| DOCKETED | |
|---|---|
| **Docket Number:** | 21-RPS-02 |
| **Project Title:** | Renewables Portfolio Standard 10th Edition Guidebook Update |
| **TN #:** | 266689 |
| **Document Title:** | Miles Heller Comments - Comments on the Draft Renewables Portfolio Standard 10th Edition Guidebook |
| **Description:** | N/A |
| **Filer:** | System |
| **Organization:** | Miles Heller |
| **Submitter Role:** | Public |
| **Submission Date:** | 10/20/2025 2:06:05 PM |
| **Docketed Date:** | 10/20/2025 |

*Comment Received From: Miles Heller*
*Submitted On: 10/20/2025*
*Docket Number: 21-RPS-02*

## Comments on the Draft Renewables Portfolio Standard 10th Edition Guidebook

Please find Air Products' comments attached

*Additional submitted attachment is included below.*

Air Products and Chemicals, Inc.
4000 MacArthur Boulevard
Suite 420, East Tower
Newport Beach, CA 92660
T 949.474.1860
www.airproducts.com

October 20, 2025

Sean Simon
California Energy Commission (CEC)
715 P Street
Sacramento, California 95814

Docket 21-RPS-02

**RE: Air Products' Comments on the Draft Renewables Portfolio Standard 10th Edition Guidebook**

Dear Mr. Simon:

Thank you for the opportunity to comment on the Draft Renewables Portfolio Standard (RPS) 10th Edition Guidebook (Draft Guidebook) and material presented at the workshop on October 6, 2025. Hydrogen can play an important role in the clean energy transition. It is an important complement to other low and zero emission energy sources, adding energy diversity and resiliency amid the transition to clean energy. This includes the power sector, and it is important that the California Energy Commission (CEC) take steps to include hydrogen used in power plants in the RPS Guidebook, to enable growth and scale of the renewable hydrogen industry. We urge the CEC to:

- Clarify that conventional power plants, including gas turbines, utilizing renewable hydrogen are eligible renewable energy resources under the RPS.
- Clarify that biomass- or biogas-based hydrogen production technologies are RPS-eligible and do not require the electricity used in the production process to be RPS-eligible.
- Consider allowing book and claim accounting under the RPS for renewable hydrogen injected into common carrier pipelines or dedicated hydrogen pipelines, just as exists for biogas under the current program.

**About Air Products**

Air Products is a global company with substantial experience producing, storing, and deploying hydrogen in a safe and environmentally conscious manner. Air Products is California's, and the world's, largest hydrogen producer, with over 10,000 metric tons per day of production capacity. Air Products has safely operated hydrogen systems for more than 40 years in California, including 10 hydrogen-production facilities and 30 miles of dedicated hydrogen pipeline.

**Hydrogen a Critical Component of California's Energy Goals**

The CEC has identified an important for hydrogen to play in supporting the state's clean energy goals, including supporting a 100% clean, resilient and reliable electricity system. In particular, CEC estimates that achieving the state's goals will require 0.35-1.88 million metric tonnes of

hydrogen per year in the power sector, potentially twice as much as will be required to meet the state's zero emission vehicle and clean transportation goals.[1]

The state must ensure that it adopts the policies needed to take full advantage of this versatile resource, including in existing natural gas power plants (e.g., turbines). Hydrogen turbines provide a clear pathway for converting existing natural gas plants to produce zero-carbon electricity, especially since leveraging existing assets that are already interconnected to the grid is one of the most expedient paths to decarbonizing power generation. Critically, grid operators and utilities already rely on these plants to follow load and meet system and local reliability needs. Conversion to hydrogen turbines will provide the same reliability characteristics and avoid the need to develop new resources to provide local reliability and/or develop costly and challenging new transmission projects.

As we've previously discussed, the state needs to take additional steps to support and enable hydrogen's important role in achieving the state's clean energy goals. Among other recommendations, key is for CEC to update the Renewable Portfolio Standard (RPS) Guidebook to include renewable hydrogen used in turbines, as well as fuel cells and linear generators, as RPS eligible.[2]

**Building on California's Leading Hydrogen Market and Sector**

California is home to a world-leading private hydrogen market, which has safely and effectively operated for decades under a strong regulatory regime to competitively serve hard-to-abate sectors like heavy industry and transportation. The CEC's work on hydrogen through the Integrated Energy Policy Report (IEPR) and other efforts, the Governor's directive to develop the Hydrogen Market Development Strategy, the Senate Bill 1075 (Skinner) process and future work on SB 100, SB 423, SB 643, and SB 905 implementation, can help create more momentum to expand California's robust hydrogen economy.

As California writes the next chapter for its established hydrogen economy, guiding principles that shaped other clean energy programs can serve as template for effective policy frameworks to support the continued growth of the clean hydrogen market:

- Preserve and expand competitive markets to accelerate project development, innovation, cost reductions, wide-scale emissions reductions, and long-term success.
- Create new long-term visible market incentives to enable private sector investments in hydrogen production and delivery infrastructure, including demand side offtake rules that match investment life cycles (15-20 years).
- Avoid new frameworks or market regulations that dramatically shift or disrupt existing, functional hydrogen markets.
- Provide technology-agnostic, carbon-intensity-focused approaches for incentives and market frameworks for lowering the carbon intensity of hydrogen that ensures a level-playing field for zero-emission technologies.

[1] See, for example, slide 5 from the "Hydrogen Potential - Electric Generation and Transportation (2025 IEPR)" presentation at the July 29, 2025 IEPR Commissioner Workshop on Firm Zero-Carbon Resources and Hydrogen. https://www.energy.ca.gov/event/workshop/2025-07/iepr-commissioner-workshop-firm-zero-carbon-resources-and-hydrogen

[2] See Air Products' recommendations for supporting hydrogen's role in the power sector in California as part of our comments in response to the July 29, 2025 workshop, here: https://efiling.energy.ca.gov/GetDocument.aspx?tn=265794&DocumentContentId=102647

- Don't pick winners and losers, and allow for innovation and accommodation of new, lower carbon hydrogen technologies as they develop.

Most importantly, the State should avoid creating a vertically integrated, CPUC-regulated hydrogen utility, which would disrupt and destabilize California's leading and growing hydrogen market. Allowing California's regulated natural gas utilities to suddenly enter the existing, functional, competitive hydrogen market, and use current ratepayer funds to enable the utility to unfairly compete against the private sector, will not serve to catalyze an expanded hydrogen market. Instead, it will undermine long-term cost-effectiveness and send negative market signals to the private sector.

**CEC Should Take a Technology-Neutral Approach to Hydrogen**

In supporting the state's transition to clean energy, it is important that the RPS Guidebook take a technology neutral approach. In particular, any facility utilizing eligible renewable fuels that otherwise meets the public health and environmental review criteria associated with any power project should be RPS eligible – including turbines or conventional power plants utilizing renewable hydrogen. While we support eligibility for renewable hydrogen in linear generators and fuel cells, limiting RPS eligibility to those technologies only limits the market for renewable hydrogen – which slows project development and deployment in the power sector.

The 2023 IEPR focused solely on a single technology – renewable electrolysis – and much of the conversation around hydrogen and its use in the power sector continues to focus on this singular approach. We are concerned that this presumption may underpin a reluctance to recognize eligibility of renewable hydrogen used in turbines, if one assumes that the hydrogen pathway itself would still generate RPS value, and/or there may be more RPS value in accounting for the renewable energy to generate the hydrogen than there is in the subsequent use of hydrogen to produce electricity.[3]

In fact, there are several other compelling pathways for producing renewable hydrogen, which should be supported under the RPS Guidelines, even if that hydrogen is utilized in a turbine. Under the current construct of the proposed Guidelines, there is no RPS value to be gained for these pathways if used in a turbine, even if there may be for grid connected electrolysis:

- **Off-grid electrolysis:** The 2022 Scoping Plan assumed all electrolytic hydrogen used to meet state goals is produced via off-grid solar.[4] To the extent power sector projects utilize hydrogen from off-grid renewables, RPS eligibility should be accounted for at the point of generation from hydrogen, including in a turbine.
- **Biomass or biogas:** Power generated from renewable hydrogen produced from biomass or biogas should be RPS eligible but has no pathway to generating RECs if it is utilized in a power plant. In addition to supporting the state's clean energy goals, utilizing hydrogen from these resources can support the state's forest management and biomass utilization priorities, as well as the state's short-lived climate pollutant reduction goals.
- **Imported hydrogen:** Power generated from renewable hydrogen produced and transported to a power plant in California via pipeline or other method would have no means of generating RECs if utilized in a power plant.

[3] We do not assert that this is the case, but even if it might be, the CEC should include hydrogen used in turbines as RPS eligible, since the determination of whether it is preferrable to account for RPS eligibility of the electricity used to generate electrolytic hydrogen, or the power generated from the hydrogen, will be utility and situation specific.

[4] See footnote 151 at: https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf

As for electrolysis itself, state law defines electrolysis (green electrolytic hydrogen) as energy storage, and states that the CEC and other agencies "shall consider green electrolytic hydrogen an eligible form of energy storage and shall consider other potential uses of green electrolytic hydrogen in their decarbonization strategies."[5] Therefore, if nothing else, the use of electrolytic hydrogen in a turbine or power plant should already be eligible under Section 3.6 of the Draft Guidebook. In the name of technology neutrality and to support the state's wider array of priorities around biomass and waste management, the CEC should allow all renewable hydrogen pathways used in turbines to be RPS eligible.

**Specific Comments on Draft RPS 10th Edition Guidebook**

We encourage CEC to clarify that conventional power plants, including gas turbines, utilizing renewable hydrogen are eligible renewable energy resources under the RPS. We believe that under the current definitions for energy storage under Section 3.6 and the statutory definition defining green electrolytic hydrogen as energy storage – electrolytic hydrogen used in a turbine is already RPS eligible. The RPS Guidebook should clarify and confirm this. Similarly, as derivatives of eligible biomass or biogas resources, power produced from hydrogen derived from these resources, even if used in a gas turbine, should be RPS eligible. Accordingly, we urge the following changes to the RPS Guidebook:

- In Chapter 2, clarify that renewable hydrogen derived from resources defined in Table 1 is an eligible renewable resource, including if that hydrogen is utilized in a gas turbine. Electricity produced from renewable hydrogen derived from biomass or biogas is itself, electricity produced from biomass or biogas and should be clearly defined as such.
- In Sections 3.6.1 and 3.6.2, clarify that green electrolytic hydrogen is an eligible form of energy storage, and hydrogen derived from electrolysis is RPS eligible, including if used in a gas turbine or power plant.

In clarifying biomass- or biogas-derived hydrogen is RPS eligible, we urge the CEC to clarify that process electricity used in the production process does not need to be RPS eligible itself. Unlike electrolysis, where the environmental performance of the pathway is determined by the process energy, for biomass and biogas-related pathways, the environmental impacts and benefits are a result of the renewable feedstock itself. We urge the following change to language related to eligibility of fuel cells and linear generators, and similar changes elsewhere where hydrogen eligibility is clarified as described above:

> 2.4.2 Fuel Cells or Linear Generators Using Qualifying Hydrogen Gas
> A facility converting hydrogen gas to electricity in a fuel cell or linear generator may qualify for RPS certification if the hydrogen was derived from a non-fossil-based fuel or feedstock defined in Table 1. For renewable hydrogen produced via electrolysis, the process must be ~~through a process~~ powered using an RPS-eligible renewable energy resource. The electricity generated by a facility using this type of hydrogen gas is eligible for the RPS only if the electricity that was used to derive the hydrogen is not also counted toward an RPS compliance obligation or claimed for any other program as renewable generation. The applicant must submit information on the hydrogen production process as part of the application.

[5] Public Utilities Code Sections 400.2 and 400.3

Finally, we urge the CEC to consider allowing book and claim accounting under the RPS for renewable hydrogen injected into common carrier pipelines or dedicated hydrogen pipelines to support the development of renewable hydrogen markets.

**Conclusion**

California is a global leader in the green economy, with renewable and low carbon energy markets that drive state, national and international policies. The electricity market offers one of the largest potential markets for renewable hydrogen, which can anchor renewable hydrogen production projects that can help decarbonize other sectors of the economy, as well. It is important that CEC take steps to enable early, promising markets for renewable hydrogen, including gas turbines used in the power sector.

Thank you again for the opportunity to comment. If you have any questions, please feel free to contact me or Miles Heller (hellermt@airproducts.com).

Respectfully,

Miles Heller
Director, Greenhouse Gas, Hydrogen, and Utility Regulatory Policy