Request for Comments on Credits for Clean Hydrogen and Clean Fuel Production

Notice 2022-58

SECTION 3. REQUEST FOR COMMENTS

.01 *Credit for Production of Clean Hydrogen*.

(1) Clean Hydrogen. Section 45V provides a definition of the term "qualified clean hydrogen." What, if any, guidance is needed to clarify the definition of qualified clean hydrogen?

Physicians for Social Responsibility:

Qualified clean hydrogen should be limited entirely and explicitly to so-called green hydrogen, produced from water molecules via the process of electrolysis, and powered exclusively by 100% renewable energy. Hydrogen generated in this manner is the only hydrogen that is a zero-carbon fuel and that therefore merits the term "clean."

So-called blue hydrogen should under no circumstances be qualified as "clean" hydrogen. Blue hydrogen is produced from methane using a process called Steam Methane Reformation (SMR), with the addition of technologies that capture and store or reuse some – not all - of the waste carbon dioxide. In addition to the carbon that is not captured from the SMR process by the carbon capture technology (current capture rates are well below 90 percent), the production of blue hydrogen results in the release of still more carbon dioxide as the result of the inherent processes. Carbon dioxide is a by-product of the SMR process, and the heavy industrial facility used in carbon capture requires additional energy to be used, thus increasing carbon dioxide emissions and greater climate impacts.

Furthermore, the process of producing blue hydrogen results in the emission of methane at numerous points in the methane-to-hydrogen lifecycle. This is of paramount concern, as methane is a powerful greenhouse gas that traps 83 times more heat over its first 20 years in the atmosphere than does carbon dioxide. Methane is known to leak across its supply chain: at the point of extraction, i.e. the wellhead; where it is processed for transport; from pipelines and compressor stations; and from distribution lines. Indeed, some of this leakage of methane is inevitable and necessary: Compressor stations are built to release methane whenever pipeline pressure increases to the point that it must for reasons of safety be reduced.

As a result, for every tonne of blue hydrogen gas that is produced, between one and four tonnes of carbon or carbon-equivalent pollution is created. Should blue hydrogen be used for home heating, it has a higher carbon impact than heating buildings directly with methane alone.

For all of these reasons, blue hydrogen inflicts damage to the climate and should not be considered a "clean" form of hydrogen.

(a) Section 45V defines "lifecycle greenhouse gas emissions" to "only include emissions through the point of production (well-to-gate)."[3] Which specific steps and emissions should be included within the well-to-gate system boundary for clean hydrogen production from various resources?

Physicians for Social Responsibility:

All emissions of methane across the gas supply chain should be included, including at the points of extraction, well-site processing, transport, storage facilities and final distribution. These are to include accidental leaks at the well site, both from the well itself and from drilling

equipment and processing equipment at the site; deliberate venting and flaring at the well site; blowdowns from pipelines and compressor stations, where gases are vented to control pressure and empty the system and can be accidental or a scheduled part of maintenance; and from distribution lines.

In addition, as is referenced above, emissions of carbon dioxide generated by the hydrogen production process itself, such as Steam Methane Reformation, should be counted, as well as the carbon emissions from the carbon capture and storage process.

(7) Please provide comments on any other topics related to § 45V credit that may require guidance.

American Lung Association:

Truly clean hydrogen – “green” hydrogen whose production is powered by non-combustion energy sources – represents an opportunity to ensure emissions reductions from hard-to-decarbonize sectors. Other sources of hydrogen simply perpetuate the use of fossil fuel in its production, and must not be incentivized. We urge IRS to quantify the full lifecycle emissions of any hydrogen production to adequately account for its impact, particularly on communities located near facilities involved in its production and transport.