

Application: A.25-12-009
Exhibit No.: SDGE-06
Witnesses: Rachelle R. Baez, Ari Beer,
Pooyan Kabir, Lauren Shelver

**PREPARED REBUTTAL TESTIMONY OF
SAN DIEGO GAS & ELECTRIC COMPANY**

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**



SEPTEMBER 28, 2026

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1 **PREPARED REBUTTAL TESTIMONY OF**
2 **SAN DIEGO GAS & ELECTRIC COMPANY**

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4 **I. INTRODUCTION**

5 San Diego Gas & Electric Company (“SDG&E”) respectfully submits this rebuttal
6 testimony in support of its Application for Approval of the Palomar Decarbonization
7 Demonstration Project, Application (“A.”) 25-12-009 (“Application”). The Palomar
8 Decarbonization Demonstration Project (“Project”) is an operating, multi-use hydrogen
9 system located at the Palomar Energy Center (“PEC”), an existing combined-cycle generation
10 facility. The Project integrates onsite hydrogen production, compression, high-pressure storage,
11 plant controls, turbine blending, generator-cooling support, vehicle fueling, monitoring, safety
12 systems, and related operating procedures.

13 The Assigned Commissioner’s Scoping Memo and Ruling, issued May 28, 2026, defines
14 the issues to be determined in this proceeding. The seven scoping issues focus on whether this
15 Project serves the public interest, whether this Project’s costs are just and reasonable, the benefits
16 this Project provides, and what ratemaking mechanism is appropriate for this Project.¹ Scoping
17 Issue 1 specifically asks whether the Project is “designed to produce operational, safety,
18 emissions, decarbonization, environmental, cost, and/or scalability information that is (a) unique
19 from other research and pilots on this topic and (b) needed to evaluate whether renewable
20 hydrogen can contribute to California’s clean energy resource strategy.” By its terms, Scoping
21 Issue 1 assumes that evaluating hydrogen’s potential contribution to California’s resource
22 strategy is a legitimate objective and asks whether this Project *can* produce information useful to
23 that evaluation. The scoping issue does not ask whether the Commission should adopt or reject

¹ See Assigned Commissioner’s Scoping Memo and Ruling (May 28, 2026) (“Scoping Memo”), Scoping Issues 1-7 at 4-5.

1 hydrogen as a component of state policy. In combination with SDG&E's Application and direct
2 testimony, SDG&E's rebuttal testimony herein addresses these scoping issues; responds to
3 intervenors' attempt to reframe this proceeding as a referendum on hydrogen; and provides the
4 Commission with the requisite record to approve the Project on its own merits as a demonstration
5 project that advances the state's energy and decarbonization goals and policy objectives, and
6 which will produce information needed to evaluate if hydrogen can contribute to the state's
7 energy strategy.

8 SDG&E's main objectives for the Project are to gain critical knowledge, expertise, and
9 real-life operational experience of clean hydrogen's role in electric system decarbonization. The
10 Project combines equipment, site modifications, controls, safety systems, operating procedures,
11 and data collection so that the integrated arrangement can be operated at an existing generation
12 facility. In addition to hydrogen production, the Project scope includes compression, storage
13 operation, turbine and plant-control integration, emissions testing, dispensing, workforce
14 training, and documentation.

15 This testimony specifically responds to the following intervenor claims, which are
16 summarized here but will be further explained: the Project does not satisfy the concerns
17 identified by the Commission in Decision ("D.") 24-12-074; federal Investment Tax Credits
18 (ITCs) and other financial benefits of the Project are either at risk of being eliminated in future
19 years or being accounted for incorrectly; the Project is misaligned with state policy and public
20 programs; the Project was not prudently designed, operational data is lacking, and environmental
21 concerns were not addressed; the levelized cost of hydrogen is incorrect; and rate recovery and
22 vintaging need to be adjusted.

23 This rebuttal testimony addresses the following intervenor testimony:

- California Environmental Justice Alliance (“CEJA”), sponsored by Sara Gersen (Exhibit (“Ex.”) CEJA-01), dated August 21, 2026.
- Utility Consumers’ Action Network (“UCAN”), sponsored by Tyson Siegele (Ex. UCAN-01), dated August 21, 2026.
- The Utility Reform Network (“TURN”), sponsored by William A. Monsen (Ex. TURN-1), dated August 21, 2026.
- The Public Advocates Office at the California Public Utilities Commission (“Cal Advocates”), sponsored by Thomas Gariffo and Kayla Lutes, dated August 21, 2026.
- San Diego Community Power (“SDCP”) and Clean Energy Alliance (“CEA”) (collectively, “SD CCAs”), sponsored by Anthony M. Georgis, dated August 21, 2026.

As a preliminary matter, the absence of a response in this rebuttal testimony to any assertion, recommendation, or characterization advanced by an intervenor does not imply or constitute agreement by SDG&E.

II. THE TESTIMONY MEETS THE DECISION DIRECTIVES (P. KABIR)

The Project is consistent with and advances the objectives identified in D.24-12-074. Within the 2024 decision, the Commission directed SDG&E to file a standalone application and include “more robust information, leveraging public funding sources and lowering ratepayer costs.”² SDG&E’s Application and the subsequent testimony provides a robust description of the system and its operations, describes the actual costs, and explains how SDG&E leveraged public funding to lower costs and enabled ratepayer benefits.

Several intervenors incorrectly characterize D.24-12-074 as permanently rejecting the Project and contend that failure to meet any one of the listed criteria constitutes denial of the

² D.24-12-074 at 404.

1 Application. TURN specifically contends that the “Commission adopted clear requirements that
2 SDG&E would have to meet if it chose to bring the [Project] before the Commission again” and
3 “SDG&E has failed to meet...a number of the requirements.”³ UCAN similarly claims that
4 “[t]he Commission has already denied this project, and SDG&E has not cured the defect.”⁴
5 SDG&E strongly disagrees with these interpretations by the intervenors. The Application
6 addressed the Commission’s request for more robust information, including strategies that
7 lowered cost for ratepayers, further details on site scaling, and clearly articulated ratepayer
8 benefits from the Project.⁵ As directed by the Commission, the Application was filed by SDG&E
9 and should be evaluated with respect to the evidence in the record.

10 **A. Lower Cost to Ratepayers**

11 SDG&E’s standalone application and subsequent responses included in the public record
12 provide evidence to support the Project’s direct capital costs, operation & maintenance (“O&M”)
13 information, recorded operating data, equipment configuration, hydrogen production, funding
14 and tax-credit information, and a more robust explanation of scale and use cases. Actual direct
15 unloaded capital cost is approximately \$17.49 million and actual 2024 direct O&M is reported
16 below the prior forecast presented in GRC forecast.⁶ UCAN states that “SDG&E characterizes
17 this as evidence that the Project came in on budget” but insists that “[i]t is evidence that nothing
18 was done to lower ratepayer cost.”⁷ SDG&E disagrees with UCAN’s conclusion. Not only is
19 keeping a project on budget a hallmark of a successful operation, as financial forecasts are

³ Ex. TURN-1, *Prepared Testimony of William A. Monsen Addressing SDG&E’s Palomar Decarbonization Demonstration Project* (August 21, 2026) (“TURN Testimony”), Section IV at 20.

⁴ Ex. UCAN-01, *Prepared Testimony of Tyson Siegele on Behalf of UCAN on the Application of SDG&E for Approval of Palomar Decarbonization Demonstration Project* (August 21, 2026) (“UCAN Testimony”), at 5.

⁵ Ex. SDGE-01, *Prepared Direct Testimony of Ari Beer on Behalf of SDG&E – Chapter 1-Policy* (December 16, 2025) (“Beer Testimony”).

⁶ Based on actual spend, SDG&E came \$25,067 higher than GRC 2024 Estimate.

⁷ UCAN Testimony at 7.

1 replaced with real-world data, but the record also shows that SDG&E did implement several
2 strategies to utilize public funding and pass those savings on to ratepayers.⁸

3 Cal Advocates unjustifiably disregards the meaningful funding efforts SDG&E has
4 undertaken to lower the cost of the project to ratepayers, and states that “[t]he ITC and LCFS
5 revenues do not demonstrate that SDG&E actively sought to minimize ratepayer costs,” and
6 “receipt of generally available tax incentives is not equivalent to affirmatively pursuing
7 competitive grants, cost-sharing arrangements, research partnerships, or other third-party funded
8 mechanisms designed to offset capital expenditures.”⁹ This position ignores that the Project has
9 *already* delivered meaningful cost reductions for customers through the successful monetization
10 of federal Investment Tax Credits (“ITCs”). As described in SDG&E’s application, the Project
11 qualified for multiple federal tax credits that collectively reduce the project cost for customers by
12 nearly \$3.9 million.¹⁰ These tax benefits are expected to be returned directly to ratepayers
13 through the proposed cost recovery mechanism when approved within the Application. When
14 viewed relative to the direct capital investment associated with the project, the ITCs reduce
15 project costs by approximately 25 percent. This reduction is significant and demonstrates
16 SDG&E’s efforts to minimize customer impact while still advancing a first-of-its-kind
17 demonstration project. Throughout the Project design and operation, SDG&E has proactively
18 pursued outside revenue such as the ITC and Low Carbon Fuel Standard (“LCFS”) rather than
19 seeking full cost recovery via the Application.

⁸ Application of SDG&E for Approval of Palomar Decarbonization Demonstration Project (December 16, 2025) (“Application”) at 4.

⁹ Cal Advocates, *Testimony on SDG&E’s Application for the Palomar Decarbonization Demonstration Project* (August 21, 2026) (“Cal Advocates Testimony”) at 13-14.

¹⁰ See Ex. SDGE-05, *Prepared Direct Testimony of Lauren Saket, Chapter 5 – Tax* (“Saket Testimony”), Section II at 1-4.

1 Additionally, SDG&E leveraged several other funding opportunities to further improve
2 the Project’s viability and its benefit to ratepayers, which Cal Advocates also overlooks when it
3 argues that “SDG&E fails to demonstrate it satisfies the Commission’s directive to leverage
4 external funding to reduce the financial burden on ratepayers.”¹¹ The Project is registered with
5 the Western Renewable Energy Generation Information System (“WREGIS”) and produces
6 Renewable Energy Credits (“RECs”), which offset costs and generate revenue through the
7 generation, retirement, and/or sale of RECs created by the solar system. The hydrogen vehicle
8 fueling stations that are a part of the Project were enrolled into the California Air Resource Board
9 (“CARB”) LCFS Hydrogen Refueling Infrastructure program, which could generate around
10 \$100,000 per year in additional revenue.¹² Lastly, the Project received indirect funding under
11 Electric Program Investment Charge (“EPIC”) in the amount of \$200,000 for an export panel that
12 is not included within SDG&E’s Application. UCAN also states that “SDG&E sought nothing
13 from ARCHES, nothing from the California Energy Commission’s (“CEC”) Clean Hydrogen
14 Program under AB 209,” which is false.¹³ SDG&E was tracking ARCHES funding, but with the
15 Department of Energy’s decision to terminate the partnership and subsequent litigation by the
16 State, the option to pursue funding under that program is moot at this time. SDG&E is also
17 monitoring all CEC Clean Hydrogen Program grant funding opportunities (“GFO”), but those
18 solicitations do not always align with the timing or objectives for the Project.¹⁴

¹¹ Cal Advocates Testimony at 14.

¹² Because LCFS credits are traded in a market-based program, their value is not fixed and may fluctuate over time in response to prevailing market conditions. The number is an estimate based on expected current market conditions.

¹³ UCAN Testimony at 8.

¹⁴ CEC, *GFO-22-903 - Cost Share for Federal Funding Opportunities Clean Hydrogen Program*, available at: <https://www.energy.ca.gov/solicitations/2023-05/gfo-22-903-cost-share-federal-funding-opportunities-clean-hydrogen-program>.

B. Project Scaling

Intervenors also took issue with the size and scalability (or purported lack thereof) of the Project. TURN and CEJA argue, respectively, “SDG&E offers no pathway to scale hydrogen production,” and “...there is no room at the PEC to significantly expand the infrastructure that would be necessary to produce, compress, and store additional hydrogen.”¹⁵ However, as clarified in the Application, “SDG&E intentionally designed a commercial-scale *demonstration*.”¹⁶ The purpose of the Project is to demonstrate and evaluate an integrated hydrogen production, storage, delivery, blending, and utilization system under actual combined-cycle power plant operating conditions. The Project is intended to generate operational experience and technical data that can inform future decarbonization efforts, not to represent the maximum hydrogen production capacity that could ultimately be deployed at the facility.

The arguments of TURN and CEJA conflate three distinct concepts: (1) the physical expansion potential within the current PEC footprint, (2) the achievable hydrogen blend percentage in the existing gas turbines, and (3) the transferability and scalability of the technologies, operational experience, and lessons learned to other locations and future deployments. While SDG&E acknowledges that the current project footprint limits the amount of on-site hydrogen production that can be accommodated within the existing facility boundaries, that constraint does not establish that hydrogen blending at PEC or elsewhere lacks scalability.

First, the potential scale of hydrogen use at PEC is not inherently limited by the size of the on-site electrolyzer included in the Project. Hydrogen production can be increased to reach 5% blend without any modifications or additional equipment, using the same electrolyzer

¹⁵ TURN Testimony at 21; Ex.CEJA-01, *Prepared Testimony of Sara Gersen on Behalf of CEJA on the Application of SDG&E for Approval of Palomar Decarbonization Demonstration Project* (August 21, 2026) (“CEJA Testimony”) at 3.

¹⁶ Application at 6 (emphasis added).

1 configuration. As the hydrogen economy develops, generation facilities such as PEC could
2 access larger quantities of clean hydrogen from centralized production hubs, regional pipeline
3 systems, or merchant suppliers – none of which was available when SDG&E was proposing and
4 building the Project. Thus, the production capacity installed as part of this demonstration should
5 not be viewed as a ceiling on the amount of hydrogen that could ultimately be utilized at the
6 facility.

7 Second, the blend percentage evaluated in the Project should not be viewed as a fixed
8 limitation. The Project demonstrates hydrogen blending currently at 2%, as specifically elected
9 by SDG&E, which is consistent with a small-scale demonstration.¹⁷ As also noted, the existing
10 turbines (GE Frame 7 GTC) are capable of accommodating up to approximately 5 percent
11 hydrogen blend levels without turbine modifications and potentially up to 30 percent with
12 equipment upgrades and manufacturer-supported modifications.¹⁸ Accordingly, the initial
13 demonstration blend level represents a prudent starting point for testing and validation rather
14 than a technical limitation for future deployment.

15 Lastly, the value of the Project does not depend on its ability to immediately decarbonize
16 PEC at scale. Demonstration projects are designed to reduce uncertainty, validate integration
17 approaches, collect operational data, and identify technical and regulatory considerations before
18 broader deployment occurs. The Project has been collecting information on hydrogen production
19 and compression, storage system performance, gas turbine integration, plant controls, emissions
20 monitoring, fueling applications, operational safety, and workforce training since beginning of
21 operations in 2023.¹⁹ These lessons can be applied not only to potential future expansions at PEC

¹⁷ Ex. SDGE-02, *Prepared Direct Testimony of Pooyan Kabir and Kevin Counts on Behalf of SDG&E, Chapter 2 – Operations* (December 16, 2025) (“Kabir & Counts Testimony”), at 10.

¹⁸ *Id.*

¹⁹ *Id.* at 20-22.

1 but also to hydrogen deployments at other power generation facilities and industrial sites
2 throughout the SDG&E service territory and beyond.

3 Intervenors focus on whether additional equipment can be installed at PEC, but that site-
4 specific consideration is only one measure of scalability. For a demonstration project, scalability
5 also includes whether the operational knowledge gained can be transferred and applied to future
6 projects, facilities, and investment decisions. The Project’s value should therefore be evaluated
7 not only by the amount of equipment that can be installed at PEC, but also by the transferability
8 of the engineering, operational, safety, permitting, and integration experience it has produced and
9 continues to produce. SDG&E has consistently described the Project as a demonstration
10 designed to generate actionable lessons and operational experience that can inform future
11 hydrogen applications and deployment decisions.

12 For these reasons, the limited size of the initial demonstration system does not undermine
13 the Project’s validity, ratepayer benefits, scalability or broader value. The Project was
14 intentionally designed as a prudently sized commercial demonstration that maximizes multiple
15 hydrogen use cases while generating real-world performance data and operational experience.
16 The Project also continues to provide a pathway for targeted expansion at PEC, including
17 potential increases in hydrogen blending levels, while generating insights that can support
18 evaluation of future hydrogen production, storage, fueling, and power generation applications as
19 technologies, infrastructure, and markets continue to evolve. These examples align with the
20 direction the Commission provided SDG&E in D.24-12-074 to provide more “robust
21 information.”²⁰

²⁰ D.24-12-074 at 404.

1 **C. Ratepayer Benefits**

2 Cal Advocates claims that “[SDG&E] fails to demonstrate how the Project serves the
3 public interest,” and CEJA states that “SDG&E has not demonstrated ratepayer benefits that
4 could justify the significant costs of the Project.”²¹ Although the Commission did not specify that
5 the Application should provide additional details regarding ratepayer benefits,²² SDG&E has
6 outlined multiple anticipated project benefits that will impact ratepayers and the community in its
7 respective testimony. The Application notes that the Project will increase reliability, contribute to
8 the reduction of greenhouse gas emissions, and could eventually play a large role in energy
9 affordability.²³ SDG&E takes this opportunity to highlight the noted ratepayer benefits.

10 The Project’s purpose is to enable SDG&E and others’ “long term electrification
11 decarbonization and reliability strategy, and balance the needs of decarbonization and
12 affordability.”²⁴ As the state increases the deployment of clean energy resources, “a diverse
13 portfolio of resources is valuable to achieving the state’s goals.”²⁵ In the 2025 Integrated Energy
14 Policy Report (“IEPR”), the state assesses hydrogen’s potential role supporting the state’s
15 electric power generation demand by (1) replacing fossil gas (2) providing resource
16 diversification and (3) clean transportation transition.²⁶ Hydrogen generated through electrolysis
17 (which is the process that the Project creates hydrogen through) also meets the Commission’s
18 definition for clean renewable hydrogen as it results in a lifecycle greenhouse gas emissions rate
19 of not greater than 4 kilograms of CO₂e per kilogram of hydrogen produced and does not use

²¹ Cal Advocates Testimony at 3; CEJA Testimony at 32.

²² D.24-12-074 at 403-407.

²³ Application at 1.

²⁴ *Id.*

²⁵ CEC, *Final 2025 Integrated Energy Policy Report* (adopted July 2026) at 135, available at:
<https://www.energy.ca.gov/publications/2026/2025-integrated-energy-policy-report>.

²⁶ *Id.* at 137-138.

1 fossil fuel as a feedstock or production energy source which supports CARB’s goals of reducing
2 state emissions by 85% by 2045.²⁷ SDG&E also is well aware of the importance of balancing
3 affordability in rates to achieve decarbonization goals and test technological advancements.²⁸
4 Taking this into consideration, SDG&E strategically sized the demonstration, the Project was on
5 budget, and external funding has been sourced as has been discussed in detail in this testimony.

6 It is the Commission’s legal obligation to ensure that California’s electricity system is
7 both reliable and decarbonized.²⁹ The Project is necessary for “future availability of
8 decarbonized local energy generation that can be dependable and rapidly dispatched to respond
9 to demand for energy in SDG&E’s service area, required to maintain resilience and reliability of
10 the region’s electrical power grid.”³⁰ Therefore, SDG&E is acting now through the Project
11 demonstration to keep California’s decarbonization goals achievable and affordable for energy
12 demand end-uses, while decreasing the risks of additional costs and increasing energy diversity.³¹

13 **III. REVIEWING TAX CREDITS AND FINANCIALS (L. SHELVER)**

14 **A. ITC Tax Credits**

15 Intervenors also raise concerns about the temporal-matching requirements for the ongoing
16 collection of federal tax credits. These assertions are not accurate and do not reflect the election
17 made by SDG&E. TURN argues that SDG&E “...may need to acquire additional (Energy
18 Attribute Credits) EACs.”³² TURN’s argument incorrectly assumes the effective date of the
19 hourly temporal-matching requirement that applies to the Project by overlooking the separate

²⁷ Beer Testimony at 8-9.

²⁸ *Id.* at 28.

²⁹ Application at 18.

³⁰ Beer Testimony at 12.

³¹ *Id.* at 6.

³² TURN Testimony at 48.

1 five-year verification and recapture provisions applicable to the Internal Revenue Code Section
2 48(a)(15) ITC claimed for the Palomar hydrogen-production facility.

3 SDG&E claimed the hydrogen-production ITC in 2023, the taxable year in which the
4 facility was placed in service. Under 26 Code of Federal Regulations Section 1.48-15, a taxpayer
5 making the election to treat a specified clean-hydrogen production facility as energy property
6 must obtain an annual third-party verification report for the election year and for each taxable
7 year during the applicable recapture period.³³ The recapture period begins on the first day of the
8 taxable year following the year in which the facility was placed in service and ends at the close
9 of the fifth taxable year following the placed-in-service year.³⁴ For the Palomar facility, the
10 applicable five-year recapture period runs from 2024 through 2028.

11 Annual third-party verification reports must confirm that the lifecycle greenhouse-gas
12 emissions rate of the hydrogen produced by the facility is consistent with, or lower than, the
13 emissions rate the facility was designed and expected to produce during the five-year recapture
14 period.³⁵ A failure to obtain a timely annual verification report or verified production at an
15 emissions level supporting a lower credit percentage, may result in partial recapture of the ITC
16 initially claimed.³⁶ The purpose of the outlined verification requirements govern whether an
17 emissions-tier recapture event occurs during the prescribed recapture period and does not
18 determine the Project's eligibility for the ITC.³⁷

19 As required by the US Department of Treasury, SDG&E has retained a third-party
20 verifier to validate the Project on an annual basis and ensure that the Project meets section 45V

³³ 26 Code of Federal Regulation ("CFR") § 1.48-15, *available at*: <https://www.ecfr.gov/current/title-26/chapter-I/subchapter-A/part-1/subject-group-ECFR427f958a26c8f4/section-1.48-15>.

³⁴ 26 CFR § 1.48-15(f)(3).

³⁵ 26 CFR § 1.48-15(f)(2).

³⁶ 26 CFR § 1.48-15(f)(4).

³⁷ *Id.*

1 requirements.³⁸ The Project has received positive verification statements for the years verified to
2 date.³⁹ SDG&E would also like to point out that the Project’s 2025 verification opinion
3 confirmed that the reported carbon-intensity score was free of material misstatement. It is clear,
4 even to intervenors such as TURN, that “SDG&E is currently meeting the requirements to
5 maintain the tax credits associated with the [Project]” and will continue to do so through the
6 services of the third-party verifier for the time required.⁴⁰

7 The hourly-matching rule operates on a separate compliance timeline outside of the
8 required five-year recapture period for the Project. TURN itself acknowledges that annual
9 temporal matching remains applicable through the end of 2029 and that hourly temporal
10 matching becomes effective only after December 31, 2029.⁴¹ Their claim that SDG&E “is not
11 currently in compliance with the Section 45V requirements that will take effect in 2030 regarding
12 temporal matching” is invalid.⁴² As stated, the Palomar facility’s Section 48(a)(15) recapture
13 period ends at the close of 2028 and the hourly-matching requirement that begins in 2030 falls
14 outside the recapture period for the Project.⁴³ SDG&E will not be required to acquire hourly
15 EACs beginning in 2030 for the Project and is satisfying compliance obligations through third-
16 party verification of the Project’s annual hydrogen-production and lifecycle greenhouse-gas
17 emissions

18 **B. Cost Recovery**

19 Some intervenors also disagree with SDG&E’s proposed account and cost recovery
20 mechanism. TURN claims that Hydrogen Balancing Account (“H2BA”) could “permit SDG&E

³⁸ As defined 26 CFR § 1.45V-5(b).

³⁹ Saket Testimony at 4.

⁴⁰ TURN Testimony at 48.

⁴¹ *Id.* at 46.

⁴² *Id.* at 48.

⁴³ 26 CFR § 1.48-15.

1 to unilaterally add large new plant upgrade costs to rates without any prior Commission review
2 or determination as to the reasonableness or cost-effectiveness of these investments” and “could
3 also prevent the Commission from reviewing the reasonableness of any future purchases of
4 EACs.”⁴⁴ TURN’s claims are flawed and incorrect. When a balancing account is approved, it
5 does not give SDG&E the authority to charge unapproved costs to the account. Only costs
6 approved in the decision can be charged to the balancing account as will be outlined in the
7 preliminary statement.

8 TURN also argues that “SDG&E will ultimately return the solar tax credits to ratepayers.
9 However, the return of this credit is stretched out over a number of years in a manner that
10 directly benefits shareholders.”⁴⁵ TURN then acknowledges that SDG&E “is required to return
11 such tax credits to customers using the process of normalization,” but fails to understand that
12 normalization requires the utilities to recover tax costs over time in a way that aligns with
13 regulatory principles.⁴⁶ If SDG&E commits a normalization violation, it may be disallowed from
14 recovering certain accelerated tax benefits through rates at all, which in turn would cause
15 SDG&E’s customers to lose the tax benefits of the accelerated tax deductions that they currently
16 receive.⁴⁷ It is also worth noting that the Inflation Reduction Act (“IRA”) created an election for
17 regulated utilities to opt out of the normalization requirements with respect to energy storage
18 ITCs, and SDG&E made that election for the Palomar Facility’s energy storage ITC on Sempra’s
19 2023 Federal Tax Return.⁴⁸

⁴⁴ TURN Testimony at 50.

⁴⁵ *Id.* at 42.

⁴⁶ *Id.*; Saket Testimony at 5.

⁴⁷ Saket Testimony at 5.

⁴⁸ *Id.*

1 **IV. PALOMAR ALIGNS WITH STATE POLICY AND PUBLIC PROGRAMS**
2 **(A. BEER)**

3 **A. Alignment with State Policy**

4 Several intervenors suggest that the existence of the Project is misaligned with State
5 policies and that hydrogen as a fuel source is a resource that should be avoided. CEJA states that
6 it would be “wasteful to fund RD&D on a technology that cannot scale” when referring to the
7 Project’s limitations of utilizing more than 2% hydrogen in its generation.⁴⁹ SDG&E has
8 reiterated on several occasions that the Project is a demonstration effort, and its objective is not
9 to drastically cut emissions, but support decarbonization across multiple areas of electric utility
10 operations.⁵⁰ It is an opportunity to gain critical insights to prepare for a future where hydrogen
11 may be more common as a clean fuel source. State policy actors continue to invest in hydrogen-
12 related initiatives and SDG&E would be performing a disservice to ratepayers by not preparing
13 for a future where hydrogen is more commonly used.

14 For example, the CEC recently announced funding opportunities for hydrogen-related
15 infrastructure and fueling. This includes the recent release of \$15M dollars to fund hydrogen
16 refueling stations throughout the state,⁵¹ which aligns with SDG&E’s own efforts to utilize the
17 fuel for company fleet vehicles at Palomar.⁵² Under Assembly Bill (“AB”) 209, the Clean
18 Hydrogen Program was established to support hydrogen demonstration projects throughout the
19 state.⁵³ In accordance with the legislation, CEC recently released GFO-25-308 (H2ONSITE),

⁴⁹ CEJA Testimony at 5.

⁵⁰ Application at 3.

⁵¹ CEC, *2026-2027 Investment Plan Update for Clean Transportation Program* (August 2026) at 3,
available at: <https://www.energy.ca.gov/publications/2026/2026-2027-investment-plan-update-clean-transportation-program>.

⁵² Beer Testimony at 25.

⁵³ Assembly Bill 209 (Ting, 2022), available at:
https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB209 .

1 which aims to fund distributed-scale hydrogen production facilities that are co-located with
2 storage and end use.⁵⁴ The 2025 Senate Bill (“SB”) 100 Joint Agency Report which assesses
3 potential pathways for achieving California’s goal of 100% zero-carbon electricity by 2045 also
4 explores high hydrogen demand scenario driving electrolysis energy for the transportation sector
5 which is the hydrogen technology that the Project is demonstrating for this end-use.⁵⁵ The
6 Project is aligned with ongoing State efforts to support the development of hydrogen
7 infrastructure and enable demonstrations of hydrogen within several different mediums.

8 Several intervenors devote substantial portions of their testimony to arguments about
9 whether hydrogen should play any role in California’s energy future. For example, UCAN
10 (wrongly) argues that “[h]ydrogen-fired generation is not a use California plans to deploy” and
11 that “[e]very California agency model of the power sector has selected zero hydrogen.”⁵⁶ This
12 argument is not correct as, for example, CPUC IRP Zero-Carbon Technology Assessment
13 identifies hydrogen as a zero-carbon firm dispatchable resource.⁵⁷ Moreover, CARB’s scoping
14 plan for achieving carbon neutrality projects 9,000 MW of hydrogen combustion in turbines will
15 be needed by 2045.⁵⁸ CEJA similarly conjectures, without any support, that the Project “could
16 divert funding from clean energy RD&D.”⁵⁹ Ultimately, these arguments seek to relitigate state

⁵⁴ See CEC, *GFO-25-308 – Distributed Clean Hydrogen Production with Onsite End Use (H2ONSITE)*, available at: <https://www.energy.ca.gov/solicitations/2026-06/gfo-25-308-distributed-clean-hydrogen-production-onsite-end-use-h2onsite> (note that this grant funding opportunity was not available to SDG&E when the Project was developed and constructed).

⁵⁵ CEC/CPUC/CARB, *2021 SB 100 Joint Agency Report* (published March 15, 2021) at Figure 10 at 15-16, available at: <https://www.energy.ca.gov/publications/2021/2021-sb-100-joint-agency-report-achieving-100-percent-clean-electricity>.

⁵⁶ UCAN Testimony at 3.

⁵⁷ Energy and Environmental Economics, Inc., *IRP Zero-Carbon Technology Assessment: Final Report* (September 2022) at 10, available at: <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan/2022-irp-cycle-events-and-materials/cpuc-irp-zero-carbon-technology-assessment.pdf>.

⁵⁸ CARB, *2022 Scoping Plan for Achieving Carbon Neutrality* (November 16, 2022) at 203-204, available at: https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp_1.pdf.

⁵⁹ CEJA Testimony at 15.

1 energy policy decisions that are outside the scope of this proceeding. As discussed in the
2 Introduction, above, the Scoping Issue 1 in this proceeding specifically asks whether the Project
3 is “designed to produce operational, safety, emissions, decarbonization, environmental, cost,
4 and/or scalability information that is (a) unique from other research and pilots on this topic and
5 (b) needed to evaluate whether renewable hydrogen *can* contribute to California’s clean energy
6 resource strategy.”⁶⁰ By its terms, Scoping Issue 1 assumes that evaluating hydrogen’s potential
7 contribution to California’s resource strategy is a legitimate objective and asks whether this
8 Project can produce information useful to that evaluation. The scoping issue does not ask
9 whether the Commission should adopt or reject hydrogen as a component of the state’s energy
10 portfolio or policy.

11 UCAN argues that the “Commission should deny cost recovery and should direct utilities
12 to stop pursuing hydrogen-based approaches to decarbonizing the electricity grid.”⁶¹ SDG&E
13 disagrees with both points, with particular emphasis on the second statement. At a minimum,
14 UCAN’s request to the Commission to place a moratorium on utilities from pursuing
15 decarbonization via hydrogen within the electric sectors is out of scope for this proceeding. The
16 Project should not be used as a vehicle to make far reaching regulatory mandates for the state. It
17 also runs afoul of recently passed legislation. SB 1350 updates the definition of “Renewable
18 electrical generation facility” to include facilities that use turbines to generate electricity utilizing
19 specific fuels, including but not limited to, hydrogen gas deprived from eligible renewable
20 feedstocks or through an electrolyze powered by renewable energy.⁶² The legislation goes on to

⁶⁰ Scoping Memo at 4 (emphasis added).

⁶¹ UCAN Testimony at 3.

⁶² SB 1350 (McNerney, 2026), McNerney, *available at*:
https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202520260SB1350.

1 state that the turbines within the facility must be capable of handling a minimum hydrogen blend
2 of 20%.

3 SDG&E views this legislation as additional justification for the Project. While SDG&E
4 has no plans at this time to expand the project scope beyond its current application parameters
5 and would need to upgrade the turbines at the facility to handle the higher hydrogen gas blend,
6 the knowledge and experience gained from the demonstration puts SDG&E in a strong position
7 to proactively engage on this legislation in the future, either from an order by the Commission or
8 to meet reliability or procurement requirements under a future Integrated Resource Plan (“IRP”)
9 Proceeding.⁶³ CEJA claims that the turbines at Palomar do not currently meet the criteria under
10 SB 1350 and, due to this fact, should make the project disqualifying for the Commission.⁶⁴
11 SDG&E disagrees. The Palomar facility can now be viewed through the lens of SB 1350 by both
12 SDG&E and other generation managers. The lessons and knowledge gained from Palomar, the
13 only facility of its kind in California,⁶⁵ can inform and enable best practices that could eventually
14 be utilized in future hydrogen-blended generation facilities under SB 1350.

15 In this proceeding, the Commission is evaluating the value proposition of this specific
16 Project, not conducting a referendum on hydrogen as a technology or fuel. Intervenor arguments
17 that hydrogen should never be used for power generation, that IRP models do not select
18 hydrogen, or that batteries are a categorically superior alternative, etc., may be relevant to
19 resource planning proceedings but do not resolve the specific questions presented in this
20 Application. SDG&E’s burden is to demonstrate that the Project, as designed and operated,

⁶³ In D.26-02-057 at 30, the Commission affirmed that “repowered resources”, which are previously operating clean energy or natural gas assets, can count towards procurement requirements for incremental capacity that is added over and above the original resource capacity.

⁶⁴ CEJA Testimony at 7.

⁶⁵ Beer Testimony at 10.

1 produces information and operational experience that is useful to the Commission, to
2 implementing and informing broader State policy, and to ratepayers. That showing should be
3 evaluated on its own merits within the scope the Commission has defined.

4 **B. Palomar is Not an EPIC Project**

5 CEJA dedicates a significant portion of their testimony arguing that the Project should
6 not be approved because it does not align with principals under EPIC. Specifically, CEJA states
7 that a “demonstration project can only meaningfully demonstrate a technology if it reflects the
8 scale of anticipated commercial operation” and “hydrogen blending at Palomar does not meet
9 this criteria...”⁶⁶ They go on to discuss that “the Commission has prohibited utilities from self-
10 funding electricity generation-only demonstration or deployment projects in the EPIC program,”
11 and this policy should be applied “to all RD&D funding streams.”⁶⁷ Additionally, UCAN
12 criticizes the Project as it relates to funding and EPIC, and contends that “SDG&E sought
13 nothing...from EPIC for Project capital.”⁶⁸

14 To be clear, with the exception of the export panel, the Project is not funded by EPIC and
15 should not be considered an EPIC project. Because the export panel was already funded by EPIC
16 (in contradiction to UCAN’s claim that SDG&E did not seek EPIC funding), it was not included
17 in the Application.⁶⁹ The Project as defined by the Application stands on its own and outside the
18 current EPIC proceeding.⁷⁰ There are several reasons why the Project was not included in EPIC.
19 First, EPIC administrators, which include the Investor-Owned Utilities (“IOUs”) and CEC, are
20 required to file Investment Plans that are reviewed and approved by the Commission. These

⁶⁶ CEJA Testimony at 6-7.

⁶⁷ *Id.* at 19.

⁶⁸ UCAN Testimony at 8.

⁶⁹ Beer Testimony at 32.

⁷⁰ See R.19-10-005, Order Instituting Rulemaking on the Commission’s Own Motion to Consider
Renewal of the Electric Program Investment Charge Program (October 10, 2019).

1 Investment Plans include details on initiatives and research topic areas that are proposed for the
2 current EPIC cycle. The Project was not included in SDG&E's filed Investment Plans.⁷¹ EPIC
3 constrains IOU administrators from proposing generation-only projects.⁷² The PEC is clearly a
4 part of SDG&E's generation fleet. Lastly, the electrolyzer is already commercialized and does
5 not qualify for an EPIC project, as EPIC only allows the IOUs to investigate technologies that
6 are in developmental stage.⁷³ EPIC is a unique offering, created by statute and having years of
7 public records informing the Commission on best practices and guiding principles. It should not
8 be used as a litmus test for the Project, which should be reviewed on its own merits as an
9 initiative that is informing future decarbonization and operational efforts.

10 **C. Palomar is Not a Candidate for Electric Power Research Institute ("EPRI")**

11 TURN states that SDG&E fails to explain how the Project "represents a 'more effective'
12 and less costly approach than participating in collaborative research through EPRI or other
13 industry groups."⁷⁴ EPRI primarily performs and coordinates research, information sharing, and
14 demonstration programs across the industry. EPRI itself describes its hydrogen activities as
15 collaborative research, testing, workforce development, and demonstration support.⁷⁵
16 Participation in EPRI would allow SDG&E personnel to review reports and lessons learned from
17 other organizations, but it would not fulfill fundamental objectives of the Project--*i.e.*, it would
18 not provide: operating experience on SDG&E assets; operational data from PEC equipment;
19 development of utility workforce training and operational procedures; maintenance experience;

⁷¹ See SDG&E's EPIC Project Reports, *available at*: <https://www.sdge.com/epic>.

⁷² D.12-05-037 at 41.

⁷³ *Id.* at 100.

⁷⁴ TURN Testimony at 20.

⁷⁵ See EPRI Hydrogen technology, *available at*: <https://hydrogen.epri.com/en/>.

1 permitting experience; integration of hydrogen with SDG&E plant controls; utility safety
2 program development; or utility-specific emissions and performance data.

3 **V. PRUDENT DESIGN, OPERATIONS, AND ENVIRONMENTAL IMPACT**
4 **(P. KABIR)**

5 **A. Equipment Selection**

6 Cal Advocates dedicates a significant amount of their testimony to the reasonableness of
7 cost and need of several components of the Project.⁷⁶ Capital cost of the electrolyzer and
8 associated operation and maintenance expenses are contended. Cal Advocates argues that
9 SDG&E did not specify the costs associated with individual project components, including the
10 electrolyzer.⁷⁷

11 SDG&E has already provided the requested component-level cost information.
12 Specifically, SDG&E provided Cal Advocates, TURN, and UCAN with the executed vendor
13 contract between SDG&E and NEL Hydrogen US. The contract, executed on February 4, 2022,
14 identifies the pricing for the MC250 Electrolyzer Package, the H2 Station hydrogen refueling
15 solution, and other project components. The record therefore contains vendor-specific pricing
16 and supporting cost details necessary to evaluate the cost of these components. Cal Advocates'
17 assertion that such component-level cost information has not been provided therefore overlooks
18 information that SDG&E has already produced in this proceeding.

19 Cal Advocates argues that the hydrogen storage tanks are inappropriately sized for the
20 system.⁷⁸ They assess the storage system for only one of the Project's use cases. The correct
21 design inquiry is whether the storage system provides reasonable capacity to buffer intermittent
22 production and support hydrogen blending, generator cooling, hydrogen fueling station, and

⁷⁶ Cal Advocates Testimony at 7-9.

⁷⁷ *Id.* at 7.

⁷⁸ *Id.* at 9-10.

1 RD&D testing. The system is designed to support all use cases of the Project, and thus the size is
2 adequate to address those needs as demonstrated in Kabir & Counts testimony.⁷⁹

3 Cal Advocates asserts that the two-stage compressor is unnecessary;⁸⁰ however, this
4 conclusion relies on an overly narrow, component-by-component assessment that fails to
5 consider the integrated nature of the hydrogen production and storage system. Under Cal
6 Advocates' proposed independent benefit test, any supporting or enabling equipment lacking a
7 stand-alone function could be excluded, despite being essential to overall project operation. The
8 two-stage compressor is a critical system component because hydrogen produced by the
9 electrolyzer must be compressed to achieve practical and economically reasonable storage
10 volumes. Without compression, the project would be unable to store meaningful quantities of
11 hydrogen and blend hydrogen into turbines, significantly limiting operational flexibility and
12 undermining the intended functionality of the hydrogen production, storage, and utilization
13 system. Accordingly, the compressor should be evaluated based on its contribution to the
14 performance of the integrated system, rather than on whether it provides an independent, stand-
15 alone benefit.

16 Moreover, Cal Advocates contends that the hydrogen fueling station is unnecessary
17 because the limited number of hydrogen fuel cell electric vehicles ("HFCEVs") currently served
18 by the station could instead rely on public hydrogen fueling infrastructure.⁸¹ This argument
19 overlooks the practical limitations of relying on public fueling infrastructure identified in Beer's
20 testimony.⁸² As explained by SDG&E, at the time of this application, San Diego County had
21 only one operational public hydrogen fueling station, and public fueling options in the region

⁷⁹ Kabir & Counts Testimony at 4-13.

⁸⁰ Cal Advocates Testimony at 11.

⁸¹ *Id.* at 12-13.

⁸² Beer Testimony at 25-26.

1 remain limited.⁸³ The nearest public fueling station is approximately 30 miles from PEC, and
2 public hydrogen stations have experienced reliability, availability, and downtime challenges.⁸⁴
3 SDG&E also clarified in response to UCAN, that only one of the Toyota Mira vehicles included
4 a Toyota-provided fuel card.⁸⁵ Further, SDG&E explained in response to discovery that, absent
5 onsite fueling capability, PEC-based vehicles would be required to travel to the public hydrogen
6 station located on Mission Center Road in San Diego, adding unnecessary round-trip mileage,
7 employee time, and operational inefficiencies. The onsite fueling station therefore provides
8 benefits beyond simply dispensing fuel. The dedicated fueling station at PEC provides efficient
9 on-site fueling capability while allowing SDG&E to gain operational experience with hydrogen
10 production, compression, dispensing, and vehicle fueling as part of the Project.

11 Intervenors also mischaracterize D.24-12-074 as it relates to the importance and approval
12 of hydrogen re-fueling stations. UCAN argues that the “Commission separately and explicitly
13 denied the hydrogen fueling station capital and operating costs.”⁸⁶ Separately, CEJA notes that
14 SDG&E “should have taken advantage of the cost-saving opportunity presented by battery
15 electric passenger vehicles” if fueling at publicly available hydrogen stations “was inconsistent
16 with operational needs.”⁸⁷ SDG&E disputes both of these comments. First, D.23-12-074 did not
17 deny the hydrogen refueling stations outright, rather, it provided SDG&E the opportunity to file
18 a stand-alone Application seeking approval of the Project (of which the refueling stations are a
19 part). Second, the Commission supported other hydrogen refueling station projects within the

⁸³ *Id.* at 25.

⁸⁴ CEC/CARB, *Joint Agency Staff Report on Assembly Bill 126: 2025 Annual Assessment of the Hydrogen Refueling Network in California* (December 2025), available at: <https://www.energy.ca.gov/sites/default/files/2026-05/CEC-600-2026-022.pdf>

⁸⁵ TURN Data Request 01, Question 29.

⁸⁶ UCAN Testimony at 6.

⁸⁷ CEJA Testimony at 31.

1 Decision, providing support for the technology, its alignment decarbonization efforts, and
2 SDG&E's arguments regarding limitations of public stations within the service territory.⁸⁸ The
3 fueling station was included in Dale Tattersall's (Real Estate, Land Services & Facility
4 Operations) Testimony within the Clean Transportation Infrastructure section.⁸⁹ Importantly, the
5 Commission approved the uncontested capital work within D.24-12-074.⁹⁰ Lastly, the 2024
6 Decision also approved hydrogen vehicles to utilize new refueling infrastructure, specifically,
7 three passenger vehicles and three medium/heavy duty vehicles.⁹¹ The 2024 Decision should not
8 be viewed as a rebuke of hydrogen refueling stations or categorical denial of the refueling
9 stations included in this Application. It should be viewed as the Commission providing support
10 for refueling stations in some cases, while providing SDG&E with the opportunity to present a
11 more comprehensive, standalone Application in the future that includes hydrogen refueling
12 stations in a multiple use case opportunity at PEC.

13 **B. Levelized Cost of Clean Hydrogen**

14 The purpose of a demonstration project is not to produce the lowest-cost product under
15 fully optimized commercial conditions. Rather, its purpose is to determine the technology in an
16 operational environment, generate real-world operating data, identify technical and integration
17 challenges, and develop lessons that can inform future projects.

18 Several interveners calculate the levelized cost of hydrogen using assumptions that do not
19 accurately reflect the Project's cost or operations. For example, TURN calculates a levelized cost
20 of hydrogen by allocating the full revenue requirements for the Project to hydrogen production.⁹²

⁸⁸ Beer Testimony at 25-26.

⁸⁹ A.22-05-016, Ex. SDG&E-23, *Prepared Direct Testimony of Dale Tattersall on behalf of SDG&E* (May 2022) at 40.

⁹⁰ D.24-12-074 at 634-635.

⁹¹ *Id.* at Conclusions of Law ("COL") 200 at 1069.

⁹² TURN Testimony at 30-31.

1 This comparison incorrectly treats delivered hydrogen as a substitute for the entire Project. Even
2 if SDG&E purchased hydrogen from an off-site supplier, the balance-of-plant equipment needed
3 to receive, handle, store, compress, blend, and safely use that hydrogen at the facility would still
4 be required. The costs associated with that equipment would therefore not be avoided merely by
5 replacing on-site hydrogen production with delivered hydrogen.

6 A valid comparison should isolate the costs that differ between the two supply
7 alternatives. Specifically, the appropriate comparison is between the cost of producing hydrogen
8 with the Project's electrolyzer, including the electricity, water, and directly attributable
9 production costs, and the cost of purchasing and delivering an equivalent quantity and quality of
10 hydrogen to the site. The costs of equipment required under both alternatives should either be
11 included on both sides of the comparison or excluded from both. TURN's methodology instead
12 assigns the costs of the entire integrated Project to on-site hydrogen while assigning only the
13 commodity and delivery cost to the delivered-hydrogen alternative. This asymmetrical treatment
14 materially overstates the relative cost of on-site hydrogen production and does not provide a
15 valid basis for determining whether delivered hydrogen is a more economical alternative.

16 TURN also states that it has observed more favorable hydrogen pricing.⁹³ However,
17 without the underlying pricing information and supporting documentation, the reasonableness
18 and comparability of that assertion cannot be evaluated. In order to meaningfully compare
19 pricing observed by TURN to the Project's costs, TURN would need to provide the referenced
20 pricing through a formal and reviewable evidentiary submission, including, at a minimum, the
21 source and date of the pricing; whether the price reflects a binding supplier quotation, executed
22 contract, market indication, or informal estimate; the hydrogen production pathway and carbon

⁹³ See, e.g., TURN Testimony at 35-36.

1 intensity; the contracted volume and term; delivery distance and method; transportation and
2 handling charges; required pressure, purity, and quality specifications; escalation provisions;
3 minimum-purchase or take-or-pay obligations; and any costs excluded from the quoted price.
4 TURN would also need to identify whether the pricing includes the infrastructure and services
5 necessary to deliver hydrogen to the Project site at the required operating conditions.

6 Without this information, TURN's reference to purportedly better pricing is not sufficient
7 to establish that delivered hydrogen is a reasonably-available or less-costly alternative. A
8 generalized pricing assertion cannot be meaningfully compared with the Project's cost without
9 demonstrating that the cited hydrogen supply is commercially available and comparable in
10 quantity, quality, delivery conditions, reliability, contract term, and environmental attributes.
11 Absent this underlying pricing information in a formal format that permits SDG&E and the
12 Commission to evaluate the assumptions and determine whether the comparison is valid,
13 TURN's claim regarding hydrogen pricing should not be afforded any weight. Finally, TURN
14 also references a proposed facility in Lancaster, CA,⁹⁴ but that project was only announced in
15 2023, is still under development, and its delivered pricing to the San Diego region is unknown.⁹⁵
16 SDG&E cannot reasonably benchmark its costs against facilities that were not operational when
17 the project was designed, and that have yet to demonstrate commercial delivery capability.⁹⁶

18 The levelized cost of clean hydrogen produced at the facility is highly dependent on
19 several project-specific assumptions, including electrolyzer operating hours, electricity prices,
20 water costs, system utilization, and the useful life of the equipment. Consequently, any estimate
21 of hydrogen production costs is sensitive to these underlying assumptions, and comparisons

⁹⁴ *Id.* at 33.

⁹⁵ Element Resources, Inc., Lancaster Clean Energy Center Project webpage, *available at*:
<https://www.elementresources.com/our-projects/lancaster-energy-center/>.

⁹⁶ *Id.*

1 based on alternative assumptions may not accurately reflect the expected operating conditions of
2 the project. The project is intended to demonstrate multiple applications and operational benefits
3 associated with onsite clean hydrogen production. Even when considering a conservative
4 scenario in which hydrogen production is limited to electricity supplied by the onsite solar
5 facility serving SDG&E's system, the electrolyzer can produce approximately 8,100 kilograms of
6 clean hydrogen annually. Assuming a delivered hydrogen cost of approximately \$58 per
7 kilogram, the equivalent annual cost of procuring that same quantity of hydrogen from an offsite
8 supplier would be approximately \$470,000 per year. Over a ten-year operating period, the total
9 delivered hydrogen cost would be approximately \$4.7 million. This amount exceeds the direct
10 capital cost of the electrolyzer and the estimated ten-year operation and maintenance expenses
11 combined, demonstrating that onsite production can provide a cost-effective alternative to
12 delivered hydrogen.

13 In addition to the economic benefits, onsite hydrogen production also reduces emissions
14 associated with transportation and fuel delivery. Hydrogen delivered to the facility would require
15 truck transport, resulting in additional greenhouse gas emissions that are avoided through onsite
16 generation. Cal Advocates' characterization of the electrolyzer as an unreasonable project
17 component fails to consider both the comparative lifecycle costs and the environmental benefits
18 associated with onsite clean hydrogen production.

19 Furthermore, what intervenors' cost arguments overlook is that California has a well-
20 documented history of requiring its investor-owned utilities to make early investments in
21 emerging clean energy technologies—investments that appeared expensive at inception but
22 proved essential to driving the cost reductions that followed. The Commission should evaluate
23 the Project in that context. The most directly analogous precedent is the Renewables Portfolio

1 Standard (“RPS”) program. Under the RPS, established by SB 1078 in 2002, the Commission
2 required California’s IOUs to procure increasing quantities of renewable generation, beginning
3 procuring in the 2003-2004 timeframe. The Commission’s own annual Padilla Reports document
4 the cost trajectory that resulted. According to the 2026 Padilla Report, executed RPS contract
5 prices peaked in 2007 and have been generally falling since.⁹⁷ The 2024 RPS Annual Report
6 found that the average RPS-eligible energy contract price dropped 1.3 percent per year from
7 2007 to 2023, “largely attributed to falling prices for wind and solar technologies.”⁹⁸ By 2023,
8 the average executed contract price was 5.8¢/kWh—a fraction of the prices IOUs committed to
9 in the early years of the program, which at their peak in 2007 were closer to 23¢/kWh.⁹⁹ The
10 hydrogen market today is at a comparable stage. Electrolyzer costs have fallen significantly—
11 BloombergNEF reported a 40 percent decline in the cost of alkaline electrolyzers between 2014
12 and 2019 alone¹⁰⁰—and the trajectory mirrors the early stages of the solar cost curve in
13 quantifiable terms.

14 The energy storage parallel is equally instructive. In 2013, the Commission ordered
15 California’s three large IOUs to procure 1,325 MW of energy storage by 2020 pursuant to AB
16 2514 and D.13-10-040. At the time, as one publicly-owned utility reported, “most forms of

⁹⁷ CPUC, *2026 Padilla Report: Costs and Cost Savings for the RPS Program* (published June 2026) at 20, Figure 4, available at: <https://www.cpuc.ca.gov/-/media/cpuc-website/industries-and-topics/documents/energy/rps/2026/2026-padilla-report.pdf>.

⁹⁸ CPUC, *2024 California Renewables Portfolio Standard Annual Report* (November 2024), at 25, Figure 7, available at: <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/office-of-governmental-affairs-division/reports/2024-california-renewables-portfolio-standard-rps-annual-report.pdf>.

⁹⁹ *Id.* at 25 and Figure 7.

¹⁰⁰ Beer Testimony at 9.

1 energy storage are not cost-effective at this time.”¹⁰¹ Battery storage costs in 2010 were
2 approximately \$1,000 per kWh and by 2020 declined to approximately \$150–\$200 per kWh.¹⁰²

3 The Commission’s 2023 Energy Storage Procurement Study documents this cost
4 trajectory at the project level. Early California pilot and demonstration battery projects installed
5 between 2011 and 2018 had costs of \$6,000 to \$11,500 per kW in 2022 dollars. Projects in
6 2017–2019 came in at \$2,000 to \$4,500 per kW, and newer utility-owned projects in 2021–2022
7 had estimated costs of \$1,300 to \$1,700 per kW.¹⁰³ Notably, the Commission’s Study supports
8 that early demonstration investments should not be judged by their standalone cost-effectiveness;
9 the Study’s preface states, “The historical evaluation in our report is not intended to be — nor
10 would it be correctly interpreted as — a prudency review of any individual energy storage
11 resource procurement. California’s journey with energy storage development included
12 substantial investment in the innovation process. This necessitates learning from pilots,
13 demonstration projects, and first-of-its-kind procurements to facilitate future potential benefits of
14 a larger fleet.”¹⁰⁴

15 This history demonstrates that the State has supported innovation in the past, even at a
16 high cost. And while these early decisions succeeded in driving down the costs of solar/batteries,
17 which is paying dividends today, SDG&E does not want to impose similar large-scale project
18 costs on ratepayers as it advances early-stage hydrogen development. This is precisely why the

¹⁰¹ City of Santa Clara, *Energy Storage Procurement Plan, Silicon Valley Power* (July 2014), at 2,
available at:

<https://efiling.energy.ca.gov/GetDocument.aspx?DocumentContentId=65783&tn=233294>.

¹⁰² Elshurafa et al., *The value of storage in electricity generation: A qualitative and quantitative review*,
Vol. 32, *Journal of Energy Storage*, at 1, available at:

<https://www.sciencedirect.com/science/article/pii/S2352152X20317096>.

¹⁰³ Lumen Energy Strategy, LLC and CPUC, *Energy Storage Procurement Study* (May 31, 2023),
Attachment A, at A-30, available at: <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/energy-storage>.

¹⁰⁴ *Id.* at vii.

1 Project was designed to meet operational and learning objectives at a *modest scale*. Investments
2 still need to be made in these technologies for the State to meet their decarbonization goals.
3 SDG&E is aiming to achieve this via a demonstration project, which can support the technology
4 and industry (*i.e.*, drive down costs), while avoiding saddling customers with high cost, long-
5 term commitments.

6 Intervenor effectively argue that hydrogen should be held to a standard that solar and
7 storage were not required to meet—that it must demonstrate cost-effectiveness at commercial
8 scale before the Commission authorizes even a demonstration investment. That framework, if
9 applied to emerging technologies generally, would have precluded the very investments in solar
10 and energy storage that the intervenors now point to as superior alternatives. The Project is a
11 modest, prudent investment in an integrated hydrogen system that generates the very operational
12 data and experience the Commission will need to evaluate hydrogen’s role in meeting
13 California’s 2045 decarbonization requirements.

14 **C. Round Trip Efficiency**

15 UCAN’s central technical argument characterizes the entire Project as electricity storage
16 and evaluates it through a power-to-hydrogen-to-power round-trip-efficiency calculation.¹⁰⁵ The
17 Project is not proposed as an energy storage system, and therefore comparing its round-trip
18 efficiency to lithium-ion battery storage is not an appropriate measure of efficiency. The round-
19 trip efficiency relies on SDG&E’s calculation that one MWh supplied to the electrolyzer
20 ultimately yields approximately 0.32 MWh when the resulting hydrogen is combusted at PEC. It
21 then compares that 32 percent figure to lithium-ion battery efficiencies near 90 percent.

¹⁰⁵ UCAN Testimony at 10-11.

1 The arithmetic may describe one conversion pathway, but UCAN's analytical conclusion
2 does not follow. Hydrogen is not evaluated solely as a short-duration electricity storage device
3 competing against lithium-ion batteries. The Project includes several use cases and is intended to
4 examine the production, handling, storage, compression, transportation, fueling, cooling, and
5 combustion of hydrogen. A battery cannot generate hydrogen for vehicle fueling, generator
6 cooling, off-site research, fuel-delivery testing, or evaluation of firm-dispatchable hydrogen
7 combustion systems.

8 UCAN's comparison therefore incorrectly assumes functional equivalence between
9 resources that are designed to serve different purposes. It compares hydrogen's efficiency in one
10 use case against a resource optimized for a different use case, then uses that comparison to
11 dismiss the entire integrated Project. Round-trip efficiency is relevant, but it is not a complete
12 measure of value where the output is a storable fuel, a chemical feedstock, a transportation fuel,
13 or a platform for operational research.

14 **D. Operational Data and Learnings**

15 The Project has already produced practical operational learnings that could not be
16 obtained merely from equipment specifications or modeling. SDG&E has gained experience
17 commissioning and operating an integrated hydrogen system, including hydrogen leak and
18 pressure testing, emergency shutdown systems, electrolyzer startup and shutdown, compressor
19 operation, high-pressure storage, fueling operations, generator-cooling conversion, and the
20 movement of hydrogen among multiple end uses. The learnings also extend beyond the physical
21 equipment. The Project has provided experience with the administrative and compliance
22 processes associated with renewable hydrogen, including tax-credit verification and
23 WREGIS/REC compliance, as well as work associated with LCFS/HRI qualification. These are
24 consequential demonstration learnings because deploying hydrogen at other utility facilities

1 would require not only selecting equipment, but understanding how the equipment is
2 commissioned, operated, integrated, monitored, maintained, and supported by the applicable
3 compliance processes. The Project provides hands-on information regarding how hydrogen
4 equipment is commissioned, safely operated, integrated with an existing power plant, and
5 managed within applicable regulatory and compliance frameworks, all of which can inform the
6 design and operation of future hydrogen projects. Importantly, the Project has allowed SDG&E
7 to develop internal safety capabilities for hydrogen operations rather than relying solely on
8 vendor knowledge. SDG&E has gained experience establishing hydrogen-specific operating and
9 safety practices and developing internal knowledge regarding the safe design, operation, and
10 maintenance of hydrogen equipment.

11 The operating record should be evaluated in the context of the Project's purpose as a
12 demonstration, rather than against the utilization standard of a mature commercial production
13 facility. UCAN emphasizes that the electrolyzer produced 1,742.83 kilograms of hydrogen in
14 2024, approximately 4,104 to 4,279 kilograms in 2025, and approximately 719 kilograms on an
15 annualized basis using the reported 2026 year-to-date data.¹⁰⁶ These figures describe the
16 frequency of operation, but they do not establish that the operating periods produced no useful
17 information. A demonstration facility does not need to achieve a commercial capacity factor to
18 generate relevant data. Intermittent operation can provide information concerning electrolyzer
19 startup and shutdown, hydrogen production, system controls, compression, storage, transfer
20 among end uses, and the integration of hydrogen with existing plant equipment. Utilization is
21 relevant to the quantity and range of available data, but utilization alone is not a valid measure of
22 the quality or usefulness of the information obtained.

¹⁰⁶ *Id.* at 30.

1 The Project’s learning value also extends beyond the narrow question of whether a GE
2 7FA turbine can combust a low-percentage hydrogen blend. UCAN points to prior
3 demonstrations involving hydrogen concentrations at or above the approximately 2 percent blend
4 evaluated at PEC and argues that these prior demonstrations render the Project’s information
5 duplicative.¹⁰⁷ However, blend percentage and turbine models are not the only relevant variables.
6 The Palomar system integrates on-site solar generation, grid-connected electrolysis, hydrogen
7 compression and storage, generator cooling, vehicle fueling, research export capability, and
8 controlled delivery of hydrogen to an operating combustion turbine. The Project’s operations can
9 therefore inform the interfaces among these components and provide site-specific information
10 concerning hydrogen production, storage limitations, equipment sequencing, flow control,
11 emissions monitoring, operating procedures, safety requirements, and compliance within
12 California’s regulatory environment. The relevant inquiry is not whether any element of the
13 Project has previously been demonstrated, but whether the Project can reduce remaining
14 uncertainty concerning the design, operation, limitations, cost, and transferability of an
15 integrated hydrogen system at an existing California generating facility.

16 UCAN identifies that the research and development data-collection framework was
17 described as a draft that had not yet been finalized or implemented, that research-export
18 deliveries were reported as zero, and that generator-cooling hydrogen was not separately metered
19 until late 2025.¹⁰⁸ As responded to CEJA in a data request, SDG&E intends to engage with
20 University of California at Irvine when the Project is approved.¹⁰⁹

¹⁰⁷ *Id.* at 21-23.

¹⁰⁸ *Id.* at 29.

¹⁰⁹ CEJA, Data Request 03, Question 3b.

SDG&E disagrees with any implication that the Project has not been collecting operational data or generating meaningful operational experience because the data-collection framework has not yet been finalized. The Project has been collecting operational information as its individual systems have been installed and commissioned. As SDG&E explained in response to CEJA Data Request 03, all meters other than those associated with the contemplated RD&D effort had been installed and recorded data.

The Project has therefore been generating operational information and experience through its operation and commissioning independently of the data collection framework proposed with the UCI research team. For example, SDG&E explained in the same discovery response that metering equipment and measurements are recorded in PEC's central data control system. SDG&E also explained that the detailed test plan is intended to be developed in collaboration with the UCI Combustion Laboratory following Project approval, including identification of the measurements needed for that effort. This sequence is important. Engagement with UCI is intended to formalize and enhance the research component of the Project's data collection, not initiate data collection at PEC for the first time. The research framework will allow the operational information generated by the Project to be supplemented by a more sophisticated analysis framework developed with subject-matter experts. The appropriate characterization, therefore, is not that data collection has yet to begin, but that operational data collection and learning are already occurring and will be expanded, structured, and enhanced through the contemplated collaboration with UCI.

E. Environmental Impacts

CEJA raises concerns regarding the environmental impacts of the Project, focusing primarily on nitrogen oxide ("NO_x") emissions, air quality impacts, and the Project's asserted

1 climate benefits.¹¹⁰ CEJA contends that hydrogen combustion may result in higher flame
2 temperatures and, therefore, could increase NOx emissions. With the proper deployment of
3 different technologies, blended hydrogen combustion via turbines can achieve comparable
4 performance and NOx emissions equal to or even less than today's turbines running on pure
5 natural gas.¹¹¹ CEJA further argues that compliance with applicable permit requirements does
6 not, by itself, demonstrate that actual NOx emissions have not increased and criticizes SDG&E's
7 reliance on limited operating-period comparisons in evaluating emissions performance. SDG&E
8 provided information related to NOx in a data request from CEJA, where a sample data
9 representative of hydrogen blended into the turbine showed a negligible effect on NOx
10 emissions.¹¹²

11 In addition, CEJA's concerns are inconsistent with the findings of the Statement of CEC
12 Staff Approval of Post-Certification Change, Palomar Energy Center (01-AFC-24C). Following
13 a comprehensive environmental review of the hydrogen generation and storage project, CEC
14 staff concluded that the modified facility would not have a significant effect on the environment,
15 would continue to comply with all applicable laws, ordinances, regulations, and standards, and
16 would result in no impacts or less-than-significant impacts across all reviewed technical areas.
17 These findings included air quality, public health, hazardous materials management, traffic and
18 transportation, noise and vibration, and worker safety and fire protection. CEC staff further
19 concluded that the addition of up to two percent hydrogen to the natural gas fuel stream was not
20 expected to increase emissions and that the facility would continue to comply with all applicable
21 emission limits. CEJA's speculation regarding significant adverse air quality or environmental

¹¹⁰ CEJA Testimony at 21-28.

¹¹¹ R.13-02-008, Notice of Filing of Joint Utilities' Hydrogen Blending Compendium Report (February 14, 2025).

¹¹² CEJA Data Request 01, Question 1a.

1 justice impacts is inconsistent with the conclusions reached by the state agency charged with
2 conducting the Project’s environmental review.

3 CEJA argues that health impacts from the Project may disproportionately affect
4 vulnerable populations, pointing to the surrounding school district.¹¹³ The CEC also specifically
5 evaluated environmental justice populations located within and around the Project area. After
6 reviewing potential impacts on minority and low-income populations, CEC staff concluded that
7 Project impacts would be less than significant for those environmental justice populations.
8 Moreover, the CEC’s detailed air quality and public health review determined that air quality,
9 public health, and greenhouse gas impacts associated with the hydrogen project would be less
10 than significant, including impacts on environmental justice populations, and that no minority or
11 low-income populations would be significantly or adversely affected.

12 UCAN states that “stored energy cannot reduce greenhouse gas emissions.”¹¹⁴ That is
13 categorically overbroad. Storage can contribute to emissions reductions where it shifts zero-
14 carbon energy from periods of lower system value to periods when emitting marginal generation
15 would otherwise operate. The Palomar Decarbonization Demonstration Project is not proposed
16 as an energy-storage project, nor is its purpose limited to converting electricity to hydrogen for
17 subsequent conversion back to electricity. The Project is an integrated, multi-use hydrogen
18 demonstration intended to develop operational experience across a range of hydrogen
19 applications. The Project encompasses hydrogen production, compression and high-pressure
20 storage, integration with plant controls, turbine blending, generator cooling, vehicle fueling,
21 monitoring, leak detection, emergency shutdown systems, dispensing, metering, and other

¹¹³ CEJA Testimony at 22.

¹¹⁴ UCAN Testimony at 38.

operational functions. The hydrogen produced by the Project is not exclusively stored for subsequent conversion back to electricity.

CEJA cites the CEC Staff Approval of Post-Certification Change that electrolyzer would make 2,724 metric tons of CO₂ equivalent per year.¹¹⁵ That analysis assumed the electrolyzer operates 8,760 hours/year (24 hours a day, 365 days a year) at full capacity along with compressors and ancillary equipment. 2,724 is a modeled maximum-operation scenario, not actual measured annual emissions from the Project operations. The zero-emission hydrogen is based on the operation of the Project and certification of third-party verification report for ITC.

VI. RATE DESIGN AND PCIA VINTAGING (R. BAEZ)

A. Existing PCIA Vintage

The SD CCAs argue that costs associated with the Project should be assigned a 2027 Power Charge Indifference Adjustment (“PCIA”) vintage rather than Palomar’s existing 2004 vintage.¹¹⁶ Their argument is premised on the assertion that bundled customers are the sole beneficiaries of the Project and, therefore, should be the only customers responsible for its costs. SDG&E disagrees.

The Project’s benefits are not limited to bundled customers, as discussed in depth in the above sections. For example, as a demonstration project, Palomar is designed to generate operational, safety, emissions, reliability, scalability, and decarbonization information regarding the production and use of clean hydrogen at an existing generating facility. The resulting knowledge and operational experience are not exclusive to bundled customers. Rather, they are available to regulators, utilities, Community Choice Aggregators (“CCAs”), policymakers,

¹¹⁵ CEJA Testimony at 28.

¹¹⁶ SD CCA, *Prepared Direct Testimony of Anthony M. Georgis on Behalf of SD CCA in SDG&E’s Application for Approval of Palomar Decarbonization Demonstration Project* (August 21, 2026) at i.

1 developers, and other stakeholders evaluating the future role of hydrogen in California's electric
2 system. The Project reduces uncertainty surrounding hydrogen technologies and informs future
3 planning, procurement, reliability, and decarbonization decisions that affect all electric
4 customers, including bundled, CCA, and direct access customers.

5 By recovering costs through the existing PCIA framework, only the above-market portion
6 of costs would be allocated consistent with established PCIA principles, while bundled
7 customers would continue to bear the responsibility for the up-to-market costs recovered through
8 bundled generation rates. The Project does not increase Palomar's generating capacity or create a
9 new procurement commitment. Rather, it enhances an existing PCIA-eligible generation resource
10 and may reduce costs that would otherwise be incurred to support Palomar's existing operations
11 and authorized functions. To the extent Project operation displaces such costs, those avoided
12 costs are associated with the same resource and existing 2004 vintage.

13 SDG&E's proposal appropriately recognizes both the broad benefits of the Project and
14 the existing cost-allocation framework.

15 For these reasons, SDG&E believes the Commission should maintain Palomar's existing
16 2004 PCIA vintage. The Project is an enhancement to an existing generation asset and should be
17 treated consistently with that asset's established cost recovery treatment.

18 **B. Alternative Vintaging**

19 Should the Commission nevertheless determine that a new PCIA vintage is appropriate,
20 the Project should be assigned a 2023 vintage, not 2027. The SD CCAs appear to base their
21 proposed 2027 vintage on the expected timing of a Commission decision in this proceeding.¹¹⁷
22 However, a more relevant consideration is when the Project began operating and providing

¹¹⁷ *Id.* at 7.

benefits, not when the Commission acts on cost recovery. The Project has been operational since 2023 and has been generating operational experience, data, and project benefits since that time. Therefore, if the Commission elects to assign a new vintage, a 2023 vintage would more accurately reflect when the Project began producing benefits as compared to a 2027 vintage.

VII. CONCLUSION

This concludes our prepared Rebuttal testimony.

1 **VIII. STATEMENT OF QUALIFICATIONS**

2 **Rachelle R. Baez**

3 My name is Rachelle R. Baez and I am the Manager of Electric Rates Implementation in
4 the Customer Pricing department of SDG&E. My business address is 8330 Century Park Court,
5 San Diego, California 92123. I have been employed at SDG&E since June 2010 and have held
6 various positions in Accounting Operations, Strategic & Financial Planning, and Electric
7 Rates/Customer Pricing with increasing levels of responsibility. I received a Bachelor of Science
8 degree in Business Administration with an emphasis in Finance from San Diego State University
9 in 2011.

10 As the Manager of Electric Rates Implementation, I oversee the implementation of
11 authorized revenue requirements to ensure accuracy and compliance with state and federal
12 regulatory and legislative requirements. In addition, I oversee electric rate and bill forecasts for
13 incremental applications.

14 I have previously testified before the California Public Utilities Commission and the
15 Federal Energy Regulatory Commission.

16 **Ari Beer**

17 My name is Ari Beer. My business address is 8306 Century Park Court, San Diego, CA,
18 92123. My title is Sr. Manager - Power Generation Business Development. I have served in this
19 role since May 2026. Prior to this role, I have held numerous positions in SDG&E and other
20 Sempra companies. I hold a Bachelor of Science degree in Applied Economics and Math from
21 Cornell University and a Master of Business Administration from Quantic School of Business
22 Technology.

23 I have previously provided direct testimony as SDG&E's risk witness in the 2022 and
24 2023 Cost of Capital Proceedings.

1 **Pooyan Kabir**

2 My name is Pooyan Kabir. I am the Principal Engineer for hydrogen at SDG&E. I have
3 been with SDG&E since August 2021. My business address is 8306 Century Park Ct. San Diego,
4 CA 92123. Before joining SDG&E, I was an Engineer at McDermott International, a
5 multinational Engineering Procurement Construction company, where I worked on storage
6 vessels for different mediums, including hydrogen, LNG, and water. I hold a Bachelor of Science
7 in Structural Engineering from the University of Tehran, a Master of Science in Materials from
8 Texas A&M University, and a Doctorate in Structural Mechanics from the University of Illinois
9 at Urbana-Champaign. I am a licensed Professional Engineer in the States of Texas and
10 California.

11 I have previously testified before the Commission.

12 **Lauren Shelver**

13 My name is Lauren Shelver, and my business address is 488 8th Ave., San Diego, CA
14 92101. I am a Tax Counsel for Sempra, SDG&E's parent company. I have been employed by
15 Sempra for over four years. I manage tax controversy at Sempra and its family of companies,
16 including SDG&E. I also assist in advising on the implications of Federal and state tax law,
17 including tax compliance issues, tax audit issues and strategies, and regulatory tax issues.

18 Prior to joining Sempra in 2022, I worked as a tax attorney for nearly five years at
19 KPMG, in the San Diego office, where I specialized in accounting methods and credit services.

20 I received a Bachelor of Science in Management Science from the University of
21 California, San Diego, and Juris Doctorate and a Master of Law in Taxation from the University
22 of San Diego School of Law. I am licensed to practice law in California.

23 I have previously testified before the Commission.