



MEMORANDUM OF UNDERSTANDING

By and Between

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, ON BEHALF OF THE ADVANCED POWER AND ENERGY PROGRAM AT ITS IRVINE CAMPUS (“UCI”) and SOUTHERN CALIFORNIA GAS COMPANY (“SoCalGas”)

RECITALS

WHEREAS UCI is an internationally recognized leading public research university;

WHEREAS UCI is a “living laboratory” incubating numerous clean energy initiatives and technologies that contribute to future decarbonized energy systems;

WHEREAS clean hydrogen is a promising carbon-free fuel that will be critical to supporting California’s clean energy transition on the electric and natural gas systems;

WHEREAS the California Public Utilities Commission (“CPUC”) has asked investor-owned gas utilities including SoCalGas to inform on a safe hydrogen injection and blending standard for California’s natural gas pipeline system;

WHEREAS SoCalGas seeks to demonstrate safe hydrogen injection and blending in a steel distribution system before informing on a standard;

NOW, THEREFORE, UCI and SoCalGas enter into this non-binding memorandum of understanding (“MOU”) effective as of the 26th day of August, 2022.

I. PURPOSE

UCI and SoCalGas enter into this non-binding memorandum of understanding (“MOU”) to collaborate on a proposed multi-year pilot demonstration program to inject and blend hydrogen in a portion of the natural gas distribution system on UCI’s campus as further described in Exhibit A attached hereto (the “Project”). This non-binding MOU summarizes principal terms of a proposed collaboration to be set forth in a future, definitive joint demonstration agreement (the “Joint Demonstration Agreement”).

This proposed Project is part of a joint investor-owned gas utility (“IOU”) CPUC application to study the impacts of hydrogen on California’s natural gas infrastructure. Research is to

be developed between the IOUs and University of California (UC) system campuses, including UCI, UC San Diego, and potentially others. The Project requires and is dependent upon approval by the CPUC.

II. GENERAL CONSIDERATIONS:

1. This MOU does not supersede other existing agreements and/or memorandums of understanding between either of the parties.
2. Each party will retain its primary responsibility for meeting all legal and regulatory requirements pertaining to it and its property.
3. Participation in any phase of the MOU is voluntary. Nothing contained in this MOU shall obligate any party to continue participating in any phase of the MOU and any party may terminate its participation in any phase of the MOU at any time for any reason or no reason.
4. This MOU is not a contract but merely a memorandum of the understanding of the parties to coordinate their efforts with respect to establishing the basis for the proposed Project. Neither party shall be bound with respect to any of the matters set forth in this MOU. Nothing in this Agreement shall create, or be construed to be, a joint venture, association, partnership, franchise or other form of business relationship. At no time will the employees, agents or assigns of one party be considered the employees of the other party for any purpose, including but not limited to workers' compensation purposes. Neither party shall be authorized to act on behalf of the other party, or to make representations or commitments of any kind on behalf of the other party.
5. Amendments to this MOU may be made by notification of the proposed changes to the other party and will become effective upon written execution by both parties, which may occur in counterparts.
6. This MOU may be terminated by delivering written notice to the other party, effective thirty (30) calendar days following the date of delivery of such written notification.
7. This MOU shall be included as an Exhibit in SoCalGas' testimony to the CPUC.
8. Neither party will use the name, abbreviation of the name, logo, seal, or other mark of the other party (including in any advertisement, press release or publicity related to this MOU) without that other party's prior written approval. To seek approval, a party will submit a request to the other party's institutional contact, who will assist with obtaining any internal authorization required by their institution.

III. BOTH PARTIES SHALL WORK TOGETHER ON THE FOLLOWING TASKS:

1. Collaborate to establish Project plan and terms and conditions, including construction, siting, deployment, and removal of associated equipment and utilities and reasonable timelines. For clarity, execution of the Project will be subject to a separate written agreement between the parties ("Future Agreement").
2. Collaborate to determine communications, education, safety, and fire safety protocols with campus staff and residents who may be affected by the Project.
3. Seek to find research collaboration areas to support student and faculty research.

4. To the extent that the implementation of any agreed-upon activity related to the Project requires a commitment of personnel, facilities, funding, intellectual property, or other institutional resources, the parties will negotiate and enter into Future Agreement signed by each party's authorized representative. Future Agreement will specify each party's commitment of resources and terms related to funding, equal opportunity, intellectual property, confidentiality, export control, indemnity, liability and other matters relevant to the Project.

IV. SUBJECT TO TERMS AND CONDITIONS IN FUTURE AGREEMENT, SoCalGas SHALL INVESTIGATE:

1. Installing two temporary pressure regulator stations and associated pipelines and cut and cap two pipeline locations to isolate UCI's gas system and to continue providing gas to UCI and non-UCI customers in the area;
2. Managing the design, permitting, construction, procurement and temporary siting on campus of related hydrogen equipment, including fencing, an electrolyzer and blending skid;
3. Testing hydrogen injection and blending on the system in increments from 5% to 20% by volume over the course of the Project;
4. Performing inspections and maintenance of the hydrogen blending facility over the course of the Project;
5. Following the end of the Project, reconnecting the demonstration pipeline system to the main distribution system and removing the temporary pressure regulator stations and hydrogen blending equipment; and
6. Providing facilitation services to support the UCI community throughout the duration of the Project;
7. Seeking full rate recovery for the Project from the CPUC; and
8. Obtaining all required licenses and/or easements from UCI prior to performing any such work, which licenses and/or easements shall subject to Future Agreement.

V. SUBJECT TO TERMS AND CONDITIONS IN FUTURE AGREEMENT, UCI SHALL INVESTIGATE:

1. Providing easements (and/or temporary license) and site access sufficient to install, operate, maintain and remove the Project equipment;
2. Providing facility access to test end use equipment as necessary; and
3. Providing faculty and student engagement to further the achievement of Project goals, for example in the areas of environmental engineering, behavioral sciences, and environmental education, among others.

VI. MISCELLANEOUS:

This non-binding MOU is not a contract or an agreement for a contract, but an expression of the intention of the parties to negotiate toward a binding and definitive Future Agreement and such other transaction documents as necessary based on the understandings contained herein and such additional or different terms as may be

mutually acceptable to the parties. Neither party shall have any obligation to commence or continue negotiations for Future Agreement and may terminate negotiations for Future Agreement at any time for any reason or no reason whatsoever. Neither of the parties shall be bound with respect to any of the matters set forth in this MOU, except to the extent such matters are contained in binding and definitive transaction documents executed by both parties. Any such definitive transaction documents will contain usual and customary provisions for transactions of the types contemplated therein with due regard for applicable tax, financial, indemnity, liability and regulatory requirements.

IN WITNESS WHEREOF, the parties hereto have executed this Memorandum of Understanding as of the last date written below:

<p>UNIVERSITY OF CALIFORNIA IRVINE</p> <p>By: _____ Full Name and Title</p> <p>_____</p> <p>Signature</p> <p>Date: _____</p>	<p>SOUTHERN CALIFORNIA GAS COMPANY</p> <p>By: _____ Full Name and Title</p> <p>_____</p> <p>Signature</p> <p>Date: _____</p>
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Reviewed by _____
Andrew Cheung
Sr. Counsel

EXHIBIT A

The purpose of the Project on the UCI campus is to specifically provide operational, live blending data for blending up to 20% hydrogen by volume in an isolated portion of a medium pressure steel and plastic distribution natural gas system. The Project will inform the feasibility of developing a state-wide hydrogen blending standard for steel and plastic pipe gas distribution systems that serve existing customers and equipment in the State of California.

The Project will be located on UCI's main campus along West Peltason Drive. The Project goal is to safely blend hydrogen into an isolated steel section of the medium pressure natural gas distribution pipeline system. The Project will begin by observing 100% natural gas in the pipeline system. Once that baseline is established, SoCalGas plans to blend and inject hydrogen into the system, starting at 5% hydrogen by volume and up to 20% hydrogen by volume over time. The blend volume will be gradually increased based on safety and technical feasibility validated with testing throughout the project duration, including evaluating key impacts on safety, odorant, pipes, valves, meters, and unmodified common appliances that will receive the blended gas.

The Project will be divided into four chronological phases ("Phases"). The Phases are briefly summarized in the table below; timing and duration of the Phases are estimated and subject to change. Phases have some overlap. See Estimated Project Schedule for details.

PHASE & ACTIVITY	DESCRIPTION	DURATION
1. Planning, Design, Construction, and Commissioning	Hydrogen equipment is procured; system is designed, constructed, and commissioned on campus; pre-demo equipment and pipeline system inspections and any necessary remediation are conducted; stakeholder engagement; temporary pressure regulating stations installed and campus isolated	18 months
2. Testing and Demonstration	Hydrogen is blended in system on a testing schedule; data is collected; periodic inspection of equipment and pipelines; test samples of pipelines and components pre- and post-hydrogen blend exposure	24 months (18 months live blending and 6 months asset inspection and validation)
3. Decommissioning, Equipment Removal, and	Hydrogen equipment is removed from campus; temporary regulating stations removed and campus restored	5 months

System Restoration		
4. Knowledge Sharing	Data from pilot is analyzed and a public report will be released	9 months

		Pre-Approval				Post-Approval																		
Prewrite	Application Process	■	■																					
	Regulatory Review		■	■	■																			
Ongoing	Stakeholder Engagement	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Phase 1	Engineering Design				■	■	■																	
	Land, Environmental, Permitting				■	■	■																	
	Material & Equipment Procurement					■	■	■	■															
	Bid Process & Construction						■	■	■	■														
	Commissioning									■														
Phase 2	Asset Inspection												■	■	■	■	■							
	H2 Blending and Data Collection												■	■	■	■	■	■						
	Asset Validation																				■			
Phase 3	Equipment & Material Removal																				■	■		
	Site Restoration																				■	■		
Phase 4	Data Analytics & Interpretation																					■	■	
	Knowledge Sharing/Final Report																						■	■
		22-Q2	22-Q3	22-Q4	23-Q1	23-Q2	23-Q3	23-Q4	24-Q1	24-Q2	24-Q3	24-Q4	25-Q1	25-Q2	25-Q3	25-Q4	26-Q1	26-Q2	26-Q3	26-Q4	27-Q1			

Figures 1 to 3 show the potential Project site layout, plot plan on the UCI campus, and the temporary pressure regulating stations and isolation points. Two other project sites along West Peltason Drive are also being reviewed for feasibility.

Figure 1: Potential SoCalGas Hydrogen Blending Demonstration Site Layout on UCI campus



Figure 2: Preliminary Project Plot Plan

- Electrolyzer 15'x8'
- DI Enclosure 6'x4'
- Storage Tank 15'x6'
- Blending Skid 20'x10'
- SCADA 7'x7'
- Chiller 6'x4'

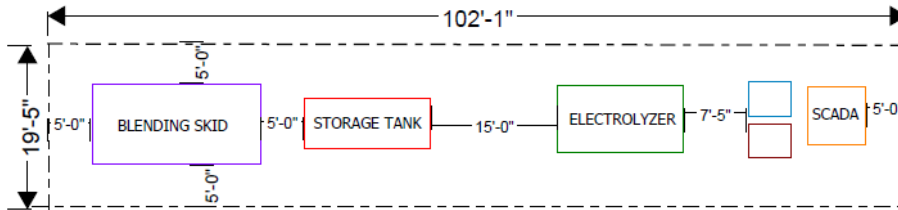
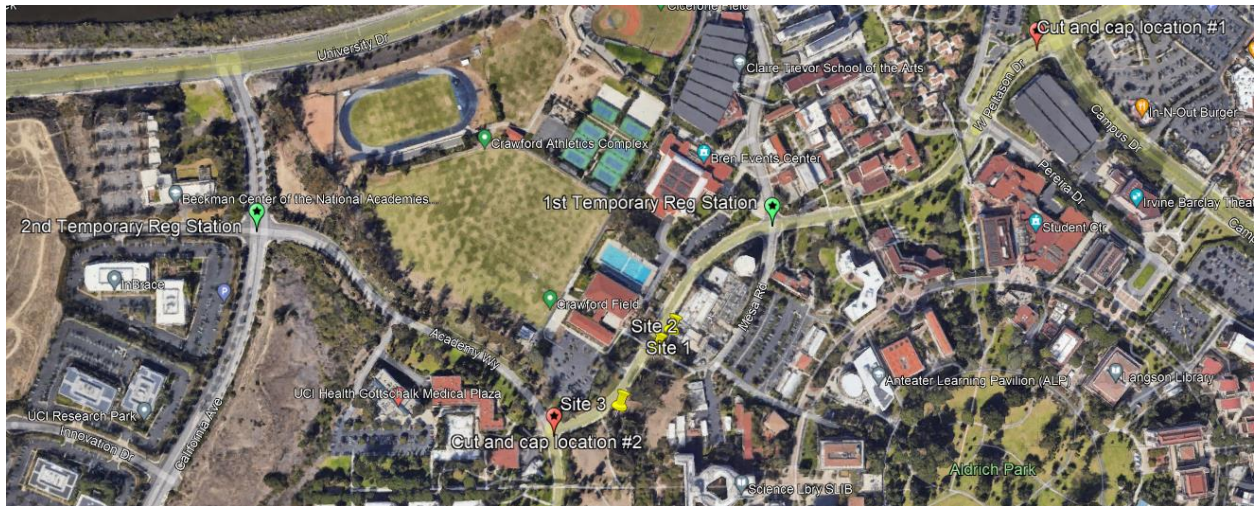


Figure 3: Locations of Temporary Pressure Regulator Stations and Isolation Locations Relative to Potential Project Site



The first cut and cap location is West Peltason Drive between Campus Drive and Pereira Drive. The second cut and cap location is Academy Way and West Peltason Drive. The location for the first temporary pressure regulator station is West Peltason Drive at Mesa Drive. The location for the second temporary pressure regulator station is California Ave and Academy Way.