BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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Application of San Diego Gas & Electric Company (U 902-E) for Approval of Palomar Decarbonization Demonstration Project	Application 25-12-009

SAN DIEGO GAS & ELECTRIC COMPANY (U 902-E) OPENING BRIEF

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SUMMARY OF RECOMMENDATIONS

San Diego Gas & Electric Company ("SDG&E") respectfully requests that the Commission:

1. **Find** that SDG&E has carried its burden of proof by a preponderance of the evidence on each issue identified in the Scoping Memo;

2. **Approve** the Palomar Decarbonization Demonstration Project (the "Project");

3. **Find** that the Project's recorded costs—$17.4 million of capital and $2.6 million of operations and maintenance ("O&M") expense, producing a revenue requirement of $31.1 million over 2023 through 2036 that reflects a $4.9 million revenue requirement reduction resulting from $3.9 million of federal investment tax credits—are just and reasonable;

4. **Authorize** recovery of the $12.2 million balance attributable to 2023 through 2027, beginning January 1 following the effective date of the final decision;

5. **Authorize** the two-way, interest-bearing Hydrogen Balancing Account ("H2BA"), limited to the costs authorized in the decision and subject to review in SDG&E's annual Energy Resource Recovery Account ("ERRA") compliance proceeding; and

6. **Assign** the Project's costs to the generation function for recovery in generation rates, with generation-function recovery through the Power Charge Indifference Adjustment ("PCIA") from bundled and unbundled customers at Palomar Energy Center's ("PEC") existing 2004 vintage.

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of San Diego Gas & Electric Company (U 902-E) for Approval of Palomar Decarbonization Demonstration Project	Application 25-12-009

SAN DIEGO GAS & ELECTRIC COMPANY (U 902-E) OPENING BRIEF

I. INTRODUCTION

Pursuant to the *Assigned Commissioner's Scoping Memo and Ruling* issued May 28, 2026 ("Scoping Memo") and Rule 13.12 of the California Public Utilities Commission's Rules of Practice and Procedure ("Rules"), San Diego Gas & Electric Company ("SDG&E") hereby submits its Opening Brief in its Application for Approval of Palomar Decarbonization Demonstration Project ("Application"). SDG&E first presented the Palomar Decarbonization Demonstration Project (the "Project") for the Commission's consideration in its Test Year 2024 General Rate Case ("TY 2024 GRC"). In the TY 2024 GRC Decision, Decision ("D.") 24-12-074, the Commission invited SDG&E to submit a standalone application for Project approval, and asked SDG&E to provide the facts needed to judge the Project.[1] D.24-12-074 did not reject renewable hydrogen or conclude that the Project was imprudent. In D.24-12-074, the Commission "acknowledge[d] the potential for hydrogen blended with natural gas combustion to support the transition to carbon-free electricity by lowering CO2 emissions from existing natural gas-powered generators over the next 20 years," recognized that the Project is "behind the fence" with onsite production, and then held that "SDG&E may pursue building the hydrogen system at the Palomar Energy Center as a stand-alone application with more robust information, leveraging public funding sources and lowering ratepayer costs."[2] The Assigned Commissioner in this proceeding

[1] D.24-12-074 at 404.
2 *Id.*

then confirmed that the Commission in D.24-12-074 did not prescribe any particular tactic for, and clarified that the question is whether the value proposition for the Project is now improved and sufficiently supported.[3] It is, and the Commission should now approve the Project.

A. The Project Has Already Delivered What a Demonstration Project Is Supposed to Deliver: Operational Readiness, Achieved at Modest Scale

The posture of this Application is decisively different from that in the TY 2024 GRC. In this proceeding, the Commission is reviewing a built, operating, used and useful, on-budget asset. The Project, which was the first-of-its-kind in the United States, has operated at the 588-megawatt ("MW") Palomar Energy Center ("PEC") since 2023.[4] It produces green hydrogen onsite, supplies hydrogen that was already required at PEC for generator cooling, blends hydrogen into an operating GE Frame 7FA combustion turbine, fuels SDG&E's hydrogen vehicles, and is generating data to support research, including for SDG&E's Electric Program Investment Charge ("EPIC") 4 project.[5] Capital closed in September 2025, and, with the exception of forecasted operations and maintenance ("O&M") through 2036 (but which are known, based on existing O&M costs), every cost presented for recovery has already been incurred.[6] Project approval will result in recovery only of known costs; there are no open-ended requests, and no request for authority to charge future upgrades to customers.[7]

The resulting record in this proceeding answers the Commission's prior questions with actual results. Direct capital costs closed at $17.49 million, approximately 0.1 percent above the TY 2024 GRC Application (A.22-05-016) forecast,[8] while requested direct O&M is $0.9 million below the A.22-05-016 forecast.[9] SDG&E secured $3.9 million in federal investment tax credits

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[3] Scoping Memo at 2.
[4] *See* Public Advocates Office at the California Public Utilities Commission (Cal Advocates), Testimony on SDG&E's Application for the Project (August 21, 2026) ("Cal Advocates-01") Appendix ("App.") B atWP2-1 (noting "[c]ertain key equipment, including the electrolyzer, solar, and hydrogen storage was placed into service by the end of 2023," but that "[o]ther equipment was not placed into service until later"); Exhibit ("Ex.")SDGE-01, Prepared Direct Testimony of Ari Beer on behalf of SDG&E (December 16, 2025) ("SDGE-01 (Beer)") at AB-10.
[5] Ex. SDGE-02, Prepared Direct Testimony of Pooyan Kabir and Kevin Counts on behalf of SDG&E (December 16, 2025) ("SDGE-02 (Kabir & Counts)") at PK_KC-4 to PK_KC-13, PK_KC-22.
[6] *See* Cal Advocates-01, App. B at SDG&E WP2-1.
[7] *Id.* at SDG&E WP1-1 and WP2-1.
[8] SDGE-02 (Kabir & Counts) at PK_KC-23.
[9] Ex. TURN-02, Attachments to Prepared Testimony of William A. Monsen Addressing SDG&E's Project (August 21, 2026) ("TURN-02 (Monsen)"), Question ("Q.") 2, Table 2 (GRC direct O&M forecast of

that reduce the revenue requirement by $4.9 million.[10] And the Project is already generating meaningful data; the record documents more than nine categories of learning (under which dozens of specific learnings fall) that can only be obtained through the Project,[11] at least twelve categories of presently-developed, shareable data,[12] verified emissions,[13] and safety experience,[14] and a defined path for evaluating higher blends and retrofit applications.[15]

SDG&E's own personnel have written the standard operating procedures, received internal hydrogen safety training, and navigated a multi-agency permitting pathway that had never before been applied to an ongoing hydrogen fuel source at a California combined-cycle plant.[16] That readiness was purchased deliberately at modest scale. SDG&E chose "a true commercial demonstration project, as opposed to a pilot," and avoided "a larger, more complex project that would add execution and cost risk."[17] The result is a known, closed, on-budget investment that has

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$3.5 million versus Application direct O&M of $2.6 million); *see also* SDGE-02 (Kabir & Counts) at PK_KC-24 n. 23.

[10] Ex. SDGE-05, Prepared Direct Testimony of Lauren Saket on behalf of SDG&E (December 16, 2025) ("SDGE-05 (Saket)") at LS-1; Cal Advocates-01, App. B, Data Request ("DR")-02, Q.4a; *see also* Ex. SDGE-03, Prepared Direct Testimony of Michael R. Woodruff on behalf of SDG&E ("SDGE-03 (Woodruff)") at MW-4. The revenue requirement reduction exceeds the nominal credit amount because the credits reduce SDG&E's federal income tax expense, and revenue requirements are set on a pre-tax basis; a $1 reduction in income tax expense therefore lowers the revenue SDG&E must collect by approximately $1.27 at the 21 percent federal tax rate.

[11] *See* Cal Advocates-01, App. B, DR-03, Q.1 (identifying learnings that "include but are not limited to" nine listed items); *see also* SDGE-02 (Kabir & Counts) at PK_KC-20 to PK_KC-22; Ex. SDGE-06, Prepared Rebuttal Testimony of SDG&E (September 28, 2026) ("SDGE-06 (Rebuttal)") at 31-34.

[12] Ex. CCA-02, San Diego Community Power ("SDCP") and Clean Energy Alliance's ("CEA") (collectively, "CCA" or "SD CCAs") DR-03, Q.3.01 (responding to request to identify each item of "Project-related information, data, operational experience, analysis, lessons learned, reports, or other materials that SDG&E will share with the SD CCAs").

[13] *See* SDGE-02 (Kabir & Counts) at PK_KC-20 (noting Continuous Emissions Monitoring Systems programming); Cal Advocates-01, App. B, DR-03, Q.1 (identifying ongoing verification and validation of emissions performance, including NOx and CO2 among learnings).

[14] SDGE-02 (Kabir & Counts) at PK_KC-15 to PK_KC-16, PK_KC-21 (noting HAZID and HAZOP studies, safety protocols built into commissioning, describing emergency shutdowns, pressure tests); SDGE-06 (Rebuttal) at 31-32 (experience with leak and pressure testing and emergency shutdown systems; development of internal safety capabilities); Cal Advocates-01, App. B, DR-03, Q.1 (learning item #8).

[15] SDGE-06 (Rebuttal) at 33.

[16] Cal Advocates-01, App. B, DR-03, Q.1 (learning item #3); SDGE-02 (Kabir & Counts) at PK_KC-18 to PK_KC-22; SDGE-01 at AB-10; SDGE-06 (Rebuttal) at 31-34.

[17] SDGE-01 at AB-9.

converted uncertainty about hydrogen operations into experience the utility, Commission, and State can use.

The Commission, the State, and SDG&E's customers need that readiness now. California law requires renewable and zero-carbon resources to supply 90 percent of retail sales by 2035, 95 percent by 2040, and 100 percent by 2045.[18] The California Air Resources Board's ("CARB") 2022 Scoping Plan projects that 9,000 MW of hydrogen-fired combustion turbines will be needed by 2045, from a starting point of functionally zero.[19] The Commission's own Zero-Carbon Technology Assessment identifies hydrogen as a firm, dispatchable zero-carbon resource that could be used in "retrofitted equipment" at existing generators (like PEC), with "the potential to reduce stranded thermal generator costs."[20] As SDG&E's policy witness explained, SDG&E "cannot sit on the sidelines for the next ten to twenty plus years and then suddenly expect our employees, vendors, contractors, supply chains, and assets to be experienced and ready to meet the 2035, 2040 and 2045 deadlines of Senate Bill ("SB") 100 and SB 1020."[21] The Project is how SDG&E prepares, prudently and at controlled cost.

B. The Project Meets the Commission's Public Utilities Code Section 740.1 Framework and Sections 451 and 454(a) Reasonableness Standard.

Because the Project is a demonstration, the governing framework is PUC Section 740.1, which directs the Commission to consider specified guidelines when evaluating Research, Development, and Demonstration ("RD&D") programs proposed by electrical corporations.[22] Those guidelines ask whether a project offers a reasonable probability of ratepayer benefit; whether expenditures on projects with a low probability of success are minimized; whether the project is consistent with the utility's resource plan; whether it unnecessarily duplicates research by others; and whether it supports one or more objectives including environmental improvement, public and employee safety, efficient resource use, development of new resources and processes

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[18] California Public Utilities Code ("Pub. Util. Code" or "PUC") Section ("§") 454.53(a); SDGE-01 (Beer) at AB-14 n.19, AB-34.
[19] SDGE-01 (Beer) at AB-16, AB-19; SDGE-06 (Rebuttal) at 16.
[20] SDGE-01 (Beer) at AB-19; SDGE-06 (Rebuttal) at 16.
[21] SDGE-01 (Beer) at AB-34.
[22] Pub. Util. Code § 740.1; *see* D.24-12-074 at 327 n.1062 (Section 740.1 "allows the Commission to authorize utility RD&D activities that benefit ratepayers through improved reliability, safety, environmental benefits, or operational efficiencies," with the guidelines "as supplemented by D.90-09-045").

(particularly renewable resources), and improved operating efficiency and reliability.[23] The record establishes each guideline, as Sections III.B and IV, below, demonstrate. The benefits are not merely probable but already realized; the Project succeeded and is operating; it directly informs SDG&E's planning for a gas fleet that must be decarbonized or retired; it is the first integrated system of its kind in the United States; and it advances every listed objective.

Section 740.1 also tells the Commission what lens it should not use. The statute governing approval of demonstration projects contains no levelized-cost test, no dollars-per-ton test, no requirement that a demonstration be commercial in scale, and no requirement that each component justify itself independently of the integrated system it enables.[24] The Commission should evaluate the Project as what it is, an integrated demonstration whose value lies in the operating knowledge it produces, the risk it mitigates, and the readiness it creates. In testimony Intervenors instead ask the Commission to evaluate it as a hydrogen commodity plant (TURN's levelized cost per kilogram), as an energy-storage device (UCAN's round-trip-efficiency comparison to batteries), as a carbon-offset purchase (CEJA's and UCAN's focus on near-term tonnage), or as a collection of severable parts (Cal Advocates' component-by-component test).[25] Each of those lenses would answer questions the Scoping Memo did not ask and would apply a standard the Commission has never applied to an emerging clean energy technology at the demonstration stage.[26]

Moreover, SDG&E acted prudently in constructing the Project based on the facts it knew at the time the Project was designed and built, satisfying the reasonableness mandates of PUC Sections 451 and 454(a). These provisions do not impose a hindsight requirement that a first-of-its-kind demonstration achieve mature-technology economics or maximum near-term carbon abatement, or prove that hydrogen should prevail over every other resource, as Intervenors suggest in this proceeding.[27] That distinction resolves the central objections to the Project asserted by

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[23] Pub. Util. Code § 740.1(a)–(e).
[24] Pub. Util. Code § 740.1; *see also* Pub. Res. Code § 25620.15 (emphasizing state's policy to use RD&D funds for advancing science and technology not adequately supported by competitive markets).
[25] Ex. TURN-01, Prepared Testimony of William A. Monsen Addressing SDG&E's Project (August 21, 2026) ("TURN-01 (Monsen)") at 29–36; Ex. UCAN-01, Prepared Testimony of Tyson Siegele on behalf of TURN on the Application of SDG&E for Approval of Project (August 21, 2026) ("UCAN-01 (Siegele)") at 1–2, 10–12; Ex. CEJA-01, Prepared Testimony of Sara Gerson on behalf of CEJA on the Application of SDG&E for Approval of Project (August 21, 2026) ("CEJA-01 (Gersen)") at 5–8, 25–29; Cal Advocates-01 at 3–4, 7–13.
[26] Scoping Memo at 4–5; SDGE-06 (Rebuttal) at 24, 28–31.
[27] Pub. Util. Code §§ 451 and 454(a); SDGE-06 (Rebuttal) at 24, 27-30.

Intervenors. Critically, the Project's modest scale reduced ratepayer risk while preserving the information needed for larger decisions. SDG&E deliberately began at a modest demonstration scale rather than exposing customers to the execution and cost risks of a larger first-of-its-kind installation.[28] A demonstration project is measured by the uncertainty it removes, not by whether its initial configuration is the final commercial deployment.[29] On each scoped issue, SDG&E's evidence (actual costs, operating data, third-party verification, and the California Energy Commission's ("CEC") independent environmental review) outweighs Intervenors' contrary arguments, which rest largely on policy disagreement with hydrogen rather than on evidence that any SDG&E decision was unreasonable when made.

C. This Proceeding Is About One Completed Project, Not a Referendum on Hydrogen.

The Scoping Memo frames a project-specific inquiry. Scoping Issue 1 asks whether the Project is designed to produce information "needed to evaluate whether renewable hydrogen can contribute to California's clean energy resource strategy."[30] By its terms, that issue assumes that evaluating hydrogen's potential contribution to California's resource strategy is a legitimate objective and asks only whether this Project produces useful information toward that evaluation; it does not ask whether the Commission should adopt or reject hydrogen as a component of state policy.[31] The Assigned Commissioner likewise confirmed that the Commission "does not require particular tactics by which SDG&E should lower ratepayer costs or increase ratepayer benefits from its prior request, rather that the value proposition be improved with sufficient support."[32] The

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[28] SDGE-01 (Beer) at AB-9; SDGE-06 (Rebuttal) at 30.
[29] SDGE-06 (Rebuttal) at 24-30 (n. 97, 98, and 103, citing 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/electricalenergy/energy-storage; 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-andtopics/documents/energy/rps/2026/2026-padilla-report.pdf; 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-governmentalaffairs-division/reports/2024-california-renewables-portfolio-standard-rps-annual-report.pdf); *see also* D.13-10-040; Res. E-5261 (April 27, 2023), *discussed in* SDGE-01 (Beer) at AB-20 to AB-22; *see* D.21-01-018, App. A-4.
[30] Scoping Memo at 4.
[31] SDGE-06 (Rebuttal) at 1–2, 17.
[32] Scoping Memo at 4.

question is therefore whether this built, operating, on-budget demonstration delivers value commensurate with its modest cost. On this record it plainly does.

II. BACKGROUND

A. Palomar Energy Center Has Always Depended on Hydrogen

PEC is a 588 MW combined-cycle plant in Escondido that SDG&E placed into service in 2006.[33] It consists of two GE Frame 7FA combustion turbine generators of 176 MW each and a 236 MW steam turbine generator; each combustion turbine is equipped with a Dry Low NOx burner system, a heat recovery steam generator, an oxidation catalyst, and a selective catalytic reduction ("SCR") unit.[34] PEC is also the operations hub for SDG&E's generation and reliability fleet; approximately 45 full-time employees based there operate PEC, Cuyamaca Peak Energy Plant, and Miramar Energy Facility and monitor 600 MW of SDG&E-owned battery storage and microgrids across 20 sites.[35]

PEC was designed to use hydrogen to cool its generators, and "[t]he plant cannot operate without a reliable supply of hydrogen."[36] Before the Project, SDG&E trucked in "gray" hydrogen produced by steam methane reformation of natural gas.[37] SDG&E selected PEC for the demonstration in part because "plant staff already had experience working with hydrogen and the facility has an established operational need."[38] The Project therefore did not introduce hydrogen to PEC; it replaced an outside, fossil-derived supply chain for a critical input with onsite renewable production, and then used that production to demonstrate additional decarbonization uses.

B. The Integrated System

The Project comprises a dedicated 274-kilowatt solar photovoltaic system; a 1.25 MW proton exchange membrane ("PEM") electrolyzer capable of producing up to approximately 500 kilograms of hydrogen per day; a two-stage diaphragm compressor that raises hydrogen from 30

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[33] SDGE-02 (Kabir & Counts) at PK_KC-1.
[34] *Id*.
[35] *The battery storage and microgrid figures have been updated to account for recent project expansions since the filing of the Application in this proceeding. These figures, therefore, differ from the utility-owned projects previously included in the record here: Id.* at PK_KC-1 to PK_KC-2.
[36] *Id.* at PK_KC-3.
[37] *Id*.; SDGE-01 (Beer) at AB-3.
[38] SDGE-02 (Kabir & Counts) at PK_KC-3.

bar to 450 bar; approximately 250 kilograms of high-pressure storage in ten ASME-certified vessels; a blending skid supporting up to two percent hydrogen by volume in one combustion turbine; integration with the existing generator-cooling system; a fueling module with second-stage compression and chilling and a 700-bar dispenser; an EPIC-funded export panel for research uses; and integrated controls tied to the plant's central control system.[39] SDG&E selected a PEM electrolyzer "due to its flexible operations—it can easily ramp on and off," which suits the variable needs of a dispatchable plant.[40] Hydrogen use is prioritized first to generator cooling, then blending, then transportation, then research export, so that plant-critical needs come first.[41] SDG&E made no physical changes to the turbines, combustors, heat recovery steam generators, duct burners, or emissions controls.[42]

Design, preliminary engineering, and solar procurement began in 2021; detailed design, procurement, and construction proceeded in 2022 and 2023; the electrolyzer was commissioned and the solar, electrolyzer, and storage were placed in service by the end of 2023; the blending skid and fueling station entered service in 2024; and meters supporting third-party verification and the test plan were installed in 2025, when capital closed.[43] Blending into combustion turbine No. 2 began in May 2025 and has proceeded at the 400-kilogram-per-month target in most months since.[44]

III. BURDEN OF PROOF AND STANDARDS OF REVIEW

A. Reasonableness Is Measured by Prudence at the Time Decisions Were Made

PUC Section 451 requires that rates be just and reasonable, and Section 454(a) requires a showing and finding that a new rate is justified.[45] Costs are just and reasonable if "prudently incurred by competent management exercising the best practices of the era, and using well-trained, well-informed and conscientious employees and contractors who are performing their jobs properly."[46] In applying Section 451 to costs a utility has already incurred, the Commission

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[39] SDGE-02 (Kabir & Counts) at PK_KC-4 to PK_KC-13.
[40] *Id.* at PK_KC-6 to PK_KC-7.
[41] *Id.* at PK_KC-13.
[42] *Id.* at PK_KC-13 to PK_KC-14.
[43] *Id.* at Attachment ("Att.") A at WP1-1, and Att. B at WP2-1.
[44] Cal Advocates-01, App. B, DR-01, Q.17.
[45] Pub. Util. Code §§ 451 and 454(a); D.24-12-074 at 17.
[46] D.24-12-074 at 17–18 (quoting D.14-06-007 at 31).

"rel[ies] on the prudent manager standard to evaluate whether the requested costs are just and reasonable."[47]

That standard is long-settled. As the Commission defined it in D.87-06-021:

> The term "reasonable and prudent" means that at a particular time any of the practices, methods, and acts engaged in by a utility follows the exercise of reasonable judgment in light of facts known or which should have been known at the time the decision was made. The act or decision is expected by the utility to accomplish the desired result at the lowest reasonable cost consistent with good utility practices. Good utility practices are based upon cost-effectiveness, reliability, safety, and expedition.[48]

The Commission continues to apply that formulation, asking whether the utility exercised its reasonable judgment "based on the facts that are known or should have been known at the time" the decision was made.[49] The California Supreme Court has described the Commission's test in the same terms: "In light of all the information that the utility's decision makers knew or should have known at the time, was the decision a reasonable one?"[50]

Critically, prudence is judged prospectively, not in hindsight. The Commission has held that "the reasonableness of a particular management action depends on what the utility knew or should have known at the time that the managerial decision was made, not how the decision holds up in light of future developments."[51] A reasonableness review therefore asks whether management's decision was sound when it was made (in this case, between 2020 and 2023). It does not ask whether a different choice would look better in light of prices, markets, technologies, or funding programs that emerged later.

Second, prudence encompasses a range of reasonable choices, not a single optimal one. "A 'reasonable and prudent' act is not limited to the optimum practice, method, or act to the exclusion of all others, but rather encompasses a spectrum of possible practices, methods, or acts consistent with the utility system needs, the interest of the ratepayers and the requirements of government

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[47] D.26-05-034 at 7.
[48] D.87-06-021.
[49] D.14-05-023 at 15 (citing D.10-07-049 at 13, identifying D.90-09-088 as source).
[50] *Southern California Gas Co. v. Public Utilities Com.* (1990) 50 Cal.3d 31, 49 (quoting D.87-12-071 at 31).
[51] D.02-08-064 at 5-6, as quoted in D.21-12-035 at 16-17; *accord* D.05-08-037 at 9–10; *see also* D.24-07-008 at 9 (under the prudent manager standard, the Commission "does not evaluate reasonableness based on hindsight").

agencies of competent jurisdiction."[52] The question is whether the utility acted reasonably under the circumstances. It does not require that the utility "take a particular action" or "achieve a particular outcome."[53] This rule reflects the settled principle that "[t]he determination of what is reasonable in conducting the business of the utility is the primary responsibility of management."[54]

These principles define the inquiry for the Project. Because the Project's costs have been incurred, the question is what SDG&E knew or reasonably should have known when it designed, procured, and built the Project between 2020 and 2023. The question is not whether information, markets, or funding programs that emerged later would support a different design. Intervenors' arguments that SDG&E should have bought hydrogen that was not then available nearby, waited to see whether hydrogen vehicles become economically competitive, or pursued funding vehicles that did not yet exist[55] ask the Commission to judge the decision "in light of future developments," which the prudent manager standard forbids.[56] Nor must SDG&E show that onsite production was the single optimal configuration. It need only show that its choice fell within the "spectrum" of reasonable options available at the time, which the record in Section IV.D.4 establishes.

Nor does the absence of preapproval bear on reasonableness. CEJA and UCAN fault SDG&E for building the Project before seeking cost recovery.[57] But D.24-12-074 itself invited SDG&E to "pursue building the hydrogen system at the Palomar Energy Center as a stand-alone application with more robust information,"[58] and the Commission routinely reviews costs a utility has already incurred through a reasonableness review that "follows a long tradition of examining

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[52] D.05-08-037 at 10 (quoting D.87-06-021); *see also* D.02-08-064 at 5-6, as quoted in D.21-12-035 at 17 (a reasonable and prudent act includes a "spectrum of possible acts consistent with the utility system need, the interest of the ratepayers, and the requirements of governmental agencies of competent jurisdiction").

[53] D.21-12-035 at 17 (rejecting the argument that D.89-02-074 required a utility to "take a particular action" or "achieve a particular outcome" for its conduct to be considered reasonable).

[54] *Pacific Tel. & Tel. Co. v. Public Utilities Com.* (1950) 34 Cal.2d 822, 828 (also noting that "[i]t has been repeatedly held . . . that the commission does not have such power").

[55] *See, e.g.*, CEJA-01 (Gersen) at 11–12 (SDG&E "could have procured hydrogen from a third-party producer"), and 32 ("A prudent manager would wait to see if any hydrogen vehicles become economically competitive"); TURN-01 (Monsen) at 33–36; UCAN-01 (Siegele) at 8 (suggesting public funding inadequate); SDGE-06 (Rebuttal) at 6, 16 n.54, and 26 (ARCHES partnership terminated; GFO-25-308 not available when the Project was developed; Lancaster facility announced in 2023 and still under development).

[56] D.02-08-064 at 5-6, as quoted in D.21-12-035 at 16-17.

[57] CEJA-01 (Gersen) at 16–18; UCAN-01 (Siegele) at 36.

[58] D.24-12-074 at 404.

costs and the prudence of management's actions."[59] A utility that builds before recovery is authorized bears the risk that imprudent costs will be disallowed; it does not forfeit recovery of costs that were prudently incurred. SDG&E accepted that risk in light of state policy regarding hydrogen and statutory mandates to decarbonize, as discussed below, and the record shows its costs were prudently incurred.

B. Section 740.1 Provides the Framework for Evaluating a Demonstration

Section 740.1 directs that "[t]he commission shall consider the following guidelines in evaluating the research, development, and demonstration programs proposed by electrical and gas corporations."[60] For a demonstration project, those guidelines inform the just-and-reasonable inquiry by identifying the value the Commission should look for.[61] The Commission has explained that Section 740.1 authorizes utility demonstrations "that benefit ratepayers through improved reliability, safety, environmental benefits, or operational efficiencies" and ensures that RD&D "is not unnecessarily duplicative of efforts by other research organizations."[62] The guidelines thus define the proper lens to apply to evaluating the Project: the probability and character of ratepayer benefit, the likelihood of success, consistency with resource planning, the absence of unnecessary duplication, and contribution to listed public objectives.[63] The statute's reference to "unnecessarily" duplicative research indicates the Legislature expected some overlap among demonstrations and barred only overlap that adds no value.[64]

The Commission applies the statutory guidelines as supplemented by D.90-09-045.[65] In that decision, which established the regulatory framework for utility RD&D, the Commission set the orientation of its review, stating, "The emphasis here should not be on a project-by-project

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[59] D.19-02-004 at 7 (following the utility's proffer of incurred costs, "it is incumbent on the Commission to conduct a standard reasonableness review, which follows a long tradition of examining costs and the prudence of management's actions").
[60] Pub. Util. Code § 740.1.
[61] *Southern California Edison Co. v. Public Utilities Com.* (2014) 227 Cal.App.4th 172, 192 ("Section 740.1 provides simply that if a utility corporation proposes an RD&D project, the PUC must consider the statute's guidelines in evaluating that program"; Section 740 "authorizes the PUC to allow inclusion of expenses for research and development when setting rates").
[62] D.24-12-074 at 327 n.1062.
[63] Pub. Util. Code § 740.1(a)–(e).
[64] *Id.* § 740.1(d) (projects "should not unnecessarily duplicate research currently, previously, or imminently undertaken by other electrical or gas corporations or research organizations").
[65] D.24-12-074 at 327 n.1062.

review, but rather assessing the overall performance of a(n) RD&D program."[66] The supplemental criteria it adopted in Appendix C look to how the utility runs its RD&D, including whether the "RD&D program . . . demonstrate[s] balanced policy formulation and execution, . . . and project management and coordination."[67] The supplemental criteria therefore reinforce two points this brief develops throughout. First, the Commission evaluates RD&D for its overall value, not by dissecting it into parts. Second, the quality of the utility's policy-based decision-making and execution is itself evidence that demonstration-project spending is reasonable.

The Project meets both. Its policy formulation is tied directly to the State's statutory decarbonization timeline and promotion of hydrogen as a component of California's energy portfolio,[68] and to the questions the Commission raised in D.24-12-074. Its execution is documented; capital came in within about 0.1 percent of the GRC forecast, and O&M ran below forecast.[69] Its management and coordination extend beyond PEC. SDG&E used EPIC funding, rather than this Application, to add an export panel that supplies its EPIC-4 Renewable Mobile Nanogrid, and it also proposed to supply its separate hydrogen blending demonstration in A.22-09-006 from PEC to avoid an estimated $2.3 million of duplicative capital.[70] And because the Commission's review of RD&D emphasizes overall performance, the Project should be evaluated as the integrated system it is, not as a set of components each required to justify itself independently.[71] The Project satisfies each statutory guideline and the supplemental criteria, as summarized in Table 1 and developed throughout Section IV.

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[66] D.90-09-045 at 10.
[67] *Id.* at 24 (App. C, Item 5); *see* D.96-04-055 (Ordering Paragraph ("OP") 1.c) (amending App. C, Item 5, line 1, to delete "individual projects and the total").
[68] *See, e.g.*, SDGE-01 (Beer) at AB-14 to -27; SDGE-06 (Rebuttal) at 15–19.
[69] SDGE-02 (Kabir & Counts) at PK_KC-23 n.21, and PK_KC-24 n.23; TURN-02 (Monsen), DR-01, Q.2(a)–(b); *see* SDGE-01 (Beer) at AB-33 (saved $2.3 million in cost for a separate proposed project by exporting hydrogen from PEC); D.24-12-074 at 404–406.
[70] SDGE-06 (Rebuttal) at 6; TURN-02 (Monsen), DR-02, Q.3; SDGE-01 (Beer) at AB-28 to AB-34; SDGE-02 (Kabir & Counts) at PK_KC-1 to PK_KC-13.
[71] D.90-09-045 at 10; SDGE-06 (Rebuttal) at 21–22; *see* Section IV.D.5, *infra*.

Table 1: The Project Satisfies Each Section 740.1 Guideline and the D.90-09-045 Supplemental Criteria

Guideline	Record showing
(a) Reasonable probability of ratepayer benefit	Benefits realized, not merely probable: $4.9 million revenue requirement reduction resulting from ITCs; LCFS and REC value; elimination of purchased gray hydrogen; about $2.3 million avoided pilot capital; operational readiness that lowers the risk and cost of future decisions.[72]
(b) Minimize spending on low-probability projects	Risk was minimized by design and success is now established. SDG&E deliberately chose "a true commercial demonstration project, as opposed to a pilot," and avoided "a larger, more complex project that would add execution and cost risk."[73] The Project succeeded: it obtained its permits and was found to have no significant environmental effect;[74] it passed a 1,050-bar pressure test with no pressure drop; it has been commissioned and operating since 2023; and it was delivered within about 0.1 percent of budget.[75] All capital has been incurred and no capital additions are anticipated, so no further spending is at risk.[76]
(c) Consistency with resource plan	Directly informs decisions for SDG&E's gas fleet (PEC, Desert Star, Miramar, Cuyamaca), which faces retirement or decarbonization, and SDG&E's need to plan for decarbonized firm capacity.[77]
(d) No unnecessary duplication	First integrated multi-use system at an operating combined-cycle plant in the United States; most other blending projects study distribution systems and single applications; PEC is "the only facility of its kind in California"; and the operational readiness it builds cannot be acquired without direct experience on SDG&E's own system.[78]
(e) Supports listed objectives	Environmental improvement (displaced gray hydrogen and natural gas); public and employee safety (HAZID/HAZOP, emergency shutdowns, internal training); conservation by efficient resource use (existing plant, onsite solar); development of new renewable resources and processes (electrolytic hydrogen); and improved operating efficiency and reliability (onsite supply of a plant-critical input).[79]

[72] TURN-02 (Monsen), DR-02, Q.7; SDGE-01 (Beer) at AB-32; SDGE-06 (Rebuttal) at 4–6, 10–11.
[73] SDGE-01 (Beer) at AB-9.
[74] CEJA-01, Att. 3, Q.3, attaching CEC, *Statement of CEC Staff Approval of Post-Certification Change for PEC* (April 19, 2022) ("CEC Staff Approval") at Table 1.
[75] SDGE-02 (Kabir & Counts) at PK_KC-17, PK_KC-23.
[76] TURN-02 (Monsen), DR-02, Q.3; SDGE-06 (Rebuttal) at 14.
[77] SDGE-01 (Beer) at AB-12 to -13.
[78] SDGE-01 (Beer) at AB-10; Cal Advocates-01, App. B, DR-03, Q.2; SDGE-06 (Rebuttal) at 17–18, 20–21, 31-32.
[79] Pub. Util. Code § 740.1(e)(1)–(5); SDGE-02 (Kabir & Counts) at PK_KC-3, PK_KC-15 to PK_KC-18; SDGE-01 (Beer) at AB-3, AB-8.

Guideline	Record showing
D.90-09-045 supplemental criteria (App. C): balanced policy formulation and execution; project management and coordination	Policy formulation tied to SB 100 and SB 1020 deadlines and to the information D.24-12-074 requested; on-budget execution; coordination with EPIC (export panel and EPIC-4 Nanogrid) and with the A.22-09-006 blending demonstration, avoiding about $2.3 million of duplicative capital.[80]

C. SDG&E Must Prove Its Case by a Preponderance of the Evidence, and It Has

SDG&E must prove that it is entitled to the relief it seeks by a preponderance of the evidence.[81] A preponderance means "such evidence as, when weighed with that opposed to it, has more convincing force and the greater probability of truth," and the applicant must "present more evidence that supports the result requested than would support an alternative outcome."[82] Put another way, the standard "simply requires the trier of fact to believe that the existence of a fact is more probable than its nonexistence."[83] While SDG&E bears the ultimate burden, parties that propose a different result "have a 'burden of going forward' to produce evidence to support their position and raise a reasonable doubt as to the utility's request."[84] Here, the operative facts are documented with actual costs, operating data, third-party tax-credit verification, and the CEC's independent environmental review, and Intervenors largely do not dispute the costs and operating data themselves. Their objections turn instead on which standard the Commission should apply and which inferences the facts support. On that question, SDG&E's inferences are grounded in the Commission's own framework and the State's policy direction, while Intervenors' rest on metrics Section 740.1 does not impose and on hindsight the prudent manager standard forbids. The weight of the evidence on each scoped issue favors approval.

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[80] D.90-09-045 (App. C, Item 5); SDGE-01 (Beer) at AB-14, AB-32 to AB-34; D.24-12-074 at 404–406; SDGE-02 (Kabir & Counts) at PK_KC-23 to PK_KC-24; SDGE-06 (Rebuttal) at 6.
[81] D.24-12-074 at 17 (citing D.19-05-020 at 7; D.15-11-021 at 8–9; D.14-08-032 at 17).
[82] *Id.* at 17 (quoting D.08-12-058 at 19; citing D.16-06-056 at 23).
[83] *In re Angelia P.* (1981) 28 Cal.3d 908, 918.
[84] D.20-07-038 at 3–4; D.23-12-005 at 42 ("any party contesting those costs has the burden of going forward to produce evidence to support its own position").

IV. ANALYSIS: SCOPING ISSUES

A. Scoping Issue 1: The Project Serves the Public Interest and Produces Useful, Distinct Real-World Information

Scoping Issue 1 asks how the Project serves the public interest and whether it is "designed to produce operational, safety, emissions, decarbonization, environmental, cost, and/or scalability information that is (a) unique from other research and pilots on this topic and (b) needed to evaluate whether renewable hydrogen can contribute to California's clean energy resource strategy."[85] While the issue is phrased disjunctively such that a project producing any of the listed categories of unique and needed information satisfies it, the Project produces all of them.

1. The Integrated System Is the Demonstration, and Integration Is What Makes the Information Unique

The Project's distinguishing contribution is integration. It is "the first of its kind in the United States," and to SDG&E's knowledge PEC is "the only combined cycle natural gas power plant in California using hydrogen as an ongoing fuel source (i.e., not a test fuel source)."[86] SDG&E does not claim that electrolysis, compression, blending, or hydrogen cooling is individually novel. Rather, the Project was "among the first in California or western U.S. at the time of design and construction for a multi-use case in an operating power plant," combining "hydrogen generation, storage, blending, turbine combustion, hydrogen fueling station, and research and development."[87] Cal Advocates in testimony concedes that co-location "may distinguish the Project from other hydrogen demonstrations," but contends the reasonableness of each individual component of the Project has not been separately proven.[88] CEJA likens the Project to a timber farm that co-locates equipment for making pencils, paper, and furniture.[89] Both Intervenors miss the purpose of a demonstration. With regard to CEJA's analogy, a pencil mill and a furniture shop do not share a fuel that must be produced, compressed, stored, and safely dispatched among plant-critical, generation, and transportation uses at an operating power plant.

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[85] Scoping Memo at 4.
[86] SDGE-01 (Beer) at AB-10.
[87] Cal Advocates-01, App. B, DR-03, Q.3; *see also id.*, DR-03, Q.2 ("PEC was designed to demonstrate multiple hydrogen use cases at a single operating power plant").
[88] Cal Advocates-01 at 9
[89] CEJA-01 (Gersen) at 10.

The Project does exactly that, and the *interfaces* among those functions are what it is designed to test. Those integrated, site-specific learnings include:

- **Multi-use hydrogen system operation**. The Project has provided operational experience concerning the use of a single hydrogen production system to support multiple hydrogen applications, including power generation, generator cooling, and vehicle fueling, and that hydrogen asset utilization can be improved to where a single electrolyzer supports multiple use cases rather than being dedicated exclusively to turbine combustion.

- **Flexible hydrogen production and consumption**. The Project has demonstrated that hydrogen production and consumption vary depending on plant dispatch, available hydrogen storage inventory, and operational needs.

- **Development of utility operating experience and procedures**. The Project has provided SDG&E personnel hands-on experience relevant to developing operating and safety procedures for hydrogen production, storage, compression, and blending.

- **Integration of low-percentage hydrogen blending with an existing combined-cycle generating facility**. Project operation has demonstrated operation of low-percentage hydrogen blending in an existing natural-gas combined-cycle facility.

- **Electrolyzer design, operation, maintenance, and performance experience**. The Project has generated operating experience concerning the design, operation, maintenance, and performance of the onsite electrolyzer, including information relevant to evaluation of system efficiency.

- **Hydrogen-system reliability and integrated equipment operation**. The Project has provided operational experience regarding the behavior and reliability of the hydrogen production, compression, storage, and dispensing systems.

- **Commissioning and deployment experience**. The Project has provided experience concerning commissioning and deployment practices, including startup procedures, hydrogen leak testing, and integration of hydrogen equipment with existing plant operations.

- **Hydrogen safety-system experience**. The Project has generated operational experience involving pressure management and pressure testing, emergency-shutdown systems, leak detection systems, and integration of hydrogen safety systems within an operating powerplant environment.

- **Emissions verification and monitoring**. The Project has provided experience with ongoing verification and validation of emissions performance, including NOx and CO2. [90]

The national landscape confirms that this information is unique. As SDG&E explained, "[m]ost national blending projects inject hydrogen into natural gas distribution systems and primarily evaluate effects on pipelines, meters, regulators, appliances and customer equipment," and "[a] majority of these projects also focus on only one application, whereas PEC was designed to demonstrate multiple hydrogen use cases at a single operating power plant."[91] The Project instead "illustrates hydrogen use at a commercial-scale combined-cycle generating facility that serves California's electric grid" and "provides operational experience with gas turbine combustion, heat rate impacts, emissions monitoring, and utility-scale power plant operations."[92]

Cal Advocates and UCAN point to hydrogen blending at higher percentages elsewhere, including a GE turbine of the same model in Hannibal, Ohio and LADWP's planned Scattergood conversion, to argue that the Project is duplicative.[93] But as SDG&E's rebuttal testimony states, "blend percentage and turbine models are not the only relevant [learning] variables"; the Project integrates onsite solar, grid-connected electrolysis, compression and storage, generator cooling, vehicle fueling, research export, and controlled delivery to an operating turbine, and therefore informs "the interfaces among these components" and "compliance within California's regulatory environment."[94] The right question is "not whether any element of the Project has previously been demonstrated, but whether the Project can reduce remaining uncertainty concerning the design, operation, limitations, cost, and transferability of an integrated hydrogen system at an existing California generating facility."[95]

This is exactly the type of non-duplicative work Section 740.1(d) contemplates. Cal Advocates argues that because the Project's third-party engineers and vendors "already possess the operational knowledge that SDG&E seeks to learn," the Project "will not generate new

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[90] Cal Advocates-01, App. B, DR-03, Q.1; Ex. CEJA-02, Data Request Responses Related to SDG&E's Rebuttal Testimony (November 2, 2026) ("CEJA-02"), DR-04 Supplemental Response ("Supp."), Q.2 (c)–(d), Q.3; CCA-02, DR-03, Q.3.01; *see also* Ex. SDGE-07, CEJA DR-4, Q.1 (referring to Cal Advocates DR-03, Q.1 and restating learnings).
[91] Cal Advocates-01, App. B, DR-03, Q.2.
[92] *Id*.
[93] Cal Advocates-01 at 6–7; UCAN-01 (Siegele) at 3, 20–23.
[94] SDGE-06 (Rebuttal) at 33.
[95] *Id*.

information."[96] That argument confuses vendor knowledge with utility operating capability. SDG&E does not contend that general technical information about hydrogen is unavailable; its point is that the Project "has already produced practical operational learnings that could not be obtained merely from equipment specifications or modeling," and "has allowed SDG&E to develop internal safety capabilities for hydrogen operations rather than relying solely on vendor knowledge."[97]

Collaborative research memberships do not substitute for that experience. Participation in initiatives such as the Electric Power Research Institute ("EPRI") "would allow SDG&E personnel to review reports and lessons learned from other organizations," but would not provide "operating experience on SDG&E assets; operational data from PEC equipment; development of utility workforce training and operational procedures; maintenance experience; permitting experience; integration of hydrogen with SDG&E plant controls; utility safety program development; or utility-specific emissions and performance data."[98] The Project and industry research are complements, not substitutes, and the Project is the only way SDG&E's workforce and assets become ready.

2. The Project Is Producing Concrete Operational, Safety, and Emissions Learnings Now

The record documents learnings that the Project has already produced. As detailed above, SDG&E identified nine representative categories, which SDG&E expressly noted are "not . . . complete."[99] SDG&E's testimony supplies the detail beneath those categories. SDG&E has gained experience "commissioning and operating an integrated hydrogen system, including hydrogen leak and pressure testing, emergency shutdown systems, electrolyzer startup and shutdown, compressor operation, high-pressure storage, fueling operations, generator-cooling conversion, and the movement of hydrogen among multiple end uses."[100] It has also learned the "administrative and compliance processes associated with renewable hydrogen, including tax-credit verification and

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[96] Cal Advocates-01 at 6.
[97] SDGE-06 (Rebuttal) at 31–32.
[98] SDGE-06 (Rebuttal) at 20–21; *cf.* D.24-12-074 at 405.
[99] Cal Advocates-01, App. B, DR-03, Q.1.
[100] SDGE-06 (Rebuttal) at 31.

WREGIS/REC compliance, as well as work associated with LCFS/HRI qualification."[101] Direct testimony catalogues technical learnings in engineering, system design, codes and standards (including NFPA, ASME, SAE, and UL requirements), controls integration, valves, piping, venting, safety requirements, material specifications, metering, performance data, and documented best practices.[102] These are "consequential demonstration learnings because deploying hydrogen at other utility facilities would require not only selecting equipment, but understanding how the equipment is commissioned, operated, integrated, monitored, maintained, and supported by the applicable compliance processes."[103]

The Project has also produced tangible workforce outcomes. Plant staff have developed "standard operation procedures for hydrogen production, hydrogen storage, compression and blending,"[104] and SDG&E "has gained experience establishing hydrogen-specific operating and safety practices and developing internal knowledge regarding the safe design, operation, and maintenance of hydrogen equipment."[105] For a utility whose PEC staff already operate three gas plants and nearly 500 MW of storage and microgrids, that institutional knowledge is a durable asset that cannot be acquired from reports or other entities' research.[106]

Cal Advocates and UCAN contend that the Project "does not appear to prioritize data gathering" and was not designed to produce information.[107] The record shows otherwise. Data collection is underway and will be enhanced. Electrolyzer energy consumption and hydrogen output are recorded at one-second intervals.[108] PV output is recorded at one-second intervals.[109] Blending quantities are recorded by month, and fueling quantities by month and vehicle.[110] SDG&E installed a dedicated generator-cooling hydrogen meter in late 2025.[111] As SDG&E's rebuttal testimony explains, all meters other than those associated with the contemplated research effort had been installed and are recording in PEC's central data control system; the planned

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[101] *Id*.
[102] SDGE-02 (Kabir & Counts) at PK_KC-20 to PK_KC-22.
[103] SDGE-06 (Rebuttal) at 31–32.
[104] Cal Advocates-01, App. B, DR-03, Q.1 (learning item #3).
[105] SDGE-06 (Rebuttal) at 32.
[106] SDGE-02 (Kabir & Counts) at PK_KC-1 to PK_KC-2.
[107] Cal Advocates-01 at 7; UCAN-01 (Siegele) at 29–30.
[108] Cal Advocates-01, App. B, DR-01, Q.8.
[109] *Id.*, Q.9.
[110] *Id.*, Q.17, Q.18.
[111] TURN-02 (Monsen), DR-01 Supp., Q.4(g).

collaboration with the University of California, Irvine ("UCI") Combustion Laboratory 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."[112] The UCI test plan will assess blending performance at low percentages, stack emissions including CO2 and NOx, PV performance over time, system safety performance, and electrolyzer performance over time.[113] It is prudent to finalize a multi-year research engagement after the Commission acts on cost recovery.

SDG&E is already sharing what it learns. Since 2023, SDG&E has hosted tours and shared learnings with PG&E, SoCalGas, SCE, the Los Angeles Department of Water and Power, the Port of San Diego, North County Transit District, faculty and staff of California public universities, a local Tribal government, and elected officials.[114] SDG&E has identified at least twelve categories of Project information that may be shared with Community Choice Aggregators and other stakeholders, including:

- **Multi-use hydrogen system operation**. Information and operational experience concerning use of a common onsite hydrogen-production system to support multiple applications, including power generation, generator cooling, and vehicle fueling. This experience has shown how a single electrolyzer can support multiple Project use cases rather than being dedicated exclusively to turbine combustion.
- **Hydrogen production and electrolyzer operation**. Operational information and experience concerning onsite electrolysis, including electrolyzer design, operation, maintenance, performance, system efficiency, startup and shutdown, and hydrogen production. Intermittent operation itself provides information regarding electrolyzer startup and shutdown, hydrogen production, and system controls.
- **Hydrogen compression and storage**. Operational information regarding hydrogen compression, storage-system operation and performance, storage limitations, pressure management, and the interaction of compression and storage equipment with the balance of the Project.
- **Multiple hydrogen-use-case dispatch and operating flexibility**. Experience concerning how hydrogen production and consumption vary depending on plant dispatch, available hydrogen storage inventory, and operational needs, including transfer of hydrogen among Project end uses.
- **Hydrogen blending and integration with PEC**. Information and experience regarding low percentage hydrogen blending at an existing natural-gas combined-cycle generating

[112] SDGE-06 (Rebuttal) at 33–34.
[113] SDGE-02 (Kabir & Counts) at PK_KC-22.
[114] SDGE-01 (Beer) at AB-11; *see* CEJA-01 (Gersen), Att. 5 (SDG&E Supp. Responses to UCAN Data Requests), Q.47 (providing the PEC Tour Guide and two PEC Systems Tour presentations shared with guests touring PEC).

facility, including hydrogen delivery, fuel blending, equipment sequencing, flow control, and interaction with plant systems.

- **Plant controls and integrated equipment operation**. Operational experience concerning integration of hydrogen production, compression, storage, dispensing, and blending equipment with PEC's existing plant controls and operating systems. Plant controls is specifically an area in which the Project has been collecting information.
- **Commissioning, startup, and deployment**. Experience associated with commissioning and deploying hydrogen equipment within an existing operating power plant, including startup procedures, integration activities, pressure management, and hydrogen leak testing.
- **Hydrogen safety systems and operating practices**. Operational experience regarding leak detection, emergency-shutdown systems, pressure management and testing, hydrogen-specific operating and safety practices, and integration of hydrogen safety systems within an operating power-plant environment. The Project has allowed SDG&E to develop internal hydrogen safety capabilities rather than relying solely on vendor knowledge.
- **Emissions monitoring and verification**. Project information and experience regarding emissions monitoring and performance, including NOx and CO2. Project operations provide experience with ongoing verification and validation of emissions performance.
- **Vehicle fueling and dispensing**. Operational information and experience concerning hydrogen dispensing and vehicle fueling, including integration of the fueling equipment with the common onsite hydrogen-production, compression, and storage system.
- **Operating procedures and workforce experience**. Lessons learned and experience associated with developing and using operating procedures for hydrogen production, compression, storage, blending, and other hydrogen equipment, together with workforce experience and training associated with those systems.
- **Permitting, regulatory, and compliance experience**. Experience navigating regulatory and compliance requirements applicable to installing and operating hydrogen equipment at an existing generating facility, including California Energy Commission certification framework, environmental and technical requirements administered through the CEC certification, San Diego County Air Pollution Control District air-quality permitting, and LCFS requirements associated with the vehicle-fueling use case.[115]

3. The Project Generates Real-World Hydrogen Safety Information that Serves the Public Interest

Safety was "foundational to the design, implementation, and operation" of the Project.[116] SDG&E conducted comprehensive Hazard Identification ("HAZID") and Hazard and Operability

[115] CCA-02, DR-03, Q.3.01.
[116] SDGE-02 (Kabir & Counts) at PK_KC-15.

("HAZOP") studies and incorporated their mitigations into design; built safety protocols into commissioning, material selection, site design, and training for employees and first responders; favored welded over threaded or flanged connections; incorporated continuous pressure monitoring to identify and isolate leaks; and installed emergency shutdowns outside and inside the electrolyzer cabinet, inside the fueling module, and at the dispenser.[117] During commissioning, SDG&E pressure-tested the system with all joints, welds, and bonds exposed, at 1,050 bar for 15 minutes, and "observed no pressure drop and hence no leak."[118] Demonstrations like this one "provide critical operational insights into hydrogen behavior and equipment performance, while also providing the time to refine safety protocols before implementing large-scale projects."[119] That is precisely the public and employee safety objective Section 740.1(e) identifies, and the incident-free commissioning and operation of the system is the success Section 740.1(b) asks the Commission to look for.

4. The Project Produces Scalability Information On Three Dimensions

D.24-12-074 asked about the Project's "room for expansion," and the record answers that question on every relevant dimension.[120] SDG&E's rebuttal testimony identifies three distinct concepts that must not be conflated: (1) physical expansion potential within PEC's footprint; (2) achievable blend percentage in the existing turbines; and (3) "the transferability and scalability of the technologies, operational experience, and lessons learned to other locations and future deployments."[121]

Intervenors' scalability critique conflates these concepts. CEJA calls the Project "a small steppingstone to nowhere," and UCAN calculates that supplying PEC entirely with hydrogen would require approximately 1,584 electrolyzers of the size SDG&E installed.[122] Those arguments measure the Project against a full-scale or type of deployment it was never designed to be. SDG&E "intentionally designed a commercial-scale demonstration," intended "to generate operational

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[117] *Id.* at PK_KC-15 to PK_KC-16.
[118] *Id.* at PK_KC-16.
[119] *Id.* at PK_KC-15.
[120] D.24-12-074 at 405.
[121] SDGE-06 (Rebuttal) at 7–8.
[122] CEJA-01 (Gersen) at 6; UCAN-01 (Siegele) at 15.

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."[123]

On the first two dimensions, the existing installation has headroom. Hydrogen production "can be increased to reach 5% blend without any modifications or additional equipment, using the same electrolyzer configuration," although a new environmental permit would be needed.[124] The GE Frame 7 turbines can accommodate approximately 5 percent hydrogen without turbine modifications "and potentially up to 30 percent with equipment upgrades and manufacturer-supported modifications."[125] The Commission itself found in D.24-12-074 that PEC's existing SCR system "meets the air permit limit of 2.0 ppm NOx out of the stack and can support up to 5 percent hydrogen."[126] SDG&E deliberately elected a two percent blend "as a balance of collecting relevant operational data against the additional cost for expanded hydrogen storage," and has stated that it would support an expansion to test higher blends should the Commission wish to fund one.[127] And as the hydrogen economy develops, facilities like PEC "could access larger quantities of clean hydrogen from centralized production hubs, regional pipeline systems, or merchant suppliers – none of which was available when SDG&E was proposing and building the Project."[128]

The third dimension, transferability, is the one that matters most for a demonstration. The Project "has been collecting information on hydrogen production and compression, storage system performance, gas turbine integration, plant controls, emissions monitoring, fueling applications, operational safety, and workforce training since the beginning of operations in 2023. These lessons can be applied…to hydrogen deployments at other power generation facilities and industrial sites throughout the SDG&E service territory and beyond."[129] As SDG&E elaborated in discovery, "the broadly transferrable knowledge consists primarily of system-integration and operational experience with the processes required to produce, compress, store, deliver, blend, control, monitor, and safely use hydrogen in connection with an existing operating power plant."[130]

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[123] SDGE-06 (Rebuttal) at 7.
[124] *Id.* at 7–8; CEJA-01 (Gersen), Att. 3, DR-01, Q.20(b); CEJA-02, DR-05, Q.1(a)–(b).
[125] SDGE-06 (Rebuttal) at 8; SDGE-02 (Kabir & Counts) at PK_KC-10.
[126] D.24-12-074 at 401.
[127] SDGE-02 (Kabir & Counts) at PK_KC-10.
[128] SDGE-06 (Rebuttal) at 8.
[129] *Id.* at 8-9.
[130] CEJA-02, DR-04, Supp., Q.3.

SDG&E is candid that turbine performance at two percent cannot be quantitatively extrapolated to materially higher blends without further engineering evaluation.[131] But the Project's experience "provides direct insight into (1) the questions to ask, metrics to apply, and analysis required to assess which and to what extent Project findings would apply to other facilities, and (2) which modifications to make to implement an integrated system at another facility."[132] That is what scalability means for a first-of-its-kind demonstration—the knowledge needed to scale responsibly. And the need for that knowledge is not hypothetical. SB 1350 now ties renewable-facility status for hydrogen turbines to a minimum 20 percent blend capability, and PEC is "the only facility of its kind in California" whose lessons "can inform and enable best practices that could eventually be utilized in future hydrogen-blended generation facilities under SB 1350."[133]

5. The Project Produces an Actual California Cost Record that No Report Can Supply

The Project also generates something the Commission said it lacked, actual cost data. D.24-12-074 explained that without "the actual cost to ratepayers" the Commission could not judge the Project's reasonableness.[134] The record now contains a closed, itemized capital record for an integrated multi-use hydrogen system built under California permitting, labor, and procurement conditions, together with actual and contracted O&M.[135] It also contains measured electrolyzer performance (a 2025 average stack consumption of 54.38 kilowatt-hours per kilogram against a 50.4 kWh/kg specification), production by month and by use, and power consumption by month.[136] That real-world cost and performance data from SDG&E's own system lets SDG&E and the Commission base planning and investment choices on measured results from SDG&E's own system rather than on vendor specifications or modeling assumptions.[137]

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[131] *Id.*, Q.2(c)–(d).
[132] *Id.*, Q.3.
[133] SDGE-06 (Rebuttal) at 18.
[134] D.24-12-074 at 404–405.
[135] SDGE-02 (Kabir & Counts) at PK_KC-23 to PK_KC-24; WP1-1 to WP1-2; WP2-1 to WP2-3.
[136] Cal Advocates-01, App. B, DR-01, Q.1 Q.2; TURN-02 (Monsen), DR-01 Supp., Q.4(a), (e).
[137] *See* SDGE-06 (Rebuttal) at 4–5, 31; Cal Advocates-01, App. B, DR-01, Q.1., Q.2.

6. The Information Is Needed Now to Evaluate Hydrogen's Role in California's Resource Strategy

The second half of Scoping Issue 1 asks whether the information is "needed." It is, and on a timetable set by statute. The State must move from functionally zero hydrogen combustion turbine capacity to CARB's projected 9,000 MW by 2045.[138] California's grid faces the challenge of "[t]ripling electric generation capacity, while requiring that 100 percent of electricity retail sales and state loads are from renewable and zero-carbon resources," and the Commission is legally obligated to ensure the system is both reliable and decarbonized.[139]

State agencies have underscored the importance of clean renewable hydrogen in achieving California's climate mandates affordably, without sacrificing reliability, by 2045. For example, the 2022 CARB Scoping Plan referenced by SDG&E policy witness concludes that clean renewable hydrogen is needed to replace fossil fuels in heavy-duty transport and industrial applications.[140] The 2022 CARB Scoping Plan notes that "California must accelerate deployment of diverse clean energy resources to maintain reliability and affordability in the face of climate change."[141] It further explains, "[h]ydrogen produced from renewable resources and renewable feedstocks can serve a dual role as a low-carbon fuel for existing combustion turbines or fuel cells, and as energy storage for later use."[142] Likewise, the California Energy Commission is actively analyzing hydrogen as a firm, zero-carbon resource, with hydrogen explicitly included in the state's set of firm resources.[143]

UCAN in testimony responds that hydrogen-fired generation is not a use California plans to deploy, pointing to agency modeling and to a Community Choice Aggregator that reached carbon-neutral supply without hydrogen.[144] That argument asks the Commission to resolve resource-planning questions this proceeding does not present. As SDG&E explained, arguments "that hydrogen should never be used for power generation, that IRP models do not select hydrogen,

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[138] SDGE-01 (Beer) at AB-19, n. 40.
[139] *Id.* at AB-18 (citing Pub. Util. Code §§ 932, 2771–2775.7).
[140] SDGE-01 (Beer) at AB-16 and AB-19; CARB, *2022 Scoping Plan for Achieving Carbon Neutrality* (November 16, 2022) ("CARB 2022 Scoping Plan") at 73-74, 78, 190, 207, and 209.
[141] CARB 2022 Scoping Plan at 98.
[142] *Id.* at 204.
[143] SDGE-01 (Beer) at AB-9 to AB-10 n. 12 and 13 (citing 2025 CEC reports, SB 423 Emerging Renewable and Firm Zero-Carbon Resources Report and SB 423 Firm Zero-Carbon Resources Update).
[144] UCAN-01 (Siegele) at 3, 23–29.

or that batteries are a categorically superior alternative, etc., may be relevant to resource planning proceedings but do not resolve the specific questions presented in this Application."[145] Scoping Issue 1 asks whether the Project produces information needed to evaluate hydrogen's potential contribution, not whether the Commission should adopt hydrogen as a resource, and a demonstration is how that evaluation is made.

SDG&E also "must comply with various requirements, such as following the [RPS], ensuring Resource Adequacy . . . , and GHG reduction requirements, and cannot rely solely on intermittent renewables coupled with storage. It must also plan for decarbonized firm capacity."[146] Firm clean resources that seemed secure have faced headwinds, including the repeal of federal clean energy investment tax credits, unpredictable tariffs, and capricious federal permitting pauses or repeals.[147] In that environment, "the best strategy is to hedge, seek technology neutrality, and be agile."[148]

Operating experience now is what makes that hedge materialize. Learning at modest scale protects ratepayers from the higher costs and reliability risks that would come from building that expertise all at once later, when SB 100's deadlines would not permit time to learn.[149] "Costs can be mitigated by repurposing and reusing existing infrastructure as possible…[and] demonstrations are necessary to determine what can be repurposed, and at what cost."[150] Demonstration data "will help elucidate operating limits, reliability, and emissions impacts for a pathway to prolong the lifetime of existing generation assets already paid for while meeting SB 100 goals," and will "enable and inform standards, permitting, and possible pathways to scale-up at power plants."[151] When SDG&E undertook the Project in 2021, it had "24 years left (or six General Rate Case cycles)" to transition its infrastructure to meet the 2045 requirement; given the long lead times of energy infrastructure, "starting with a modest, used and useful demonstration that could inform a broader decarbonization strategy aligns with SDG&E's focus on reliability, safety, and affordability."[152]

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[145] SDGE-06 (Rebuttal) at 18; *see* Section I.C, *supra*.
[146] *Id.* at AB-13.
[147] *Id.* at AB-13 to AB-14.
[148] *Id.* at AB-14.
[149] SDGE-01 (Beer) at AB-34.
[150] *Id*.
[151] *Id.*
[152] *Id.* at AB-10 to AB-11.

7. The Project Delivers Collateral Value to Other Ratepayer-Funded Programs

The Project's public value extends beyond PEC. Because renewable hydrogen that meets the Commission's "clean renewable hydrogen" definition is difficult to source in the San Diego region, the Project is positioned to supply eligible hydrogen to other local research efforts.[153] SDG&E has proposed using PEC hydrogen to support its hydrogen blending demonstration in A.22-09-006, which would save an estimated $2.3 million by avoiding a dedicated electrolyzer for that pilot.[154] The EPIC-funded export panel enables SDG&E's EPIC-4 Renewable Mobile Nanogrid to operate in island mode using locally produced renewable hydrogen, a capability that "opens up opportunities for regional RD&D efforts to benefit by sourcing local, renewable hydrogen from PEC."[155]

B. Scoping Issue 2: The Project Costs and Revenue Requirement are Supported by the Record and Have Been Reduces by Customer Benefits

Scoping Issue 2 asks what the Project costs and associated revenue requirement are, how costs will be allocated between bundled and unbundled customers, how and where the federal ITCs are accounted for, and whether the Project sufficiently leverages public funding sources.[156] The record answers each question with actual, documented figures.

1. Project Costs Are Actual, Incurred, and Reasonable

The Project is fully constructed and its capital budget closed in September 2025.[157] Direct unloaded capital totals $17.49 million: $1.22 million in 2021, $6.24 million in 2022, $9.19 million in 2023, $0.71 million in 2024, and $0.13 million in 2025.[158] Capital costs are actual spend and are not escalated for inflation.[159] SDG&E corrected an erroneous sentence in its revenue requirement testimony: "All costs included in testimony have already been incurred."[160] SDG&E

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[153] SDGE-01 (Beer) at AB-27.
[154] *Id.* at AB-33.
[155] *Id.* at AB-32 to -33; SDGE-02 (Kabir & Counts) at PK_KC-12 to PK_KC-13.
[156] Scoping Memo at 4–5.
[157] SDGE-02 (Kabir & Counts) at PK_KC-23.
[158] *Id.* at WP1-1.
[159] Cal Advocates-01, App. B, DR-02, Q.3(b).
[160] TURN-02 (Monsen), DR-01, Q.33.

does not anticipate any capital additions to the Project, including the solar facility, between 2026 and 2036.[161] The Commission is thus asked to approve a known quantity, not a forecast.

The cost record is itemized. Workpaper 1 separates major equipment ($9.06 million, consisting of the $1.63 million solar package, the $6.14 million hydrogen vendor package for the electrolyzer, storage, fueling station, and compressor, the $1.10 million blending skid and analyzer, and $0.18 million of switchgear); other services and materials ($8.24 million, including engineering, construction, contractors, consultants, and materials); management and non-union labor ($0.25 million); and accounting adjustments of ($0.06) million.[162] SDG&E also produced the executed February 4, 2022 vendor contract with NEL Hydrogen US, which identifies pricing for the MC250 electrolyzer package, the H2 Station refueling solution, and other components.[163] The record therefore contains vendor-specific pricing and supporting cost detail sufficient to evaluate the components. Because the Project "was designed, procured, and constructed as an integrated system," and many expenditures "simultaneously support hydrogen production, receipt, compression, storage, blending, cooling, fueling, controls, safety, and monitoring," there is "no meaningful way to allocate cost by the use case," and any such allocation would be "subjective, nonauditable, and potentially misleading."[164]

Cal Advocates and UCAN nonetheless contend that SDG&E provided only aggregate costs and that, because fueling-related costs cannot be separated, the entire Application must be denied.[165] The itemized workpapers and executed vendor contract refute the first claim, and the second simply restates Cal Advocates' component-by-component test, which fails for the reasons discussed in Section IV.D.5.

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[161] TURN-02 (Monsen), DR-02, Q.3.
[162] SDGE-02 (Kabir & Counts) at WP1-1 to WP1-2.
[163] SDGE-06 (Rebuttal) at 21; *see also* Cal Advocates-01, App. B, DR-02, Q.2 (providing all other contracts).
[164] Ex. TURN-04, SDG&E Responses to TURN Data Request 5 (November 2, 2026), DR-05, Q.8(c); Cal Advocates-01, App. B, DR-02, Q.5(a) ("no meaningful way to allocate cost by the use case"); TURN-02 (Monsen), DR-01, Q.32 (stating PEC was designed "as an integrated scope of work," therefore "it is not feasible to reliably disaggregate capital costs among the requested categories without engaging in post hoc allocations that would be subjective, non auditable, and potentially misleading. Many project elements simultaneously serve multiple functional purposes and regulatory requirements, and individual expenditures cannot be uniquely attributed to a single category.").
[165] Cal Advocates-01 at 3–4; UCAN-01 (Siegele) at 4, 8.

O&M costs are modest and largely contracted. Actual 2024 direct O&M was $231,000, consisting principally of long-term service agreements for the electrolyzer, storage tanks, fueling module, and dispenser ($198,000) and required third-party tax-credit verification ($30,000).[166] Forecast direct O&M is $219,000 in 2025 and 2026, $182,000 in 2027 and 2028, and $193,000 annually from 2029 through 2036, with service agreements contracted through 2028 on a graduated schedule and verification costs ending after the five-year verification period.[167] SDG&E has not included electricity costs in O&M because the Project's annual consumption is below the output of the onsite solar system.[168]

2. The Project Was Delivered on Budget, a Hallmark of Competent Management

SDG&E's actual direct capital came in $25,067, or approximately 0.1 percent, above the 2024 GRC forecast, which had been prepared from a third-party engineering study.[169] Actual 2024 O&M was 14 percent below the GRC forecast, saving $38,633 per year, and total direct O&M in this Application is $2.6 million compared with $3.5 million in the GRC forecast, a $0.9 million reduction.[170] SDG&E achieved that result "[d]espite headwinds of inflation and supply chain issues."[171] As SDG&E's rebuttal testimony explains, "keeping a project on budget [is] a hallmark of a successful operation, as financial forecasts are replaced with real-world data."[172] UCAN asserts that on-budget delivery "is evidence that nothing was done to lower ratepayer cost,"[173] but that ignores the nearly $3.9 million in federal tax credits, LCFS enrollment, REC value, and EPIC-funded export panel SDG&E secured, as discussed in Sections IV.B.4 and IV.B.5. Disciplined execution of a first-of-its-kind system is itself strong evidence of prudence under the standard required by PUC Sections 451 and 454(a).

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[166] SDGE-02 (Kabir & Counts) at WP2-2.
[167] *Id.* at WP2-2 to WP2-3.
[168] TURN-02 (Monsen), DR-01, Q.30.
[169] SDGE-02 (Kabir & Counts) at PK_KC-23 n.21; TURN-02 (Monsen), DR-01, Q.2(b).
[170] SDGE-02 (Kabir & Counts) at PK_KC-24 n.23; TURN-02 (Monsen), DR-01, Q.2(a).
[171] SDGE-01 (Beer) at AB-28.
[172] SDGE-06 (Rebuttal) at 4–5.
[173] UCAN-01 (Siegele) at 7; see SDGE-06 (Rebuttal) at 4–6.

3. The Revenue Requirement

The Project's revenue requirement is $31.1 million over 2023 through 2036, inclusive of the ITC benefit.[174] It was developed using the same Commission-approved overhead methodology used in SDG&E's GRCs, the authorized rate of return in effect for each period, current tax rates, and depreciation over PEC's remaining book life ending in 2036.[175] Year by year, the requirement is $0.1 million (2023), $2.6 million (2024), $2.8 million (2025), $3.4 million (2026), $3.2 million (2027), $3.1 million (2028), $2.9 million (2029), $2.7 million (2030), $2.5 million (2031), $2.3 million (2032), $2.2 million (2033), $1.9 million (2034), $1.2 million (2035), and $0.1 million (2036).[176] Over the fourteen years from 2023 through 2036, that averages approximately $2.2 million per year, with a single-year peak of $3.4 million in 2026.

4. Federal Tax Credits Reduce Customer Costs by $4.9 Million

D.24-12-074 noted that SDG&E had "not provided any information on federal incentives," and found that hydrogen projects "could be eligible for federal grants, tax credits, and other public funding, which could significantly reduce ratepayers' costs."[177] SDG&E secured exactly that. In 2023, the Project qualified for $3,876,319 in federal ITCs: a $487,709 solar ITC under Internal Revenue Code ("IRC") Section 48; a $1,248,318 energy storage ITC; and a $2,140,292 hydrogen production facility ITC elected under IRC Section 48(a)(15).[178] Each was calculated at 30 percent because the Project met the applicable requirements, including the start of construction rule, and each was taken in 2023, the year the Project was placed in service.[179] Combined, the credits represent an approximately 22 percent reduction of the Project's direct cost.[180]

Securing the hydrogen ITC required significant effort. The Treasury Department's Section 45V guidance was published one month after the Project went into service, so SDG&E "underwent significant accounting, legal, and verification efforts to achieve the hydrogen ITC."[181] SDG&E analyzed whether the production tax credit or the ITC would generate more value for customers,

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[174] SDGE-03 (Woodruff) at MW-1, MW-5; TURN-02 (Monsen), DR-02, Q.7.
[175] SDGE-03 (Woodruff) at MW-2 to -4.
[176] TURN-02 (Monsen), DR-02, Q.7.
[177] D.24-12-074 at 406, and 983 (Findings of Fact ("FOF") 131).
[178] SDGE-05 (Saket) at LS-1 to LS-4.
[179] *Id*.
[180] SDGE-01 (Beer) at AB-29.
[181] *Id.* at AB-30 to AB-31.

considering expected annual production, the cost of the production portion of the Project, verification costs, and other factors, and determined that "the ITC generated more value for ratepayers over the lifetime of the project than the PTC."[182] SDG&E retained an accredited third-party verifier and has received a "Positive" statement each year verified; the 2025 verification confirmed that the reported carbon intensity score was free of material misstatement.[183] The applicable five-year recapture period runs from 2024 through 2028, while the hourly-matching rule for Section 45V takes effect only after December 31, 2029, outside that period.[184] Changes to federal clean energy credits enacted in July 2025 do not affect these credits, which were claimed on Sempra's 2023 return.[185]

The credits flow entirely to customers. "Ratepayers will get the full benefit of all three federal ITCs," passed through "as a reduction to the revenue requirement."[186] The solar and hydrogen production ITCs are normalized over the life of the assets as federal law requires, while SDG&E elected on Sempra's 2023 return to opt out of normalization for the storage ITC so that its benefit is returned over twenty-four months.[187] Normalization protects customers because a normalization violation could cause the utility to be "disallowed from recovering certain tax benefits through rates," which would cost customers the benefit of accelerated tax deductions.[188] The resulting reduction in the revenue requirement is $4.9 million over the Project's life, already reflected in the $31.1 million figure.[189] Credits will be offset directly to the H2BA.[190]

5. Additional Revenue and Cost Offsets Benefit Customers but Are Not Included in the Revenue Requirement

SDG&E pursued every additional offset available to the Project. It registered the dedicated PV system as a generating unit in the Western Renewable Energy Generation Information System ("WREGIS"), allowing SDG&E to retire its own RECs to match electrolyzer consumption rather than purchase them; at the 2025 benchmark of $71.24 per REC, that saves approximately $23,869

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[182] *Id.* at AB-30.
[183] SDGE-05 (Saket) at LS-4; SDGE-06 (Rebuttal) at 12–13.
[184] SDGE-06 (Rebuttal) at 12–13.
[185] SDGE-01 (Beer) at AB-30.
[186] TURN-02 (Monsen), DR-01, Supp., Q.16.
[187] *Id.*; SDGE-05 (Saket) at LS-5.
[188] SDGE-05 (Saket) at LS-5; SDGE-06 (Rebuttal) at 14.
[189] TURN-02 (Monsen), DR-02, Q.7.
[190] Cal Advocates-01, App. B, DR-02, Q.4(c).

per year, and any excess RECs may be used for RPS obligations or sold.[191] It enrolled the fueling station in CARB's Low Carbon Fuel Standard ("LCFS") Hydrogen Refueling Infrastructure program, which "could generate around $100,000 per year in additional revenue."[192] It used EPIC funds, rather than this Application, to add the export panel and a fourth use case.[193] And it avoided an estimated $2.3 million of capital in a separate ratepayer-funded hydrogen-blending pilot (A.22-09-006) by supplying hydrogen to that pilot from PEC.[194] None of the revenue streams is included in the $31.1 million revenue requirement; because they will be credited to the two-way H2BA, they will further reduce the net cost to customers.[195]

SDG&E's cost tracking has also proven reliable. When SDG&E identified in discovery that $2,310 of 2023 REC procurement had been inadvertently recorded to a ratepayer-funded O&M account, it disclosed the error and committed to "make the necessary accounting adjustment to remove this item and record it into the correct account that is tracking costs for the Project pending approval."[196] Transparent identification and correction of an amount of that size illustrates the integrity of the cost record and the value of a balancing account subject to review.

6. Allocation Between Bundled and Unbundled Customers

The Project's costs belong to the generation function and should be recovered from bundled and unbundled customers through the PCIA. In 2025, of 4,279.3 kilograms produced, 2,826.4 kilograms went to turbine blending and 1,196.9 kilograms to generator cooling, together approximately 94 percent of production, while 256.0 kilograms, about 6 percent, fueled fleet vehicles.[197] The SD CCAs' witness agrees that SDG&E "utilizes the vast majority of the clean hydrogen produced by the Project for generation-related purposes," and that separately functionalizing the fleet share would require "the breakout and separate functionalization of a

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[191] SDGE-01 (Beer) at AB-31 to AB-32, & n.76.
[192] SDGE-06 (Rebuttal) at 6 n.12.
[193] SDGE-06 (Rebuttal) at 6; TURN-02 (Monsen), DR-02, Q.3.
[194] SDGE-01 (Beer) at AB-33.
[195] *Id.* at AB-31 to AB-33; Cal Advocates-01, App. B, DR-02, Q.4(c); Ex. SDGE-04, Prepared Direct Testimony of Eric Dalton on behalf of SDG&E (December 16, 2025) ("SDGE-04 (Dalton)") at ED-1.
[196] TURN-02 (Monsen), DR-02, Q.6(a).
[197] Cal Advocates-01, App. B, DR-01, Q.21; Ex. CCA-01, Prepared Direct Testimony of Anthony M. Georgis on behalf CCA in SDG&E's Application for Approval of Project (August 21, 2026) ("CCA-01 (Georgis)") , Att. AMG-2, DR-02, Q.2.02.

miniscule portion of the overall revenue requirement."[198] SDG&E proposes that the costs recorded in the H2BA be recovered through PCIA rates from both bundled and unbundled customers.[199] The Project serves an existing PCIA-eligible generation resource and was undertaken on behalf of the customers for whom that resource was procured. Through the PCIA, unbundled customers bear only the above-market portion of those costs, while bundled customers continue to bear the up-to-market portion in generation rates.[200] UCAN's contention that departed-load customers receive no benefit and that any approved costs should be recovered only from bundled customers[201] misstates both the Project's benefits and the vintaging standard, as Section IV.E.3 explains.

7. The Project Sufficiently Leverages Public Funding Sources

The Project leverages every public funding source that was available and appropriate for it: $3,876,319 of federal tax credits, the LCFS program, WREGIS-enabled REC value, and EPIC funding for the research component.[202] Those are public funding sources in the most literal sense, and they reduce customer cost by an amount D.24-12-074 itself recognized could be "significant."[203] SDG&E also "proactively pursued outside revenue such as the ITC and [LCFS] rather than seeking full cost recovery via the Application."[204]

Other potential sources were not available to this Project. SDG&E tracked the federal ARCHES hydrogen hub, but the federal government terminated that partnership, which makes that option "moot at this time."[205] SDG&E monitors the CEC's Clean Hydrogen Program solicitations, which "do not always align with the timing or objectives for the Project," and the solicitation most closely matching the Project's co-located architecture, GFO-25-308, "was not available to SDG&E when the Project was developed and constructed."[206] EPIC could not fund the Project's capital because the Project was not in SDG&E's Commission-approved EPIC Investment Plans, EPIC constrains utility administrators from proposing generation-only projects, and EPIC is limited to

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[198] CCA-01 (Georgis) at 4, 13–14.
[199] *Id.*, Att. AMG-2; DR-01, Q.1.03, Q.1.04.
[200] SDGE-06 (Rebuttal) at 38.
[201] UCAN-01 (Siegele) at 3, 36.
[202] CEJA-01 (Gersen), Att. 3, DR-03, Q.8; SDGE-01 (Beer) at AB-28 to AB-33.
[203] D.24-12-074 at 983 (FOF 131).
[204] SDGE-06 (Rebuttal) at 5.
[205] *Id.* at 6.
[206] *Id.* at 6, and 16 n.54.

technologies in the developmental stage, whereas the electrolyzer is commercialized.[207] Third-party ownership was considered and is infeasible because PEC "is a secure, operating generation facility with safety, reliability, and operational considerations that limit the feasibility of third-party ownership or control of core Project assets"; "[t]he absence of a private partner reflects those operational realities rather than a failure to consider alternatives."[208] And outsourcing core operations would defeat the Project's purpose, which is for SDG&E's own workforce to gain hands-on operational experience on SDG&E's own assets.[209]

The Scoping Memo forecloses any argument that a particular funding structure was mandatory. It clarified that the Commission "does not require particular tactics by which SDG&E should lower ratepayer costs or increase ratepayer benefits from its prior request."[210] D.24-12-074's encouragement of "creative solutions, such as leveraging public-private investments or federal funding," was satisfied through federal funding, and its observation that SDG&E had provided no information on federal incentives has been fully answered.[211]

C. Scoping Issues 3 and 4: The Project Provides Environmental and GHG Benefits, While its Value is Not Limited to Near-Term Tonnage Reductions

Scoping Issue 3 asks what environmental benefits result from blending hydrogen with methane for this Project,[212] and Scoping Issue 4 asks how many GHG emissions the Project is likely to avoid. Because both questions measure the Project's environmental value, SDG&E addresses them together.

The Project's value lies in demonstration, learning, and operation, not in producing the cheapest possible hydrogen or the largest possible near-term emissions reduction at a single site. Its purpose is not to maximize GHG avoidance at PEC, but to build the operating, safety, and emissions experience needed to decarbonize firm generation at scale. Within that frame, the Project delivers real and precisely quantified environmental and GHG benefits. It displaces trucked gray hydrogen produced from natural gas, along with the diesel deliveries that brought it to PEC. It displaces natural gas at an operating turbine, reducing natural gas consumption and

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[207] *Id.* at 19–20 (citing D.12-05-037 at 41, 100).
[208] TURN-02 (Monsen), DR-02, Q.8, Q.9(c).
[209] SDGE-06 (Rebuttal) at 20–21.
[210] Scoping Memo at 4.
[211] D.24-12-074 at 406.
[212] Scoping Memo at 5.

CO2 emissions. It uses hydrogen that is renewable and verified at a zero carbon intensity. And it does so with no relaxation of any emission limit and no adverse impact on air quality. Together, these pathways can avoid approximately 36 metric tons of CO2 per year, and the Project's greater GHG value lies in the abatement its learnings make possible.

1. The CEC Reviewed the Project and Found No Significant Environmental Effect

The CEC, the agency with licensing authority over PEC, performed a comprehensive environmental review of the hydrogen generation and storage project under California Code of Regulations, title 20, section 1769.[213] CEC staff concluded that the change would result in "no impacts or less than significant impacts on the environment," that the project "would remain in compliance with the applicable LORS," and that no "daily, quarterly, annual, or other emission limit" would be increased.[214] Staff found that "[t]he addition of up to 2 percent of hydrogen as a fuel source for the natural gas turbines is not expected to increase emissions," and that "[a]ir quality, public health, and greenhouse gas emissions impacts from the evaluated changes would be less than significant."[215] Staff also found that the electrolyzer itself "would not result in direct operational emissions of pollutants."[216] With the existing oxidation catalysts, CEC staff concluded that PEC would continue to meet carbon monoxide and volatile organic compound limits, and that carbon monoxide and certain other emissions from the blended fuel were expected to be the same as or lower than on 100 percent pipeline-quality natural gas.[217]

2. Criteria Pollutant Emissions Remain Within Unchanged Permit Limits and Are Continuously Monitored

The Project required no modification to the existing emissions or operating limits in PEC's permits, including for NOx.[218] SDG&E made no physical changes to the turbines, Dry Low NOx combustors, heat recovery steam generators, or emissions controls.[219] At a two percent

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[213] CEJA-01 (Gersen), Att. 3, DR-01, Q.3 (CEC Staff Approval); SDGE-02 (Kabir & Counts) at PK_KC-18 to PK_KC-19.
[214] CEC Staff Approval at 13–14.
[215] *Id.,* at 4, 15.
[216] *Id.*, at 4.
[217] *Id.*, at 17-18; CEJA-02, DR-04, Supp., Q.8.
[218] SDGE-02 (Kabir & Counts) at PK_KC-18.
[219] *Id.* at PK_KC-13 to PK_KC-14.

blend, hydrogen has a negligible effect on combustion NOx, and the existing SCR units and oxidation catalysts maintain compliance with current limits.[220] SDG&E measures NOx produced while blending, has produced representative operating data, and confirmed from that data a negligible effect.[221] Emissions continue to be monitored through PEC's Continuous Emissions Monitoring System ("CEMS"), which was reprogrammed with EPA approval to account for the hydrogen fuel fraction and is governed by a revised Quality Assurance Manual approved by the San Diego County Air Pollution Control District ("SDAPCD") Source Test Division.[222] The Joint Utilities' Hydrogen Blending Compendium Report filed in R.13-02-008 likewise indicates that blended hydrogen combustion in turbines can achieve NOx emissions comparable to or lower than natural gas.[223] Developing exactly this verified, site-specific emissions dataset is one of the Project's documented learning categories.[224]

3. Blending Displaces Natural Gas and Reduces CO2 at the Turbine

At a two percent blend by volume, CO2 emissions from the blended turbine are reduced by approximately 0.617 percent, and SDG&E's blending at approximately 400 kilograms per month reduces CO2 by approximately 1,024 kilograms per month, or roughly 12 metric tons per year.[225] At the two percent blend, hydrogen delivered at approximately 62.3 kilograms per hour supplies about 2.08 MW of thermal input, or approximately 1 MW of carbon-free generating capacity at a 49 percent turbine efficiency.[226] The environmental benefit of blending at this scale is real but modest by design; the larger environmental value is the verified operating and emissions experience needed to evaluate higher blends responsibly.

4. The Hydrogen Is Clean Renewable Hydrogen Under the Commission's Definition

The Commission's interim definition of "clean renewable hydrogen" is hydrogen produced through a process with lifecycle (well-to-gate) GHG emissions of not more than 4

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[220] *Id.* at PK_KC-18.
[221] CEJA-01 (Gersen), Att. 3, DR-01, Q.1(a)–(c).
[222] SDGE-02 (Kabir & Counts) at PK_KC-19.
[223] SDGE-06 (Rebuttal) at 34–35.
[224] Cal Advocates-01, App. B, DR-03, Q.1 (learning item #9).
[225] CEJA-01 (Gersen), Att. 3, DR-03, Q.5(a) (correcting typographical "0.67%" to 0.617%); SDGE-02 (Kabir & Counts) at PK_KC-17 n.17.
[226] Cal Advocates-01, App. B, DR-03, Q.5.

kilograms of CO2e per kilogram of hydrogen and that does not use fossil fuel as a feedstock or production energy source.[227] The Project's electrolytic hydrogen meets that definition and carries a carbon intensity score of zero.[228] That score is independently verified under federal rules; the Project has received positive third-party verification statements each year, and the 2025 verification confirmed the carbon-intensity score was free of material misstatement.[229] SDG&E balances the electrolyzer's consumption against RECs generated by its own dedicated solar system, registered in WREGIS, and retires those RECs annually.[230] In 2025, the Project's total power consumption was approximately 258 MWh, while the onsite solar system generated approximately 298 MWh, none of which was exported to the grid.[231] Following WREGIS registration in 2024, SDG&E does not plan to procure additional RECs for the Project and instead retires RECs from the Palomar solar system.[232] That structure directly answers D.24-12-074's concern under PUC Section 398.4(k)(3) about hydrogen that becomes "green" only through separately purchased unbundled RECs.[233]

UCAN and CEJA argue that, absent hourly matching, the grid-connected electrolyzer produces carbon-intensive hydrogen.[234] But the Project's carbon-intensity score has been verified by an accredited third party each year under the federal rules that govern the hydrogen ITC, and the hourly-matching requirement for Section 45V does not take effect until after December 31, 2029, outside the Project's recapture period.[235] Intervenors' preference for a stricter accounting rule than the one that applies is a policy disagreement, not evidence that the Project's hydrogen fails the Commission's definition.

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[227] D.22-12-057 at 48, quoted in SDGE-01 (Beer) at AB-8.
[228] SDGE-01 (Beer) at AB-3 and AB-8; SDGE-06 (Rebuttal) at 10–11.
[229] SDGE-05 (Saket) at LS-4; SDGE-06 (Rebuttal) at 12–13.
[230] SDGE-02 (Kabir & Counts) at PK_KC-5 to PK_KC-6, and PK_KC-14; TURN-02 (Monsen), DR-02, Q.5(a).
[231] TURN-02 (Monsen), DR-01 Supp., Q.4(a), Q.15(a)–(b); CEJA-01 (Gersen) at 4 n.11. Annual consumption and annual production are the sums of SDG&E's reported 2025 monthly values.
[232] TURN-02 (Monsen), DR-01, Q.23(a); TURN-02 (Monsen), DR-04, Q.7(d).
[233] D.24-12-074 at 406.
[234] UCAN-01 (Siegele) at 3–4, 40–41; CEJA-01 (Gersen) at 25–27.
[235] SDGE-05 (Saket) at LS-4; SDGE-06 (Rebuttal) at 12–13.

5. Onsite Production Has Displaced Trucked-In Gray Hydrogen and Its Associated Emissions

Before the Project, PEC relied on trucked-in gray hydrogen produced from natural gas, with an average carbon intensity of 11 to 12 kilograms of CO2 per kilogram of hydrogen, delivered by diesel truck from a production site approximately 200 miles away.[236] SDG&E purchased between 156,711 and 339,200 standard cubic feet of hydrogen for generator cooling each year from 2019 through 2024, and purchased none in 2025 or January 2026.[237] Expressed in kilograms, those purchases totaled approximately 3,713.55 kilograms from 2019 through 2024.[238] SDG&E now "plans to depend entirely on its onsite hydrogen production for generator cooling in 2026 and beyond, unless the equipment is out of service for extended periods of time."[239] Replacing gray hydrogen with onsite renewable hydrogen, and eliminating the associated truck deliveries, reduces emissions by approximately 12 metric tons of CO2 per year.[240] Co-locating production with use was itself an environmental design choice; SDG&E evaluated trucked gaseous and liquid hydrogen and dedicated pipelines, and found co-location to be "the most feasible, practical, and cost-effective way to bring sufficient hydrogen for targeted sectors into our region in a reasonable timeframe."[241] By contrast, the Commission-approved Calistoga microgrid relies on liquid hydrogen trucked over 2,800 miles from Georgia.[242]

6. The Project's Direct GHG Reductions Are Quantified

As to Scoping Issue 4's question of how many GHG emissions the Project is likely to avoid,[243] SDG&E answers without overstating the significance of the near-term number, because the Project's purpose is not to maximize GHG avoidance at a single site but to prepare for decarbonizing firm generation at scale.

The Project can reduce CO2 emissions by approximately 36 metric tons per year through three pathways.[244] Replacing trucked gray hydrogen for generator cooling avoids approximately

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[236] SDGE-02 (Kabir & Counts) at PK_KC-16 to PK_KC-17 nn.14–16.
[237] TURN-DR-01, Q.10(a).
[238] TURN-DR-04, Q.3(a).
[239] TURN-DR-01, Q.10(c).
[240] SDGE-02 (Kabir & Counts) at PK_KC-17, n.16.
[241] SDGE-01 (Beer) at AB-5 to AB-6.
[242] *Id.* at AB-21 to AB-22.
[243] Scoping Memo at 5.
[244] SDGE-02 (Kabir & Counts) at PK_KC-16 to PK_KC-18.

12 metric tons per year (9,600 kilograms from production plus 2,450 kilograms from diesel delivery).[245] Blending into combustion turbine No. 2 at approximately 400 kilograms per month avoids approximately 12 metric tons per year.[246] Fueling two fuel cell vehicles that would otherwise be gasoline-fueled avoids approximately 6 metric tons per vehicle per year.[247] Each calculation assumes, consistent with third-party verification, a carbon intensity of zero for the Project's hydrogen.[248] Actual 2025 operations, with the power plant's maintenance schedule and dispatch profile affecting the ability to blend for periods, saw 2,826.4 kilograms blended, 1,196.9 kilograms used for cooling, and 256.0 kilograms dispensed for fleet fueling, consistent with those pathways.[249,250] The Project's actual hydrogen is produced on a third-party-verified zero-carbon-intensity basis, and annual electrolyzer consumption is currently below annual onsite solar output.[251]

7. The Correct Measure Is the Abatement the Learnings Make Possible

A demonstration's GHG value is not limited to its own emissions reductions. PEC alone emitted 613,662 metric tons of CO2 in 2025 utilizing a 2% hydrogen blend.[252] Higher blends, which the existing turbines can accommodate with permitting (to approximately 5 percent) or with upgrades (potentially to 30 percent), would reduce CO2 at the PEC blended turbine by approximately 1.6 percent and 11.5 percent, respectively.[253] Applied illustratively to PEC's 2025 emissions, those percentages would correspond to roughly 9,800 and 70,600 metric tons per year, two to three orders of magnitude above today's figure, at a single plant. And CARB projects 9,000 MW of hydrogen-fired turbines statewide by 2045.[254] None of that potential can be pursued responsibly without the integration, safety, permitting, and emissions knowledge the Project is

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[245] *Id.* at PK_KC-17 n.16.
[246] *Id.* at PK_KC-17, n.17.
[247] *Id.* at PK_KC-17 to PK_KC-18, n.19.
[248] CEJA-01 (Gersen), Att. 3, DR-03, Q.4–Q.6.
[249] Cal Advocates-01, App. B, DR-01, Q.21.
[250] SDGE-06 (Rebuttal) at 37 (The CEC Staff Approval's modeled figure of 2,724 metric tons of CO2e per year is not a measure of the Project's operations. It reflects a bounding scenario that assumed the electrolyzer and ancillary equipment operate 8,760 hours per year at full capacity using grid electricity; it "is a modeled maximum-operation scenario, not actual measured annual emissions from the Project operations.")
[251] *Id.*; SDGE-05 (Saket) at LS-4; TURN-02 (Monsen), DR-01, Q.31.
[252] TURN-02 (Monsen), DR-01, Q.28(a).
[253] CEJA-02, DR-04 Supp., Q.5(b), Q.6(b); SDGE-06 (Rebuttal) at 8.
[254] SDGE-01 (Beer) at AB-16.

producing now. As SDG&E has explained, the Project's "objective is not to drastically cut emissions, but support decarbonization across multiple areas of electric utility operations," and it is "an opportunity to gain critical insights to prepare for a future where hydrogen may be more common as a clean fuel source."[255] The Project thus advances Section 740.1(e)'s environmental-improvement objective. Its greater value, however, lies not in near-term tonnage at a single site but in the emissions record and operating knowledge the State will need for higher-blend decisions and for decarbonizing firm generation at scale.

D. Scoping Issue 5: The Project's Cost is Just and Reasonable Relative to its Demonstration and Operational Value

Scoping Issue 5 asks whether the cost of the Project to ratepayers relative to its value is just and reasonable.[256] The record demonstrates it is. The just-and-reasonable determination turns on the whole record—i.e., a prudent decision based on contemporaneous facts, disciplined scale, on-budget execution, substantial federal credits and recurring offsets, and demonstration value that cannot be acquired any other way. Cal Advocates, CEJA, TURN, and UCAN each conclude in testimony that the Project's costs exceed its value,[257] but each reaches that conclusion only by assigning the demonstration little or no value and pricing it as a commodity plant, a storage device, or a carbon-offset purchase. Weighed against the actual record, those conclusions lack the more convincing force the preponderance standard requires.

1. A Demonstration's Value Is Information and Risk Reduction, Not Commodity Output

"The purpose of a demonstration project is not to produce the lowest-cost product under fully optimized commercial conditions. Rather, its purpose is to determine the technology in an operational environment, generate real-world operating data, identify technical and integration challenges, and develop lessons that can inform future projects."[258] Utility demonstrations "reduce risk by generating operational data, informing system design, and building workforce readiness," "foster stakeholder confidence," and "help align innovation with regulatory frameworks."[259]

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[255] SDGE-06 (Rebuttal) at 15.
[256] Scoping Memo at 5.
[257] Cal Advocates-01 at 14; CEJA-01 (Gersen) at 13, 32; TURN-01 (Monsen) at 29–36; UCAN-01 (Siegele) at 41–43.
[258] SDGE-06 (Rebuttal) at 24.
[259] SDGE-01 (Beer) at AB-5.

Those are the benefits Section 740.1 directs the Commission to weigh. Not all of them can be reduced to a present dollar value, but they are concrete. As SDG&E's rebuttal testimony explains, "[d]emonstration projects are designed to reduce uncertainty, validate integration approaches, collect operational data, and identify technical and regulatory considerations before broader deployment occurs."[260] Having commissioned and operated hydrogen production, storage, compression, turbine blending, vehicle fueling, safety systems, emissions monitoring, and the associated compliance processes, SDG&E is better prepared—to the benefit of the customers it serves—to evaluate any future hydrogen application safely, reliably, and cost-effectively, which lowers the risk and cost of future decisions.[261]

2. The Cost Is Modest, Bounded, and Already Reduced

The Project's revenue requirement averages approximately $2.2 million per year over fourteen years and peaks at $3.4 million in a single year (2026).[262] It already reflects a $4.9 million reduction in the revenue requirement resulting from federal credits, and it excludes recurring LCFS and REC value that will be credited to the H2BA.[263] All capital has been incurred, no capital additions are anticipated, and the two-way account permits recovery only of authorized costs.[264] As SDG&E explained, it "strategically sized the demonstration, the Project was on budget, and external funding has been sourced," so ratepayers gain it at a controlled cost.[265]

3. The Project Delivers Quantifiable, Recurring Value in Addition to Its Demonstration Value

The quantifiable benefits, while not the whole story, are meaningful. Using SDG&E's estimated delivered price of approximately $58 per kilogram for green hydrogen from the nearest California production facility in Fresno, roughly 330 miles away,[266] the 4,279.3 kilograms the Project produced in 2025 would have cost approximately $248,000 to purchase and deliver—approximately $164,000 for the 2,826.4 kilograms blended, $69,000 for the 1,196.9 kilograms

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[260] SDGE-06 (Rebuttal) at 8.
[261] *Id.* at 31–32; SDGE-01 (Beer) at AB-34.
[262] TURN-02 (Monsen), DR-02, Q.7.
[263] *Id.*; SDGE-01 (Beer) at AB-31 to AB-33; SDGE-06 (Rebuttal) at 6.
[264] TURN-02 (Monsen), DR-01, Q.33 and DR-02, Q.3; SDGE-06 (Rebuttal) at 14.
[265] SDGE-06 (Rebuttal) at 11.
[266] TURN-02 (Monsen), DR-04, Q.4–Q.5.

used for generator cooling, and $15,000 for the 256.0 kilograms dispensed for fleet fueling.[267] The LCFS enrollment could generate approximately $100,000 per year, and REC retirement avoids approximately $24,000 per year in purchases.[268] The Project also would avoid an estimated $2.3 million of capital for a separate pilot.[269]

The Project also benefits ratepayers by leveraging existing infrastructure and serving an existing, ongoing operational need at PEC. Hydrogen has always been part of PEC's generator cooling system, a well-established cooling method for large generators.[270] Before the Project, PEC relied on hydrogen trucked in from third-party industrial-gas vendors.[271] The Project now lets SDG&E produce and store that hydrogen onsite, at a carbon intensity score of zero. Ratepayers benefit in two ways. First, SDG&E's largest generating asset no longer depends on outside vendor deliveries for a plant-critical input; the plant "cannot operate without a reliable supply of hydrogen."[272] Second, the Project is used and useful for a need the plant already had, so it is not a standalone experiment. Cal Advocates' contention in testimony that SDG&E offered no analysis showing that onsite production improves plant reliability[273] overlooks this showing.

Cal Advocates and CEJA contend that SDG&E's two fuel cell fleet vehicles could simply fuel at public stations.[274] But at the time of the Application, San Diego County had only one operational public hydrogen fueling station, the nearest public station is approximately 30 miles from PEC, and public hydrogen stations have experienced reliability, availability, and downtime challenges.[275] Small-scale deliveries of renewable hydrogen in the San Diego area are also difficult to source.[276] With onsite fueling at PEC, SDG&E can use those vehicles more consistently and efficiently, obtaining value from fleet assets ratepayers already support and avoiding the cost of

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[267] Calculated from TURN-02 (Monsen), DR-04, Q.5 ($58 per kilogram) and Cal Advocates-01, App. B, DR-01, Q.21 (2025 production and use by end use): 4,279.3 kg × $58 ≈ $248,199; 2,826.4 kg × $58 ≈ $163,931; 1,196.9 kg × $58 ≈ $69,420; 256.0 kg × $58 ≈ $14,848.
[268] SDGE-06 (Rebuttal) at 6; SDGE-01 (Beer) at AB-31 to AB-32.
[269] SDGE-01 (Beer) at AB-33.
[270] SDGE-02 (Kabir & Counts) at PK_KC-3, PK_KC-9.
[271] *Id.* at PK_KC-3.
[272] SDGE-02 (Kabir & Counts) at PK_KC-3.
[273] Cal Advocates-01 at 8.
[274] Cal Advocates-01 at 12–13; CEJA-01 (Gersen) at 30–31.
[275] SDGE-06 (Rebuttal) at 22–23; SDGE-01 (Beer) at AB-25 to AB-26.
[276] TURN-02 (Monsen), DR-02, Q.3; SDGE-01 (Beer) at AB-27.

having vehicles sit idle or travel to distant fueling stations, while gaining operational experience with hydrogen dispensing and vehicle fueling as part of the integrated demonstration.

UCAN and Cal Advocates also argue that D.24-12-074 already disallowed the fueling station, so that the Commission cannot approve any part of this Application.[277] That reads D.24-12-074 too broadly. The decision approved SDG&E hydrogen fueling infrastructure at its Kearny Construction & Operations Center, and, as SDG&E explained, it is properly viewed as "providing SDG&E with the opportunity to present a more comprehensive, standalone Application seeking approval of the Project (of which the refueling stations are a part)."[278] This Application is that stand-alone review, and the fueling module must be evaluated as part of the integrated system it serves.

4. Onsite Production Was the Prudent Choice Compared to Available Alternatives at the Time the Project Was Developed

When SDG&E developed the Project in 2019 through 2020, green hydrogen "was not readily available," and a project in Fresno (located about 330 miles from the Project) did not come online until 2023.[279] Electrolysis was the most favorable technology when SDG&E first proposed the Project in 2021 because it meets the Commission's clean renewable hydrogen definition, was commercially available, and was widely expected to scale toward affordable production, as reflected in the Department of Energy's 2021 "Hydrogen Shot" goal and BloombergNEF's reporting of a 40 percent decline in alkaline electrolyzer costs between 2014 and 2019.[280] Cal Advocates faults SDG&E for not comparing onsite production with continued trucked-in supply,[281] but the record contains that comparison. Even under a conservative scenario, where electricity consumption of the electrolyzer is limited to the max production of the onsite solar canopy, the electrolyzer can produce approximately 8,100 kilograms annually; buying that quantity at approximately $58 per kilogram would cost approximately $470,000 per year, or approximately $4.7 million over ten years, which "exceeds the direct capital cost of the electrolyzer and the estimated ten-year operation and maintenance expenses combined."[282] And, "most importantly,

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[277] UCAN-01 (Siegele) at 4, 8; Cal Advocates-01 at 12–13.
[278] SDGE-06 (Rebuttal) at 23–25; Cal Advocates-01, App. B, DR-03, Q.4(b); *see* D.24-12-074 at 404.
[279] TURN-02 (Monsen), DR-04, Q.4, Q.5.
[280] SDGE-01 (Beer) at AB-8 to AB-9.
[281] Cal Advocates-01 at 8.
[282] SDGE-06 (Rebuttal) at 27; TURN-02 (Monsen), DR-04, Q.9.

the purpose and benefit of the project was to demonstrate and gain operational experience on a *fully-integrated* system, which by definition included the production of hydrogen onsite."[283]

TURN contends in testimony that purchasing delivered hydrogen would have been less costly than onsite production, calculating a levelized cost that allocates the Project's entire revenue requirement to hydrogen production.[284] That comparison is asymmetrical. Even if SDG&E purchased hydrogen offsite, "the balance-of-plant equipment needed to receive, handle, store, compress, blend, and safely use that hydrogen at the facility would still be required."[285] A valid comparison must therefore weigh the cost of onsite production (electricity, water, and directly attributable production costs) against the cost of purchasing and delivering an equivalent quantity and quality of hydrogen, with common equipment included on both sides or excluded from both.[286] TURN's references in testimony to unspecified, more favorable pricing and to a Lancaster facility announced in 2023 and still under development are not supported by reviewable pricing evidence, and neither was available when SDG&E designed the Project.[287]

5. An Integrated Demonstration Should Not Be Disassembled or Judged by Commercial-Scale Metrics

Because the Project is an integrated demonstration, its reasonableness must be evaluated as an integrated whole. Its components exist because each enables the others. For example, the compressor is "a critical system component because hydrogen produced by the electrolyzer must be compressed to achieve practical and economically reasonable storage volumes," and without it the Project "would be unable to store meaningful quantities of hydrogen and blend hydrogen into turbines."[288] Storage, then, is intentionally sized to "buffer intermittent production and support hydrogen blending, generator cooling, hydrogen fueling station, and RD&D testing."[289] Cal Advocates' objection that storage exceeds generator-cooling needs[290] thus evaluates the storage system for only one of the uses it was designed to serve. More fundamentally, Cal Advocates'

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[283] TURN-02 (Monsen), DR-04, Q.5.
[284] TURN-01 (Monsen) at 29–31.
[285] SDGE-06 (Rebuttal) at 24–25.
[286] *Id.* at 25.
[287] TURN-01 (Monsen) at 33, 35–36; SDGE-06 (Rebuttal) at 25–26.
[288] SDGE-06 (Rebuttal) at 22.
[289] *Id.* at 21–22; SDGE-02 (Kabir & Counts) at PK_KC-9.
[290] Cal Advocates-01 at 9–10.

proposed test, which asks whether each component provides "an independent, stand-alone benefit," would make any integrated system appear unjustifiable by examining each necessary part apart from the function it enables.[291]

Likewise, the metrics Intervenors propose (TURN's division of the entire integrated revenue requirement by kilograms produced, UCAN's comparison of the Project's round-trip efficiency to a battery, and CEJA's and UCAN's focus on near-term tonnage) measure functions the Project does not perform.[292] The Project "is not proposed as an energy storage system," and "[a] battery cannot generate hydrogen for vehicle fueling, generator cooling, off-site research, fuel-delivery testing, or evaluation of firm-dispatchable hydrogen combustion systems."[293]

UCAN emphasizes the electrolyzer's low utilization and the limited hours of blending in 2025.[294] But the operating record should be evaluated in the context of the Project's purpose as a demonstration, rather than against the utilization standard of a mature commercial production facility. A demonstration "does not need to achieve a commercial capacity factor to generate relevant data"; intermittent operation itself yields information on startup and shutdown, production, controls, compression, storage, transfer among end uses, and integration with plant equipment.[295] Utilization "is relevant to the quantity and range of available data, but utilization alone is not a valid measure of the quality or usefulness of the information obtained."[296]

Nor may a first-of-its-kind demonstration be held to the cost benchmarks of a mature commercial market. Early cost premiums are the expected cost of moving down a technology's learning curve, and, as discussed in Section IV.D.4, electrolyzer costs had already declined sharply when SDG&E committed to the Project.[297] As SDG&E's rebuttal testimony explains, California required its IOUs to make early investments in emerging clean energy technologies "that appeared expensive at inception but proved essential to driving the cost reductions that followed," and "[t]he

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[291] SDGE-06 (Rebuttal) at 22.
[292] TURN-01 (Monsen) at 29–31; UCAN-01 (Siegele) at 10–12; CEJA-01 (Gersen) at 5–6.
[293] SDGE-06 at 30–31 (responding to UCAN testimony).
[294] UCAN-01 (Siegele) at 30, 41–42.
[295] SDGE-06 (Rebuttal) at 32.
[296] *Id.*
[297] SDGE-01 (Beer) at AB-8 to AB-9; SDGE-06 (Rebuttal) at 28.

hydrogen market today is at a comparable stage."[298] The cost of hydrogen alone therefore cannot measure the value of the Project, or of investment in hydrogen production, at this stage.[299]

6. The Commission Regularly Approves Early, Modest Investments in New Clean Energy Technologies, and the Project Is a More Prudent Example

Approving the Project would apply, not depart from, the Commission's established approach to emerging technologies. The Commission required energy storage procurement under D.13-10-040 when, as one publicly owned utility then observed, "most forms of energy storage are not cost-effective at this time"; early California pilot and demonstration battery projects installed between 2011 and 2018 cost $6,000 to $11,500 per kilowatt in 2022 dollars, while utility-owned projects in 2021–2022 cost $1,300 to $1,700 per kilowatt.[300] Executed Renewables Portfolio Standard ("RPS") contract prices peaked near 23 cents per kilowatt-hour in 2007 and fell to 5.8 cents by 2023.[301] Grid-connected solar grew from 2 MW in 2004 to more than 22,000 MW in 2024, and battery storage grew from less than 1 MW in 2007 to 15,763 MW as of April 2025.[302] The Commission has carried the same approach into hydrogen and microgrids, approving PG&E's Calistoga hydrogen fuel cell and battery microgrid under Res. E-5261 and authorizing SoCalGas hydrogen RD&D under Res. G-3601.[303] Indeed, in D.24-12-074 itself, the Commission authorized SDG&E's mobile battery storage program as reasonable precisely because SDG&E was "relying on successfully demonstrating its Electric Program Investment Charge-3 projects."[304]

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[298] SDGE-06 (Rebuttal) at 27–28.
[299] *See also* Ex. SDGE-08, TURN DR-05, Q.8(a) (Stating "SDG&E believes the "learning rate"—i.e. the rate at which costs decline with each doubling of cumulative installed capacity—is a critical consideration. Several studies now show that electrolyzers exhibit comparable learning rates to solar PV. For example, IRENA's 2020 Green Hydrogen Cost Reduction report concluded that "potential learning rates for fuel cells and electrolysers are similar to solar PV and can reach values between 16% and 21%."7 And a 2025 peer-reviewed study published in the International Journal of Hydrogen Energy estimated even higher learning rates based on European project data—32.1 percent for PEM electrolyzers and 22.9 percent for alkaline electrolyzers—both of which are comparable to or exceed the learning rates experienced by solar PV during its high-growth period," and citing referenced studies.)
[300] SDGE-06 (Rebuttal) at 28–29 (n. 103, citing CPUC, Energy Storage Procurement Study (May 31, 2023), Att. A at A-30).
[301] *Id.* at 27–28.
[302] SDGE-01 (Beer) at AB-20.
[303] *Id.* at AB-21 to AB-22, AB-26 to -27.
[304] D.24-12-074 at 982 (FOF 128).

Demonstration first, then deployment, is how California has built every clean energy resource it now relies upon. The Commission should evaluate the Project in that context.

California's experience with renewables, storage, and microgrids shows why early, modest investment is just and reasonable. The Commission's 2023 Energy Storage Procurement Study states that its historical evaluation "is not intended to be — nor would it be correctly interpreted as — a prudency review of any individual energy storage resource procurement," because "California's journey with energy storage development included substantial investment in the innovation process. This necessitates learning from pilots, demonstration projects, and first-of-its-kind procurements to facilitate future potential benefits of a larger fleet."[305]

What distinguishes the Project from its predecessors is its disciplined, prudent approach. SDG&E did not ask customers to fund a large-scale bet. It built the smallest system capable of exercising every relevant integration interface at an operating power plant, kept it on budget through a period of inflation and supply-chain disruption, and captured federal credits that return nearly $3.9 million to customers.[306] As SDG&E's rebuttal testimony explains, the State's past support for innovation "succeeded in driving down the costs of solar/batteries," but SDG&E "does not want to impose similar large-scale project costs on ratepayers as it advances early-stage hydrogen development," which "is precisely why the Project was designed to meet operational and learning objectives at a modest scale."[307]

As SDG&E explained in rebuttal testimony, opponents of demonstration funding "effectively argue that hydrogen should be held to a standard that solar and storage were not required to meet—that it must demonstrate cost-effectiveness at commercial scale before the Commission authorizes even a demonstration investment. That framework, if applied to emerging technologies generally, would have precluded the very investments in solar and energy storage" that are now regarded as successes.[308]

The Project is a modest, prudent investment in an integrated hydrogen system that generates the very operational data and experience the Commission will need to evaluate hydrogen's role in meeting California's 2045 decarbonization requirements.

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[305] SDGE-06 (Rebuttal) at 29.
[306] SDGE-01 (Beer) at AB-28 to -29; SDGE-05 (Saket) at LS-1.
[307] SDGE-06 (Rebuttal) at 29–30.
[308] *Id.* at 30.

7. The Cost of Inaction Is Real

Delay is not costless. "Delaying decarbonization efforts today risks greater costs in the future, even if these costs are difficult to quantify," and "demonstrations are necessary to determine what can be repurposed, and at what cost."[309] "Not conducting small-scale hydrogen demonstration projects risks missing SB 100's firm-capacity option, raising affordability pressures, and slowing CPUC standard-setting."[310] Retrofitting existing assets also "is crucial for maintaining affordability and preserving jobs in the energy sector," and the Project "preserves the lowest-cost retrofit path to decarbonize existing gas fleets."[311] SDG&E believes it "would be performing a disservice to ratepayers by not preparing for a future where hydrogen is more commonly used."[312]

E. Scoping Issue 6: The H2BA is the Appropriate Ratemaking Mechanism

The Scoping Memo asks whether, if the costs are just and reasonable, a two-way balancing account is appropriate; whether costs should be recovered in distribution and/or generation rates; and whether there should be separate vintaging of costs and, if so, through what mechanism.[313]

1. The Two-Way, Interest-Bearing H2BA Protects Customers

SDG&E proposes to establish the H2BA, a two-way, interest-bearing balancing account that records the authorized revenue requirement and actual incremental costs associated with the Project, including capital-related costs, O&M, and revenues and expenses created by the Project, such as LCFS and REC value.[314] A two-way account is reasonable "because it allows the utility to track actual costs to an amount authorized for recovery by the CPUC, thereby ensuring that ratepayers are charged for actual costs and refunded overcollections," while "the utility does not make or lose money due to uncertainties in the maintenance of the project, or fluctuations in CAISO revenue and expenses."[315] This symmetry is important here because the Project's offsets, including LCFS credits whose value is market-based, not fixed, will flow through the account to

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[309] SDGE-01 (Beer) at AB-33 to -34.
[310] *Id.* at AB-34.
[311] *Id.*
[312] SDGE-06 (Rebuttal) at 15.
[313] Scoping Memo at 5.
[314] SDGE-04 (Dalton) at ED-1.
[315] *Id.* at ED-1 to ED-2.

customers.[316] Because the Project has the potential to be revenue-generating, a two-way account ensures that any such value is credited to the customers rather than retained by the utility.[317]

UCAN argues that because the capital costs are historical and known, there is nothing to balance.[318] But the account balances more than capital, it tracks actual O&M against authorized amounts and credits market-based LCFS value and REC value, so that customers receive those offsets as they materialize.

Further, the account is bounded. As SDG&E witness Lauren Shelver explains, "When a balancing account is approved, it does not give SDG&E the authority to charge unapproved costs to the account. Only costs approved in the decision can be charged to the balancing account."[319] Any new costs that are not authorized in this application cannot be balanced in the H2BA, and any new capital will need to be approved through a GRC or other proceedings. Annual over- or undercollections will need to be addressed in SDG&E's Tier 2 Advice Letter for its Annual Regulatory Account Balance Update, and the account will close when Project costs are incorporated into a future GRC.[320]

2. Costs Should Be Recovered Through Generation Rates and the PCIA

As discussed in Section IV.B.6, approximately 94 percent of the Project's 2025 hydrogen production served generation uses at PEC, and the Project exists to support and enhance a PCIA-eligible generating resource.[321] Generator cooling utilizing hydrogen is a plant-critical function; the plant "cannot operate without a reliable supply of hydrogen," and cooling is first in the Project's use priority.[322] The costs are therefore properly assigned to the generation function and recovered through generation rates and, for unbundled customers, the PCIA, which allocates only the above-market portion of portfolio costs, so unbundled customers pay only that increment while bundled customers would continue to bear the responsibility for the up-to-market costs recovered through bundled generation rates.[323]

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[316] SDGE-06 (Rebuttal) at 6 n.12.
[317] SDGE-01 (Beer) at AB-29; SDGE-04 at ED-1 to ED-2.
[318] UCAN-01 (Siegele) at 43.
[319] SDGE-06 (Rebuttal) at 14.
[320] SDGE-04 (Dalton) at ED-2; CCA-01, Att. AMG-2, DR-01, Q.1.03.
[321] *See* Cal Advocates-01, App. B, DR-01, Q.20, 21; CCA-01 (Georgis), Att. AMG-2 at DR-02, Q.2.02; *see also* CCA-01 (Georgis) at 3-4.
[322] SDGE-02 (Kabir & Counts) at PK_KC-3, 13.
[323] SDGE-06 (Rebuttal) at 38; CCA-01, Att. AMG-2, DR-01, Q.1.03, Q.1.04.

3. Pursuant to the Operative Vintaging Framework, the Project Retains PEC's Existing 2004 Vintage

Under the operative, long-established PCIA vintaging framework, the Project must retain PEC's 2004 vintage. To the extent any intervening party seeks a different result, this Application proceeding is not the proper forum to craft new vintaging rules that contradict those currently in place.[324]

The applicable standard for vintaging of utility-owned generation ("UOG") resources, such as PEC, and related ongoing costs is established through two related Commission decisions that, together, ensure adherence to statutory cost indifference principles.[325] In D.08-09-012, the Commission adopted "vintaging" rules specifying what resource costs departing customers would remain responsible to pay after their departure from bundled service; in D.18-10-019, the Commission developed rules for allocating the cost of resources in each "vintage" through the PCIA.

With regard to UOG, the vintaging framework adopted by the Commission in D.08-09-012 puts resources into one of two categories: 1) existing resources—*i.e.,* UOG resources where construction has begun *before* the specified departure date; and 2) post-departure resources—*i.e*., UOG resources where construction begins *after* the specified departure date.[326] Customers in each vintage remain obligated to pay the costs of resources that are in the "existing" category at the time of their departure but are not obligated to pay the costs of resources that are in the "post departure" category. In other words, the vintaging process is binary—a UOG resource is either existing or new and is vintaged solely on that basis. Notably, D.08-09-012 does <u>*not*</u> require the IOU to demonstrate that departed load customers will continue to receive benefits from the UOG resource in question in order to place the UOG resource in a particular vintage. Rather, the vintaging process recognizes that the resource was originally procured for the benefit of now-departed customers and allocates cost responsibility on that basis.

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[324] Indeed, the question of whether the current vintaging framework should be revised is being specifically addressed in the pending Order Instituting Rulemaking to Update and Reform Energy Resource Recovery Account and Power Charge Indifference Adjustment Policies and Processes, R.25-02-005.

[325] *See* Pub. Util. Code Sections 365.2, 366.2 and 366.3.

[326] D.08-09-012 at 61, 66.

D.08-09-012 does not establish a separate vintaging approach for *future* costs associated with prudent maintenance and/or upgrades to the UOG resources in a particular vintage. And since the Commission is well aware that the IOUs must continue to make reasonable capital investments in UOG resources over time to maintain them in a manner that optimizes functionality and complies with the policy goals of the state—and must do so regardless of load departure—it is logical to assume that the decision intends for such future investments to be placed in the same vintage as the underlying UOG resource. In other words, having approved the investment in the UOG resource for the benefit of departed load customers prior to their departure and finding that departed load customers must continue to bear responsibility for such costs, it would be counterintuitive (and not in the public interest) for the Commission to find that departed load customers may avoid ongoing reasonable costs related to the approved UOG resource. Allowing departed load customers to side-step such costs would result in unlawful cost shift and would also create a perverse incentive to avoid prudent investments in UOG resources and introduce tremendous complexity into the vintaging and cost recovery process.

The conclusion that D.08-09-012 establishes a presumption that reasonable future UOG capital investment costs would be included in the same vintage as the underlying resource is confirmed by D.18-10-019, which acknowledges that while investment in a UOG resource could theoretically trigger a need to re-vintage a UOG resource for PCIA purposes, re-vintaging is not automatic and would be justified only where the "new investments in an old power plant . . . represent[s] *such a significant overhaul* of the facility as to justify a 're-vintaging' of the facility."[327] Considered within the context of D.08-09-012 and its binary approach to resource vintaging, the discussion in D.18-10-019 is properly understood as establishing that re-vintaging of a UOG resource is appropriate only in the rare circumstance where the capital investment in question represents "*such* a significant overhaul" of the UOG resource that it effectively creates a *new* resource that must be placed into a new vintage. Otherwise, the capital investment should be vintaged according to the original assigned vintage of the underlying UOG resource. Moreover, while D.18-10-019 observes (correctly) that departed load customers can continue to benefit from resources even after their departure from bundled service,[328] the decision does ***not*** indicate

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[327] D.18-10-019 at 135 (emphasis added).
[328] *See* D.18-10-019 at 59 (discussing cost recovery for PG&E's Humboldt plant).

that the existence (or lack) of benefits to departed load customers is the driver for a decision regarding re-vintaging.

The Project is not a "significant overhaul" of PEC. As SDG&E witness Rachelle Baez testified, it "does not increase Palomar's generating capacity or create a new procurement commitment. Rather, it enhances an existing PCIA-eligible generation resource and may reduce costs that would otherwise be incurred to support Palomar's existing operations and authorized functions."[329] "Hydrogen for generator cooling system existed and was operational at PEC prior to the Project"; SDG&E made no physical changes to PEC's turbines, combustors, heat recovery steam generators, duct burners, or emissions controls.[330] The Project does not change PEC's expected life, which remains scheduled to end in 2036 for depreciation purposes.[331] To the extent the Project displaces costs PEC would otherwise incur, such as purchased gray hydrogen, "those avoided costs are associated with the same resource and existing 2004 vintage."[332]

The Project's benefits also are not confined to bundled customers, although benefits to departed load are not the vintaging standard. The demonstration produces "operational, emissions, reliability, scalability, and decarbonization information" that is "available to regulators, utilities, Community Choice Aggregators ('CCAs'), policymakers, developers, and other stakeholders," and that "reduces uncertainty surrounding hydrogen technologies and informs future planning, procurement, reliability, and decarbonization decisions that affect all electric customers, including bundled, CCA, and direct access customers."[333] Retaining the 2004 vintage therefore honors the indifference principle of PUC Sections 365.2, 366.2 and 366.3 in both directions.

The SD CCAs propose a 2027 vintage, based on the expected timing of a decision in this proceeding.[334] The Commission should reject that proposal for the reasons above. But even if the Commission were to assign a new vintage (which would be improper under the governing

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[329] SDGE-06 (Rebuttal) at 38.
[330] SDGE-02 (Kabir & Counts) at PK_KC-12 to PK_KC-14.
[331] TURN-01 (Monsen) at 10, n. 13.
[332] SDGE-06 (Rebuttal) at 38.
[333] *Id.* at 37-38.
[334] CCA-01 (Georgis) at i, 7; *see* SDGE-06 (Rebuttal) at 37–38.

framework), the appropriate vintage would be 2023, when the Project began operating and producing benefits, not 2027.[335]

F. Scoping Issue 7: The Project Does Not Cause Adverse ESJ Impacts and Advances a Controlled Approach to Clean-Energy Innovation

Scoping Issue 7 asks what impacts, if any, the Project has on environmental and social justice ("ESJ") communities, including the extent to which it affects achievement of any of the nine goals of the Commission's ESJ Action Plan.[336]

1. The CEC Evaluated ESJ Populations and Found No Significant Impact

The CEC conducted an express environmental justice analysis of the Project. CEC staff reviewed CalEnviroScreen 4.0 data and determined that the census tract in which PEC is located has an overall percentile score of 57 and "thus, is not identified as a disadvantaged community."[337] Staff conservatively examined a six-mile radius around PEC, identified census blocks with minority populations at or above 50 percent, and identified the Escondido Union school district, where 70.2 percent of students are enrolled in the free or reduced-price meal program, as an environmental justice population based on low income.[338] CEC then concluded that "impacts would be less than significant, including the impacts to environmental justice populations," and that "there are no air quality, public health, or greenhouse gas emissions environmental justice issues related to the evaluated PEC modifications, and no minority or low-income populations would be significantly or adversely impacted."[339] The CEC's process included public filing of the staff determination and a 14-day period during which any person may file an objection.[340] That independent, site-specific analysis by the agency responsible for PEC's environmental review is the most probative evidence in the record on Issue 7.

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[335] SDGE-06 (Rebuttal) at 38–39.
[336] Scoping Memo at 5.
[337] CEJA-01 (Gersen), Att. 3, DR-01, Q.3, CEC Staff Approval at 4.
[338] *Id.* at 9-10.
[339] *Id.* at 15.
[340] *Id.* at 13-14.

2. Local Air Quality Is Protected and Diesel Deliveries Have Been Eliminated

As shown in Section IV.C.2, above, no permit limit was relaxed and no physical change was made to PEC's combustion or emissions-control equipment, the SCR units and oxidation catalysts maintain compliance with air emissions limits, and emissions are continuously monitored through an approved CEMS.[341] The CEC found the Project would reduce delivery trips and would not increase any emissions limit.[342] Before the Project, hydrogen arrived at the facility by diesel truck approximately twelve times per year, over an assumed route of roughly 200 miles. Those deliveries have been eliminated, removing an estimated 2,400 truck-miles and 2.45 metric tons of diesel carbon dioxide annually.[343] The fuel cell vehicles fueled at PEC also displace gasoline vehicles that support plant and microgrid operations throughout the region, producing an estimated reduction of approximately 6 metric tons of carbon dioxide annually.[344] Diesel traffic is a classic local environmental justice burden, and its elimination is a direct benefit to the surrounding community.

3. The Project Advances the ESJ Action Plan Goals

The Commission adopted its Environmental & Social Justice Action Plan as a resource for "CPUC staff, intervenors, stakeholders, and the public," and it "expects regulated entities to conform to the goals and principles outlined in the ESJ Action Plan."[345] Measured against the Plan's nine goals, the record shows the Project advances several goals and conflicts with none.[346]

CEJA contends that the Project "threatens to stymie" Goal 2 because hydrogen combustion could increase NOx and because SDG&E did not conduct community engagement before installation, and UCAN asserts that SDG&E made no ESJ showing.[347] The record refutes both claims. The CEC, the agency responsible for PEC's environmental review, conducted an express environmental justice analysis, found no significant impact on environmental justice populations,

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[341] SDGE-02 (Kabir & Counts) at PK_KC-13 to PK_KC-14, and PK_KC-18 to PK_KC-19.
[342] CEJA-01 (Gersen), Att. 3, DR-01, Q.3, CEC Staff Approval at 8.
[343] SDGE-02 (Kabir & Counts) at PK_KC-17 n.16.
[344] SDGE-02 (Kabir & Counts) at PK_KC-1 to 2, PK_KC-17 to PK-KC_18.
[345] CPUC, *Environmental & Social Justice Action Plan: Version 2.0* (April 7, 2022) ("ESJ Action Plan") at 26, *available at*: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/documents/news-office/key-issues/esj/esj-action-plan-v2jw.pdf.
[346] ESJ Action Plan at 4–6 (listing the nine goals).
[347] CEJA-01 (Gersen) at 15–16, 21–25; UCAN-01 (Siegele) at 44–45.

and found that the existing SCR system would address any NOx increase while PEC continues to meet its permit limits; its process also provided public notice and an opportunity for any person to object.[348] The goal-by-goal analysis below confirms that the Project advances, rather than impedes, the ESJ Action Plan.

Goal 2. The Project furthers Goal 2, to "[i]ncrease investment in clean energy resources to benefit ESJ communities, especially to improve local air quality and public health."[349] It replaced gray hydrogen, produced by steam methane reforming and trucked to PEC, with renewable hydrogen produced on site that meets the Commission's interim definition of clean renewable hydrogen.[350] SDG&E purchased no delivered hydrogen for generator cooling in 2025 or January 2026, and it plans to rely entirely on on-site production going forward, reducing carbon dioxide emissions by 12 tons per year.[351] CEC staff found that generating hydrogen on site "would reduce the number of hydrogen delivery trips to the PEC."[352] The Project also displaces natural gas in the turbine.[353] It does so without increasing "any daily, quarterly, annual, or other emission limit."[354] CEC staff addressed any NOx concern in that it found that the post-combustion selective catalytic reduction system "would deal with any such increases and the facility would continue to comply with current emission limits."[355]

The Plan also directs the Commission to "address ongoing and legacy impacts in ESJ communities."[356] CEC staff conducted exactly that inquiry. It identified the low-income population of the Escondido Union School District, where 70.2 percent of students are enrolled in the free or reduced-price meal program, and concluded that the Project's impacts on that population would be less than significant.[357]

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[348] CEJA-01 (Gersen), Att. 3, CEC Staff Approval at 13–15, 17; see Section IV.F.1, *supra*.
[349] ESJ Action Plan at 23.
[350] SDGE-02 (Kabir & Counts) at PK_KC-3, PK_KC-16 to -17; SDGE-01 (Beer) at AB-3, AB-8.
[351] SDGE-02 (Kabir & Counts) at PK_KC-16 to -17; TURN-02 (Monsen), DR-01, Q.10(a), (c); *id.*, DR-04, Q.3(a).
[352] CEJA-01 (Gersen), Att. 3, DR-01, Q.3, CEC Staff Approval at 8.
[353] SDGE-02 (Kabir & Counts) at PK_KC-17.
[354] CEJA-01 (Gersen), Att. 3, DR-01, Q.3, CEC Staff Approval at 2; SDGE-02 (Kabir & Counts) at PK_KC-18 to PK_KC-19.
[355] CEJA-01 (Gersen), Att. 3, DR-01, Q.3, CEC Staff Approval at 17; *see also* SDGE-02 (Kabir & Counts) at PK_KC-18.
[356] ESJ Action Plan at 24 (Objective 2.4).
[357] CEJA-01 (Gersen), Att. 3, DR-01, Q.3, CEC Staff Approval at 9–10; *see also* SDGE-06 (Rebuttal) at 36.

Research supporting Goal 2. The Plan calls for "research and analytical opportunities to understand impacts in ESJ communities."[358] It specifically contemplates study of the "Reliability and Emissions Impacts of Fossil Generation In and Around Disadvantaged Communities."[359] The Project generates that kind of evidence. Upon Project approval, SDG&E will re-engage with faculty at the UCI Combustion Laboratory to develop a framework and test plan to formalize and enhance the research component of the Project's data collection involving emissions and system-performance data from hydrogen blending.[360] That data "will enable and inform standards, permitting, and possible pathways to scale-up at power plants."[361]

Goal 4. The Project supports Goal 4, to "[i]ncrease climate resiliency in ESJ communities," including the Plan's emphasis on "adaptive capacity."[362] Small-scale deliveries of renewable hydrogen are difficult to source in the San Diego region.[363] The Project gives SDG&E's EPIC-funded "Renewable Mobile Nanogrid for Climate Resiliency" a local source of that hydrogen, and the Nanogrid's EPIC test plan calls for "operating the Nanogrid in island mode for long durations using an external clean hydrogen source."[364]

Goal 6. The Project is consistent with Goal 6, to "ensure safety and consumer protection for all, especially for ESJ communities."[365] SDG&E conducted HAZID and HAZOP studies and integrated their mitigations into the Project's design.[366] It incorporated safety protocols, including "training for employees and first responders," into commissioning.[367] Its stated aim is "to protect personnel, infrastructure, and the surrounding community."[368] Those studies informed the Project's emergency shutdown, leak detection, and pressure-testing safeguards.[369]

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[358] ESJ Action Plan at 23 (Objective 2.2).
[359] *Id.* at 32 (Action Item 2.2.1).
[360] SDGE-06 (Rebuttal) at 30, 34; SDGE-01 (Beer) at AB-11; SDGE-02 (Kabir & Counts) at PK_KC-22.
[361] SDGE-01 (Beer) at AB-34; *see* SDGE-06 (Rebuttal) at 30, 34.
[362] ESJ Action Plan at 24 (Objective 4.1).
[363] SDGE-01 (Beer) at AB-27, AB-32; TURN-02 (Monsen), DR-02, Q.3; *see also id.*, DR-04, Q.4–Q.5 (nearest green hydrogen source about 330 miles away in Fresno; estimated delivered cost of $58/kg).
[364] SDGE-01 (Beer) at AB-7, AB-32; SDGE-02 (Kabir & Counts) at PK_KC-12 to PK_KC-13.
[365] ESJ Action Plan at 25.
[366] SDGE-02 (Kabir & Counts) at PK_KC-15, PK_KC-21; *see also id*. at PK_KC-15 to PK_KC-16 (leak-prevention design, emergency shutdowns, pressure testing).
[367] SDGE-02 (Kabir & Counts) at PK_KC-15; *see also id*. at PK_KC-16 (commissioning pressure test); SDGE-01 (Beer) at AB-10 (training of "staff, labor, and first responders").
[368] SDGE-02 (Kabir & Counts) at PK_KC-15; *see also* SDGE-01 (Beer) at AB-10.
[369] SDGE-02 (Kabir & Counts) at PK_KC-16, PK_KC-21; SDGE-06 (Rebuttal) at 31–32.

Goal 7. The Project supports Goal 7, to "[p]romote high road career paths and economic opportunity for residents of ESJ communities."[370] The Plan recognizes "the training and services needed to develop a skilled and diverse workforce."[371] The Project promotes high-quality career pathways by building hydrogen competency at PEC, the operations hub for SDG&E's generation and reliability assets.[372] Approximately 45 full-time employees report to PEC.[373] They operate PEC, the Cuyamaca Peak Energy Plant, and the Miramar Energy Facility, and they monitor 600 MW of battery storage and microgrids across 20 sites.[374] Workforce training is an express component of the Project, and the Project has supported training for staff, labor, and first responders.[375]

Goal 5. The Project is consistent with Goal 5, to "[e]nhance outreach and public participation opportunities for ESJ communities."[376] It is also consistent with the Plan's emphasis on "Engagement with California Native American Tribes."[377] Since completion, SDG&E has given tours and shared what it has learned with public agencies such as the Port of San Diego and North County Transit District, faculty and staff from California public universities, "a local Tribal government," and elected officials.[378]

Affordability. Finally, the Plan stresses that "increased rates place a large burden on ESJ communities" and makes mitigating rate burdens "a priority in all actions the CPUC takes."[379] The Project honors that priority. SDG&E built it "at a modest scale," avoiding "a larger, more complex project that would add execution and cost risk."[380] It came in "on budget of the original GRC cost forecast with less than one percent deviation overall."[381] It leverages existing infrastructure at an

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[370] ESJ Action Plan at 25.
[371] *Id.* at 21.
[372] SDGE-02 (Kabir & Counts) at PK_KC-1.
[373] *Id*.
[374] *The battery storage and microgrid figures have been updated to account for recent project expansions. These figure differ from the utility-owned projects previously included in the record here:* SDGE-02 (Kabir & Counts) at PK_KC-1 to PK_KC-2.
[375] SDGE-01 (Beer) at AB-5, AB-10.
[376] ESJ Action Plan at 24.
[377] *Id.* at 18.
[378] SDGE-01 (Beer) at AB-11.
[379] ESJ Action Plan at 21-22.
[380] SDGE-01 (Beer) at AB-9; SDGE-06 (Rebuttal) at 29-30.
[381] SDGE-01 (Beer*)* at AB-28 n. 28 (citing WP-1 filed concurrently with SDGE-02); SDGE-06 (Rebuttal) at 4 n.6.

operating plant.[382] Its $3.9 million in federal tax credits "will be returned to SDG&E ratepayers,"[383] and its LCFS and REC revenues will be recorded in a two-way balancing account that ensures ratepayers are "charged for actual costs and refunded any overcollections."[384]

V. CONCLUSION

SDG&E built the Project so that SDG&E, the Commission, and California would have real operating knowledge of renewable hydrogen at a working power plant before the State's 2045 mandate requires decisions at scale. The Project has done that. It is built, permitted, and operating; it was delivered on budget; it has produced documented operational, safety, emissions, cost, and scalability learnings that cannot be obtained from reports; it has eliminated an outside gray-hydrogen supply chain for a plant-critical input; and it has returned nearly $3.9 million in federal credits to customers. It satisfies each guideline of Section 740.1 and the reasonableness requirements of Sections 451 and 454(a).

The Commission should evaluate the Project through the lens the statute and the Scoping Memo prescribe, as an integrated, prudently scaled demonstration whose value lies in the readiness it creates, consistent with how the Commission has approached storage, renewables, and microgrids at their own early stages. Viewed through that lens, SDG&E has carried its burden by a preponderance of the evidence on every scoped issue, and Intervenors' objections, which rest on hindsight and on metrics the statute does not impose, do not raise a reasonable doubt that SDG&E acted prudently.

For the foregoing reasons, SDG&E respectfully requests that the Commission approve the Project; find that its recorded capital costs of $17.4 million and O&M costs of $2.6 million, producing a revenue requirement of $31.1 million over 2023 through 2036 that reflects a $4.9 million reduction resulting from federal tax credit benefit, are just and reasonable; authorize recovery of the 2023 through 2027 revenue requirement beginning January 1 following the decision; authorize the two-way H2BA limited to authorized costs; and assign the Project's costs to the generation function for recovery from bundled and unbundled customers through generation rates and the PCIA at PEC's existing 2004 vintage.

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[382] SDGE-01 (Beer) at AB-4 to AB-5.
[383] *Id.* at AB-28 to AB-30.
[384] SDGE-04 (Dalton) at ED-1 to ED-2.

Respectfully submitted,

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