BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of Southern California Gas Company (U 904 G), San Diego Gas & Electric Company (U 902 G), Pacific Gas and Electric Company (U 39 G), and Southwest Gas Corporation (U 905 G) regarding Hydrogen-Related Additions or Revisions to the Standard Renewable Gas Interconnection Tariff.

Application No. 20-11-004
(Filed November 20, 2020)

RESPONSE OF THE GREEN HYDROGEN COALITION TO JOINT APPLICATION OF SOUTHERN CALIFORNIA GAS COMPANY, SAN DIEGO GAS & ELECTRIC COMPANY, PACIFIC GAS AND ELECTRIC COMPANY, AND SOUTHWEST GAS CORPORATION REGARDING HYDROGEN-RELATED ADDITIONS OR REVISIONS TO THE STANDARD RENEWABLE GAS INTERCONNECTION TARIFF

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Dated: January 4, 2021
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\(^1\) [https://www.ghcoalition.org/](https://www.ghcoalition.org/)

I. **INTRODUCTION AND SUMMARY.**

A. **Overview of the GHC.**

The GHC is a California 501c(3) educational non-profit organization. The GHC was formed in 2019 in recognition of the game-changing potential of green hydrogen to accelerate multi-sector decarbonization and combat climate change. The GHC’s mission is to facilitate policies and practices that advance green hydrogen production and use in all sectors of the economy where it will accelerate a carbon-free energy future. Our sponsors include renewable energy users and developers, utilities, and other supporters of a reliable, affordable green hydrogen fueled economy for all. The GHC commends the Application for acknowledging the current state of global policy to facilitate hydrogen injection and blending. However, given the urgency to combat climate change, the GHC believes that the Application must go further in its objectives and scope and thus respectfully submits these comments and recommends that the CPUC expand the rulemaking as noted and that the Joint Utilities should consider and adopt the comments made in this response.

B. **GHC Strongly Supports Establishing A 5% (By Volume) Target By 2025 for Blending Green Hydrogen into Existing Natural Gas Infrastructure As The Reasonable Pathway For Multiple Utilities To Align Their Respective Technical, Planning and Policy Teams Toward Achieving a Common Goal.**

Decarbonizing California’s natural gas infrastructure and repurposing it to cost effectively transport zero carbon alternative fuels is essential to combating climate change. Establishing a green hydrogen blending and injection target is the first step toward realizing this goal. As the 2020 wildfire season has shown, there is great urgency to accelerate progress, as the effects of climate change are resulting in severe adverse consequences across the state. California has demonstrated multiple times that establishing specific targets yields accelerated and coordinated
progress, including in the areas of energy efficiency, renewable energy and energy storage. Achieving accelerated decarbonization of the state’s integrated natural gas pipeline can analogously be achieved through the establishment of a blending and injection target. Setting a modest 5% by volume green hydrogen blending and injection target is an important, and timely critical step that is needed now.

GHC appreciates the Joint Utilities’ efforts toward developing the hydrogen blending standards and commends the Joint Utilities for a well-researched Application, including the regard for the hydrogen injection progress occurring globally with plans for proposed hydrogen blending pilots. GHC recognizes that it may be difficult for multiple entities to achieve consensus on a blending target and urges the Commission to establish a reasonable target to help align and coordinate their combined efforts. Setting a common target is imperative to achieving coordinated planning when ‘each gas system is unique and therefore further research needs to be conducted’ Such a target will also establish a clear market signal that will help align and coordinate the activities of stakeholders who are essential to commercially realizing the blending and injection target, including project developers, investors, technology providers and supporters of a reliable, affordable green hydrogen fueled economy for all.

C. **Renewable Hydrogen Should Be Reframed As ‘Green Hydrogen’ And Be Broadly Defined to Be Technology Agnostic to Encourage Innovation and Competition.**

The definition of Renewable Hydrogen as proposed by the Joint Utilities is too narrow, particularly with respect to electrolytic hydrogen production. The definition should be reframed as ‘Green Hydrogen’ and must be defined broadly to be technology agnostic and encourage innovation and competition, expanding eligibility to other zero-carbon electrolytic pathways in addition to RPS-eligible electricity and organic waste sources. There are multiple pathways to produce green
hydrogen, including from electrolysis of water and reformation or conversion of organic waste feedstocks. California has abundant sources of green hydrogen feedstocks that can be leveraged not only to achieve the 5% blending and injection target, but also to decarbonize multiple other sectors on the feedstock repurposing side, such as the productive use of waste organic feedstock that would otherwise be burned in an open field. Additionally, once the appropriate production, transport and storage capabilities are developed at scale, California has tremendous potential to be a significant exporter of green hydrogen globally. Ensuring a broad, technology-agnostic definition from the get-go is critical to ensuring success in each of these arenas going forward.

D. The Scope of this Rulemaking Should be Expanded To Include Additional Foundational Regulatory Modifications Needed To Achieve Successful Commercial Realization Of The 5% Green Hydrogen Blending Target By 2025, Including Needed Gas Injection And Electric Tariffs For Production Of Electrolytic Hydrogen.

Electrolytically-produced hydrogen represents a promising pathway to leverage curtailed and low-cost, purpose-built wind and solar and availability capacity in the power sector to produce green hydrogen at key points of demand. Forecasts by industry analysts and international non-governmental organizations indicate that electrolytic green hydrogen will be cost competitive with blue hydrogen (hydrogen produced from fossil fuels with carbon sequestration) by 2025 and will be lower cost than gray hydrogen by 2030. These dramatic cost reductions are the result of scaling up electrolysis manufacturing and reducing installed cost through experience curves. To fully take advantage of electrolytically-produced green hydrogen, GHC urges the Commission to require the Joint Utilities to establish electric and gas injection tariffs necessary to incent green hydrogen pipeline injection and take advantage of abundant renewable feedstock and electricity resources in California.
E. **Decarbonization Progress Can Be Dramatically Accelerated By Expanding the Scope of This Rulemaking To Also Include Evaluation And Consideration Of Utility Ownership Of Dedicated 100% Green Hydrogen Pipelines Warranted By Large Industrial Off Takers; And Consideration Of Modifications To Planned Pipeline Upgrades When Performing Scheduled Pipeline Upgrades And Maintenance To Enable Increased Green Hydrogen Pipeline Content.**

Green hydrogen is a viable substitute for natural gas and other fossil fuels in many applications spanning many sectors. The key to rapid adoption of green hydrogen in lieu of fossil fuels is directly related to the speed at which we can produce and deliver green hydrogen, monetizing its high value and reducing its cost. Every application of green hydrogen, unless directly co-located at the end use application, will require transportation and storage of green hydrogen. Dedicated hydrogen pipelines are a proven and commercially viable pathway to achieving low-cost transport and storage of large volumes of green hydrogen. More than 1,600 miles of dedicated hydrogen pipeline exist in the United States, including more than 15 miles in the Los Angeles area. Today, these pipelines store and transport gray hydrogen, a molecule that is chemically identical to green hydrogen. Aggregation of large industrial off takers, including power generation plants, in a specific geography is an important pathway to accelerating the scale and scope of green hydrogen production, transport and use. Sufficient aggregation could warrant the commissioning of new dedicated green hydrogen pipelines, including those that leverage existing natural gas right of ways. Evaluation of strategic regional opportunities to build dedicated green hydrogen pipelines should be undertaken in parallel to decarbonizing the existing natural gas pipeline through blending and injection.

II. **DISCUSSION OF ISSUES TO BE CONSIDERED.**

A. **The Definition Of “Renewable Hydrogen” Needs To Be Expanded and Reframed As “Green Hydrogen.”**
Assigned Commissioner’s Scoping Memo and Ruling Opening Phase 4 of Rulemaking 13-02-008, issued on November 21, 2019, requires the Joint Utilities to “submit an application with the following proposed additions or revisions to the Standard Renewable Gas Interconnection (SRGI Tariff): (a) a definition of renewable hydrogen for purposes of the Tariff.….” 2 In its prepared testimony, the Joint Utilities state:

“Renewable hydrogen means hydrogen derived from one of the following:
1. Electrolysis of water using renewable electricity. In this context, renewable electricity refers to electricity produced from sources which are eligible renewable energy resources as defined in California Public Utilities Code sections 399.11-399.36.6
2. Steam methane reforming (SMR), autothermal reforming (ATR), or methane pyrolysis of renewable gas (RG).
3. Thermochemical conversion of biomass, including the organic portion of municipal solid waste (MSW).” 3

The GHC strongly supports the Commission’s intention in directing Joint Utilities to file a definition for renewable hydrogen. However, GHC believes that the term “renewable hydrogen” as proposed by the Joint Utilities is not a particularly valuable framing at this time, as it is not aligned with existing and proposed statutory language and state agency program terms.4 In particular, the Joint Utilities’ proposed definition too narrowly focuses on electrolytic pathways that rely only on RPS-eligible renewables and ignores the myriad of other available zero-carbon sources for electrolytic hydrogen, including curtailed wind and solar as well as large-scale hydro, consistent with the intent of SB 100. The GHC believes that expanding and clarifying the

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2 Assigned Commissioner’s Scoping Memo and Ruling Opening Phase 4 of Rulemaking 13-02-008 (November 21, 2019) at 12.
3 Joint Utility Preliminary Hydrogen Injection Standard Application Testimony (hereinafter “Prepared Testimony”) Ch. 1 at 7.
definition of “renewable hydrogen” to “green hydrogen” could help address this critical shortfall, as it is inclusive of multiple pathways and aligns with state decarbonization goals pursuant to SB 100. The GHC therefore recommends that the definition offered by the Application be replaced with the following definition for green hydrogen:

“Green hydrogen means hydrogen that is not produced from fossil fuel feedstocks and does not increase lifecycle carbon emissions during the primary production process of the hydrogen.”

The following key principles and objectives were foundationally considered in developing the above definition for green hydrogen molecules must:

1) Support carbon reduction and help fight climate change

2) Support innovation and competition as a fundamental pathway for progress. As such, the definition must:
   a. be technology agnostic;
   b. encompass a broad range of non-fossil fuel feedstock technology pathways, including pathways that are not invented or commercialized\(^5\); and,
   c. treat all pathways in a logically consistent and transparent way, especially with regard to the distinction between feedstock and energy sources used to produce hydrogen, and the carbon production consequences.

3) Support existing California law, including consistency with SB 1369 that defines green electrolytic hydrogen in Public Utilities (PU) Code Section Code 400.2 and attainment of SB 100’s 2045 retail electricity decarbonization goals, SB 32 greenhouse gas emissions

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\(^5\) Alkaline and PEM electrolyzers are fully commercial today and could be deployed at either central or distributed scale. Gasification of biomass is either late-stage pre-commercial or early commercial. Full-scale commercial demonstration is the next step for California. High-temperature electrolysis (solid oxide including reversible cells) is probably 5 – 7 years from commercial. Meanwhile, direct solar (PEC, STCH, photobiological) is still at the laboratory demonstration stage and will be commercial beyond 10 years from now.
targets, and SB 1383 targeting short lived climate pollution reduction. The definition should also complement the decarbonization goals of other states. The GHC is focused on accelerating decarbonization not only in precedent-setting California, but also throughout the US.

Commercially available and viable green hydrogen feedstocks and pathways include but are not limited to the following:

1. Hydrogen produced from water via electrolysis, or “Green Electrolytic Hydrogen” consistent with PU Code 400.2
2. Hydrogen from eligible organic waste feedstocks consistent with PU Code 650(a) or section 650(b) via:
   a. Steam methane reforming (“SMR”), autothermal reforming (“ATR”) or methane pyrolysis or renewable gas
   b. Thermochemical conversion, also known as pyrolysis

It is important to clarify that the above definition should consistently, logically and accurately characterize each production pathway and distinguish the pathways to produce green hydrogen from the myriad of potential uses of green hydrogen.

With respect to production pathways, it is important to distinguish between feedstock vs. energy source and production process.

1) **Feedstock:** Where is the hydrogen derived from or what is the feedstock that is being converted (e.g., splitting water vs. cracking gas)?
2) **Energy source, capture or production process**: What is the energy source for conversion (e.g., electricity to run the electrolyzer vs. natural gas burned to heat the SMR unit)?

Each production pathway will of course have its own set of costs/benefits, including emissions benefits depending on the source of energy used for the conversion process and the alternative final fate of the subject feedstock. For example, thermochemical conversion of agricultural waste will have significant carbon savings as the alternative for this feedstock is to burn it in an open field.

Once the green hydrogen is produced, it can then be employed in a variety of end-use applications, namely, in the case of green electrolytic hydrogen, be used as bulk renewable energy storage by storing curtailed and purpose built renewable and zero carbon electricity, including effective use of existing electric transmission and distribution infrastructure capacity. It should be noted that electrolysis equipment is modular, flexible and can be sited anywhere there is an electricity interconnection available. Electrolysis equipment can also serve as a modifiable load, offering valuable flexibility to electric system optimization.

Green hydrogen can also be used to displace “gray” hydrogen in industrial applications (e.g., oil refining, manufacturing ammonia, etc.). Because gray hydrogen is made primarily from natural gas and coal today, it produces significant greenhouse gas emissions. Emissions from global fossil fuel-based hydrogen production, if treated like a country, would be larger than that of Germany. This means that displacing existing demand for gray hydrogen produced from other carbon-intensive sources with green hydrogen represents a significant decarbonization opportunity all by itself.
Perhaps most exciting is that green hydrogen is a very flexible molecule that can displace carbon-based fuels in numerous applications and sectors, particularly of interest in the hard to abate shipping and aviation sectors. Green hydrogen can also be used to displace liquid fossil fuels for all forms of ground transportation and as a fuel and form of energy storage for emergency backup and remote area power systems.

For the purposes of the Application, green hydrogen can be used to displace natural gas in the existing natural gas pipeline system, effectively decarbonizing natural gas usage in California. And, given the size of the opportunity and urgent need to decarbonize, GHC strongly urges the Commission ensure that all production pathways as noted above are considered eligible for the purposes of the Application.

B. The GHC Urges The Commission To Establish A 5% (By Volume) Hydrogen Injection Standard By 2025 For All Joint Utilities To Focus And Align Each Utility’s Planning And Research Program In A Coordinated Manner To Advance Toward A Common Goal.
In prepared testimony, the Joint Utilities “do not propose any additions or revisions to the SRGI Tariff,” thereby failing to adopt a hydrogen injection standard at this time.\(^6\) GHC believes this is a missed opportunity that needs to be immediately corrected so as to facilitate as the planned “critical research is conducted and additional information is gathered.” California’s gas utilities, including the Joint Utilities, are each attempting to innovate.\(^7\) However, lack of a common goal will not produce the needed coordinated research and planning activities that must occur at each utility.

Globally, there has been a significant amount of progress made to advance green hydrogen, including the use of targets for hydrogen blending in gas system and electrolyzer deployment to accelerate near- and mid-term development.\(^8\) In stark contrast, the Joint Utilities’ proposed timeline places an injection standard at more than 3 years away,\(^9\) which lags behind global progress. GHC believes the Joint Utilities should be moving faster to advance green hydrogen production and use. Specifically, a near-term modest blending and injection standard of 5% by volume should be pursued, with the intention to set a much higher goal in the future. Such a modest goal is in line with blending and injection activities around the world and, once attained, will result in a massive 1.77 MMT reduction of carbon per year, equivalent to removing the emissions of approximately 385,000 cars.\(^10\) This should be accompanied by an accelerated research and testing schedule, as well as the development of an appropriate tariff to encourage

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\(^6\) Prepared Testimony Ch. 1 at 1.
\(^7\) Prepared Testimony Ch. 1 at 1.
\(^8\) Prepared Testimony Ch. 1 at 15.
\(^9\) Prepared Testimony Ch. 1 at 6.
\(^10\) Assuming roughly 2 billion MMBTU/year natural gas used in California, 106,000,000 MT CO2 per year at 0.053 kg/MMBTU of natural gas combusted, and a modest 5% by volume blending target results in 1.77 MMT CO2 savings per year in California. Note there is a roughly 3:1 volumetric energy density ratio for natural gas compared to green hydrogen. 1.77 MMT CO2 is roughly equivalent to a 0.4% reduction in California’s total annual CO2 emissions.
blending and injection. Specific loads that are affected by increased hydrogen content in the natural gas pipeline can be identified. For these loads, specific remedies can and should be identified. In other words, the decarbonization potential of the natural gas pipeline system should not be based on a minority set of industrial gas users, rather, the system should be planned for date-certain decarbonization and these users should be managed on an exception basis. Of course, safety is paramount and GHC applauds the Joint Utilities for their attention and focus on this point. Establishing a 5% injection target by 2025 will help coordinate each Joint Utilities’ technical research on safety toward a common modest near-term goal. This injection target will provide a needed market signal to mobilize the set of ecosystem stakeholders to invest in project development to realize this goal. Without this market signal, the larger ecosystem may not mature in lockstep with utility plans. By establishing a 5% green hydrogen injection and blending target, the Commission would provide the required leadership and explicit direction to ensure coordinated compliance and, more importantly, collaboration toward a common goal commensurate with the scale of the pressing decarbonization challenge.

C. **GHC urges the Commission to establish gas and electric tariff modifications necessary to incent green hydrogen pipeline injection.**

In addition to establishing the blending target, the Commission and Joint Utilities should also immediately begin working on the tariff modifications necessary for green hydrogen pipeline injection, including appropriate compensation for the current above-market cost of green hydrogen relative to natural gas and appropriate market incentives that assure green electrolytic hydrogen storage access for every kilogram of green electrolytic hydrogen produced.

Coordination with Electrical Tariffs is essential to fully realizing the benefits of green electrolytic hydrogen and fully leveraging existing gas and electric infrastructure capacity. As a general note,
GHC supports all pathways of producing green hydrogen, including electrolytic green hydrogen, as defined in PUC Code 400.2, which is one of the least expensive pathways to produce green hydrogen at scale. Today, low-temperature electrolysis (both alkaline and polymer electrolyte membrane (“PEM”)) is fully commercial and could be deployed at either central or distributed scale. However, the lack of proper rates for grid supplied power has hampered development and resulted in current deployment focused on solar self-generation which negatively impacts the economics of hydrogen production due to low electrolyzer capacity factor. Development of appropriate electric tariffs to encourage electrolytic hydrogen production is critical to accelerate the scale-up required to achieve the forecasted low cost of green hydrogen production.

Notably, California experiences periods of overgeneration when excess electric power system capacity could be used to produce green hydrogen inexpensively. GHC believes it is critical that hydrogen-related additions or revisions to existing tariffs consider the opportunity to use low-cost electric power system capacity to produce green hydrogen for injection into the gas system pursuant to the relevant tariff.

Lastly, green electrolytic hydrogen can also serve as a valuable modifiable load for grid operations. PEM electrolyzers, in particular, can provide fast response to adjust for grid conditions and provide needed ancillary services including, for example, spin/non-spin reserve, frequency regulation and flexible capacity. Electrolysis equipment is modular and scalable and can be sited anywhere there is electric grid interconnection capacity. The resulting green hydrogen production (i.e., from electrolysis equipment) can either be directly injected into the natural gas pipeline or a 100% hydrogen pipeline or be stored and transported through other means for uses such as to decarbonize hydrogen fueling stations. To realize the decarbonization benefits of green electrolytic hydrogen all of these off take opportunities and potential benefits must be quantified and compensated.
Electrolytically-produced hydrogen represents a promising pathway to leverage curtailed and low-cost, purpose-built wind and solar and availability capacity in the power sector to produce green hydrogen at key points of demand. Notably, electrolytically-produced green hydrogen is generally expected to be produced at lower cost than gray hydrogen by 2030, and at a cost parity with blue hydrogen by 2025. The low cost of wind and solar alongside falling prices for electrolysis equipment is driving this forecasted outcome. Today, electrolysis equipment is situated where battery energy storage was in 2010; poised for rapid cost reductions with scale up. In the last five years, electrolyzer costs have fallen by 45% and are forecasted to continue to fall with scaled production. The chart below, from the International Renewable Energy Agency, compares the levelized cost of green hydrogen in $/kg over time under different renewable electricity pricing scenarios. The solid green and blue lines represent best case solar and wind and the gray area shows when green electrolytic hydrogen made from these resources will be cost competitive with blue and gray hydrogen. Notably, by 2025 green hydrogen will be competitive with blue hydrogen (hydrogen made from fossil fuels with carbon sequestration), and by 2030 green hydrogen becomes competitive with gray hydrogen, when it will achieve $1-$1.50/kg production cost.11

This forecast is widely supported not only by non-governmental organizations but also by numerous industry analysts and industrial oil/gas majors.

To fully take advantage of electrolytically-produced green hydrogen, GHC urges the Commission to establish electric tariffs necessary to incent electrolytic green hydrogen production. These electric tariffs, in conjunction with the necessary gas pipeline injection tariffs, will enable California to take advantage of abundant renewable feedstock and electricity resources in California.

D. The GHC urges the Commission to consider modifications to planned gas pipeline upgrades when performing scheduled pipeline upgrades and maintenance to enable increased green hydrogen pipeline content beyond 5%.

The above-mentioned tariff modifications should also be considered in conjunction with planned pipeline upgrades and maintenance; particularly to include potential investments to enable increased green hydrogen pipeline content. The European Union is currently working toward converting its pipeline infrastructure to green hydrogen over time, and California needs to develop its roadmap to achieve the same conversion. California’s existing natural gas pipeline system represents a very significant bulk renewable energy storage solution and decarbonization opportunity for the power sector and all major energy sectors that rely on natural gas. As shown
in the chart below, California will need multi day and seasonal energy storage solutions to achieve 100% renewable energy with low-cost wind and solar.  

California’s existing natural gas pipeline represents a tremendous bulk storage solution to help achieve very high penetrations of low-cost wind and solar generation. Planning for increased amounts of green hydrogen beyond 5% by volume in the natural gas pipeline is a prudent strategy to help achieve not only gas sector decarbonization, but also electric sector decarbonization.

**E. GHC urges the Commission to Expand the Scope of this Rulemaking to consider allowing utility ownership of new dedicated 100% green hydrogen pipelines to more rapidly connect large industrial users with low-cost supply, delivery and storage of green hydrogen via pipelines.**

The impacts of climate change are no longer theoretical. In addition to setting a green hydrogen injection and blending standard to decarbonize all natural gas usage, the Commission should also authorize utilities to leverage existing right of ways for their natural gas pipelines to potentially

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12 Strategen Consulting, 2019. This analysis was based on CAISO Oasis data increasing solar and wind production such that total renewable electricity production equaled 100% of demand.
implement 100% green hydrogen pipelines to connect large commercial/industrial off-takers with supply sources at scale. New, dedicated supply infrastructure can deliver large volumes of green hydrogen more cost efficiently than on-road and rail alternatives today. GHC notes there is a critical need to simultaneously scale supply and demand for green hydrogen, and leveraging existing rights of way is a fast-track toward significantly scaling the needed transport of low-cost green hydrogen supply to end users. GHC encourages the Commission to allow utilities to own and operate dedicated hydrogen pipelines connecting very large production sources with very large offtake hubs.

Planning now to reduce the cost of transport and storage via the use of dedicated hydrogen pipelines is a prudent strategy to achieving very low delivered cost and accelerating clean energy transition for multiple potential off-takers, including thermal electric generation, hydrogen fueling stations and other industrial and hard-to abate uses. Power sector applications, particularly thermal electric generation at existing gas turbines, represents a viable and near-term option for dramatically accelerating green hydrogen demand as all gas turbines can be retrofitted to combust a blend of green hydrogen and natural gas and ultimately 100% green hydrogen. This is also a prudent strategy for ensuring reliability based on a zero-carbon fuel, and increasing affordability by repurposing a California’s natural gas generation infrastructure as a viable, existing bulk storage solution.

F. Coordination with Electrical Tariff Development is essential to fully realizing the benefits of green electrolytic hydrogen and fully leveraging existing gas and electric infrastructure capacity.

As a general note, GHC supports all pathways of producing green hydrogen, including electrolytic green hydrogen, as defined in PUC Code 400.2, which is one of the least expensive pathways to
produce green hydrogen at scale. Today, low-temperature electrolysis (both alkaline and polymer electrolyte membrane (“PEM”)) are fully commercial and could be deployed at either central or distributed scale. However, the lack of proper rates for grid supplied power has hampered development and resulted in current deployment focused on solar self-generation which negatively impacts the economics of hydrogen production due to low electrolyzer capacity factor. Development of appropriate electric tariffs to encourage electrolytic hydrogen production is critical to accelerate the scale-up required to achieve the forecasted low cost of green hydrogen production.

Notably, California experiences periods of overgeneration when excess electric power system capacity could be used to produce green hydrogen inexpensively. GHC believes it is critical that hydrogen-related additions or revisions to existing tariffs consider the opportunity to use low-cost electric power system capacity to produce green hydrogen for injection into the gas system pursuant to the relevant tariff.

Lastly, green electrolytic hydrogen can also serve as a valuable modifiable load for grid operations. PEM electrolyzers, in particular, can provide fast response to adjust for grid conditions and provide needed ancillary services including, for example, spin/non-spin reserve, frequency regulation and flexible capacity. Electrolysis equipment is modular and scalable and can be sited anywhere there is electric grid interconnection capacity. The resulting green hydrogen production (i.e., from electrolysis equipment) can either be directly injected into the natural gas pipeline or a 100% hydrogen pipeline, or be stored and transported through other means for uses such as to decarbonize hydrogen fueling stations. To realize the decarbonization benefits of green electrolytic hydrogen all of these off take opportunities and potential benefits must be quantified and compensated.
III. CATEGORIZATION, HEARINGS, AND SCHEDULE.

GHC agrees that this Application should be categorized as “Ratesetting.” GHC agrees that evidentiary hearings will not be necessary.

IV. SERVICE.

Service of notices, orders, and other correspondence in this proceeding should be directed to GHC at the address set forth below:

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V. CONCLUSION.

GHC appreciates the opportunity to submit this response to the Joint Utilities’ Application. We look forward to further collaboration with the Commission and stakeholders on this initiative.

Respectfully submitted,

[Signature]
Janice Lin
Founder and President
GREEN HYDROGEN COALITION

Date: January 4, 2021