EARTHJUSTICE
BECAUSE THE EARTH NEEDS A GOOD LAWYER

December 10, 2021

Office of Governor Michelle Lujan Grisham
490 Old Santa Fe Trail, Room 400
Santa Fe, NM 87501
Via email to: hydrogen.feedback@state.nm.us

RE: Hydrogen Hub Act – November 12, 2021 Stakeholder Discussion Draft

To Whom It May Concern:

Earthjustice appreciates this opportunity to comment on Governor Lujan Grisham's draft Hydrogen Hub Act. Earthjustice is concerned that the draft bill represents a lost opportunity to reduce New Mexico's dependence on fossil fuels. At a time when dramatic reductions in greenhouse gases are essential for avoiding the most devastating impacts of climate change, the draft bill would subsidize highly polluting hydrogen production pathways. In the attached comments, we recommend approaches that will help support hydrogen production and use in New Mexico without degrading air quality or harming the climate. Rather than rushing to revise and pass this draft bill, Earthjustice encourages New Mexico's leadership to carefully develop hydrogen policies based on robust stakeholder engagement—a process that could not feasibly be completed by the end of the 2022 Legislative session.

Earthjustice's report, *Reclaiming Hydrogen for a Renewable Future: Distinguishing Oil & Gas Industry Spin from Zero-Emission Solutions*, provides detailed information on the consequences of producing hydrogen from fossil fuels; the existing technology for harnessing wind and solar energy to produce hydrogen (known as "green hydrogen"); and the potential role for green hydrogen in a decarbonized economy.[1] The comments below include additional footnotes when discussing recent information not included in our report. We would welcome further conversation on any of the issues addressed in our report or comments.

Sincerely,

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[1] The report was published in August 2021 and is available at https://earthjustice.org/features/green-hydrogen-renewable-zero-emission.

Earthjustice's Comments on the Hydrogen Hub Act Discussion Draft

Section 3. Hydrogen Hub Act – Standards.

- ***Issue #1 – the draft promotes hydrogen that is even worse for the climate than natural gas.*** The emissions-intensive hydrogen that the draft labels as "clean" would not help New Mexico meet its climate goals. The proposed standard relies on a definition of "carbon intensity" that only accounts for emissions "at the site of production." It ignores the significant emissions from producing and delivering natural gas. All else equal, this upstream methane leakage will increase if a facility that produces hydrogen from natural gas installs carbon capture because the facility will demand more gas to power the carbon-capture equipment. Assuming methane leakage rates less than those documented in the San Juan Basin, a recent study from Cornell and Stanford researchers estimated that facilities capable of meeting the draft bill's 2026 standards would be even more emissions-intensive than natural gas.[1] Because methane is a super pollutant that is 86 times more potent as carbon dioxide, hydrogen produced in this manner would contribute more to climate change over the next 20 years than continuing to burn natural gas *even if* New Mexico slashed methane leakage from its gas industry by more than half.

- ***Issue #2 – public health and safety.***

    - Producing hydrogen from fossil fuels emits health-harming pollution, including nitrogen oxides, fine particulate matter, carbon monoxide, and volatile organic compounds. Attaching carbon capture equipment does not address the public health burden on neighboring communities. Indeed, carbon capture would likely increase these health-harming emissions because facilities would burn additional fossil fuels to power the energy-intensive carbon capture process. In contrast, producing green hydrogen—which is the process of using 100% renewable energy to split hydrogen from water molecules—does not emit air pollution.

    - The draft does not have a mechanism to ensure that the public safety risks associated with carbon dioxide pipelines and storage infrastructure are properly studied and controlled. For instance, carbon dioxide from a ruptured pipeline can cause death from asphyxiation and lung damage.[2]

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[1] Diana Burns & Emily Grubert, *Attribution of production-stage methane emissions to assess spatial variability in the climate intensity of US natural gas consumption*, at 6, 16 Environmental Research Letters 4 (2021) (the methane leakage rate from gas production in the San Juan Basin is about 4.5%), https://iopscience.iop.org/article/10.1088/1748-9326/abef33; Robert W. Howarth & Mark Z. Jacobson, *How green is blue hydrogen?*, Energy Science & Engineering (2021) (assuming a baseline of 3.5% methane leakage and studying scenarios with lower leakage rates), https://onlinelibrary.wiley.com/doi/epdf/10.1002/ese3.956. The Howarth and Jacobson study did not analyze the climate impacts of facilities that are capable of meeting the bill's 2028 standard for on-site emissions because no such facilities exist. Regardless, the 2028 standards have the same basic flaw as the 2026 standards: they ignore upstream emissions and would therefore support hydrogen with high lifecycle emissions.

[2] Dan Zegart, *Gassing Satartia: Carbon Dioxide Pipeline Linked to Mass Poisoning* (Aug. 26, 2021), https://www.huffpost.com/entry/gassing-satartia-mississippi-co2-pipeline_n_60ddea9fe4b0ddef8b0ddc8f.

- ***Issue #3 – long-term competitiveness of New Mexico industry.*** The fossil fuel industry has promoted hydrogen from natural gas as a supposedly low-cost alternative to green hydrogen. However, recent reporting shows that green hydrogen is already lower cost than hydrogen produced from fossil fuels with carbon capture in regions with high-quality solar resources.[3] If the federal Build Back Better Act is enacted with the same hydrogen tax credits that passed the House, green hydrogen could become the lowest-cost hydrogen option in the United States next year.[4] A recent Bloomberg analysis warned that investments in "blue" hydrogen could be stranded assets by 2030 because green hydrogen will soon outcompete hydrogen from fossil fuels.[5]

- ***Better approach to vet with stakeholders.*** Eligible hydrogen should be produced with zero climate or health-harming pollution. 100% renewable energy-powered electrolysis can produce zero-emission hydrogen today, taking advantage of New Mexico's abundant solar and wind resources.

Section 4. Hydrogen Hub Act – Natural Gas Utilities.

- ***Issue #1 – public health.*** Gas-burning appliances are an under-appreciated public health threat. Children who grow up in homes with gas stoves are 42% more likely to develop asthma symptoms. Injecting hydrogen into the gas distribution network threatens to exacerbate this problem because hydrogen has a higher flame temperature than methane, which increases emissions of nitrogen oxides. Transitioning from gas appliances to clean electric appliances will not only improve indoor air quality, but numerous studies show that a widespread transition to all-electric appliances is the lowest-cost way to reduce carbon emissions from homes and small businesses.

- ***Issue #2 – consumer protection.*** There is no publicly available information about how much it would cost for New Mexico's gas utilities to upgrade their infrastructure to safely deliver a mix of hydrogen and natural gas. The existing gas system was designed to deliver methane. Hydrogen has different chemical properties than methane and can attack and embrittle materials that are commonly used in pipeline infrastructure. It would

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[3] Ruchira Singh, *Green hydrogen at sub-$2/kg already possible in best solar locations: International Solar Alliance*, S&P Global (Dec. 2, 2021), https://www.spglobal.com/platts/en/market-insights/latest-news/energy-transition/120221-green-hydrogen-at-sub-2kg-already-possible-in-best-solar-locations-international-solar-alliance; Royce Kurmelovs, *Green hydrogen beats blue on emissions and financial cost, Australian study finds*, The Guardian (Nov. 17, 2021), https://www.theguardian.com/australia-news/2021/nov/18/green-hydrogen-beats-blue-on-emissions-and-financial-cost-australian-study-finds.

[4] Leigh Collins, *New clean hydrogen production tax credit up to $3/kg approved by US House, paving way for cheap green H2*, Recharge (Nov. 22, 2021), https://www.rechargenews.com/energy-transition/new-clean-hydrogen-production-tax-credit-of-up-to-3-kg-approved-by-us-house-paving-way-for-cheap-green-h2/2-1-1102245.

[5] David Baker & Josh Saul, *Manchin's Favorite Clean-Energy Plan Could be Obsolete before it Starts*, Bloomberg (Nov. 10, 2021), https://www.bloomberg.com/news/articles/2021-11-10/manchin-s-favorite-clean-energy-plan-could-soon-be-obsolete; *see also* Justin Mikulka, *Green Hydrogen's Rapidly Falling Costs Undermine the Gas Industry's Argument for Blue Hydrogen*, DeSmog Blog (Sept. 24, 2021), https://www.desmog.com/2021/09/24/green-hydrogen-cheaper-cost-undermine-gas-industry-argument-for-blue-hydrogen/ (discussing a September 2021 study that found hydrogen produced from solar power would be less expensive than hydrogen produced from gas with carbon capture during this decade and other industry predictions on rapid cost declines for green hydrogen).

be unjust for households and small businesses to pay for hydrogen-related infrastructure upgrades because these customers' gas appliances were designed for methane and cannot handle significant amounts of hydrogen without the risk of explosion. At most, existing residential and commercial gas appliances could reduce about 7% of their carbon emissions by burning green hydrogen.

- ***Better approach to vet with stakeholders.*** The text of this section should be deleted and replaced with language that (1) prohibits the Public Regulation Commission from allowing gas utilities to charge residential and small business customers for any costs associated with hydrogen fuel or infrastructure unless the utility first demonstrates that blending hydrogen into the gas distribution system will not degrade indoor air quality and that delivering hydrogen to these customers is the least-cost strategy for meeting New Mexico's climate goals; and (2) protects residential and small business customers from paying for hydrogen fuel and infrastructure that is not necessary to serve them.

Definition of "sequester."

- ***Issue.*** Allows industry to treat hydrogen as clean when it uses captured carbon from hydrogen production for fossil fuel extraction activities that destabilize the climate.

- ***Better approach to vet with stakeholders.*** "[S]equester" means to store, or chemically convert, carbon dioxide in a manner that prevents its release into the atmosphere and may not include the use of geologic formations and enhanced oil, coaled methane or natural gas recovery techniques.

Definition of "hydrogen electric generating facility."

- ***Issue #1 – subsidizing facilities that are inconsistent with New Mexico's climate goals.*** The draft definition includes gas-fired facilities that burn a mix of methane and hydrogen. These facilities are not low-carbon. For instance, transitioning a gas-fired power plant to burn 30% green hydrogen will only reduce its smokestack carbon emissions by 12%. It would not be wise to build such facilities because New Mexico's renewable portfolio standard prevents them from serving New Mexicans past 2045.

- ***Issue #2 – excluding clean flexible resources.*** The requirement that facilities have a capacity of at least one megawatt will exclude smaller fuel cell facilities. Fuel cells produce electricity without emitting health-harming pollution, whereas burning hydrogen in combustion turbines threatens to increase nitrogen oxide pollution. Because they can be sited near neighborhoods without degrading air quality, fuel cells are a flexible resource that can make the electric grid more resilient.

- ***Better approach to vet with stakeholders.*** "[H]ydrogen electric generating facility" means a facility ~~with a name-plate capacity of one megawatt or more~~ that uses only eligible hydrogen to generate electricity ~~including a facility that uses energy to generate electricity from a preexisting electric generating facility using other fuels in part.~~