

Feedback to the draft rulemaking in the August 7<sup>th</sup> meeting

Dear LCFS team,

ITM Power wishes to make the following comments to support amending the existing LCFS rule (§ 95488(b)(2)(F)) to allow grid connected electrolyzers to utilize RECs to generate renewable hydrogen:

“In order to qualify as an innovative, low-CI process energy source, energy from that source must be directly consumed in the production process. No indirect accounting mechanisms, such as the use of renewable energy certificates, can be used to reduce an energy source’s CI. Innovative, low-CI energy sources include, but are not limited to renewable electricity from a dedicated (non-grid) form of generation, such as wind turbines and photovoltaic arrays.”

In ITMs opinion this rule puts grid connected electrolysis at a severe disadvantage Vs other forms of hydrogen generation such as directed biogas reforming. The state has consistently predicted a shortage in the availability of low carbon hydrogen for vehicles in the 2020-2022 timeframe.

In the [2017 AB8 report for hydrogen network developments](#) ARB states

*“Establishment of new production capacity, especially renewable production capacity, within California would be a significant step. This would also help ensure the State’s goals of renewable hydrogen throughput, implemented through Senate Bill 1505 could continue to be met in the future.”*

*Also it states “In addition to dispensing capacity, the state’s hydrogen network may similarly face a shortage in hydrogen production capacity, especially for hydrogen produced in state and with large contributions from renewable resources. Industry stakeholders are increasingly sharing the expressed desires of their customers to make the greatest environmental impact possible by choosing to drive an FCEV. Continued adoption of the vehicles may rely critically on ensuring the availability of renewably-sourced hydrogen at a reasonable, competitive market-driven price. Incentives like the Low Carbon Fuel Standard may help build industry interest in establishing new hydrogen production facilities in California, especially for low-carbon production methods.”*

2017 is NOT the timeframe to put unnecessary obstacles in the way of renewable hydrogen production pathways, we should be making it easier for companies to produce renewable hydrogen in state from our in state renewable electricity resources.

At present you CAN inject biogas into the gas network at location A and remove it at location B in a reformer to generate renewable hydrogen if a ‘physical pathway’ exists i.e. there is theoretically a way for the renewable molecule to travel from point A to point B via the pipeline. In reality the gas is metered in at point A, metered out at point B and recorded in the system, in effect it is a bookkeeping exercise. This makes sense as the distances and physical size of the biogas generation facilities make it difficult to co-locate with reformers and/or hydrogen refueling stations.

You CANNOT do the same for a renewable electron at present using the REC system even if a physical pathway between the generation and consumption site exists – ITM feel this is extremely detrimental to the industry, particularly in the early deployments of large scale plants. The REC system allows for full traceability of the renewable generation. This is good enough for the utility RPS but not for hydrogen generation which represents a tiny fraction of the equivalent energy recorded.

Having to co-locate a hydrogen production facility with a renewable generation plant limits the geographical location hugely also the hydrogen industry does not have the luxury of using an existing pipeline system such as the natural gas network to move the gas around once generated.

Early stage electrolysis production facilities RELY on a revenue stream from LCFS credits to ensure an economic and stable facility. Without it many projects simply are not financeable in the current market of low numbers of fuel cell vehicles.

Another big imbalance at present is the fact that under the rules of the California Energy Commissions (CEC) AB8 hydrogen station initiative, electrolyzers that are grid tied can use RECs to generate renewable hydrogen(to meet SB1505 requirements). This is also true of the CECs newly proposed renewable hydrogen production solicitation (see [docket 17-HYD-01](#)). There is clearly a mismatch in thinking between the LCFS program and the state infrastructure program which needs to be addressed.

As we move into a future with an increasingly renewable electricity grid, reactive loads such as electrolyzers will become increasingly valuable to grid operators to prevent curtailment of renewables and manage network loads such as the California ‘duck curve’. Penalizing early adopters of electrolysis plants will severely limit the amount of renewable hydrogen fuel that can be produced in state.

This concept also goes against the long term goals of a hydrogen society as described in the federal H2@ scale initiative, whereby electrolyzers are used as grid balancing loads to help achieve high levels of renewable electricity penetration.

As you can see in Figure 1 below the electricity grid is a critical tool in moving renewable electrons and allowing renewable generation and hydrogen generation to become more efficient and provide a flexible and distributed solution for the hydrogen industry. Without the grid the whole concept of H2@scale is compromised and the benefits it brings are reduced.

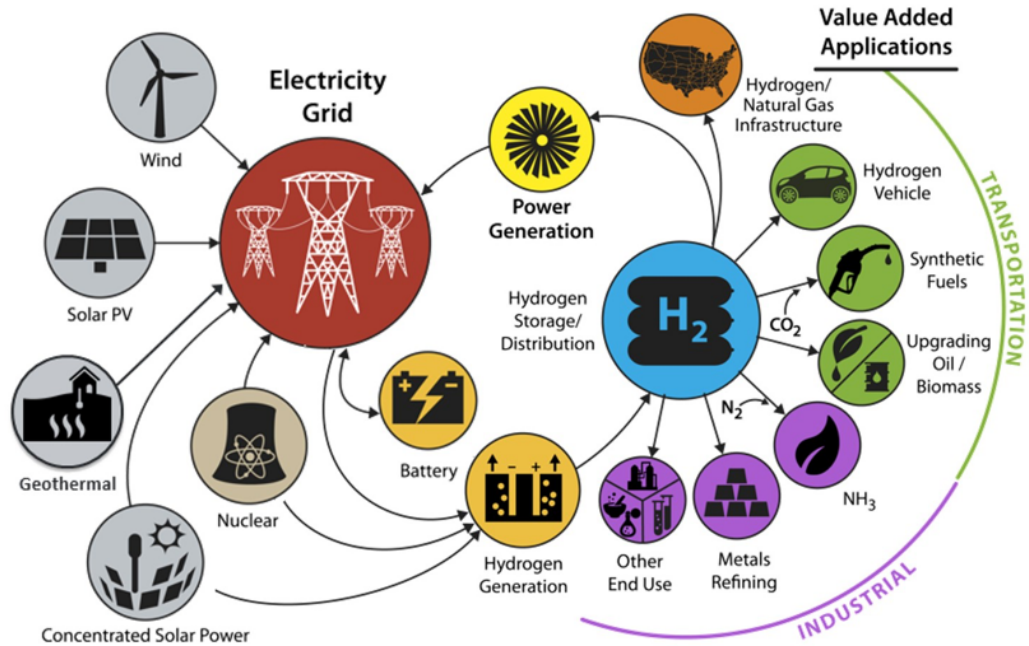


Fig 1 – the value of grid connected electrolysis within a renewable environment

ITM thanks you for your time and dedication to the LCFS program, we look forward to participating in the future.

Yours Sincerely,



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