

November 14, 2022

VIA ELECTRONIC MAIL (cleanh2standard@ee.doe.gov)

U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
1000 Independence Ave. SW
Washington, DC 20585

Re: Clean Hydrogen Production Standard (CHPS) Draft Guidance

To Whom It May Concern:

These comments are submitted on behalf of the 360,000 members of the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, AFL-CIO (“UA” or “United Association”) in response to the U.S. Department of Energy’s (“DOE” or “Agency”) request for comment in connection with its proposed guidance on the Clean Hydrogen Production Standard (CHPS).¹ The UA appreciates this opportunity to share its input with DOE in this important proceeding.

By way of background, the United Association is a leading international labor union in the energy sector whose members have long worked on traditional power generation facilities and pipelines. The considerable skills and experience these members have gained over the course of their careers are expected to apply to hydrogen energy infrastructure, which means that UA members will be an invaluable resource for the project owners and developers who are moving forward with those projects.

I. Introduction and Overview of Regulatory Context

The Infrastructure Investment and Jobs Act of 2021,² also known as the Bipartisan Infrastructure Law (BIL), contains provisions providing substantial financial assistance to the emerging hydrogen energy industry. One example of this assistance is the so-called “hydrogen hubs” program, which will distribute up to \$8 billion in federal assistance to support the creation of regional networks of hydrogen producers, consumers and connective infrastructure.³ Congress

¹ *Notice of Availability of Draft Guidance on Hydrogen and Fuel Cell Program: Guidance for the Clean Hydrogen Production Qualifications*, 87 Fed. Reg. 58,776 (Sep. 28, 2022).

² Pub. L. No. 117-58, 135 Stat. 429 (2021).

³ See OFFICE OF CLEAN ENERGY DEMONSTRATIONS, U.S. DEP’T OF ENERGY, *Regional Clean Hydrogen Hubs* (last visited Nov. 9, 2022), <https://www.energy.gov/oced/regional-clean-hydrogen-hubs>.

chose to specifically fund and support this emerging hydrogen industry because of its recognition, stated in the law itself, that hydrogen “plays a critical part in the comprehensive energy portfolio in the United States” and “provides economic and environmental benefits for diverse applications across multiple sectors of the economy.”⁴

While the BIL correctly recognizes that hydrogen energy is expected to provide substantial economic and environmental benefits, these findings, if anything, understate the vital role hydrogen is likely to play in achieving the Administration’s clean energy targets.⁵ This finding is based on two, irrefutable facts: (1) leading renewable sources of energy, namely, wind and solar, are fundamentally incapable of decarbonizing electrical power generation and other sectors of the economy by themselves, even when paired with battery storage technology, and (2) despite this reality, wind and solar projects continue to receive a disproportionate share of energy subsidies, even as traditional sources of firm generation are taken offline. Consequently, there is a potentially dangerous trend emerging in several states, including California and New York, revealing a substantial imbalance between the supply and demand for electricity. Fortunately, the more sensible All the Above strategy promoted by the federal government can help correct such missteps by providing effective leadership in future energy planning. DOE’s hydrogen policy will be instrumental in this regard, because it will help to promote hydrogen as a leading and indispensable clean energy source.

A. The Construction of Alternative, Clean Sources Is Required to Meet Clean Energy Targets

The recent experiences of both New York and California demonstrate why the construction of alternative, clean sources (“ACSs”) of energy, including hydrogen, advanced nuclear, and bioenergy plants, is necessary for the achievement of clean energy targets. Both states have enacted ambitious climate targets that require their electrical generation sectors to be entirely zero-emissions by 2040 and 2045, respectively,⁶ and are actively developing and implementing plans for achieving these goals. Thus, the challenges these states are facing in creating an entirely zero-emissions electrical generation sector illustrate the practical difficulties that will soon play out across the country as other states and regions adopt similar goals. One challenge that is coming to the forefront in both New York and California is the difficulty of maintaining a reliable and dependable electrical grid as firm, dispatchable sources of electricity powered by fossil fuels are taken offline, only to be replaced with variable, intermittent sources of renewable energy:

⁴ Infrastructure Investment and Jobs Act of 2021, *supra* note 2, at § 40311.

⁵ Specifically, President Biden has promised to work towards a 50-52% reduction in economy-wide greenhouse gas emissions by 2030 and a net-zero economy by 2050. THE WHITE HOUSE, *FACT SHEET: President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies* (Apr. 22, 2021), <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/22/fact-sheet-president-biden-sets-2030-greenhouse-gas-pollution-reduction-target-aimed-at-creating-good-paying-union-jobs-and-securing-u-s-leadership-on-clean-energy-technologies/>.

⁶ N.Y. PUB. SERV. LAW § 66-p(2); CAL. PUB. UTIL. CODE § 454.53(a).

- **California:** Faced with a late-summer heat wave, California only “narrowly” averted an “electricity crisis” in September 2022.⁷ During this period, the state’s “power grid teetered on the brink of outages,” and the “mere maintenance of electricity in most of the state... was celebrated as a minor triumph.”⁸ This difficulty in maintaining reliable service can be directly traced to the steps California has taken to achieve its clean energy targets; the state has “shuttered a slew of [natural] gas power plants in the past few years, leaving the state increasingly dependent on solar energy.”⁹ Reporting suggests that this near-miss regarding the state’s electrical service is threatening to “weaken public enthusiasm” for the rapid shift to renewable energy.¹⁰

Moreover, despite the state’s substantial investments in wind and solar energy, California was forced to heavily rely on its natural gas plants to meet the record-breaking peak of electrical demand on September 6.¹¹ Illustrating the variable nature of renewable energy, the state was forced to reject thousands of excess megawatts (MW) of curtailed renewable generation earlier the same day, before this peak in demand, because it was not possible to store that energy for later use.¹² Similarly, battery storage generated only a negligible amount of electricity during this peak of demand, showing the shortcomings of that technology.¹³

- **New York:** The independent and non-profit organization that administers and operates New York’s electrical grid, the New York Independent System Operator (NYISO), is increasingly sounding the alarm regarding the near- and medium-term reliability of the state’s electrical grid as the state attempts to rapidly transition to renewable generation. In its “Comprehensive Reliability Plan” issued at the end of 2021, NYISO starkly warns that “the New York grid may cross a ‘tipping point’ in future years such that the transmission system and sources could not fully serve the demand [for electricity].”¹⁴ The “variability

⁷ Shawn Hubler et al., *California Narrowly Averts an Electricity Crisis Amid Scorching Heat*, N.Y. TIMES (Sep. 6, 2022), <https://www.nytimes.com/2022/09/06/us/california-heat-wave-energy-crisis.html>.

⁸ *Id.*

⁹ Emma Newburger, *California avoids widespread rolling blackouts as heat strains power grid*, CNBC (Sep. 7, 2022 10:43 AM EDT), <https://www.cnbc.com/2022/09/07/california-avoids-widespread-rolling-blackouts-as-heat-strains-grid.html>.

¹⁰ Evan Halper & Erica Werner, *California scrambles to avoid blackouts as it pursues a green energy future*, WASH. POST (last updated Sep. 7, 2022 5:19 PM EDT), <https://www.washingtonpost.com/business/2022/09/07/california-heat-wave-climate-electricity/>.

¹¹ Carl Wurtz, *Lessons Learned From California’s Averted Power Crisis*, CAL. GLOBE (Sep. 21, 2022 2:50 AM), <https://californiaglobe.com/articles/lessons-learned-from-californias-averted-power-crisis/>.

¹² Kathleen Ronayne, *Record heat wave puts California in fossil fuel conundrum*, ASSOCIATED PRESS (Sep. 7, 2022), <https://apnews.com/article/technology-california-sacramento-gavin-newsom-power-outages-0c520b790860fac7326cfdcdb4d3a785>.

¹³ Carl Wurtz, *supra* note 11.

¹⁴ *2021-2030 Comprehensive Reliability Plan*, NYISO, at 7 (Dec. 2, 2021).

of meteorological conditions that govern the output from wind and solar resources” is described as the “fundamental challenge” leading to this result.¹⁵ This trend leads NYISO to conclude that New York will require 32 gigawatts (GW) of generating capacity from ACSs by 2040 to achieve its climate targets, which is “approximately 6,000 MW *more* than the total [capacity of] fossil-fueled power plants on the New York grid in 2021.”¹⁶

Notably, NYISO is calling for this massive build-out of ACS generating capacity as a necessary complement to renewable generation even *after* assuming a large build-out of battery storage capacity. That organization explains that “[b]attery storage resources help to fill in voids in renewable resources output, but extended periods rapidly deplete storage capabilities resulting in the need for longer running dispatchable emission-free resources.”¹⁷ Nevertheless, the New York Climate Action Council, which is responsible for developing the Scoping Plan that will guide the state towards achieving its climate targets, continues to suggest that wind and solar generation, combined with battery storage, will largely be sufficient to serve the state’s demand for electricity,¹⁸ despite its occasional acknowledgement of the additional need to construct ACS facilities.¹⁹ This failure to fully grapple with the scope of the challenge posed by the decarbonization of the electrical sector suggests that New York could experience electricity crises similar to the recent experience in California in the near- to medium-term.

While the above information focuses on the recent experiences of California and New York, an article published earlier this year in the Wall Street Journal titled “America’s Power Grid Is Increasingly Unreliable” suggests that grid operators across the country are experiencing similar difficulties as a result of the increasing uptake of renewable generation.²⁰ For example, this reporting suggests that “the Midwest and West...face risks of supply shortages in the coming years as more conventional power plants retire.”²¹ Similarly, the Vice President of Generation for a New Mexico electrical utility is quoted as saying that the state faces “steep[.]” reliability challenges in the near-term “as the company works to replace output from a nuclear plant with a combination

¹⁵ *Id.* at 9.

¹⁶ *Id.* at 10 (emphasis added).

¹⁷ *Id.*

¹⁸ See *Draft Scoping Plan*, N.Y. CLIMATE ACTION COUNCIL, at 155 (Dec. 30, 2021) (“To facilitate and enable retirement of fossil-fuel fired facilities, New York needs to: continue and accelerate its deployment of new renewable generators (e.g., wind, solar, hydro); maintain the fleet of renewable generators it has now; upgrade its transmission and distribution system...and invest in energy storage technologies.”).

¹⁹ *Id.* at 170 (“[D]ispatchable and emissions-free resources will be needed to balance the system [against intermittent, renewable generation] and must be significant in capacity, be able to come on-line quickly, and be flexible enough to meet rapid, steep ramping needs.”).

²⁰ Katherine Blunt, *America’s Power Grid Is Increasingly Unreliable*, WALL STREET J. (Feb. 18, 2022 10:06 AM ET), <https://www.wsj.com/articles/americas-power-grid-is-increasingly-unreliable-11645196772>.

²¹ *Id.*

of renewable energy and battery storage.”²² He describes the resource planning that is required to successfully navigate this transition as “astronomically more complicated” than resource planning involving traditional sources of firm generation.²³

In short, the recent experiences of states that are attempting to aggressively transform their electrical generation sectors to achieve ambitious clean energy targets starkly demonstrate the shortcomings that result from an overreliance on intermittent renewable generation. Although this overreliance on renewables is likely a result of these sources of energy being politically favorable in the current environment,²⁴ acknowledging the shortcomings of those sources should not be interpreted as being ‘anti-renewable’ or opposing decarbonization plans. Instead, acknowledging those shortcomings is *essential* for meeting this Administration’s climate targets, because solutions for this challenge cannot be developed until the problem itself is acknowledged and discussed.

B. Renewables Are Receiving the Vast Majority of Public Support

Despite this finding that relying on renewables alone is not a sound strategy for decarbonizing the electrical generation sector and other major sources of emissions, research conducted by the UA focused on New York’s clean energy initiatives suggests that those sources continue to receive the vast majority of public funds that are distributed for achieving this goal. While this research is focused on New York, President Biden’s recent comment that “[w]e’re going to be shutting these [coal] plants down all across America and having wind and solar”²⁵—which fails to recognize the vital role of ACSs in decarbonizing electrical generation—suggests that a similarly narrow focus on subsidizing only solar and wind generation is likely occurring elsewhere as well.

One of the principal means by which New York provides public funding to new sources of electrical generation is through the solicitations it holds for the long-term procurement of “renewable energy credits” (RECs). Briefly described, the state solicits project proposals from developers of renewable energy projects and enters long-term contracts with the developers of chosen projects for the purchase of the RECs those projects will generate. The practical result of these contracts is that the developers of these projects are guaranteed a future revenue stream—the proceeds of these sales of RECs to the state—on top of the earnings they will gain from selling

²² *Id.*

²³ *Id.*

²⁴ See, e.g., Alec Tyson et al., *Americans Largely Favor U.S. Taking Steps to Become Carbon Neutral by 2050*, PEW RSCH. CTR. (Mar. 1, 2022), <https://www.pewresearch.org/science/2022/03/01/americans-largely-favor-u-s-taking-steps-to-become-carbon-neutral-by-2050/> (finding that 72% of Americans support the federal government encouraging the production of wind and solar power); David Roberts, *Utilities have a problem: the public wants 100% renewable energy, and quick*, VOX (Oct. 11, 2018 9:19 AM EDT), <https://www.vox.com/energy-and-environment/2018/9/14/17853884/utilities-renewable-energy-100-percent-public-opinion> (discussing survey findings showing that 74% of Americans think we should use solar energy “as much as possible” and that 70% of Americans agree that “we should produce 100% of our electricity from renewable energy sources such as solar and wind”).

²⁵ Alan Rappeport & Emily Cochrane, *White House Clarifies Biden’s Coal Remarks After Outrage From Manchin*, N.Y. TIMES (Nov. 5, 2022), <https://www.nytimes.com/2022/11/05/us/politics/biden-coal-comments-manchin.html>.

the electricity they generate.²⁶ Because those RECs are then sold to the state’s electrical utilities for compliance purposes, who subsequently pass on those costs to consumers,²⁷ this entire framework ultimately results in a transfer of wealth from New York ratepayers to the developers and owners of renewable energy projects.

A review of the projects that have been selected for support through New York’s REC solicitations shows that the overwhelming majority of those projects are for solar generation, with a few wind and hydropower projects also being selected. Specifically, in all REC solicitations conducted by the state between and including the 2017 and 2021 solicitations, New York awarded financial assistance to 98 solar projects, 10 wind projects and 1 hydropower project.²⁸ Massive amounts of money are flowing through this program: the state committed itself to paying \$3.5 billion under the contracts it entered under this program between 2017 and 2019.²⁹ During this same time period, the state separately committed itself to providing \$2.2 billion in assistance to offshore wind projects through a separate offshore wind solicitation.³⁰ In other words, between 2017 and 2019 alone, New York committed to providing *approximately \$5.7 billion* in public support through these programs that, as a practical matter, are essentially only supporting the construction of solar and wind facilities.³¹

²⁶ See generally *Clean Energy Standard*, N.Y. STATE ENERGY RSCH. & DEV. AUTH. (NYSERDA) (last visited Nov. 9, 2022), <https://www.nyscrda.ny.gov/All-Programs/Clean-Energy-Standard>.

²⁷ NYSERDA, *White Paper on Clean Energy Standard Procurements to Implement New York’s Climate Leadership and Community Protection Act*, Case 15-E-0302, at 64 (N.Y. Pub. Serv. Comm’n June 18, 2020) (“[Load serving entities] pass the cost of meeting their [REC] obligations onto their retail energy customers.”).

²⁸ NYSERDA, *2017 Solicitation* (last visited Nov. 9, 2022), <https://www.nyscrda.ny.gov/All-Programs/Programs/Clean-Energy-Standard/Renewable-Generators-and-Developers/RES-Tier-One-Eligibility/Solicitations-for-Long-term-Contracts/2017-Solicitation>; NYSERDA, *2018 Solicitation* (last visited Nov. 9, 2022), <https://www.nyscrda.ny.gov/All-Programs/Programs/Clean-Energy-Standard/Renewable-Generators-and-Developers/RES-Tier-One-Eligibility/Solicitations-for-Long-term-Contracts/RFP-Resources>; NYSERDA, *2019 Solicitation* (last visited Nov. 9, 2022), <https://www.nyscrda.ny.gov/All-Programs/Programs/Clean-Energy-Standard/Renewable-Generators-and-Developers/RES-Tier-One-Eligibility/Solicitations-for-Long-term-Contracts/2019-Solicitation-Resources>; NYSERDA, *2020 Solicitation* (last visited Nov. 9, 2022), <https://www.nyscrda.ny.gov/All-Programs/Clean-Energy-Standard/Renewable-Generators-and-Developers/RES-Tier-One-Eligibility/Solicitations-for-Long-term-Contracts/2020-Solicitation-Resources>; NYSERDA, *2021 Solicitation* (last visited Nov. 9, 2022), <https://www.nyscrda.ny.gov/All-Programs/Clean-Energy-Standard/Renewable-Generators-and-Developers/RES-Tier-One-Eligibility/Solicitations-for-Long-term-Contracts/2021-Solicitation-Resources>.

²⁹ NYSERDA has not published on its website its exact financial commitment under the contracts it entered as part of the 2020 and 2021 REC solicitations, unlike previous years.

³⁰ *Launching New York’s Offshore Wind Industry: Phase 1 Report*, NYSERDA, at 32 (Oct. 2019), <https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BAF14CB89-B493-4C2E-B2D0-6089789810F7%7D>.

³¹ The investments discussed in this paragraph suggest that New York intends to rely heavily on solar generation to decarbonize its electrical supply system. In that regard, it is worth noting that modeling prepared for NYISO suggests that solar generation will likely “not [be] able to contribute” to the state’s electrical supply during the peak of demand for electricity during the winter months, which will occur after the sun goes down. This was a key finding leading to this report’s conclusion that New York would require substantial generating capacity from ACSs. Paul J. Hibbard et

Although the limited sources that are receiving support under New York’s REC program are dictated in part by the overly-restrictive definition of “renewable” energy included in the relevant state statute,³² the practical effect remains that New York is devoting a disproportionate share of public funds to new sources of intermittent renewable generation—at the expense of devoting appropriate resources to the construction of new ACS facilities. This is occurring despite energy experts within the state sounding the alarm about the need to construct a substantial amount of ACS generating capacity to complement the intermittent generation of renewable sources,³³ a fact the state’s own Draft Scoping Plan acknowledges, if only reluctantly.³⁴ To the extent this significant underinvestment in ACSs is the result of the political fortunes of renewable energy—as opposed to pragmatic energy planning—it is likely that a similar underinvestment is occurring in other states as well.

II. The United Association Strongly Supports the DOE’s Proposed CHPS Guidance

The discussion in the previous Section serves to illustrate the vital importance of the funding the DOE will be distributing pursuant to the hydrogen energy provisions of the Bipartisan Infrastructure Law and other, recently enacted legislation (such as the Inflation Reduction Act of 2022³⁵). Hydrogen is an ACS that can generate electricity, either in a fuel cell or in a traditional combustion process, without any resulting carbon emissions.³⁶ Moreover, because hydrogen can be produced using curtailed renewable energy and stored in either gaseous or liquid form, it provides a mechanism of ‘storing’ renewable energy for later use without the need to rely on costly battery technology that is unproven at scale. In other words, hydrogen energy is perfectly poised to help fill the emerging gap between electrical supply and demand that is resulting from an increased reliance on variable and intermittent forms of renewable generation. However, as discussed in the previous Section, there currently appears to be a concerning underinvestment in this promising technology.

The substantial funding for hydrogen projects that the Agency is currently overseeing and distributing is critical because it will help to correct this underinvestment in hydrogen energy. In this context, the United Association expresses its strong support for the DOE’s proposal in this proceeding of setting the initial standard for the carbon intensity of clean hydrogen production that will apply to projects funded under the hydrogen energy provisions of the BIL at 4.0kgCO₂e/kgH₂.

al., *Climate Change Impact Phase II: An Assessment of Climate Change Impacts on Power System Reliability in New York State*, ANALYSIS GRP., at 10-12 (Sep. 2020).

³² See N.Y. PUB. SERV. LAW § 66-p(2).

³³ See NYISO, *supra* note 14, at 10.

³⁴ *Draft Scoping Plan*, *supra* note 18, at 170.

³⁵ Pub. L. No. 117-169 (2022).

³⁶ Emre Gencer, *Explainer: Hydrogen*, MASS. INST. OF TECH. CLIMATE PORTAL (last updated June 23, 2021), <https://climate.mit.edu/explainers/hydrogen> (“Unlike most fuels, hydrogen does not produce the greenhouse gas carbon dioxide (CO₂) when burned...[t]his means that burning hydrogen does not contribute to climate change.”).

The UA is encouraged by the DOE’s proposal in this proceeding because it is based on a pragmatic understanding of the current state of the hydrogen industry and the challenges standing in the way of a larger hydrogen economy. As the Agency explains, it is proposing this threshold, in part, because it is likely to “encourage low-carbon hydrogen production from diverse feedstocks...using state-of-the art technologies that are expected to be deployable at scale today.”³⁷ The Agency has previously identified the cost of clean hydrogen production as the single biggest obstacle standing in the way of increased hydrogen adoption.³⁸ Therefore, it is eminently reasonable for the Agency to propose an initial threshold that will support the construction of various types of large-scale hydrogen production facilities, because it is likely that further breakthroughs in reducing the cost of clean hydrogen production will result from the experience gained in actually constructing and operating those facilities.

The reasonableness of the DOE’s proposed threshold is further bolstered by the thresholds cited in the draft guidance that European regulators have chosen for a similar purpose. Not only is the DOE’s proposal within the same range as the thresholds selected by other regulators (for example, the “European Renewable Energy Directive sets a lifecycle target of approximately 3.4kgCO₂e/kgH₂”³⁹), but by selecting a threshold that is not more restrictive than the cited international thresholds, the DOE is ensuring that breakthroughs in hydrogen energy technology that are achieved in other countries may be utilized by firms in the U.S. that are receiving federal hydrogen funds. This again illustrates the pragmatic orientation of the proposed threshold, which should be set at a level that will aid—rather than hinder—the development of a mature hydrogen energy industry. The UA supports the DOE’s proposal in this proceeding because it appears to be orientated towards achieving this objective.

Moving forward, the DOE should continue to base any forthcoming guidance and regulations it may issue with respect to the hydrogen energy provisions of recently enacted legislation on an analysis of the practical challenges facing the emerging hydrogen industry and the obstacles standing in the way of increased adoption of hydrogen energy. The Agency’s proposed guidance in this proceeding suggests that the DOE is currently on the right track in this regard.

III. Conclusion

The United Association thanks the DOE for this opportunity to offer its views on the proposed guidance for the Clean Hydrogen Production Standard. For the reasons explained above, the substantial funding the Agency will be providing through its hydrogen energy programs, including the “hydrogen hubs” program, is poised to correct a concerning underinvestment in this promising clean energy solution, which is uniquely suited to plug the emerging, and potentially dangerous, gaps in renewable generation. To maximize the beneficial impact of this funding, the DOE should base the guidance and regulations it issues under these programs on the practical

³⁷ U.S. DEP’T OF ENERGY, *U.S. Department of Energy Clean Hydrogen Production Standard (CHPS) Draft Guidance*, at 3 (Sep. 2022) (“Proposed Guidance”).

³⁸ HYDROGEN & FUEL CELL TECHS. OFFICE, U.S. DEP’T OF ENERGY, *Hydrogen Shot* (last visited Nov. 10, 2022), <https://www.energy.gov/eere/fuelcells/hydrogen-shot>.

³⁹ Proposed Guidance, *supra* note 37, at 6 n.18.

challenges currently impeding increased adoption of hydrogen energy. Because the proposed guidance for the Clean Hydrogen Production Standard achieves this objective, the UA strongly supports the draft guidance that is the subject of this proceeding.

Respectfully submitted,

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