Hgen, Inc.
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Notice 2022-58
Response to Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production

Hgen

Hgen is a Los Angeles-based alkaline electrolyzer startup with a mission to enable cheap, 100% clean hydrogen production. Founded by former Tesla and SpaceX product and engineering leaders, with funding from Breakthrough Energy and Founders Fund, Hgen is working to scale US electrolyzer design and manufacturing capabilities.

Unlike conventional electrolyzers that degrade rapidly when integrated with renewables, Hgen's electrolyzers are designed from the ground up for renewables-integrated hydrogen production. Intermittent power and repeated shut-downs result in rapid catalyst, performance, and lifetime degradation in conventional alkaline and PEM electrolyzers. In contrast, Hgen's system design enables full repeated shut-downs and load-following, enabling 100% clean hydrogen production.

Comments

In response to Section 3.01.e.ii:

Given that the 45V Hydrogen Production Tax Credit's goal is to reduce carbon emissions through clean hydrogen production, it is critical that the verification of qualified clean hydrogen energy sources be at the hourly level rather than at longer time scales. The carbon intensity of the actual energy input at time and point of power consumption should dictate the tax credit tier.

To maximize revenue and work around incumbent electrolyzer limitations, industrial and hydrogen production facilities are incentivized to produce hydrogen at a steady, 24/7 production rate. This will functionally result in >50% of electricity consumed for electrolytic hydrogen production to be from fossil-fuel derived energy sources, resulting in mostly dirty hydrogen production. Allowing hydrogen producers to do weekly, monthly, quarterly, or annual accounting for clean energy inputs transforms the 45V Hydrogen Production Tax Credit into an

expensive and inefficient solar and wind incentive (and worse, an incentive for dirty hydrogen production) rather than an effective clean hydrogen incentive.

By allowing energy source accounting and reconciliation at long time scales, hydrogen producers that are functionally producing mostly fossil-fuel derived hydrogen are more financially rewarded than hydrogen producers of 100% clean hydrogen through true renewables load-following. Given that the latter is more expensive due to lower capacity factors, truly clean hydrogen production will be disincentivized and crowded out from the market.

Given that the 45V Production Tax Credit is uncapped and significantly subsidizes hydrogen against alternative feedstock, limiting the full credit to 100% clean hydrogen production achieves both the intended decarbonization goal of the original law while better conserving total awarded tax dollars.

Hgen demonstrates that electrolyzer technology can be adapted to the constraints of direct renewables integration, enabling 100% clean hydrogen production. Through only crediting fully clean hydrogen production, the 45V Production Tax Credit incentivizes much-needed technology innovation to accelerate the US decarbonization timeline, rather than allowing tax credits to work around incumbent technology limitations.