March 20, 2023

Chairman Foster Campbell
Commissioner Eric Skrmetta
Commissioner Craig Greene
Commissioner Davante Lewis
Commissioner Mike Francis

Commissioners,

The Alliance for Affordable Energy is encouraged to see the Commission taking the opportunity to learn about technologies that are swiftly being introduced into the power sector, and we support further efforts to gather information about emerging resources like hydrogen outside the context of a specific utility proposal. The purpose of this letter is to address two significant concerns associated with the use of hydrogen as a replacement for natural gas.

The Alliance is deeply concerned about the costs of hydrogen as part of our power systems. As some of you pointed out during the presentation at the November 2022 B/E, there are many unknown costs, ranging from the development of new pipelines, hydrogen production, and changing existing power infrastructure to handle hydrogen for combustion. Further, federal clean energy subsidies allow utilities to gain access to massive hydrogen subsidies without making any meaningful changes to their polluting status quo. Allowing companies to 'claim' cheap hydrogen resources as renewable energy, undermines efforts to drive investment into legitimately affordable renewable capacity.

Currently, Louisiana Integrated Resource Plans give no cost assumption for hydrogen as a fuel, even where 30% hydrogen cofiring is offered as a preferred resource. Entergy Louisiana's current IRP does not provide *any* cost assumptions for the use of hydrogen as a fuel, and instead simply substitutes its assumptions about Henry Hub gas prices. This means the best source of information available to this Commission for the cost to fuel new power facilities that would use up to 30% hydrogen provides no information at all.

The best data the Alliance can gather on the cost to replace some portion of methane with hydrogen in power generation is from filings in a Texas proceeding this fall. In an Entergy Texas application, information provided to Commission staff by the utility for grey hydrogen shows that the **average price is more than double the cost** of burning the

equivalent natural gas alone.[1] In this Texas proceeding, the Administrative Law Judge concluded that the utility failed to demonstrate that the proposed hydrogen co-firing capability is "necessary for the service, accommodation, convenience, or safety of the public." Texas' office of public utility counsel agreed.

Another concern, as also discussed at the November B/E, is with regards to local air-quality impacts associated with burning hydrogen. When hydrogen is combusted at high temperatures in the presence of ambient air (which includes nitrogen) NOx emissions are generated [2].

This presents a significant public health threat due to elevated NOx emissions, which damages heart and respiratory function. Worse for hot and humid Louisiana, NOx is a precursor to ground level ozone, and can lead to dangerous outdoor air quality on hot and humid summer days. This Hydrogen/NOx challenge is true for combustion either in a fuel blend with methane gas for power generation, or as a replacement for gas in homes and businesses.

Unfortunately, as a trade-off for these increased harmful emissions, the combustion of hydrogen does not even represent a one-to-one reduction in carbon emissions. For example, Mitsubishi's development of 30:70 hydrogen to methane gas blend only achieves a 10% CO2 reduction.[3]

It was helpful to hear some of the economic perspective regarding hydrogen and its role in decarbonization in Louisiana, at the Business and Executive meeting on November 17th.

There are various ways to produce hydrogen, each with their own cost impacts. Grey hydrogen (or any of the colors dependent on methane gas, including blue) is subject to the same volatility of the gas market we all experienced last year. These versions of hydrogen do not represent a diversification of our fuel mix. The addition of CCS to grey hydrogen adds further unknowns to the price tag as costs to add another new technology are also speculative at this time. Green hydrogen production *may* have more understood costs based on known resource costs of renewable energy, but there is a difference in the

1 September 26, 2022. Texas Administrative Law Judge Proposal for Decision. PUC Docket No.52487. page 92 (document attached with this letter)

2 https://pubs.rsc.org/en/content/articlepdf/2021/ea/d1ea00037c
3 https://power.mhi.com/news/20180119.html

cost of renewables-based hydrogen depending, for example, on whether the wind is onshore or offshore, or if solar is based in Arizona or Illinois.

It is tempting to imagine switching one fuel for another as a short-cut to energy transition and decarbonization, but regulators should not be expected to approve technology based on speculation. Nor should regulators accept that hydrogen can affordably reduce carbon emissions and other harmful pollution.

We encourage the Commission to continue to seek information about emerging technologies outside the context of utility applications. Along with the attached Texas ALJ Proposal for Decision, we are including *Assessing the Viability of Hydrogen Proposals: Considerations for State Utility Regulators and Policymakers*, a recent report by Energy Innovation for further insight. While hydrogen may represent a feedstock and high-heat replacement for industry in Louisiana, it appears to be an unreasonable risk to utility ratepayers.

Thank you and we look forward to further discussion,

Logan A. Burke
Executive Director
Alliance for Affordable Energy

Cc:
Brandon Frey, Executive Secretary
Kathryn Bowman, General Counsel
Of Louisiana Public Service Commission