energy Group analysis of data from the U.S. EPA's Power Plants and Neighboring Communities mapping tool.

For example, Air Products one of the leading fossil-based hydrogen producers and operators, has a combined cycle plant adjacent to their SMR plant, in Port Arthur, TX. According to the EPA the plant has a 54.2% utilization factor and placing an electrozler at this facility and following the 3-pillars local emissions will increase because their fossil-based generator will need to operate at a high-capacity factor to power the electrolyzer since wind and solar may be purchased in west Texas getting that exact electricity is not physically possible

This is just one simple example on why the 3-pillars are required to offset as much as possible localized air impacts associated with industrial electrozlyers.