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Walls – U.S. Sees 45V Tax Credit Clearing the Way for Clean Hydrogen, But Barriers Remain

Critics Say Proposed Rules Are Too Restrictive, Risk Stifling Industry



- Temporal matching makes new power generation a priority
- Geographic matching could make states power 'islands'
- Additionality rules could impact current generation
- Industry suggests changes, including early-mover benefits
- Clean hydrogen's fate could be tied to November's vote

1. Introduction

Development of a clean energy economy was a key plank in President Biden's platform four years ago and it has remained a priority since he took office in January 2021. With a focus on the short-term changes necessary to make any long-term goals viable, Biden set out some ambitious 2030 targets: at least 80% of U.S. power to be generated using renewable sources, a 50%-52% reduction (from 2005 levels) in greenhouse gas (GHG) emissions, and production of 10 million metric tons per annum (MMtpa) of clean hydrogen (ramping up to 20 MMtpa by 2040 and 50 MMtpa by 2050).

The administration was able to steer passage of two important pieces of legislation in its first two years: the Infrastructure Investment and Jobs Act (IIJA, better known as the Bipartisan Infrastructure Law) was passed in November 2021 and the Inflation Reduction Act (IRA) was became law August 2022. Among other things, the IIJA established \$8 billion in federal funding for the development of a clean hydrogen industry, including \$7 billion for a series of regional hubs to be located across the country. The IRA, widely seen as a game-changer regarding incentives around clean energy, includes provisions on everything from methane emissions and electric vehicles (EVs) to carbon capture and sequestration (CCS) and alternative fuels, but one of the most significant elements was the inclusion of the 45V production tax credit (PTC).

Passage of the IRA set off intense debate (and lobbying) about how the guidelines around the 45V tax credit for clean hydrogen production would be written and implemented. While some industry groups argued for more relaxed guidelines around the PTC that would allow the clean hydrogen industry to grow quickly, others called for a stricter set of rules from the start, arguing that an approach that was too lax would fail in the ultimate goal to substantially decrease GHG emissions. Those guidelines were widely expected to be announced by August 2023, but as summer turned into fall, and fall into winter, it was clear that the debates over 45V were continuing inside the Biden administration. The rules were finally rolled out in December. Publication of the proposed rulemaking began a 60-day comment period, which concluded February 26.

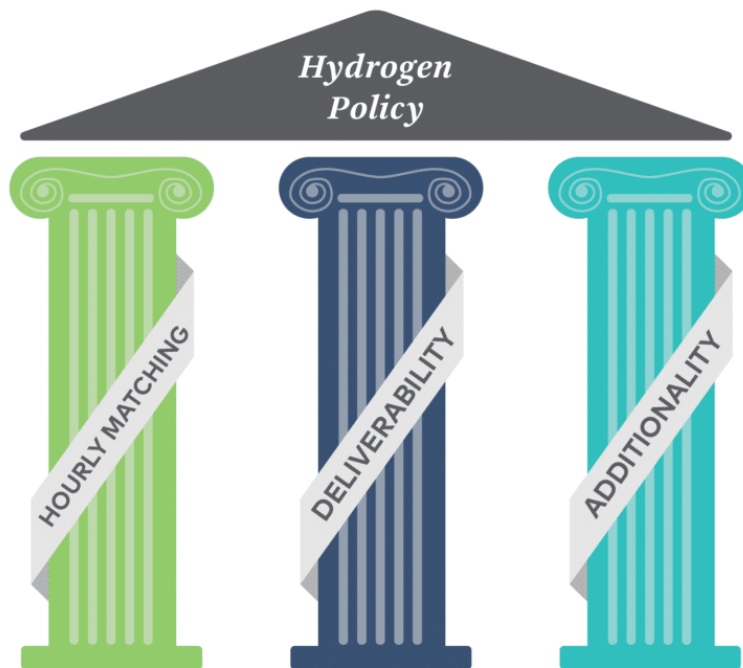


Figure 1. The “Three Pillars” of Clean Hydrogen Production. Source: 3Degrees

The proposed guidance relies on the use of energy attribute certificates (EACs), which are issued as proof of electricity produced from renewable sources. Each EAC verifies that 1 megawatt-hour (MWh) of electricity used by an electrolyzer was generated by 1 MWh generated from a renewable source, typically wind or solar. As illustrated in Figure 1 above, the guidelines establish the critical criteria — often referred to as the “three pillars” of clean hydrogen — that must be reflected in the EACs needed to claim the tax credit:

- **Temporal matching**, the focus of Section 2 of this report, requires electrolyzers’ electricity consumption to match clean energy production over a set time frame (i.e., annual, monthly or hourly).
- **Deliverability** (Section 3) requires electrolyzers to source clean electricity from within the same operating region.
- **Additionality** (Section 4) requires the electricity for hydrogen production to come from new clean generation sources or an increase in the rate of electricity production from existing clean generation (known as uprating).

While the implementation of each of the “three pillars” comes with its own set of challenges, clean hydrogen faces plenty of other barriers to wider adoption. The biggest wild card, at least in the short term, is political, starting with the rules around 45V implementation, which will

have a lot to do with the industry’s growth potential in the medium to long term. Section 5 of this report details some of the possible changes to the guidance around temporal matching, deliverability and additionality that could be included in the final rulemaking, which is expected later this year. Other suggestions include the need to provide an early-mover advantage for the first group of projects to begin production and a call to incentivize all types of clean hydrogen, since the current rulemaking strongly favors green hydrogen.

As noted above, the Biden administration took more than a year to come up with the proposed rulemaking around the tax credit, which has received a lot of criticism from industry groups and others that find it too restrictive, potentially stifling projects right from the start. There were nearly 400 comments about the proposed rulemaking submitted by corporations or organizations, an indication of how invested people are in the idea of clean hydrogen and its potential to be a game changer.

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