CPUC Docket: A.22-08-003
Witness: Jalal Awan
Exhibit: TURN-03

PREPARED SUPPLEMENTAL TESTIMONY OF

JALAL AWAN

SUPPLEMENTAL TESTIMONY CONCERNING PG&E'S REVISED ZONAL ELECTRIFICATION PILOT PROJECT (DATED JUNE 27, 2024)

Submitted on Behalf of

THE UTILITY REFORM NETWORK

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September 30, 2024

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SUPPLEMENTAL TESTIMONY CONCERNING
PG&E'S REVISED ZONAL ELECTRIFICATION PILOT PROJECT

1. INTRODUCTION AND SUMMARY OF RECOMMENDATIONS

I am submitting this rebuttal testimony on behalf of The Utility Reform Network (TURN), pursuant to the proposed schedule established in the *ALJ Ruling* of July 22, 2024. My Statement of Qualifications is attached as Attachment 1. Data request responses referenced in this testimony are provided in Attachment 5.

My former colleague Marcel Hawiger previously submitted direct testimony on February 17, 2023, pre-marked as Exhibit TURN-01, and rebuttal testimony, pre-marked as Exhibit TURN-02.

a) Summary of TURN's Positions

Based on a review of PG&E's most recent amended testimony (filed on June 27, 2024), as well as based on TURN-01 and TURN-02 referenced above (and PG&E's rebuttal testimony filed on March 17, 2023), I offer the following recommendations and conclusions:

- PG&E's blended unit cost estimates (steel and plastic pipeline costs) for pipe replacements warrant revisiting PG&E's gas pipeline replacement unit costs. TURN recommends a $578 per foot unit cost for plastic pipe replacement (MAT 14D) based on PG&E's unit cost forecast in its 2023 rate case.[1]
- TURN recommends revising PG&E's proposed electrification unit costs, increasing the remediation estimate to $10,464 per unit and setting the heat pump water heater installation cost at $7,602 per unit, based on more realistic data analysis. The result is a total per unit electrification cost increase from $32,242 to $36,201.[2]
- The adjustments recommended by TURN reduce PG&E's cash net present value (NPV) and nominal Benefit Cost Ratios (BCR) to 0.90 and 0.71, respectively, making the

[1] PG&E Response to DR TURN-003-Q011 (c), TURN-01.

[2] Supporting workpapers for these modifications can be found in Attachment 2, In Unit Electrification Costs.

electrification proposal *financially disadvantageous to ratepayers from a strictly benefit-cost perspective*.[3] [4]

If the project is still approved by the Commission:

- TURN recommends imposing a *cap on authorized funding* for electrification based on the total cost for gas pipeline replacement, using TURN's recommended unit cost, at $12.6 million, as opposed to PG&E's $16.6 million.[5]
- Furthermore, TURN opposes the capitalization of behind-the-meter (BTM) costs for electric appliances and recommends expensing costs *in the years incurred* to alleviate the financial burden on ratepayers.
    - Expensing RRQ-related costs would result in significant ratepayer savings of $9.57 million on a nominal basis and $1.57 million on a Net Present Value (NPV) basis compared to capitalizing these costs over 2025-2042.[6]
- TURN agrees with EDF, NRDC, and Sierra Club on the necessity of gathering data on indoor air quality post-electrification. Additionally, we recommend comparing projected vs. actual air quality improvements and bill impacts as essential metrics to refine ex-ante calculations for future decarbonization projects.

2. GAS PIPELINE REPLACEMENT COSTS ARE LIKELY OVER-ESTIMATED

TURN's contention in TURN-01 regarding the benefit/cost ratio calculated by PG&E being likely overstated, still stands.

TURN presented its concerns about over-estimation of gas replacement unit costs in Ex. TURN-01 and TURN-02.[7] [8] PG&E's claimed unit costs for gas pipeline replacement have since

[3] Supporting workpapers for these calculations can be found in Attachment 3, NPV Analysis.

[4] TURN notes that SB 1221 introduces a more robust method for assessing the relative cost-effectiveness of zonal decarbonization projects using gas pipeline maps across IOU territories.

[5] Attachment 3, NPV Analysis, tab "Model Inputs".

[6] Supporting workpapers for these calculations can be found in Attachment 4, Electrification RRQ Comparison.

[7] Exhibit TURN-01, p. 4, lines 4-10.

[8] Exhibit TURN-02, p. 5, lines 4-8.

increased approximately 40% from $604.34 per foot (2021 recorded costs) to $844.96 (2023 recorded costs) in PG&E's supplemental amended testimony (filed June 27, 2024, hitherto referred to as "supplemental testimony").[9] Moreover, in response to TURN's data request regarding the significant increase in the "Other Labor Costs" (which saw a 2,455% increase), PG&E stated that this category encompasses 41 different cost groups, with major contributors to this rise including "customer outreach" and "land acquisition".[10] However, both categories would seem to not apply to this application due to the unique nature of building ownership that was one of the main impetuses behind the application.

PG&E's rebuttal testimony ("PG&E rebuttal") fails to quantifiably address TURN's concerns on non-representative unit costs for steel pipe being used for plastic pipe replacement.[11] PG&E's $844.96 unit cost incorporates a blend of 80% plastic pipe replacement and 20% steel pipe replacement costs and does not appear to accurately reflect the cost associated with replacing 14,948 feet of plastic pipeline in Phase 1 and Phase 2 scope.[12] Accordingly, TURN proposes $578 per foot cost for plastic pipe replacement (MAT 14D) based on PG&E's forecast cost in its 2023 rate case application.[13] Notably, PG&E has already completed 9,856 feet of plastic pipeline construction at a unit cost of $397 per foot.[14]

[9] PG&E Supplemental Testimony (June 27, 2023), p. 1-9, Table 1-1.

[10] PG&E Response to Data Request (DR) TURN-007-Q007 (a).

[11] PG&E Rebuttal Testimony (March 17, 2023), p. 2-2, lines 29-33.

[12] PG&E Rebuttal, p. 2-2, lines 29-33.

[13] PG&E Response to DR TURN-003-Q011 (c), TURN-01. TURN notes that the decision on PG&E's 2023 GRC adopted a lower unit cost of $540 per foot based on 2021 recorded costs, rather than the 2017-2019 recorded costs on which PG&E's forecast was based. D.23-11-069, p. 77 (calculated from $397 million for 139 miles per year). In this respect, TURN's use of the $578 per foot figure is conservative in PG&E's favor.

[14] PG&E Response to DR TURN-007, Q08 (a-b).

3. IN-UNIT ELECTRIFICATION COSTS ARE LIKELY UNDER-ESTIMATED

PG&E presents Table 1-3 on page 1-13 of its supplemental testimony to describe updated in-unit electrification cost estimates per residential unit.[15] However, based on our review, at least two line items in Table 1-3 appear to be under-estimates.

a) Line No. 10 "Remediation cost":

One of the changes in PG&E's supplemental testimony was the addition of $8,607 of remediation costs, based on actual costs from the SJV Affordable Energy Pilot. PG&E included what it describes as the "upper quartile of reported values—$8,607" as remediation from that pilot.[16]

Based on data provided, TURN is unable to verify the use of upper quartile (or the 75th percentile) of remediation values.[17] TURN suggests using a more realistic approach to quantify in-unit remediation costs. TURN's approach assumes a subset of all HVAC(PX171), Water Heater (PX171) and Building Code Repairs / General (PX172/PX173) remediations are encountered in a unit, and the average (as opposed to upper quartile) values are used for remediation costs.[18] TURN proposes $10,464 per unit remediation costs as the more realistic alternative.[19]

b) Line No. 5 "Install heat pump water heater" (HPWH):

PG&E includes $5,500 as the estimated cost per unit for heat pump water heater (HPHW) installation. TURN's analysis based on the TECH working dataset of approximately 8,000 single-family HPWH projects in California suggests a more realistic cost of $7,602 for HPHW

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[15] Note the total in line 12 is wrongly written as $34,242, instead of the actual sum of lines 1-11 (i.e. $32,242). TURN notes that the correct number is used in the workpaper relevant to Table 1-3 that we reviewed.

[16] PG&E response to DR TURN-07-Q001(b). PG&E also clarifies in TURN-07-Q001(d) that potential lead remediation costs were not specifically included in the remediation cost estimate, but "to the extent that there was lead remediation needed in SJV, these costs would be included in the SJV remediation costs".[16]

[17] PG&E response to DR TURN_007-Q004Atch01

[18] Note that this subset is intended to avoid potential sampling bias as cooking / dryer related remediations (excluded from TURN's subset) are encountered ~5 times compared to ~60 included in TURN's subset.

[19] Attachment 2, In Unit Electrification Costs, tab "3-Remediation Costs_TURN".

costs.[20] Figure 1 shows the distribution of average Total Project Costs for ≥ 55-gallon HPWH from 2022-2024 in California. As these graphs show, the average cost was $7,584 in 2022, $7,520 in 2023, and $7,701 in 2024. TURN recommends using the average of 2022-2024 costs (i.e. $7,602) as a reasonable estimate for HPWH cost.

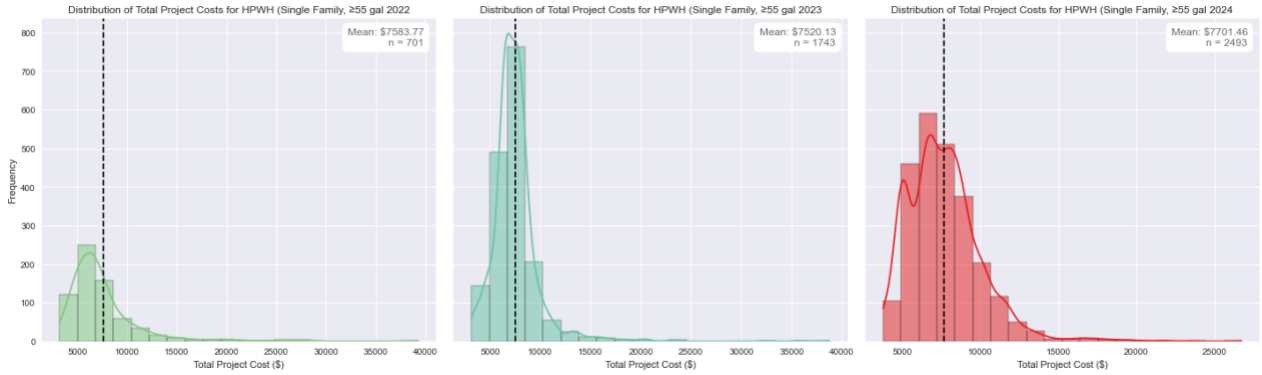

Figure 1 HPHW Costs in Single-Family Homes California (2022-2024)

Points 1 and 2 above increase the in-unit electrification cost estimates from $32,242 to $36,201. TURN notes, however, that the total incentive of $3,800 shown in Table 1-3 for HPWH may be increased (by pursuing incentive sources in addition to TECH) to a mean total incentive of ~$5,300 for similar, single family, ≥55 gal installations across California as shown in Figure 2. If PG&E secures additional incentive funding for HPHW installations, the unit cost recommended by TURN, currently $7,602, would decrease by the amount of that incentive.

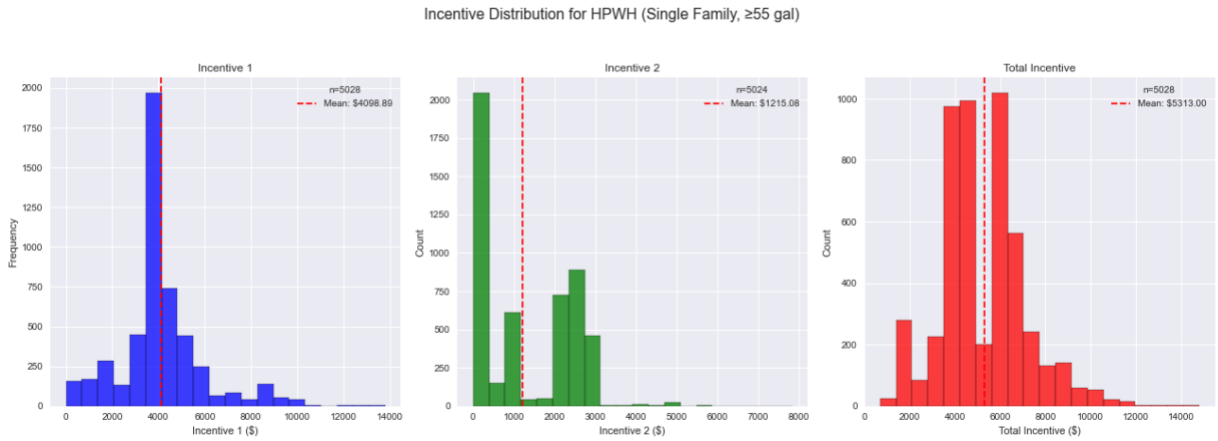

Figure 2 Incentive Distribution of HPHW Incentives for Single-Family, ≥ 55 gal. installations Across California (2022-2024)

[20] The TECH dataset can be accessed at https://techcleanca.com/heat-pump-data/download-data/

TURN also notes that, based on analysis of pre- and post-HPHW installation panel ampacities, panel upgrades were not needed in the majority of HPHW installations, aligning with PG&E's decision to exclude panel upgrade costs.[21] However, TURN recommends including calculations for continuous running amperes and full load amperes based on the final electrical ratings of all appliances in the design-build contract to ensure that panel capacities are adequate post-installation.

4. TURN SUPPORTS PRESENT VALUE REVENUE REQUIREMENT (PVRR) ANALYSIS FOR ACCURATE RATEPAYER IMPACT ASSESSMENT

As stated in TURN-02, TURN agrees with the other intervenors that the present value of revenue requirements analysis most closely illustrates the actual project impacts on utility ratepayers.[22] In this testimony, TURN focuses on the net present value of cash flow analysis (not the Present Value of Revenue Requirement or PVRR) using adjusted electrification and plastic pipeline replacement costs, which serves as an input to the revenue requirements analysis. However, we fully agree with the proposals to reduce the potential impact on ratepayers based on the PVRR results. PVRR impacts are absent from PG&E's supplemental testimony served on June 27, 2024.

5. TURN'S PROPOSED CHANGES RESULT IN A BENEFIT-COST RATIO LESS THAN ONE ON BOTH A NET PRESENT VALUE (NPV) AND NOMINAL BASIS

PG&E shows a positive cash NPV BCR of 1.33 and a nominal BCR of 1.08.[23] TURN's recommended changes, i.e. electrification cost increase and pipeline replacement cost decrease reduce the cash NPV BCR to 0.90 and the nominal BCR to 0.71, as shown in Tables 1 and 2 below:

Table 1 PG&E's BCR (Cash NPV and Nominal)

$ millions	Conventional Gas Pipe Replacement		Electrification		Cash NPV Benefit:cost ratio	Nominal Benefit:cost ratio
	Nominal	Cash NPV	Nominal	Cash NPV		
Phase 1	$ 9.82	$ 9.11	$ 5.34	$ 4.26	2.14	1.84
Phase 2	$ 5.65	$ 5.24	$ 9.85	$ 7.22	0.73	0.57
Phase 3	$ 1.20	$ 1.12	$ 0.21	$ 0.17	6.55	5.61
Total NPV, Ph 1-3	$ 16.66	$ 15.46	$ 15.40	$ 11.65	**1.33**	**1.08**

[21] Attachment 2, In Unit Electrification Costs, tab "HPHW Costs_TURN"

[22] Exhibit TURN-02, p.3, lines 16-27.

[23] PG&E Response to DR IS-006-Q010.

Table 2 TURN's BCR (Cash NPV and Nominal)

$ millions	Conventional Gas Pipe Replacement		Electrification		Cash NPV Benefit:cost ratio	Nominal Benefit:cost ratio
	Nominal	Cash NPV	Nominal	Cash NPV		
Phase 1	$ 7.61	$ 7.06	$ 6.55	$ 4.78	1.48	1.16
Phase 2	$ 3.87	$ 3.58	$ 11.06	$ 8.10	0.44	0.35
Phase 3	$ 1.20	$ 1.12	$ 0.21	$ 0.17	6.55	5.61
Total NPV, Ph 1-3	$ 12.67	$ 11.76	$ 17.82	$ 13.06	**0.90**	**0.71**

As a result, based on TURN's revised benefit-cost estimates, PG&E's electrification proposal is financially disadvantageous to ratepayers from a strictly benefit-cost perspective.

All intervenors, except CUE, have proposed strategies to reduce the ratepayer burden in response to identified concerns with project costs and forecasted revenue requirements, through either direct cost reductions or adjustments in ratemaking mechanisms.[24] TURN proposes that the most prudent approach would be to expense electrification costs for BTM equipment in the year costs are incurred, and cap costs at TURN's proposed gas pipeline replacement cost of $12.6 million.

6. TURN OPPOSES REGULATORY ASSET TREATMENT OF BEHIND-THE-METER (BTM) APPLIANCES

Consistent with TURN-01 and TURN-02, TURN reiterates its opposition to the capitalization of costs for installing appliances on properties owned by private entities. From both a nominal and a net present value (NPV) perspective, this approach is not in the best interest of ratepayers.

TURN opposes the capitalization of costs for appliances that will be owned and operated by private entities such as CSU Monterey Bay. Capitalization of behind-the-meter (BTM) appliances is a policy issue that substantially impacts revenue requirements as previously stated in both TURN-01 and TURN-02.[25]

[24] Exhibit TURN-02, Table 1, pp. 4,5.

[25] Exhibit TURN-01, p.8 (Section 3.2), TURN-02, p.5 (Section 3.3).

On a nominal basis, capitalizing BTM electric costs over 17 years (i.e. 2025-2042) versus expensing over one year increases the cost to ratepayers by approximately $9.57 million.[26] [27] From a NPV standpoint, capitalization adds a still material $1.57 million cost to ratepayers. We again reaffirm that it would be reasonable to obtain a contribution from the site owner, CSU Monterey Bay, since the university would benefit from reduced facilities costs due to new appliances installed across their housing stock.

7. ADDITIONAL DATA COLLECTION

TURN agrees with the recommendations from the environmental organizations—EDF, NRDC, and Sierra Club—that PG&E should also collect pre- and post-electrification indoor air quality data, including NOx and indoor particulate matter ($PM_{2.5}$)levels. Furthermore, TURN suggests comparing projected versus actual indoor air quality improvements and bill impacts as essential metrics to refine ex-ante calculations for future decarbonization pilot projects. However, we are concerned about the potential need for extra funding to acquire monitors or consulting services to ensure data is collected accurately and meaningfully. TURN recommends that this important aspect of research be supported through third-party grants or existing utility RD&D funds to avoid placing an undue financial burden on ratepayers.

This concludes my testimony.

[26] Regarding PG&E's response to (DR) TURN-008-Q001 a-b, TURN notices a potential discrepancy in the capitalization timeline PG&E used, i.e. 17 years instead of the more reasonable 15 years End-of-Useful Life (EUL) for BTM electrical appliances. Nevertheless, for our calculations, we use a 17-year time period (2025-2042) as provided by PG&E for capitalization and 1 year for expense.

[27] Attachment 4, Electrification RRQ Comparison, tab "RRQ Comparison".

ATTACHMENT 1 - STATEMENT OF QUALIFICATIONS OF JALAL AWAN, PH.D.

I am a full-time Energy and Climate Policy Analyst at The Utility Reform Network (TURN) since November 2023 and have co-sponsored testimony relevant to building electrification on behalf of TURN on SCE's building electrification application (A.21-12-009) in 2022. Prior to joining TURN, I worked as an Assistant Policy Researcher at the RAND Corporation in Santa Monica (2017-2023) and as an electrical projects engineer at Engro Corporation in Pakistan (2010-2014 and 2016-2017).

As a policy researcher, I have developed technical reports, presented findings to a diverse range of stakeholders, and volunteered on three panels with the U.S. National Academy of Sciences. I completed my B.S in electrical power systems engineering from the University of Engineering and Technology, Lahore (Pakistan) from 2006-2010, my M.S. in green technologies from the University of Southern California (Viterbi School of Engineering) in December 2015 as a Fulbright Scholar, and my M.Phil. and Ph.D. in Policy Analysis at the Pardee RAND Graduate School in 2019 and 2023, respectively. I am a member of IEEE, Six Sigma Green Belt from the American Society for Quality (ASQ) and hold the U.S. Green Building Council certification in Leadership in Energy & Environmental Design (LEED).

ATTACHMENT 2 – IN-UNIT ELECTRIFICATION COSTS

The Excel workpapers comprising this Attachment can be accessed at: Attachment 2_In Unit Electrification Costs.xlsx

ATTACHMENT 3 - NPV ANALYSIS

The Excel workpapers comprising this Attachment can be accessed at: Attachment 3_NPV Analysis.xlsx

ATTACHMENT 4 – ELECTRIFICATION RRQ COMPARISON

The Excel workpapers comprising this Attachment can be accessed at: Attachment 4_Electrification RRQ Comparison.xlsx

ATTACHMENT 5 – DATA REQUEST (DR) RESPONSES REFERENCED

Response to DR TURN-007, Q01.

Response to DR TURN-007-Q007 (a).

Response to DR TURN-007, Q08 (a-b).

Response to DR TURN-008-Q001 (a-b).

Response to DR IS-006-Q010.

PACIFIC GAS AND ELECTRIC COMPANY
CSU Monterey Zonal Electrification
Application 22-08-003
Data Response

PG&E Data Request No.:	TURN_007-Q001		
PG&E File Name:	CSU-MontereyZonalElectrification_DR_TURN_007-Q001		
Request Date:	September 4, 2024	Requester DR No.:	Request TURN-PG&E-007
Date Sent:	September 17, 2024	Requesting Party:	The Utility Reform Network
PG&E Witness:	Rachel Kuykendall Bryan Carpentier Marques Cruz, Lucy Fukui, Annette Quon, Mardi Walton	Requester:	Tom Long

QUESTION 001

Re: PG&E's Supplemental Amended Testimony dated June 27, 2024:

a) Re: pp. 2-1, lines 30,31: Please describe the changes in terms of Phases 1-5 between PG&E's original testimony, supplemental testimony and the most recent amended testimony (filed on June 27, 2024). Please describe the rationale for omitting what was referred to as "Phase 3" from the scope of proposed electrification projects.

b) Re: pp. 1-3, lines 28-32: Please provide latest data on gas leak history at the CSU Monterey Bay site. Please explain how/whether conventional gas pipeline replacement / repair work based on gas leak history was prioritized as part of "Phase 3" scope mentioned in subpart a) above.

c) Please provide live Excel workpapers for Table 1-4 (p. 1-13); Table 3-1 (p. 3-2), with breakdown of costs across Line Nos. 1-3; and Table 3-2 (p. 3-2) with breakdown of costs across Line Nos. 1-3). In Tables 3-1 and 3-2 on p. 3-2, please explain exactly what Project Phases 1,2,3 refer to in relation to Phases 1-5 in Q1 sub-part a) above.

d) Please provide live Excel workpapers for Chapter 1, Attachment C (SJV Cost Estimates) and how these estimates flow into CSUMB electrification cost spreadsheets.

e) Re: Chapter 1, Attachment C (SJV Cost Estimates): Please describe and provide data sheets for the 6 columns (HVAC, Water heater, Cooking, Dryer, Electrical) under top row titled "Remediation". Explain how these measures / remediations are relevant to CSUMB electrical appliances in terms of equipment rating / size / specifications. Please also explain what the codes PX171, PX170, PX185, PX172 or PX173 refer to.

ANSWER 001

Attachments to this data response contain CONFIDENTIAL information provided pursuant to the Non-Disclosure Agreement in this proceeding.

a) PG&E's original application (filed on August 10, 2022) included 5 phases for the CSU Monterey Bay project, with Phase 1 being a gas pipe replacement that was not considered for electrification. Per request of the Commission, PG&E was asked to re-file an amended application that omitted Phase 1 (Schoonover I and II). The owner-occupied housing units ("Phase 4" in the original application and "Phase 3 in the amended application) was omitted from the final work scope at CSU Monterey Bay's request. This phase includes faculty-owned housing with unique characteristics such as hot tubs and non-standard appliances that are not present in the other electrification phases. For reference, PG&E includes a map of the original application 5 phase project (CSU-MontereyZonalElectrification_DR_TURN_007-Q001Atch01) and the 3 phase project as shown in the amended testimony (CSU-MontereyZonalElectrification_DR_TURN_007-Q001Atch02).

Project Phase	Original Application (dated August 10, 2022)	Amended Application (dated December 19, 2022)	Amended Testimony (dated June 27, 2024)
1	Schoonover I and II units (600 residential units)	Frederick Park I units (154 residential units)	Frederick Park I units (154 residential units)
2	Frederick Park I units (154 residential units)	Frederick Park II units (260 residential units)	Frederick Park II units (260 residential units)
3	Frederick Park II units (260 residential units)	Owner occupied units (206 residential units)	Deactivation and regulator rebuild only
4	Owner occupied units (206 residential units)	Deactivation and regulator rebuild only	N/A
5	Deactivation and regulator rebuild only	N/A	N/A

b) Please reference CSU-MontereyZonalElectrification_DR_TURN_007-Q001Atch04.xlsx for gas leak history starting on 1/1/2000 through 1/15/2024 at the CSU Monterey Bay site. Per the answer to subpart a above, "Phase 3" of the

amended application was omitted from the final electrification scope at the request of CSU Monterey Bay.

c) Please see CSU-MontereyZonalElectrification_DR_TURN_007-Q001Atch03 for Table 1-4. Please see CSU-MontereyZonalElectrification_DR_IS_008-Q001Atch06CONF and CSU-MontereyZonalElectrification_DR_IS_008-Q001Atch07CONF for support for Table 3-1. Please see CSU-MontereyZonalElectrification_DR_IS_008-Q001Atch08CONF, CSU-MontereyZonalElectrification_DR_IS_008-Q001Atch09CONF and CSU-MontereyZonalElectrification_DR_IS_008-Q001Atch10CONF for support for Table 3-2.

d) Please see CSU-MontereyZonalElectrification_DR_TURN_007-Q004Atch01. As stated in the amended testimony on page 1-12, PG&E used the "upper quartile of reported values—$8,607." Reported values are shown in Column H.

e) There are no data sheets associated with the six columns. The values in each column represent all remediation costs (asbestos, knob-and-tube wiring, etc.) associated with each energy measure installed in the home. For example, Column C would represent the remediation costs associated with the HVAC measures in each of the homes. Column H is the sum of all the remediation costs in each home. The "PX" codes in the spreadsheet represent measure codes that PG&E and the program implementer used to track program costs as broken out in the chart below.

"PX" Spreadsheet Code	Description
PX170	Remediation - Plumbing
PX171	Remediation - HVAC
PX172	Remediation - Building Code Repairs
PX173	Remediation - General
PX085	Remediation - Carpentry

PACIFIC GAS AND ELECTRIC COMPANY
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Data Response

PG&E Data Request No.:	TURN_007-Q007		
PG&E File Name:	CSU-MontereyZonalElectrification_DR_TURN_007-Q007		
Request Date:	September 4, 2024	Requester DR No.:	Request TURN-PG&E-007
Date Sent:	September 18, 2024	Requesting Party:	The Utility Reform Network
PG&E Witness:	Bryan Carpentier	Requester:	Tom Long

QUESTION 007

Re: Table 1-1 on p. 1-9 of PG&E's Supplemental Amended Testimony:

a) Please explain the cost categor(ies) and the reasons for cost escalation between the following rows of 2021 UC vs. 2023 UC gas pipeline repair unit costs: a) Other Labor Costs (2,455% increase), b) Sewer Camera Inspections Costs (170% increase), c) Paving costs (156% increase) and d) Rentals (111% increase)

b) Please provide supporting workpapers for 2021 vs. 2023 costs for the specific rows mentioned in subpart a).

ANSWER 007

a) The following explains the cost categories and reason for variation.

   a. The Other Labor cost category includes (41) different cost groups, the primary contributors include customer outreach and land acquisition.

   b. Sewer Camera Inspection Costs are associated with the steps that must be taken to prevent cross bores as employees or contractors perform trenchless construction. The cost is variable based on the number of projects across the portfolio that will proceed with trenchless methods of pipe installation.

   c. Paving costs include the cost to pave and restore impacted roadways and sidewalks, the cost of which varies based on local jurisdiction requirements.

   d. Rentals include anything rented from a 3rd party, including but not limited to tools, equipment, vac trucks, portable restrooms, shoring, and rumble plates. The cost may vary based on the amount of rented equipment required on projects across the portfolio.

b) PG&E notes that there are no underlying workpapers for Table 1-1. See Attachment "CSU-MontereyZonalElectrification_DR_TURN_007-Q007Atch01.xlsx" for data used to calculate unit costs. As noted in the testimony, Table 1-1 reflected the most up-to-date information. Unit costs are subject to minor changes because the data is derived from PG&E's current actuals. Therefore, there will be slight variations from Table 1-1 based on the mapping of cost categories, timing differences, and reclassifications. The attachment shows 2021 and 2023 Actuals for all cost categories.

PACIFIC GAS AND ELECTRIC COMPANY
CSU Monterey Zonal Electrification
Application 22-08-003
Data Response

PG&E Data Request No.:	TURN_007-Q008		
PG&E File Name:	CSU-MontereyZonalElectrification_DR_TURN_007-Q008		
Request Date:	September 4, 2024	Requester DR No.:	Request TURN-PG&E-007
Date Sent:	September 16, 2024	Requesting Party:	The Utility Reform Network
PG&E Witness:	Bryan Carpentier	Requester:	Tom Long

QUESTION 008

Re: PG&E's Supplemental Amended Testimony (pg. 1-12, lines 14-16), which reads: "PG&E's gas team is currently completing approximately 9,000 feet of gas pipeline just north of the project location, and has begun estimating for the next phase of gas pipeline repair."

a) Please describe the latest status (including scope of completed work and actual/incurred costs) for the gas pipeline replacement / remediation work referenced above, including but not limited to, location of pipeline and per unit plastic pipe replacement cost.

b) Please provide workpapers and live excel sheets including PG&E's estimates for the "next phase of gas pipeline repair", including but not limited to, location of pipeline and per unit plastic pipe replacement cost.

c) Please identify and explain any discrepancies in gas pipeline estimates between subpart b) and the amended gas pipeline repair estimates provided in Table 1-2 (p. 1-11).

ANSWER 008

a) The first phase of the project has completed construction. A total of 9,856' of plastic pipe was installed. Inception to date cost is currently $3.912M, for a unit cost of $397/ft.

b) The next project is in the design phase, design and estimate are not complete at this time.

c) Table 1-2 is based on the average unit cost of projects across the entire portfolio. Project costs may vary based on the size of the project, the density of services replaced on a project, soil or concrete conditions, and local restoration requirements.

PACIFIC GAS AND ELECTRIC COMPANY
CSU Monterey Zonal Electrification
Application 22-08-003
Data Response

PG&E Data Request No.:	TURN_008-Q001
PG&E File Name:	CSU-MontereyZonalElectrification_DR_TURN_008-Q001
Request Date:	September 18, 2024
Requester DR No.:	TURN-PG&E-008
Requesting Party:	The Utility Reform Network
Requester:	Tom Long
Date Sent:	September 25, 2024
PG&E Witness(es):	Marques Cruz, Rachel Kuykendall

SUBJECT: FOLLOW-UP TO RESPONSES TO TURN DATA REQUEST 7

QUESTION 001

Please refer to PG&E's response to Q13 TURN-PG&E-007, specifically attachment "CSU-MontereyZonalElectrification_DR_TURN_007-Q013Atch01.xls".

a) In tab "Non-Reg Treatment RRQ", please provide supporting workpapers, with inputs and assumptions, showing the breakdown of Phase 1 and Phase 2 estimated costs as $4,965,268 and $8,382,920 respectively. Please confirm that these amounts are the latest numbers as reflected in Table 1-3 "In-unit electrification cost estimates" in PG&E's Supplemental Amended Testimony dated June 27, 2024.

b) For tabs "Regulatory Treatment RRQ" and "Non-Reg Treatment RRQ"), please explain why Rows 7-18, representing Phase 1, Phase 2, and Total Costs are the same. Our understanding is that "non-reg treatment" should reflect expense RRQ as opposed to capital RRQ for regulatory asset treatment of BTM appliances. Please explain if this understanding is correct.

ANSWER 001

a) Confirming that the cited cost estimates for Phase 1 and Phase 2 match those presented in Table 1-3 in PG&E's Supplemental Amended Testimony dated June 27, 2024. The workpapers for Table 1-3 are included as: "*CSU-MontereyZonalElectrification_DR_TURN_008-Q001Atch01.xlsx" and CSU-MontereyZonalElectrification_DR_TURN_008-Q001Atch02.xlsx".*

   PG&E notes that the electrification costs were originally "estimated by Synergy Companies, a consultant providing services to PG&E through the San Joaquin Valley electrification pilots, as attached hereto as Exhibit 2-1. These estimates were refined by PG&E staff to more accurately reflect the site conditions, namely the need to provide significant demolition of the existing mechanical rooms of each residential unit as well as ancillary costs such as concrete pads, electrical, and plumbing work." See Amended Testimony, Chapter 2.

b) Row 30 on tab “Regulatory Treatment RRQ” presents the capital RRQ for regulatory asset treatment by year, whereas cell C38 on tab “Non-Reg Treatment RRQ” presents the expense RRQ for recovery of costs in a single year (i.e. rows 7-18 on tab “Non-Reg Treatment RRQ” are not used).

PACIFIC GAS AND ELECTRIC COMPANY
CSU Monterey Zonal Electrification
Application 22-08-003
Data Response

PG&E Data Request No.:	IndicatedShippers_006-Q010		
PG&E File Name:	CSU-MontereyZonalElectrification_DR_IndicatedShippers_006-Q010		
Request Date:	July 9, 2024	Requester DR No.:	Set 6
Date Sent:	August 15, 2024	Requesting Party:	Indicated Shippers
PG&E Witness:	Marques Cruz	Requester:	Samir Hafez

QUESTION 010

Please reference page 2-2 of PG&E's Supplemental Amended Testimony, Table 3-1. Please provide a detailed table showing the breakdown of the aggregate values shown in Table 3-1 for each phase in the "Benefit" column into the discrete underlying benefits comprising each aggregated Benefit value.

ANSWER 010

Please refer to *"CSU-MontereyZonalElectrification_DR_IndicatedShipper_006-Q010Atch01.xlsx*". The values in the "Benefit" column are derived from the line items on the Cash flows summary worksheet of the Excel file, Conventional Gas Pipe Replacement Cash Flows, Annual.