

## Comment on U.S. Department of Energy Clean Hydrogen Production Standard (CHPS) Draft Guidance

We are not submitting this comment to help the Department of Energy build a better mousetrap. We recognize that all of us and the planet are the mice. Rather, we are submitting this comment and all specific responses herein knowing that there is no such thing as a clean hydrogen production standard when hydrogen made from dirty energy is defined as clean. And while the planet and all of its inhabitants will suffer as a result of pursuing a solution that relies on continued fossil fuel extraction to provide the feedstock for hydrogen production, the parties submitting this comment are people living in one of the regions with the greatest natural gas resources, as BIL puts it. DOE will most certainly help fund the development of a blue hydrogen hub here. The on-the-ground impacts of natural gas drilling that our communities have suffered for nearly two decades, impacts to our health, safety, environment, economics, and quality of life, will be compounded by the climate-fueled disasters we are already seeing in our region.

DOE didn't invite our comment. Your notice says you are seeking stakeholder comment. Although you never define the term stakeholder in the context of this guidance, you do say, "DOE may expect stakeholders to reduce emissions across the supply chain as aggressively as technologically and economically feasible, and preference may be given to funding applicants on the basis of their emissions alongside other selection criteria." We define stakeholder differently. We are stakeholders. We are the ones whose lives will continue to be upended by continued drilling and fracking and made even worse by the consequences of going all in on unproven and/or failed technologies. We are accustomed to being dismissed by regulators on the basis that our comments are not 'significant', but we do not accept their definition of significant either.

But DOE is not functioning as a regulator in this instance. Your notice clearly states, "The CHPS is not a regulatory standard and DOE may not necessarily require future funded activities to achieve the standard. However, hydrogen hubs funded in support of the BIL will be required to 'demonstrably aid achievement' of the CHPS by mitigating emissions across the supply chain to the greatest extent possible (e.g., by employing high rates of carbon capture, using low-carbon electricity, or mitigating upstream methane emissions)." We question why you are bothering to go through this exercise when the resulting standard will carry no weight and violation of it will bring no consequences. The Good Housekeeping Seal of Approval is a more rigorous standard. As stakeholders, we are used to living in a wild west of captured regulators, self-reporting by an industry that lies unabashedly, underfunded agencies that lack the capacity to enforce any rules, and captured elected officials who created the wild west in the first place.

In the first section of the questionnaire on Data and Values for Carbon Intensity, you ask about the GREET model that was used to develop the targets in the draft CHPS. GREET, the Greenhouse gases, Regulated Emissions, and Energy use in Technologies model, is a tool [developed](#) by the DOE's Argonne National Laboratory to do life-cycle analyses of transportation fuels and vehicles. According to Argonne, it [covers](#) "100s of pathways" including hydrogen and natural gas production.

However, GREET uses the 100-year time scale assessments from 2007 when analyzing methane emissions. At that time, the IPCC believed methane's GWP was 25. In its 6th assessment, IPCC increased it to 29.8.

The 45v tax credit will be based on a 15-year old GWP, not the most recent one. Nor will it be based on the only relevant GWP at this point, the 20-year time scale. IPCC lowered methane's GWP

over 20 years to 82.5 in its 6th assessment, however, many still use the GWP figures from its 5th Assessment, 84 - 86.

The draft guidance says, "4.0 kgCO<sub>2</sub>e/kgH<sub>2</sub> lifecycle target aligns with the new clean hydrogen policy drivers established in the IRA 45V Credit provisions... The proposed CHPS established under the BIL uses the same lifecycle analysis system boundary as the IRA and targets the emissions rate where the operators can begin to qualify for credits, thus creating alignment between the two statutory provisions.

**Production standards should not be based on a tax credit. Moreover, our government, and DOE especially, should use the relevant time scale.**

*Rechargenews.com* [questioned](#) whether any blue hydrogen projects would be clean enough to qualify for the 45V tax credit, so writer Leigh Collins did some calculations. Assuming that it takes 3.6 kg of methane to make 1kg of hydrogen (estimates run between 2.5 and 4.5, so Collins picked 3.6) and that methane's leakage rate is 3.5%, she calculated that 3.5% of 3.6kg is 0.126kg or 3.15kg lifecycle CO<sub>2</sub>e, a figure she arrived at by multiplying 0.126kg by 25, GREET's figure. But that's the figure for gray hydrogen. To make it blue, CCS must be added to the process.

Collins writes, "As each kg of grey hydrogen results in about 10kg of CO<sub>2</sub> emissions, a 90% capture rate — the maximum achievable by the standard steam methane reforming (SMR) process, according to multiple studies — would result in an additional 1kg of carbon dioxide per kilo of blue hydrogen — taking the total to 4.15kgCO<sub>2</sub>e/kgH<sub>2</sub>, immediately putting it above the tax credit limit."

And that still doesn't take into account the energy required for the CCS process - removing heat, running compressors, and moving and sequestering the CO<sub>2</sub>.

All of those additional considerations are moot if the GWP of 86 over the 20-time scale is used in the first place. Using the same assumptions Collins used, the CO<sub>2</sub>e is 10.836kg. No blue hydrogen project would come close to qualifying for 45V. More importantly, of course, no blue hydrogen projects of 10 kgCO<sub>2</sub>e/kgH<sub>2</sub> should be approved, period.

DOE included an illustration of key emissions sources and asked if any were missing. Missing from Figure 1 is the legacy issue of orphaned and abandoned wells that has never been close to being adequately addressed. If you continue to extract methane to use as a feedstock for hydrogen, every one of the wells will be added to an already out-of-control legacy that will be the taxpayers' burden to bear if emissions are to be kept at safe levels. That assumes, and it is a HUGE assumption, that the government will ever get the problem under control. Right now, in Pennsylvania, if the DEP continues to go at the rate it's going, it will take more than 40,000 years to cap every well once. Wells are supposed to be maintained every 25 years. And many plugs fail much earlier than that. Funds provided by the federal government to plug wells are not nearly adequate to address the problem.

Also missing from Figure 1 is any mention of hydrogen leaks. Hydrogen molecules are tiny, so they can leak easily. And, as an indirect greenhouse gas, hydrogen increases the GWP of other greenhouse gasses, including methane. A U.K. government report from April called *Atmospheric Implications of Increased Hydrogen Use*, [says](#), "Leakage of hydrogen into the atmosphere will decrease the tropospheric concentration of hydroxyl radicals (OH), the major tropospheric oxidant, and thereby increase the atmospheric lifetime of methane and its impact on climate."

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Submitting his comment on behalf of the undersigned organizations and individuals

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