Oregon Department of Environmental Quality

Climate 2023 Rulemaking Brief

Proposed rule changes for reporting hydrogen

May 10, 2023

Overview

DEQ is requesting input on proposed updates to Oregon's Greenhouse Gas Reporting Program (GHGRP) and the Climate Protection Program to add new reporting requirements surrounding the supply and use of hydrogen by regulated entities. The Greenhouse Gas Reporting Program requires reporting of greenhouse gas emissions data and related information from major sources including large stationary sources as well as liquid fuel, natural gas, propane, and electricity suppliers. This information is used to develop the statewide greenhouse gas inventory and support emission reduction programs such as HB 2021. GHGRP data is also used to determine covered emissions and compliance obligations for companies regulated by the Climate Protection Program.

Background

Hydrogen is a highly abundant element but in nature is almost always found as part of another compound. To produce pure hydrogen (H_2), it must be separated from compounds that contain the element, like water, methane, coal, or biomass. Because it is usually not found naturally and energy must be used to separate hydrogen, it is technically an energy *carrier* and not an energy *source*.

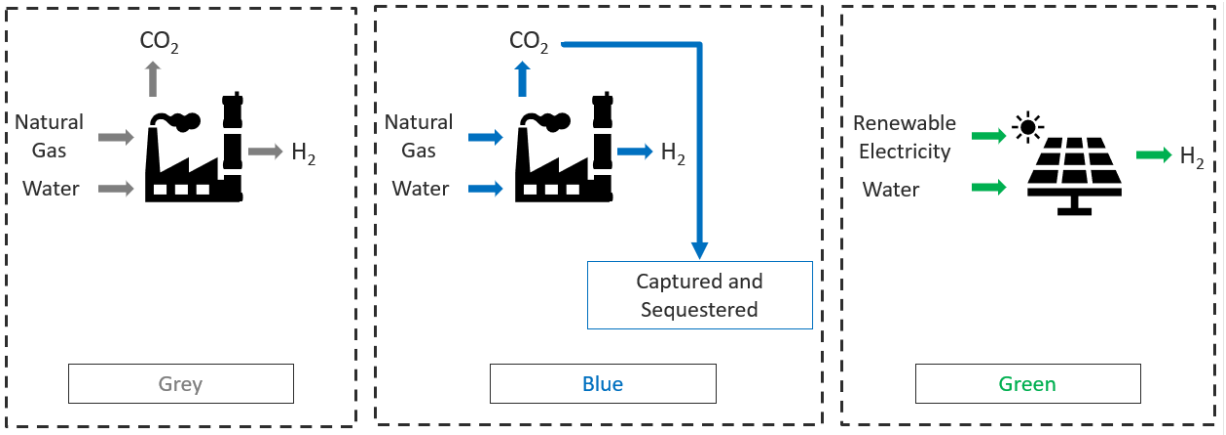
Most hydrogen is currently used for petroleum refining and the production of ammonia, methanol, and steel. However, hydrogen can also be used directly as a transportation fuel; in the production of synthetic fuels; for power generation and storage; or blended into existing natural gas infrastructure as a substitute for natural gas. Hydrogen does not emit any greenhouse gas emissions when used, making it a potential tool for tackling climate change, particularly in sectors that are more difficult to electrify.

Hydrogen production is often categorized by a color corresponding to the production method, with the most frequently considered being grey, blue, and green hydrogen.

Grey: The most common method of producing hydrogen is through natural gas reforming, in which methane is reacted with steam to produce hydrogen and carbon dioxide.

Blue: Also produced using natural gas reformation, but the carbon dioxide emissions are captured and stored.

Green: Uses electrolysis powered by renewable electricity to split water into hydrogen and oxygen.



Proposed regulation and reporting

While the use of hydrogen produces no direct greenhouse gas emissions, under the GHGRP, DEQ can require reporting of hydrogen use and related information from entities that are already regulated under the program for other activities. DEQ proposes to add reporting requirements for hydrogen that are similar to the reporting of biomass-derived fuels, such as biomethane. These requirements are expected to affect stationary sources that use hydrogen, fuel suppliers who also import and deliver hydrogen, and natural gas suppliers blending hydrogen with their existing supply of natural gas.

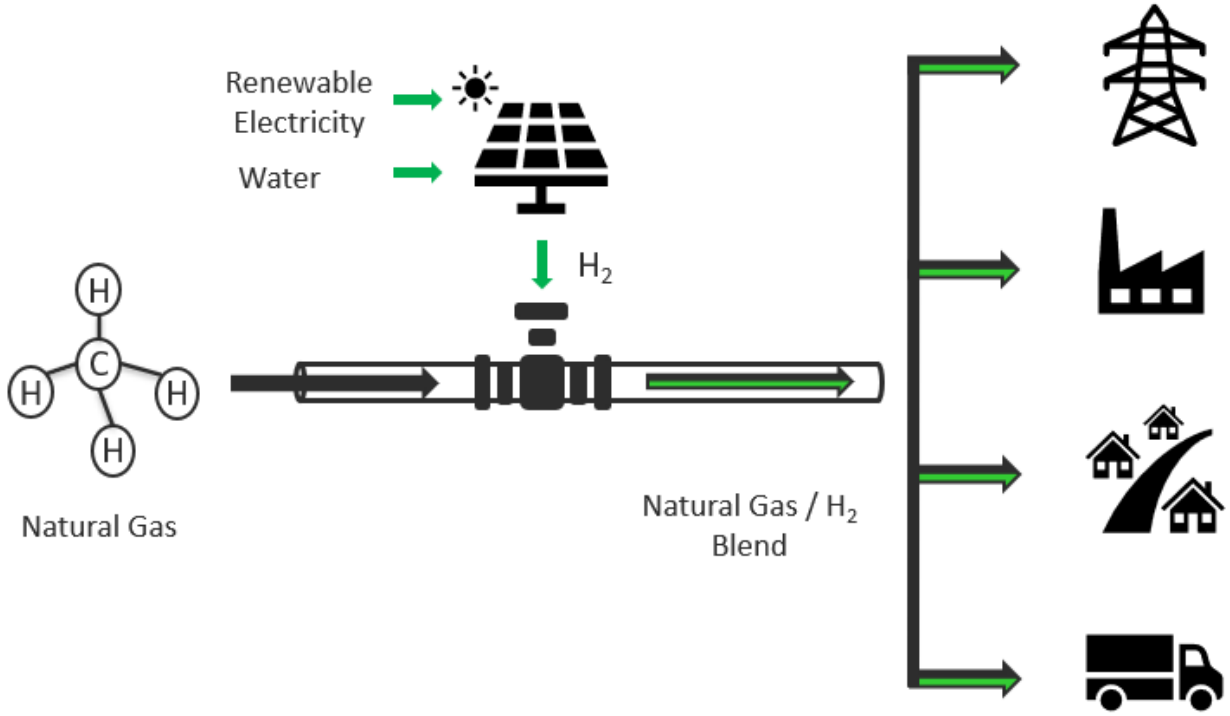
Under the proposed rules, entities regulated under the GHGRP that produce, use, or directly supply hydrogen in Oregon would need to report the following additional information about the hydrogen:

- The amount of hydrogen being used or supplied in Oregon.
- Information about the production facility and process that produced the hydrogen.
- The identity of any vendors from which the hydrogen was purchased.

Book and Claim accounting

“Book and Claim” refers to the accounting methodology where the environmental attributes of an energy source are detached from the physical molecules when they are commingled into a common transportation and distribution system for that form of energy. The detached attributes are then assigned by the owner to the same form and amount of energy when it is used.

Hydrogen can be blended with existing fossil natural gas supplies within pipeline networks. Staff believes that blended hydrogen would need to be treated comparably to blended biomethane, so DEQ could also allow for a book and claim accounting methodology for hydrogen. Using this approach, the environmental attributes of hydrogen blended into a natural gas pipeline outside of Oregon may be decoupled from the hydrogen gas and claimed against an equivalent amount of natural gas when it is withdrawn from a connected pipeline in Oregon by a natural gas supplier. Under this model, the hydrogen nominated to a pipeline is assumed to displace an equivalent amount of fossil natural gas in the system (measured in MMBtu) though there is no requirement for the physical hydrogen molecules to be delivered by the natural gas supplier within Oregon.



In considering potential rule changes for the reporting of hydrogen, DEQ is considering several factors:

- Collecting data on hydrogen to inform future policy decisions about hydrogen in Oregon.
- Compliance options and flexibility for companies regulated by the Climate Protection Program.
- Providing more information to regulated companies as they determine how they might use hydrogen as a compliance strategy.
- Maximizing greenhouse gas emissions reductions and potential emissions reductions from hydrogen use.
- Potential local benefits of hydrogen production and use.

Comments and questions

There are many factors that DEQ is evaluating related to the reporting of hydrogen. For the Climate 2023 rulemaking, DEQ is particularly interested in receiving feedback from the advisory committee and public on the following questions.

1. What additional data should DEQ collect from hydrogen suppliers and stationary sources using hydrogen?

2. Should DEQ allow for book and claim reporting of hydrogen in the GHGRP program and for CPP compliance?

Translation or other formats

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