NOVO HYDROGEN

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RE: Comments on the U.S. Department of Energy Clean Hydrogen Production Standard (CHPS) Draft Guidance

We appreciate all the work from the DOE in establishing the draft guidance of the Clean Hydrogen Production Standard (CHPS). Given the undeniable need and urgency for energy transition at a global scale, we believe that it is imperative to focus on cleaner burning molecules, and clean hydrogen continues to emerge as a commercial clean fuel alternative to traditional fossil fuels. Please see our comments on the CHPS draft below:

1) Lifecycle emissions target for hydrogen – We agree with the DOE approach for establishing a Lifecycle emissions target of 4 kg CO2e/ kgH2, which is also consistent with the Inflation Reduction Act ("IRA"). Given multiple programs and incentives are established to support a clean hydrogen economy in the US, consistency across definitions is critical and we appreciate that CHPS guidance is in-line with the IRA definition of clean hydrogen.
    a. We would appreciate more clarity on what constitutes clean power for the process of electrolysis. Said another way, how will the emissions be calculated from the electricity used for the electrolysis process? Does procuring power from the grid combined with Renewable Energy Credits ("RECs") constitute as clean power and will be counted as zero lifecycle emissions? We strongly recommend establishing three boundary conditions to the definition of clean power 1) geographic correlation of RECs, 2), temporal correlation of RECs, and 3), allowance of unbundled RECs meeting those criteria:
        - Establishing geographical boundaries for REC procurement (e.g. RECs must be procured in the same region that electrolysis occurs. We believe "region" should be defined as the Regional Transmission Organization or Load Balancing Authority such as PJM, MISO, etc.). Geographical correlation between the point of REC generation and its use is important because zero and low-carbon hydrogen needs to meet a high bar of credibility, tracking and transparency regarding emissions reduction. This is partly because conventional hydrogen has a lower carbon intensity (if not considering fugitive methane emissions) than electrolytic hydrogen produced with an average grid mix in the US. In addition, RECs purchased in a market that is electrically disconnected from the production market does not incentivize local decarbonization. Clear guidance on geographical correlation requirements is needed to ensure new DOE clean hydrogen production standards result in emissions reductions and acceleration of the hydrogen industry. To the extent reasonable, permissible RECs should face increasingly strict geographical correlation requirements over time.
        - Implement temporal correlation of RECs on a monthly basis, similar to European Union hydrogen production standards. By the end of the decade the standard

should require hourly matched RECs. This will allow the industry time to implement the necessary digital infrastructure, REC registries, accounting standards, and REC tracking required. This requirement has a similar impact to geographical correlation; it increases the legitimacy and credibility of the REC used and helps ensure that the hydrogen produced is as low-carbon as claimed.

- Both bundled and unbundled RECs should be permitted in the DOE's standards. If DOE includes geographical and temporal correlation of RECs, unbundled RECs will have similar credibility to bundled RECs. Allowing unbundled RECs to be used will allow grid power to firm up hydrogen production at new solar and wind facilities. This is critically important for industrial consumers that need a continuous supply of heat and/or chemical reactants. Requiring all RECs to be bundled will prevent adoption of hydrogen by industry in places where other options for sourcing RECs, such as utility green tariffs, are not available or fully subscribed. Allowing projects to use unbundled RECs could also increase the additionality of DOE's standards, as many projects with new-build solar and wind will also need grid support to meet reliability requirements for clean hydrogen offtake needs. Disallowing unbundled RECs will stop these projects and prevent new solar and wind from being built.

2) Lifecycle Analysis (LCA) – In line with what we shared above, we appreciate that the boundary conditions for LCA are in line with the IRA. We would like further guidance on the application of the GREET model and which specific version should be used to conduct the LCA of clean hydrogen projects. We suggest establishing one version for consistency and fair comparison across projects

Thank you for the opportunity to submit comments

Sincerely,
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