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December 10, 2021

Secretary Sarah Cottrell Propst
New Mexico Energy, Minerals, and Natural Resources Department

Secretary James Kenney
New Mexico Environment Department

hydrogen.feedback@state.nm.us

Re: New Mexico Hydrogen Hub Act Discussion Draft Comments

Dear Secretary Propst and Secretary Kenney:

We appreciate the opportunity to provide feedback regarding the Hydrogen Hub Act ("HHA") discussion draft you circulated to us on November 15, 2021. Upon careful review, we offer the following perspective:

- 1. The HHA discussion draft is conceptually and fatally flawed. Most egregiously, we are unaware of any analysis or data demonstrating that fossil gas hydrogen production and use promoted by the HHA is aligned with existing state-level climate commitments set forth in Executive Order 2019-003. In fact, we conclude the HHA discussion draft and fossil gas hydrogen generally would compromise the state's ability to meet those commitments given:
  - **a.** Fossil gas hydrogen production would perpetuate and intensify demand for oil and gas produced in sensitive New Mexico landscapes, including Greater Chaco.
  - **b.** Concerns about sustained and chronic upstream and production site methane emissions given gaps in existing regulatory frameworks and inadequate agency capacity to ensure rigorous implementation and enforcement of methane rules;
  - **c.** Substantial doubt about the viability and efficacy of carbon capture and sequestration as evidenced by the draft bill's anemic carbon guardrails; and

- **d.** Risk that hydrogen will crowd-out state stewardship of a renewables build-out, in part by acting as a drain on limited political, agency, and stakeholder capacity.
- 2. We are disconcerted by the rushed process employed by the state to craft the HHA. Meaningful stakeholder conversations have, thus far, not taken place, in particular with frontline communities where a hydrogen hub is most likely to be located.

The limited engagement by the state that has taken place only occurred <u>after</u> Governor Lujan Grisham publicly signaled it would advance a hydrogen hub bill as a "signature" legislative priority in the coming 30-day session. This was a surprise. Public involvement should be carried out <u>before</u> the state commits to a particular course and assurances provided that public involvement is a meaningful exercise rather than merely a step in the direction of a predetermined outcome.

Our concern is accentuated by the fact that the HHA discussion draft was released on November 15, 2021, weeks after many of our groups, on October 5, 2021, submitted a set of seven principles to shape the state's hydrogen policy conversation. The HHA discussion draft does not, however, internalize those principles in any significant or meaningful fashion and, in fact, disregards those principles.

Below, in point 18, we recommend a stakeholder approach to address these concerns.

3. The HHA discussion draft is problematically centered on providing fossil gas developers with state-level taxpayer subsidies to support a build-out of fossil gas hydrogen infrastructure. This bill would thus use taxpayer resources to further entrench New Mexico in its problematic dependence on volatile boom-and-bust oil and gas. We must end – not extend and expand – fossil fuel subsidies and focus our limited resources on renewable energy and a just and equitable transition to a stable and diversified revenue and economic base that supports workers and front-line communities.

Further, and as discussed further below in point 4, we expect that fossil gas hydrogen infrastructure will be quickly out-competed by other energy sectors (a very real possibility if not likely by 2030). In this situation, taxpayers would likely have to shoulder the burden of cleaning up fossil gas hydrogen infrastructure. This bill thus risks a substantial waste of taxpayer resources to benefit hydrogen developers and their investors, including, for example, Blackstone, an investor valued at just under \$650 billion that has a substantial stake in Tallgrass Energy, the proponent of the Escalante hydrogen project.¹ This underscores our concern that the HHA discussion draft is not targeted towards the public interest, but the interest of developers and investors under the problematic assumption that if developers and investors benefit, that benefit will trickle down to the state and public.

**4.** The bill tacitly justifies new taxpayer subsidies on hopes for long-term demand for fossil gas hydrogen. However, virtually all analysts expect fossil gas hydrogen to prove non-competitive

<sup>&</sup>lt;sup>1</sup> See Reuters, Tallgrass Shareholders Approve Blackstone-led Buyout of Pipeline Operator (April 16, 2020). Available at: <a href="https://www.reuters.com/article/us-tallgrass-energy-m-a-blackstone/tallgrass-shareholders-approve-blackstone-led-buyout-of-pipeline-operator-idUSKCN21Y2AS">https://www.reuters.com/article/us-tallgrass-energy-m-a-blackstone/tallgrass-shareholders-approve-blackstone-led-buyout-of-pipeline-operator-idUSKCN21Y2AS</a>.

with other, far more effective energy sources and technologies as soon as 2030. According to a recent market analysis by Bloomberg New Energy Finance (BNEF):

'Blue' hydrogen production facilities — those that use fossil fuels with carbon capture and storage (CCS) — may be cost-competitive for only a limited period of time.

While blue hydrogen is cheaper today than 'green' hydrogen made from solar or wind electricity, the situation should reverse by 2030.

BloombergNEF expects renewable hydrogen to be cheaper by 2030 in all modeled countries, even those with cheap gas (such as the U.S.) and those with pricey renewable power (such as Japan and South Korea).<sup>2</sup>

Consequently, BNEF's lead hydrogen analyst warned that:

Companies currently banking on producing <u>hydrogen from fossil fuels with CCS</u> <u>will have at most ten years</u> before they feel the pinch ... Eventually those assets will be undercut, like what is happening with coal in the power sector today.<sup>3</sup>

5. While fossil-gas proponents promote technological measures to address climate concerns, the HHA fails to set performance standards to ensure the deployment of these innovations. Nor does the HHA discussion draft set any requirements beyond current state policies to reduce greenhouse gas emissions. Instead, the HHA discussion draft merely conditions access to state-level subsidies on applicants satisfying a "carbon intensity" threshold. Yet even this approach is problematic. Section 2 defines "carbon intensity" on the basis of emissions "produced at the site" and thus exclusive of greenhouse gas emissions released by upstream oil and natural gas production operations. While section 2 also references "hydrogen production cycle emissions," a term defined as "the aggregate quantity of direct and indirect greenhouse gas emissions across the production cycle of the hydrogen," that term perplexingly has no operative effect or application as it is neither referenced or used elsewhere in the HHA.

Regardless, section 3 of the HHA discussion draft would provide subsidies to "qualifying hydrogen" that meets a "carbon intensity" threshold of 9kg CO2e/kg of Hydrogen — a very carbon intensive level that is, in effect, just "grey" hydrogen — i.e., fossil gas hydrogen without any carbon capture or sequestration. While section 3 tightens the threshold over time, it would still prove far weaker than federal thresholds under consideration, in particular relative to near term hydrogen production. This would serve to incentivize, at least in the near-term, the dirtiest fossil gas hydrogen while making it harder for the cleanest hydrogen to compete, contrary to the talking points provided in support of the HHA discussion draft.

<sup>&</sup>lt;sup>2</sup> "Green" hydrogen to outcompete "blue" everywhere by 2030", Bloomberg New Energy Finance, May 5, 2021. Emphasis added. Available at <a href="https://about.bnef.com/blog/green-hydrogen-to-outcompete-blue-everywhere-by-2030/">https://about.bnef.com/blog/green-hydrogen-to-outcompete-blue-everywhere-by-2030/</a>.

<sup>&</sup>lt;sup>3</sup> David Iaconangelo, *Hydrogen with CCS faces same fate as coal* — *report*, Energywire, April 8, 2021. Emphasis added. Available at <a href="https://subscriber.politicopro.com/article/eenews/1063729469">https://subscriber.politicopro.com/article/eenews/1063729469</a>.

- 6. The HHA discussion draft fails to include claw-back provisions to protect taxpayers, such as provided at the federal level for carbon sequestration in 25 U.S.C. § 45Q, if standards are not met. As written, a fossil gas hydrogen developer could claim tax credits once they begin incurring expenses based on carbon intensity engineering estimates made long before a project becomes operational. Absent claw-back provisions, developers could thus claim tax credits up front and then only be denied credits in the future if and when the project fails to meet standards. This is unfair to taxpayers and unacceptable.
- 7. It is a serious mistake for the state to justify fossil-gas hydrogen on the basis of recently promulgated Oil Conservation Commission methane waste rules coupled with expected Environmental Improvement Board ozone precursor rules to address upstream greenhouse gas emission concerns.

The ozone rules have not even been completed, and neither set of rules has been fully implemented and enforced to determine their real-world efficacy. Assuming full and proper implementation is also an assumption with a dubious basis in reality. Even if implemented perfectly, these rules will leave significant volumes of carbon dioxide and methane emissions uncontrolled. Moreover, administrative rules can be revoked by a future administration as soon as 2023, depending on the outcome of the 2022 elections, or undermined through budget cuts that deprive agencies of essential implementation and enforcement resources.

We also find the implicit premise – that methane rules justify further investment in fossil fuel industries – disconcerting and fundamentally incompatible with the urgency demanded by the climate crisis. A good step forward followed by an ill-conceived step backward is an exceedingly poor approach to climate action and leadership.

- 8. The bill is poorly targeted towards the hard-to-decarbonize end-use sectors where hydrogen may prove an important tool in our climate and energy transition. In general, this means sectors where hydrogen is not in competition with electrification, such as fertilizer production. We are, for example, very concerned with the HHA discussion draft's provisions, in section 4, regarding integration of hydrogen with the natural gas utility sector. More specifically:
  - **a.** We do not see any role for residential use of hydrogen given safer and more effective alternatives, such as electrification. Dedicated hydrogen pipelines risks the lock-in of fossil gas hydrogen infrastructure as well as stranded assets. Moreover, residential use of hydrogen implicates significant public health risks given that the combustion of hydrogen emits health-harming nitrogen oxides.<sup>6</sup>
  - **b.** We fail to see the logic of blending hydrogen with natural gas. We should be laser-focused on replacing the demand for natural gas, e.g., by residences via electrification, not boosting or locking in demand. In general, blending hydrogen into natural gas

<sup>&</sup>lt;sup>4</sup> See Sadasivam, N., 'No Teeth and No Funding': How Regulators Failed to Police the Oil Industry, Grist (April 5, 2021). Available at: <a href="https://grist.org/energy/fracking-oil-gas-well-inspection-in-permian-basin/">https://grist.org/energy/fracking-oil-gas-well-inspection-in-permian-basin/</a>.

<sup>&</sup>lt;sup>5</sup> See, e.g., Liebreich, M., *The Clean Hydrogen Ladder* (Aug. 15, 2021). Available at: <a href="https://www.linkedin.com/pulse/clean-hydrogen-ladder-v40-michael-liebreich/">https://www.linkedin.com/pulse/clean-hydrogen-ladder-v40-michael-liebreich/</a>.

<sup>&</sup>lt;sup>6</sup> Simkins, G., *Scientist Warns of NOx Urban Pollution from Hydrogen Boilers* (July 30, 2021). Available at: https://www.endsreport.com/article/1723633/scientist-warns-nox-urban-pollution-hydrogen-boilers.

streams reduces the energy intensity of those streams and creates risks of embrittlement of pipelines, all for marginal emissions reductions. In addition, as noted above relative to residential combustion of hydrogen, industrial combustion of hydrogen leads to substantial nitrogen oxide emissions – upwards of six times greater than the combustion of natural gas alone. This implicates substantial equity and justice concerns for people and communities proximate to facilities that combust hydrogen the state should address in a up front, forthright, and transparent fashion.

- c. Hydrogen should not be used for power generation given more effective alternatives, whether viewed from an economic or emissions reduction perspective. Given the exclusion of upstream carbon and methane emissions from the carbon intensity threshold, coupled with the threshold's intrinsic weakness as well as hydrogen's limitations, power generation using hydrogen could prove more emissions intensive than existing natural gas fired power plants. Hydrogen combustion also risks increasing nitrogen oxide emissions relative to gas-fired power plants and attendant air quality and public health impacts. Illustrating these problems, our read of the discussion draft indicates that a coal plant blending in 1% hydrogen could be eligible for the full tax break. This is not acceptable.
- **9.** The HHA discussion draft, by virtue of promoting fossil gas hydrogen, implies perpetuation and intensification of oil and gas production in regions, such as Greater Chaco, that have already shouldered a decades-long legacy of oil and gas resource exploitation at great harm to land, air, cultural resources, and people.

With the prospect of the federal government withdrawing minerals within a 10-mile buffer of Chaco Culture National Historical Park, <sup>10</sup> additional demand for natural gas would only concentrate oil and gas production outside the buffer in already overburdened communities with attendant and cumulative land, water, air, public health, and environmental justice impacts.

We remind you that roughly 90% of Greater Chaco's federal oil and gas resources have already been leased and the region is already burdened with 40,000 existing federal, state, tribal, and private oil and gas wells and an attendant spider web of pipelines, compressor stations, and

<sup>&</sup>lt;sup>7</sup> Clean Energy Group, *Hydrogen Hype in the Air* (Dec. 14, 2020). Available at: https://www.cleanegroup.org/hydrogen-hype-in-the-air/.

<sup>&</sup>lt;sup>8</sup> Inside EPA, Clean Energy Group Warns of High NOx From Hydrogen Gas Combustion (Dec. 18. 2020), Available at: <a href="https://insideepa.com/share/227828">https://insideepa.com/share/227828</a>.

<sup>&</sup>lt;sup>9</sup> Cellek, M.S. et al., *Investigations on performance and emission characteristics of an industrial low swirl burner while burning natural gas, methane, hydrogen-enriched natural gas and hydrogen as fuels*, International Journal of Hydrogen Energy, Vol. 43, Issue 2 (January 2018). Available at: <a href="https://www.sciencedirect.com/science/article/abs/pii/S0360319917319791">https://www.sciencedirect.com/science/article/abs/pii/S0360319917319791</a>.

<sup>&</sup>lt;sup>10</sup> U.S. Dept. of the Interior, *Secretary Haaland Announces Steps to Establish Protections for Culturally Significant Chaco Canyon Landscape* (Nov. 15, 2021). Available at: <a href="https://www.doi.gov/pressreleases/secretary-haaland-announces-steps-establish-protections-culturally-significant-chaco">https://www.doi.gov/pressreleases/secretary-haaland-announces-steps-establish-protections-culturally-significant-chaco</a>.

other infrastructure.<sup>11</sup> The magnitude of oil and gas development has very real implications for people and communities. For example, in San Juan County, which falls within Greater Chaco, 6,500 children under the age of 5 live within half a mile — about 2,600 feet — of an oil and gas well.<sup>12</sup>

The U.S. Bureau of Land Management ("BLM"), in December 2018, November 2019, and February 2020, sold nearly 45,000 acres of new federal oil and gas leases in Greater Chaco. These leases, with Diné Citizens Against Ruining Our Environment as lead plaintiff, have been challenged in federal court.<sup>13</sup> Even with this litigation pending, BLM approved at least 120 drilling permits on eight of the challenged leases in 2021.<sup>14</sup> BLM's drilling approvals authorize development of three times more wells than the agency projected in its lease-stage environmental reviews, risking more greenhouse gas emissions and land impacts and concentrating health impacts on area residents.<sup>15</sup>

These approvals threaten the Sisnaateel Mesa Complex, a 20-mile area sacred to Diné peoples. <sup>16</sup> The story of these lands is about the Diné story of the creation of the horse, part of the Diné National Epic of "two-sons-that-went-to-their-father," and central to Diné cosmology and identity. Fossil gas hydrogen would further risk these sacred lands.

10. The state should work with the federal government to ramp down production and to safeguard landscapes such as Greater Chaco and meet climate objectives, not sustain or boost oil and gas production. Every new oil and gas lease or drilling permit risks further locking in fossil fuel production levels incompatible with measures to limit warming to 1.5 Celsius, including the state's commitment, set forth in executive order 2019-003, to reduce greenhouse gas emissions 45% below 2005 levels by 2030.

As the International Energy Agency found in its 2021 report, *Net Zero: A Roadmap for the Global Energy System*, perpetuating or intensifying demand for fossil fuel production, as the HHA discussion draft would do, is incompatible with U.S. and global commitments to reach net zero emissions by 2050.<sup>17</sup> Previous reports echo this conclusion.<sup>18</sup> And more recently, the U.N. Environment Programme *et al.*'s Production Gap report found that:

http://priceofoil.org/content/uploads/2016/09/OCI\_the\_skys\_limit\_2016\_FINAL\_2.pdf.

<sup>&</sup>lt;sup>11</sup> See Diné Citizens Against Ruining Our Environment, et. al. v. U.S. Bureau of Land Management, et. al., Case No. 1:20-cv-00673-KG-JHR, Plaintiffs' Opening Merits Brief, Document #46 (filed November 21, 2021).

<sup>&</sup>lt;sup>12</sup> Environmental Defense Fund, *New Mexico Oil and Gas Data Map*, available at: <a href="https://www.edf.org/nm-oilgas/map/">https://www.edf.org/nm-oilgas/map/</a>.

<sup>&</sup>lt;sup>13</sup> See Diné Citizens Against Ruining Our Environment, et. al. v. U.S. Bureau of Land Management, et. al., Case No. 1:20-cv-00673-KG-JHR, Plaintiffs' Opening Merits Brief, Document #46 (filed November 21, 2021).

<sup>&</sup>lt;sup>14</sup> *Id.* at 1.

<sup>&</sup>lt;sup>15</sup> *Id*.

<sup>&</sup>lt;sup>16</sup> *Id.* at 1-2.

<sup>&</sup>lt;sup>17</sup> International Energy Agency, *Net Zero by 2050: A roadmap for the global energy system* at 21 (2021). Available at: <a href="https://iea.blob.core.windows.net/assets/4719e321-6d3d-41a2-bd6b-461ad2f850a8/NetZeroby2050-ARoadmapfortheGlobalEnergySector.pdf">https://iea.blob.core.windows.net/assets/4719e321-6d3d-41a2-bd6b-461ad2f850a8/NetZeroby2050-ARoadmapfortheGlobalEnergySector.pdf</a>.

<sup>&</sup>lt;sup>18</sup> Oil Change International. 2016. Sky's the Limit: Why the Paris climate goals require a managed decline of fossil fuel production. Available at:

[T]he world's governments still plan to produce more than double the amount of fossil fuels in 2030 than would be consistent with limiting global warming to 1.5°C, and 45% more than consistent with limiting warming to 2°C. Collectively, although many governments have pledged to lower their emissions and even set net-zero targets, they have not yet made plans to wind down production of the fossil fuels that, once burned, generate most of those emissions.<sup>19</sup>

- 11. We find it odd and contradictory that section 3 of the HHA, on one hand, confers subsidies to fossil gas hydrogen, where the feedstock natural gas is produced using substantial freshwater resources in the fracking process but, on the other hand, does not confer subsidies to the production of hydrogen from freshwater given (legitimate) concerns over freshwater resources in our arid and semi-arid state. This perversely incentivizes carbon-intensive fossil fuel hydrogen over zero carbon green hydrogen (assuming use of renewable energy to power electrolysis). On this point, we think it worthwhile for the state to consider how it may use brackish water for green hydrogen production as a mechanism to reduce greenhouse gasses in hard-to-decarbonize sectors and preserve freshwater resources for other uses, including land and water protection.
- **12.** Section 6 language regarding safety standards and worker training "to review and amend or adopt" is too vague and needs the assessment called for above to identify specific issues and requirements that agencies should be tasked to address.
- 13. Section 6's placeholder language on workforce training and associated appropriations is inadequate and problematic. Section 6 lacks specific guidelines for eligibility and expenditure of such funds. Further, given the conceptual flaws at the heart of the HHA discussion draft and the serious prospect, if not likelihood, that fossil gas hydrogen is merely a short-term life line for the oil and gas industry, we are concerned that the state is making promises to workers that fossil gas hydrogen is a viable, long-term sector to build a career in when that sector may fail, undermining economic stability for workers and confidence in our energy transition. To the degree funding is afforded to academic institutions, it should be directed towards durable, long-term renewables-based industries, not volatile, short-term fossil-fuels based industries, in particular given worker preferences.<sup>20</sup>
- **14.** We support the requirement in Section 9.2(c) and (d) that the EIB promulgate rules establishing application fees and independent third-party verification.
- **15.** The Section 5 requirement for EMNRD to "evaluate existing laws and regulations to determine if additional legislation or regulation is necessary related to the production or distribution of hydrogen" is too vague. Again, the assessment called for above should be completed before

<sup>&</sup>lt;sup>19</sup> U.N. Environment Programme, et al., *The Production Gap: Governments' Planned Fossil Fuel Production Remains Dangerously Out of Sync With Paris Agreement Limits*, Executive Summary at 3 (2021). Available at: https://productiongap.org/.

<sup>&</sup>lt;sup>20</sup> See, e.g., Bousso, R., Oil Firms Face Workforce Crunch as Renewables Beckon, Reuters (Nov. 30, 2021). Available at: <a href="https://www.reuters.com/markets/commodities/oil-firms-face-workforce-crunch-renewables-beckon-survey-2021-11-30/">https://www.reuters.com/markets/commodities/oil-firms-face-workforce-crunch-renewables-beckon-survey-2021-11-30/</a>.

legislation is drafted and introduced so that it includes specific provisions to address critical issues.

The proposed language only identifies two issues for further study: carbon sequestration and storage and enhanced oil recovery. The discussion draft fails to identify upstream methane emissions, local air pollution, community impacts, and viable end-use hydrogen markets as key issues for study. Any veteran of the legislative process knows, to propose and pass a bill today that calls for additional legislation tomorrow carries tremendous risk that such future action will remain beyond reach while the favored industry reaps the benefits of the enacted tax credits. To the degree the state moves forward with hydrogen, it must identify solutions to climate, environmental, economic, public health, and community concerns from the start and hard-wire those solutions into legislation.

16. Boiled to its essence, the HHA discussion draft is conceptually and fatally flawed. It is premised on unsubstantiated assumptions and talking points, in particular that it would "[a]ggressively reduce[] carbon emissions in less than a decade while protecting natural resources." HHA discussion draft talking points at 1. The state has failed to provide any data or analysis to substantiate its assumptions and talking points. It is unclear to us why a hydrogen hub, beyond chasing federal infrastructure money, is needed, why New Mexico taxpayers should prop up a hydrogen hub with subsidies, what the scale and true impacts of a hydrogen hub would or would not be, the resources state agencies would need to oversee this industry, whether those resources would entail opportunity costs, or the burden this would impose on local governments and communities.

The state should therefore step back and undertake and release, for public review and comment, a rigorous technical, environmental, and economic assessment of a prospective New Mexico hydrogen hub, inclusive of climate impacts and regional end-use markets, prior to and in order to create a common set of assumptions and facts for the legislature and stakeholders to consider. The assessment should directly address the impact that a fossil-based hydrogen hub would have on statewide greenhouse gas emissions and the state's commitment to reduce emissions 45% below 2005 levels by 2030 and whether, in that context, a fossil gas hydrogen hub is even appropriate. The assessment should also address the state's rationale for the bill's conceptual subsidies-based framework versus a standards-based approach and how that does or does not align with federal hydrogen priorities and opportunities.

- **17.** On the basis of the above concerns, the HHA discussion draft should not be advanced in the coming 30-day legislative session.
- 18. The state should fundamentally take a step back, assess whether fossil gas hydrogen is appropriate for New Mexico, and defer new hydrogen legislation until it completes a broad, meaningful stakeholder process to evaluate whether fossil gas hydrogen is appropriate and at least ensures that there will be a full and fair regulatory process to set standards in advance of any decisions to permit or support hydrogen development projects. That process should be informed by the assessment recommended above in paragraph 15.
- 19. In terms of a stakeholder process, we recommend the state emulate the Methane Advisory Panel ("MAP") process, which was used to develop methane and ozone precursor rules. The prospect of a hydrogen hub strikes us as an equally important topic as the state's methane rules

for collaborative conversation amongst stakeholders. With the MAP, the state provided all stakeholders with the opportunity to provide input on the scope and design of methane and ozone rules. The state should do the same (in particular with climate, equity and justice, environmental, faith, and local community groups) with hydrogen.

Insofar as we understand that no federal funding for a New Mexico-based hydrogen hub has yet been committed, this is no excuse to forgo the critical front-end dialogue critical to determining the scope of the state's application for that funding. The state itself is proposing to use taxpayer resources to subsidize a hydrogen hub. The notion that stakeholder engagement should occur only after state political leadership commits taxpayer resources is problematic. Once funding is received, the momentum behind hydrogen could prove inexorable. Delaying public engagement thus serves to set public engagement up as little more than a check-the-box exercise contrary to core principles of equity, justice, and inclusivity.

To further substantiate our comments, we hereby incorporate by reference and attach the seven hydrogen principles many of our groups provided you, via letter, on October 5, 2021.

We welcome further conversation.

Sincerely,

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Western Environmental Law Center

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