BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

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Order Instituting Rulemaking for Oversight of Energy Efficiency Portfolios, Policies, Programs, and Evaluation.	Rulemaking 25-04-010 (Filed April 24, 2025)

SOUTHERN CALIFORNIA GAS COMPANY'S (U 904 G) COMMENTS TO ADMINISTRATIVE LAW JUDGE'S RULING PROVIDING NOTICE AND OPPORTUNITY TO COMMENT ON STAFF PROPOSAL FOR POLICY ON NATURAL GAS ENERGY EFFICIENCY INCENTIVES

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I. INTRODUCTION

Pursuant to the Administrative Law Judge's (ALJ) December 1, 2025, Ruling Providing Notice And Opportunity To Comment On Staff Proposal For Policy On Natural Gas Energy Efficiency Incentives (Staff Proposal),[1] Southern California Gas Company (SoCalGas) hereby submits its Opening Comments on the Staff Proposal. On December 19, 2025, ALJ Kao granted The Utility Reform Network's (TURN) request for a one-week extension to file Opening Comments, setting the deadline to file Opening Comments to January 13, 2026.

SoCalGas appreciates the opportunity to provide comments and respond to questions posed by the ALJ on the Staff Proposal addressing and providing recommendations regarding the California Public Utilities Commission's (Commission or CPUC) policy on ratepayer-funded incentives for natural gas energy efficiency measures. The State has set ambitious long-term decarbonization goals and building electrification play a predominant role. SoCalGas is committed to supporting California's decarbonization objectives, as reflected in its ASPIRE 2045 plan to achieve net zero greenhouse gas (GHG) emissions by 2045.[2] SoCalGas also recognizes the need to establish a thoughtful and data-driven approach to identifying and

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[1] On December 1, 2025, ALJ Valerie Kao issued a ruling providing that comments on the Staff Proposal be filed no later than January 6, 2026, and reply comments no later than 10 days after the final date to file comments. Thus, SoCalGas's comments are timely.

[2] SoCalGas, ASPIRE 2045 Sustainability Strategy, available at: https://www.socalgas.com/sustainability/aspire-2045

promoting viable electric alternatives (VEAs) to natural gas measures. In this vein, VEAs should be determined through the lens of customer costs, however, the Staff Proposal does not do so.

SoCalGas disagrees with the underlying premise of the Staff Proposal that gas energy efficiency incentives impede the State's decarbonization goals. Rather, energy efficiency programs do not incentivize fuel choice, but rather incentivize efficiency level, findings that are supported through regional and nation-wide research discussed below. Nonetheless, SoCalGas is supportive of the Staff Proposal's recommendation that cost-effective gas measures remain eligible for energy efficiency incentives, as the Public Utilities Code requires that gas corporations pursue all cost-effective energy efficiency measures.

In addition, further analysis and evidence is needed with respect to the Customer Electrification Estimator tool (formerly referred to as the Fuel Substitution Bill Impact tool), specifically – the Customer Electrification Estimator tool has not been released. Without the Customer Electrification Estimator tool, it is not possible for parties to adequately evaluate the recommendations made in the Staff Proposal. Accordingly, SoCalGas recommends that the record must be developed through the release, testing, and parties' comments on the Customer Electrification Estimator tool as well as operationalization of the Participant Cost Test (PCT) as the preferred cost test before parties provide final, informed comments on the Staff Proposal. As such, it is premature to solicit comments on the Staff Proposal at this time; instead, the Commission should invite party comments once the Customer Electrification Estimator tool has been vetted and published in its final form.[3] Finally, given the need for release to the bill impact tool, and need to operationalize the PCT, the Staff Proposal's suggested start date of January 1, 2027, is not practicable, as set forth herein.

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[3] SoCalGas recommends that the CPUC (1) release the Customer Electrification Estimator tool with full documentation, (2) host a workshop demonstrating its functionality, and (3) provide a formal review comment period. Following the release, a stakeholder working group should be convened to translate the tool's outputs into a standardized PCT methodology before the Commission adopts final VEA procedures. Absent this, at this point, it is not practical nor possible to provide specific, final input into the technical nature of the Staff Proposal.

II. RESPONSES TO QUESTIONS INCLUDED IN SECTION 4 OF THE STAFF PROPOSAL

SoCalGas's direct responses to Section 4 of the Staff Proposal, Questions for Stakeholders, are presented below. In addition, where appropriate, SoCalGas has identified other topics not covered by the questions in the Staff Proposal that warrant consideration as well.

1. Title 24 prescriptive versus performance-based standards

- **What data source should be used to identify the percentage of buildings that use either the prescriptive or performance-based standards?**

There is no official database that SoCalGas is aware of that identifies the percentage of buildings that take either the prescriptive or performance path to compliance. Should the Commission adopt the recommendations in Section 3.1 of the Staff Proposal to utilize prescriptive standards as the baseline, this data may not be necessary.

The percentage of customers who take a certain path may change every three years, with each code cycle, due to changes in code requirements. Additionally, the percentage of customers who choose a specific compliance path may depend on building type or climate zone, as prescriptive requirements vary by those factors. However, Assembly Bill (AB) 306 freezes the new construction code for five years, starting with the 2025 Title 24 code update on January 1, 2026.

While SoCalGas does not collect data on the performance path selected by a builder, it does require submission of a Certificate of Compliance (CF1R) form for every program participant. This form indicates whether a customer chose the prescriptive or performance path to compliance.

2. Exempt measures

- **Should the definition of "exempt measure," or the policy around it, be expanded or changed?**

Decision (D.) 23-04-035 defines exempt measures as "those that result in gas savings but do not burn gas, and would include building insulation, sealing, smart thermostats, faucet

aerators, and building envelope measures such as windows and doors."[4] This definition, while simple, leaves some room for interpretation. Measures which save only electricity, like building envelope measures (wall insulation, door sweeps, weather sealing, etc.) for a home with electric space heating, would expect to be considered exempt measures but are not classified as such under the current definition. Additionally, measures which save gas through hot water usage reduction but use electricity (clothes washers, dishwasher, smart thermostats, etc.) are exempt under the current definition, but it may not be immediately apparent why. SoCalGas recommends that all building weatherization measures, both those that save gas and those that save electricity, be classified as exempt. Add-on equipment, such as flow-restrictor devices (showerheads, aerators, Thermostatic Shower Valves), should also be classified as exempt. If the definition of exempt measures is expanded to include measures that save electricity but do not consume it, the definition will need to be further refined to still include appliances that use electricity but not gas, and with the outcome of saving gas. Measures that use electricity but save gas, such as smart thermostats, dishwashers, and clothes washers, should be explicitly called out and classified as exempt.

3. Equity

- **What other actions should this staff proposal take to encourage electrification among equity customers?**

SoCalGas agrees that equity should be strongly considered in the Staff Proposal, and to ensure that any decisions do not inadvertently cause harm to vulnerable customers through suppressing energy efficient appliance options that will support decarbonization and reduce ongoing energy bills.

An example that can be found nationally of ensuring equity in electrification efforts is from New York with the bifurcated approach between low-to-moderate income (LMI) customers and market rate. [5] The New York Public Service Commission (PSC) is taking the approach that

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[4] D.23-04-035 at 33 (COL 1).

[5] "Order Authorizing Low- to Moderate-Income Energy Efficiency and Building Electrification Portfolio for 2026-2030" May 15, 2025, New York Public Service Commission Appendix A at 2, available at: https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={9028D596-0000-CBAA-80CE-FD406DF75EB1}

LMI homes should only receive electrification incentives if an overall bill decrease can be shown, as well as prioritizing delivered fuel (such as propane or heating oil) customers over natural gas customers due to their higher energy burden. An exception was also made for new natural gas heating appliances in the event of an emergency replacement, recognizing the vulnerability of LMI customers in this situation.[6]

New York's "efficiency first" approach to electrification puts a focus on weatherization, pursuing the replacement of natural gas appliances as a secondary item only. For affordable multifamily buildings, the approach to natural gas appliance incentives is also flexible, conditionally approving new gas combustion devices as a "neutral" measure (allowing spending of up to 15% of program budget) in "hard-to-electrify" situations where high-efficiency natural gas equipment coupled with comprehensive controls can still drive significant energy savings.[7] Furthermore, gas efficiency measures with a short useful life (under six years), which are normally prohibited under current rules, are permitted as "neutral" and allowed when bundled as part of a comprehensive project to further drive overall energy savings.[8]

4. Fuel substitution infrastructure costs

- **Is it safe to assume that the basic costs for connecting a fuel substitution measure to a building (wiring, labor) is currently included in each fuel substitution measure package in the eTRM?**

No, the basic costs for connecting a fuel substitution measure to a building (wiring, labor) are currently not included in the measure package. Measure package labor and material costs substantially underestimate the cost of wiring and labor for fuel substitution measure packages, and do not include other costs, such as building repairs (i.e. stucco, drywall). Direction from Energy Division is needed on which costs to include within the Fuel Substitution measure packages, and ensure that measure packages include all customer costs within measure cost estimates, which would be most appropriate through the Database for Energy Efficient Resources (DEER) resolution process. More analysis on the individual Fuel Substitution measure packages is needed to determine which measures have accurate costs, which should be

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6 *Id*. at 77-78 and at 109-110

7 *Id*. at 109-110

8 *Id.* at Appendix A at 2.

updated to include other basic costs and labor. For example, the Residential Heat Pump Pool Heater does not include any cost of wiring or connection costs.[9]

- **Going forward, what other infrastructure or other installation costs (beyond the behind-the-meter costs discussed in this staff proposal) should the CPUC consider in assessing cost effectiveness? Customer-funded utility-side-of-the-meter upgrades? Local permitting costs? Other costs?**

The CPUC should include customer-funded utility-side-of-the-meter upgrades in the measure cost, especially given the recommendation to use the PCT. The California Standard Practice Manual (CSPM) states that the costs in the PCT are "all out-of-pocket expenses incurred as a result of participating in a program," which would include customer-funded utility-side-of-the-meter. To accurately calculate and assess the results of the PCT, all customer-funded upgrades must be included in the PCT. These customer-funded utility-side-of-the-meter upgrade costs could be substantial. One study estimated that "Utility contractors reported customers may pay between $300 and $16,000 or more to the Utility for costs that exceed the allowance."[10]

- **What existing data sources should the CPUC use to assess the avoided capital and operating costs of not using a gas measure for the purpose of assessing the Participant Cost for gas and possible VEA measure permutations?**

The CPUC should use the Energy Efficiency data source of record, the California electronic Technical Reference Manual (eTRM). The eTRM is the official data source of record for all deemed measure and baseline costs. Avoided capital costs of the gas counterfactual baseline scenarios are included in the measure package baseline equipment cost assumptions. Generally, the Energy Efficiency measure packages included in the eTRM assume that the

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[9] California electronic Technical Reference Manual (eTRM) Measure Package SWRE005-06, available at https://www.caetrm.com/measure/SWRE005/06/#measure-case-material-cost-unit.

[10] Service Upgrades for Electrification Retrofits Study Final Report published May 27, 2022 at 6 available at: https://pda.energydataweb.com/api/view/2635/Service%20Upgrades%20for%20Electrification%20Retrofits%20Study%20FINAL.pdf.

ongoing operation and maintenance costs will be the same or similar for the counterfactual and new equipment; therefore, they do not include ongoing maintenance or operating costs. Customer behavior varies widely when it comes to operation and maintenance making it challenging to accurately estimate or generalize to the population level.

The Staff Proposal only assumes one gas end use will be electrified and therefore the participant is likely to maintain gas service to the home after the intervention. Unless a customer chooses to electrify their whole home, there will not be a significant change in natural gas utility system costs, other than the avoided commodity cost which is already included in the Avoided Cost Calculator (ACC) model calculations of electric and gas benefits. The correct forum for any other avoided capital cost questions is the ACC proceeding.

- **How often should the CPUC re-examine the likelihood and cost of customer infrastructure upgrades related to fuel substitution?**

The CPUC should re-examine the likelihood and cost of customer infrastructure upgrades every two years, aligned with the DEER Bus Stop approach established by D.21-05-031.[11] The Staff Proposal assumes that only one home measure will be electrified, resulting in modeling showing a relatively low likelihood of needed panel upgrades or optimization. If customers decide to pursue a second or third electric upgrade, the likelihood would grow. Similar to evaluation, measurement, and verification (EM&V) studies, studying these costs would need to be completed mid-year and ready for integration into measure packages in even years before the DEER resolution in the fourth quarter.

- **What other data sources should the CPUC consider to inform assumptions on the likelihood and cost of customer infrastructure upgrades related to fuel substitution?**

The early Technology and Equipment for Clean Heating (TECH) program data is robust, but may suffer from sampling bias from customers whose project does not need panel upgrades or who have a simpler project with lower up-front costs. These customers will be much more likely to move forward with an electrification project and may not be representative of the experience of all customers needing to replace an appliance. TECH participant data show 14–

[11] D.21-05-031 at 38-40 and Conclusion of Law (COL) 28 at 78 and Attachment B at 7.

26% of water heater conversions and 4–18% of space-heating conversions to heat pumps required an electric service upgrade,[12] but this does not inform the CPUC what total proportion of customers considering a new space or water heater required a service upgrade and thus did not move forward with fuel substitution.

Section 3.3 of the Staff Proposal addresses panel upgrades and other electrification-enabling infrastructure costs. The Staff Proposal recommends using a single weighted-average value to represent the infrastructure cost of a given measure in the VEA viability analysis. That approach disconnects the analytic input from the site-specific costs customers actually face when installing measures, as the Staff Proposal's own Recommendations for the Implementation of Tracking Fuel Substitution Infrastructure Costs acknowledge.[13]

The Staff Proposal would apply a single weighted average in the VEA while offering separate measure packages and rebates that reflect the full, site-specific infrastructure costs to customers. Although the Staff Proposal recognizes that weighted averages are inappropriate for reporting and for inclusion in incremental measure costs, it nonetheless proposes to rely on those averages to determine measure viability. In effect, the Staff Proposal uses an "average of averages" to judge whether a measure is viable but uses actual costs when determining customer rebates.

This inconsistency creates a risk of leaving customers behind. An electric alternative could pass the PCT under an averaged input but fail the PCT once a required panel upgrade and associated site-specific repairs are included. In this circumstance, if the Commission chooses to move forward with the phaseout of the gas measure under the weighted average calculation, the customer would be left with no economically feasible electric measure to install, while the gas measure would also be phased out due to the electric measure looking feasible under a different non-site specific calculation. Households that most often face these additional costs, such as older homes and economically challenged customers, would be disproportionately affected, since upfront infrastructure and repair expenses are the largest barrier to adoption for those groups.[14]

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[12] Data from https://techcleanca.com as reported on 1/8/2026.

[13] Staff Proposal at 14.

[14] Staff Proposal, Appendix B at 10.

For these reasons, the CPUC should not permit a single weighted average to determine measure viability. At a minimum, SoCalGas recommends that the Energy Division run VEA sensitivity analyses that (1) incorporate full, site-specific upgrade and repair costs, (2) show pass/fail outcomes by income cohort and housing vintage, and (3) disclose how averaged inputs diverge from observed household-level costs in program delivery data.

5. Fuel substitution potential estimated bill impacts

- **What is the best source to use for PV solar + battery storage penetration in California?**

The most authoritative source for assessing PV solar paired with battery storage penetration in California is the U.S. Energy Information Administration's Form EIA-861M.[15] This dataset directly captures monthly, utility-reported information on behind-the-meter solar installations and whether those systems are paired with storage, making it uniquely suited to measure customer adoption behavior. The data are independently collected, standardized, regularly updated, and widely relied upon by the CPUC and other state agencies, providing a reliable empirical basis for evaluating solar-plus-storage market penetration.

- **What level of granularity should the CPUC use for including potential bill impacts related to fuel substitution in assessing cost effectiveness for those measures?**

As was the case in the New Construction phase-out, the viability of the electric measure, and accordingly the bill impacts, should be defined no more broadly than at the permutation level. This approach would be consistent with the New Construction policy established in D.23-04-035.[16] The bill impacts should utilize the DEER modeling and unit energy consumption (UEC) estimates for bill impact analysis. Customer bill impacts vary widely based on climate zone and building type. Since the measure packages define savings by building type, vintage, and climate zone, the same should be done for bill impacts.

However, there remains a disconnect between the DEER energy impacts and the draft Customer Electrification Estimator tool. While DEER has only one single-family building type

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[15] https://www.eia.gov/electricity/data/eia861m/.

[16] D.23.04-035 at 14-15 and 36 (Ordering Paragraph (OP 2)).

and two vintages, the draft Customer Electrification Estimator tool has several sizes of single-family building types and several existing vintages. Similarly, DEER has 16 climate zones, the ACC model has 17 (climate zone 3 is split into 3A and 3B), while the draft Customer Electrification Estimator tool has only three climate types (cold, mild, hot).

While the measure packages use DEER modeling and DEER assumptions to arrive at the unit energy consumption values, the draft Customer Electrification Estimator tool uses CEC energy consumption values, load curves, and assumptions. These discrepancies should be addressed to achieve an accurate comparison necessary to operationalize Customer Electrification Estimator tool for use in the bill impact analysis for cost-effectiveness tests (see further discussion of CSPM cost-effectiveness test implications below).

The proposed Customer Electrification Estimator tool serves two distinct use cases that must be treated differently. A customer-facing estimator appropriately relies on CEC data and representative load profiles for consumer information. By contrast, the backend tool used for PCT calculations and VEA analysis must align with DEER assumptions so that bill impacts are consistent with DEER measure package values used elsewhere in program cost-effectiveness modeling. To determine the results of the TRC Test, utilities calculate and report DEER energy savings estimates from DEER modeling and assumptions into CEDARS. If the Customer Electrification Estimator tool does not use the same energy assumptions for calculating bill impacts, and instead uses CEC estimates, it would create analytical asymmetry between the inputs for calculating the TRC and PCT. It is not analytically consistent to use one set of energy savings estimates for the TRC test, and another set of energy savings estimates in the PCT analysis.

Energy Division's acknowledgement that the Customer Electrification Estimator tool's outputs represent an "average of averages"[17] underscores the problem: the PCT is inherently individualized, reflecting a particular customer's bill impacts and circumstances. Using averaged outputs for a customer-level viability test will smooth over distributional differences and understate barriers—especially for households facing higher site-specific upgrade and repair costs. In addition, the bill-impact methodology must accurately forecast and account for rate

[17] Staff Proposal at 18.

impacts over the effective useful life of measures (see further discussion in response to Section 4).

6. Refrigerant leakage detection and mitigation, and low-GWP refrigerant programs

While contractors are required by law to collect and recycle refrigerants, monetary compensation and incentives are not aligned to make sure they do.[18] It must be explored whether it is in the ratepayers' interest to pay for activities that are required by law, and whether it makes sense to offer incentives to ensure the collection happens. Another path would be to ensure compliance through enforcement rather than incentives. Additionally, many of the existing appliances being replaced utilize R-410A and R-134A refrigerants, which is being phased out and may not be able to be recycled or reclaimed and may need to be destroyed.

- **Are PAs the appropriate implementors of refrigerant leakage detection, reclamation/recycling programs? If not, who is?**

Portfolio Administrators may be suitable implementers of refrigerant leakage and detection programs as they have existing relationships with contractors and installers. Additional refrigerant training programs can likely be integrated into existing Workforce Education and Training programs for contractors. However, for refrigerant recycling and reclamation programs, these may be better run through other state agency programs like California Air Resources Board (CARB) who more directly regulate GHG emissions.

- **How should pilot programs use EE incentives to encourage refrigerant recycling and the use of low-GWP refrigerants be set up?**

It is not clear whether this question refers to refrigerant leakage detection and reduction, refrigerant recycling, or refrigerant reclamation programs which are different things and may require different programmatic design and interventions. Any programmatic design and elements input are likely premature at this time until the question above is more fully addressed.

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[18] DNV, Forward-Looking Low-GWP Refrigerant Transition Study (June 28, 2024) at 41.

- **Should contractors be offered incentives for documenting refrigerant reclamation, how much should be offered or how should a documentation incentive be determined?**

Any input on contractor incentives is premature at this time until the questions above are addressed. Contractors could be offered incentives based on the avoided cost of the reclaimed refrigerant, using the Refrigerant Avoided Cost Calculator (RACC) values.

- **Should contractors be offered above market price for returning refrigerants that are deemed to be contaminated? If yes, how should this additional price be determined?**

Contractor rebates may need to be above market value to incentivize contractors to reclaim refrigerant. This may require an iterative process to determine the appropriate incentive level and should be conducted by the program implementation staff for each program. Any response to this proposal is likely too premature and will require research to determine the appropriate incentive levels. Contractor incentive levels may vary by program segment (Resource Acquisition, Market Support, Equity) and end-use customer type or sector.

7. VEA Cost Effectiveness

- **Should VEA measures use TRC or PCT for evaluating cost effectiveness?**

The Staff Proposal's recommendation to adopt the PCT appears driven by its potential to qualify more measures, rather than by an assessment of the relative strengths and purposes of the cost-effectiveness tests. [19] Cost-effectiveness- testing should instead be selected based on how well each test achieves its intended function.

To identify a true VEA, the economics will need to make sense for the customer. The PCT is not robust enough to accurately screen participant level impacts and also fails to capture system-wide implications that will affect all ratepayers. Because phasing out a gas measure is only reasonable when the economics make sense for the customer, any fuel substitution assessment, regardless of whether it ultimately relies on the PCT or another test, must include a

[19] CPUC Staff Proposal bullet 2 at 10 "Using the PCT allows for more viable electric measures compared to the Total Resource Cost (TRC) test."

customer-level analysis that reflects the individual customer's actual, full costs that they would incur when adopting an electrification measure. This participant-level screening ensures that if a gas incentive measure is phased out, a genuinely affordable alternative remains available to the customer. For an electric measure to be considered viable, its PCT result should exceed that of the gas alternative, demonstrating that the electric option provides greater value to the customer. This approach aligns with D.23-04-035, which directs the Commission to assess the viability of electric alternatives from the customer's perspective.

However, fuel-substitution and energy efficiency initiatives have system-wide implications that extend beyond individual participants. These actions affect all ratepayers through changes in utility infrastructure needs, such as upgraded electric transmission capacity or deferred natural gas infrastructure investments. The National Standard Practice Manual (NSPM)[20] provides the foundation for industry-leading best practices in cost-effectiveness analysis. A core NSPM principle is that screening tests should align with jurisdictional policy goals and include all relevant costs and benefits—particularly those impacting the utility system and society. Importantly, NSPM advises that participant impacts should not form the basis of a cost-effectiveness test.[21] A cost-effectiveness screen that excludes utility system impacts—both electric and gas—risks creating equity concerns and may inadvertently undermine California's broader policy objectives, such as decarbonization, reliability, and affordability. By focusing solely on participant-level economics, the proposed use of the PCT could influence system impacts without accounting for critical system benefits and costs borne by all customers.

Utility programs are required to demonstrate cost-effectiveness at the portfolio level by achieving a Total Resource Cost (TRC) ratio greater than 1.0.[22] If the electric alternative is not cost-effective from the utility's perspective, the utility is not required to offer it and may choose not to, as doing so would lower its overall cost-effectiveness ratio. In late 2024, Governor Gavin

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[20] NSPM for DERs, https://www.nationalenergyscreeningproject.org/national-standard-practice-manual/.

[21] *Id.* at Section 2.3: *Principles for Developing a Jurisdiction-Specific Test* ("Participant impacts should not be included in the primary cost-effectiveness test. These impacts—such as bill savings, upfront costs, and financing—are important for understanding customer economics and equity, but they should be addressed through separate participant impact analyses, not as part of the jurisdiction's screening test.")

[22] D.19-05-019 at 65 (OP 1).

Newsom signed Executive order N-5-24 into law, directing the CPUC to examine all electric ratepayer funded programs costs and benefits, and take immediate action to modify or sunset underperforming or underutilized programs whose costs exceed the value of benefits to ratepayers.[23] Given the Executive Order and the current push to reduce rates, only cost-effective measures from a utility perspective should be considered viable. This would ensure that electric measures for which costs exceed their benefits are not considered viable and do not further add to electric rates.

SoCalGas also has concerns with the proposed asymmetrical treatment of cost tests for different fuel types. The proposal recommends that viability of gas measures be assessed using the TRC test, while the viability of the electric alternative measures be assessed using the PCT. By recommending a screening that would apply the TRC Test only to natural gas energy efficiency measures, but not to electric measures, Energy Division Staff would institutionalize an analytic asymmetry. The CPUC should reject any asymmetrical application of cost-effectiveness screening and require that the TRC Test be applied uniformly to both natural gas and electric energy efficiency measures so comparisons are neutral, transparent, and defensible. Treating the TRC as the standard for one resource but not the other risks introducing analytical bias, turning a technical screen into an inadvertent policy driver, and producing distorted comparisons that could undermine the credibility of program decisions and lead to untenable customer energy efficiency choices.

- **Should other cost-effectiveness criteria be considered?**

Public Utilities Code (PUC) 454.56(b) requires that gas corporations pursue all cost-effective energy efficiency measures.[24] As such, all gas measures that are cost-effective, defined as TRC > 1.0 should remain eligible for utility incentives, as the Staff Proposal states.

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[23] Executive Order N-5-24 (October 30, 2024) at 2.

[24] Cal. Pub. Util. Code § 454.56.

8. VEA methodology and Assessment

- **Do you agree with the proposed VEA methodology? If not, what should be added or changed?**

No. The proposed methodology is incomplete as it incorporates conditions that may bias results and, if not addressed, could unduly limit meaningful opportunities for customer participation in gas energy efficiency programs. It is uncertain whether the Staff Proposal will meaningfully incentivize household electrification or instead risk encouraging continued investment in less efficient natural gas equipment (see discussion in Section V). Furthermore, the Staff Proposal cannot be fully evaluated and does not facilitate the necessary stakeholder engagement because it fails to share essential information to properly access the methodology.

To implement the PCT reliably, the Commission must first establish the necessary inputs and procedures – most notably, a reliable method for estimating measure-level bill impacts. The proposal itself recognizes that "ongoing customer cost impacts … would likely use the Customer Electrification Estimator tool under development by the CPUC to assess estimated average potential customer costs at the measure package permutation level."[25] The Customer Electrification Estimator tool, which has not yet been publicly released by the CPUC, is the primary input for bill impact calculations under the PCT; accordingly, meaningful operational recommendations cannot be developed until the tool is publicly available and adequately vetted. While the CSPM lists the PCT as one of the cost-effectiveness tests in California, it was not mentioned in D.19-05-019 as a test which needs to be reported or considered for Commission activities.[26] Therefore, significant work is needed to operationalize the PCT as a cost-effectiveness test before it should be utilized.

The Staff Proposal as it stands cannot be operationalized. In some places, the Staff Proposal indicates that the PCT will be used; in others, it references the Equivalent Annual Annuity (EAA).[27] The CSPM identifies several ways to express cost-effectiveness results (for example, net present value per average participant, net present value for the total program,

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[25] Staff Proposal at 8 (emphasis added).

[26] D.19-05-019 at 65 (OP 2).

[27] Staff Proposal at 9.

benefit-cost ratio, or discounted payback);[28] however, the result of the Equivalent Annual Annuity (EAA) formula is an annual dollar value, which is not one of the defined ways by the CSPM that PCT can be displayed. The Staff Proposal also mentions in other places that the electric alternative measure would be considered viable if the PCT is greater than or equal to 1.0. These discrepancies need to be corrected in order for stakeholders to have a clear understanding of what is being proposed. The CPUC should require Energy Division Staff to resolve these inconsistencies and to propose a single, CSPM-consistent presentation and calculation method for the PCT before considering any VEA decisions for parties' comments.

The Staff Proposal discusses key parameters to evaluate when comparing an electric alternative with a gas baseline, such as similar technology delivery sizes/permutations, Qualified Product Lists (QPL), and Technology level of service (LOS) metric.[29] While the Staff Proposal mentions these metrics, they are not meaningfully included in the VEA assessment process and leave much to interpretation on how to operationalize these metrics. The staff proposal combines these metrics in the Manual Adjustments step to the VEA analysis. SoCalGas recommends that any similar level of service or sufficient products on the market be separated into its own step, after any manual adjustments are made to measures, to ensure that they are compatible with each other.

On the topic of manual adjustments, the section is too open-ended to implement, leaving open questions of how the manual adjustments will be made and how they will be documented. For example, if the gas measure package uses a normalizing unit of Capacity in kBtu/hr, a typical gas furnace sizing unit, while the VEA measure package uses a normalizing unit of Capacity in Tons, a typical heat pump sizing unit, there is no clear guidance on how to handle this scenario. SoCalGas recommends removing any manual adjustments, and require that changes be made to the measure package and reviewed through the CPUC ex-ante review team, rather than manual adjustments being made on the backend during the viability calculations. This would ensure that all adjustments are documented, reviewed, and approved through the appropriate regulatory channels.

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[28] CSPM at 9.

[29] Staff Proposal at 27.

Furthermore, there is insufficient information about the assessment process. Step 3 of the process consists of a high-level screening. In the section it states that "*The PA accounts for benefits, such as program incentives, which per the VEA Phase 1 Decision are set at 50% IMC. Some of these items do not currently exist in current measure packages*."[30] This statement is not factually true. The Phase 1 decision (D.23-04-035) does not mention or set any incentive level. The 50% of Incremental Measure Cost (IMC) was an Energy Division Staff interpretation of the decision and was only communicated to the investor-owned utilities (IOUs) directly via email. The Phase 1 decision makes no reference to incentive levels being set relative to the IMC. The Phase 1 decision only states that "…the program administrators must agree on a consistent approach, either to use an average of administrative costs or to use the lowest of all program administrators' administrative costs to calculate the Total Resource Cost benefit to cost ratio."[31]

Steps 4 and 5 are relatively clear, but Step 6 would benefit from clarification. While SoCalGas agrees that administrative review could be facilitated by CalTF,[32] it should be clear that all of the analysis and documentation is performed by the measure package lead, while the review and facilitation is done by CalTF Staff. There will likely be the need for a VEA working group as part of CalTF ongoing business activities.

The final step-notification-also requires clarification. The Staff Proposal recommends once a VEA is determined to add a flag to the VEA measure and send a notification. Although the viability analysis will be conducted within the fuel substitution measure package, the corresponding flag will be required in the gas energy efficiency measure package. However, the VEA proposal does not phase out gas measures that are cost-effective. In addition, there is a need for more granular cost data to properly inform the PCT, as well as greater transparency regarding the Customer Electrification Estimator tool to assess whether it is a reliable indicator of customer costs.

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30 D.23-04-035 at 30.

31 *Id.* 36 (OP 2).

32 *See* https://www.caltf.org/. The California Technical Forum (Cal TF) is a collaborative of experts who use independent professional judgment and a transparent, technically robust process to review and issue technical information related to California's integrated demand side management portfolio.

Participant Cost Test (PCT)

Treating the PCT as a single, averaged metric that purports to represent individual customer costs is an - oversimplification that could lead to misguided decision making; averages smooth over critical variation, conceals distributional burdens, and can obscure reality to regulators and Portfolio Administrators about who can actually afford electrification.

The PCT is not currently used as a cost-effectiveness test by PAs, and the CSPM states that "interpretations of Participant Test results continue to require considerable judgment."[33] The results of the participant cost test will be very specific to each customer, with unique costs and ability to pay for necessary upgrades, and with the increase in electric energy bills. If a customer is on a TOU rate plan rather than a tiered rate plan, this could strongly influence the results of the PCT.

Similarly, a customer who needs a panel upgrade, or a utility-side-of-the-meter upgrade, will face a much larger upfront cost and a lower PCT result. The Staff Proposal uses a "weighted-average value for the infrastructure costs of a single VEA measure,"[34] however, this is disconnected from the actual costs each customer will face. As the PCT is a customer specific test, eliminating measures that are cost-effective under the allocation approval rather than the actual customer cost approach will leave customers who need panel upgrades without a viable efficiency measure to install. Because the PCT in its current form relies on aggregated "averages of averages," it obscures the range of retrofit costs, financing constraints, and site-specific barriers that determine real customer behavior; it therefore understates the financial impacts on low- and moderate-income households, renters, and owners of older housing stock. For a screening tool intended to inform consequential policy decisions, this methodological flattening is at an unfitting level of accuracy. A fuel substitution policy that employs the PCT must be grounded in household- and business-level analysis so the Commission can see both system-level benefits and the lived realities of customers whose energy bills, homes, and businesses will be affected.

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[33] CPUC, California Standard Practice Manual (SPM), October 2001 at 10.

[34] Staff Proposal at 11.

Customer Electrification Estimator tool

To implement the PCT reliably, the Commission must first establish the necessary inputs and procedures – most notably, a reliable method for estimating measure-level bill impacts. The Staff Proposal recognizes that "ongoing customer cost impacts … would likely use the Customer Electrification Estimator tool under development by the CPUC to assess estimated average potential customer costs at the measure package permutation level."[35] Because the CPUC's Customer Electrification Estimator tool is the primary source for the PCT's bill impact input, meaningful operational recommendations cannot be finalized until that tool is released and vetted. SoCalGas requests that the Staff Proposal be held in abeyance pending publication of the Customer Electrification Estimator tool with recommendations that the CPUC (1) release the tool with full documentation, (2) host a workshop demonstrating its functionality, and (3) provide a formal review comment period.

III. ADDITIONAL COMMENTS AND AREAS OF CONCERN

There are also items not specifically sought for comment in the Staff Proposal that warrant discussion given that there are areas of concern in the Staff Proposal that contain factual and methodological deficiencies, especially as these assumptions in the Staff Proposal bear directly on the Energy Division's assessment of whether customers will transition from ultraefficient natural gas measures to viable electric alternatives. These are addressed below.

1. The Role of Incentives on Influencing Customer Fuel Choice

SoCalGas agrees that achieving the State's climate goals will require a range of decarbonization pathways, including electrification, renewable resource deployment, and clean fuels.[36] However, the Staff Proposal appears to rest on an unproven premise: that the existence of incentives for efficient natural gas measures materially impedes decarbonization. SoCalGas asserts that overall, energy efficiency programs do not incentivize fuel choice, but rather incentivize efficiency level, findings that are supported through regional and nation-wide research.

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[35] Staff Proposal at 8 (emphasis added).

[36] SoCalGas, The Role of Clean Fuels and Gas Infrastructure in Achieving California's Net Zero Climate Goal (October 2021) available at: https://www.socalgas.com/sites/default/files/2021-10/Roles_Clean_Fuels_Full_Report.pdf.

Within the VEA proceedings, D.23-04-035 directed "further studies on infrastructure costs and the impact of incentives on customer fuel substitution."[37] An independent third-party research firm completed a study titled "Impact of Incentives on Customer Fuel Substitution" [38] and concluded with regards to HVAC equipment fuel choices: "Notably, incentive amount (in Exercise 1: Replace on Burnout) and incentive format (in Exercise 2: Accelerated Replacement) were the least influential attributes in residential customers' decision-making out of all attributes presented in the conjoint exercises." Barriers to fuel substitution included the upfront and ongoing costs for running electric systems as well as the lack of familiarity with the new systems. In looking at multifamily equity segment customers the study found, "[w]hen electrification is not feasible or is cost-prohibitive, multifamily building AEA reports that owners are still making use of natural gas incentives to improve efficiency and reduce longer-term energy costs."[39]

An ACEEE study examining barriers and strategies for residential electrification nationwide similarly found that building constraints, such as space in the electric panel or enough physical space for the equipment; higher first costs (sometimes significantly higher) may be highly impactful when a residential customer is choosing to retrofit an appliance.[40] SoCalGas believes that removing or restricting programs that encourage the adoption of high efficiency appliances will not cause customers to electrify at significantly higher rates, but will instead simply reduce adoption of high efficiency appliances in favor of the least expensive, lower efficiency option. Incentives for high-efficiency natural gas equipment work in conjunction with electrification rebates to reduce GHG emissions, not increase them.

SoCalGas recommends the Commission first consider whether maintaining energy efficiency incentives for customers who continue to use natural gas, including renewable natural gas, serves customer and policy interests, and whether, absent those incentives customers faced

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37 D.23-04-035 at 38 (OP 7).

38 Opinion Dynamics, Impact of Incentives on Customer Fuel Substitution (May 31, 2024) available at: https://pda.energydataweb.com/api/view/3968/CA%20Impact%20of%20Incentives%20on%20Fuel%20Sub%20Report_FINAL_2024-05-31.pdf.

39 Id (Opinion Dynamics, Impact of Incentives on Customer Fuel Substitution) at 76.

40 ACEEE, Ready to Upgrade: Barriers and Strategies for Residential Electrification, Hannah Bastian and Charlotte Cohn (October 2022) available at: https://www.aceee.org/sites/default/files/pdfs/b2206.pdf.

with appliance and equipment retrofit decisions, will opt for cheaper, lower-efficiency replacements or repairs. Given the substantial and unresolved practical, technical, financial, and infrastructural challenges to scaling fuel substitution, the Staff Proposal errs in presuming an outcome for which viable, demonstrated pathways do not yet exist. The Staff Proposal also does not account for customer preferences and constraints, which are often dictated by multiple factors outside of what may be considered viable from a technical perspective. It thereby risks subordinating measurable near-term progress, imposing unnecessary costs and disruptions on households and businesses making retrofit choices today and potentially leading to more carbon-intensive options being chosen.

2. Timing and Implementation

The Staff Proposal's proposed January 1, 2027 effective date for new and existing programs is not practicable. Released only on December 1, 2025, the Staff Proposal arrives too late to meet the current Energy Efficiency OIR (R.25-04-010) timeline[41] and lacks an appropriate amount of time for the analytic and operational work the CPUC's policy request. To rush major policy changes onto an accelerated calendar would compel Portfolio Administrators to act on incomplete information and untested tools, putting customers, Portfolio Administrators, and program implementers at risk.

The Commission established the Energy Efficiency "bus-stop" schedule in D.21-05-031 and the DEER measure update cycle to harmonize updates with business practices and diminish disruption for implementers and customers. That alignment increases the likelihood that VEA analyses, updates to the Energy Efficiency Potential & Goals study, and PA business plans are revised cohesively and in sequence. The CPUC finalized EE measure packages for PY2026–2027 under DEER 2026 (Resolution E-5350), and the next comprehensive update cycle for PY2028 begins in early 2026. The administratively logical point to incorporate VEA flags and related changes is with the PY2028 updates.

Substantive gaps in the Staff Proposal further preclude an earlier effective date. Critical elements remain outstanding: release and vetting of the CPUC's Customer Electrification Estimator tool, a webinar and formal comment period on that tool, and a working group to translate the tool's outputs into an operational Participant Cost Test. Portfolio Administrators

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[41] D.25-04-010 at 38-40 and Attachment B at 7, Resolution E-5152 at 10.

will need time in 2026 to review tool outputs and provide meaningful feedback; after a decision is issued, PAs will require additional months to translate policy into operational changes, update eTRM measure packages, and implement necessary system and process modifications.

Given these practical and procedural constraints, a more responsible course is to defer implementation. SoCalGas recommends that any VEA policy changes should take effect no sooner than January 1, 2028, to allow for tool release and validation, a full (rather than partial) opportunity for stakeholder engagement, DEER alignment, and the program and system development required to protect affordability, reliability, and program integrity.

3. Indoor Air Quality

SoCalGas has methodological concerns with the suggestion that indoor air quality be part of the energy efficiency cost-effectiveness assessment and finds it to be not practical or scientifically supported.

The Staff Proposal Section 3.4, "Additional factors in assessing cost effectiveness," recommends considering the "health benefits for participants of reduced indoor air pollution due to electrifying gas stoves."[42] The assumed health benefits are not supported by scientific evidence, with a federal district court recently finding that "there is robust disagreement by scientific sources" as to whether gas cooking is linked to (or causes) adverse health effects, including respiratory symptoms, asthma, or heart and lung conditions.[43]

Indoor air quality sources are varied, multifactorial, and difficult to quantify; therefore, indoor air quality is inappropriate for use as a cost-effectiveness metric.[44] The Commission's own working group in its Measure Package Recommendations[45] stated that it "did not think there

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[42] The Staff Proposal (p. 19) also states consideration of potential health impacts of reduced indoor air pollution is in line with the findings and spirit of the AB 97 Report to the Governor and Legislature: Corner Store Energy Efficiency. However, the AB 97 Report focuses on barriers to adopting energy efficient refrigeration equipment in corner stores and does not address indoor air quality.

[43] *Ass'n of Home Appliance Mfrs. v. Ryan*, No. 1:25-cv-02417-SKC-KAS, Dkt. 51 (D.CO Dec. 19, 2025).

[44] SoCalGas previously provided testimony addressing indoor air quality and the absence of evidence of a causal relationship to health effects. See A. 21-12-009, Rebuttal Testimony of Julie E. Goodman and Anne E. Smith on behalf of SoCalGas ("SoCalGas Rebuttal Testimony"), available at: https://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A2112009/5507/497013325.pdf., at JEG 6-9. The more recent studies have only confirmed that testimony.

[45] Draft Staff Proposal, Appendix C at 37.

was an easy and fair way to account for," among other things, "[i]mproved indoor air quality and health benefits," and it noted, "[n]o amount denoted as the cost impacts are not readily quantifiable."

Lawrence Berkeley National Laboratory has explained that indoor air quality depends on many individual as well as community factors, stating:

> *Indoor pollutant concentrations depend primarily on outdoor concentrations, on the rates of pollutant emissions from various indoor sources, and on the rates at which pollutants are removed from indoors by ventilation with outdoor air, filtration, and natural processes such as pollutant deposition from air onto surfaces. Examples of indoor pollutant sources include building materials, furnishings, equipment, cleaning and pest control products, pets, molds, bacteria, and people and their activities such as tobacco smoking and cooking.*[46]

Consistent with the working group recommendations, the highly individual nature of indoor air quality and the lack of a system for measuring or tracking it on an individual basis make it an impractical and ineffective cost metric for evaluating the cost-effectiveness of VEAs or EE gas measures.[47] The Staff Proposal tries to get around this dilemma by suggesting that it can consider the purported health effects and associated costs for a single condition: childhood asthma.[48] The problem with this approach is that there is not established scientific evidence to support the claim that gas cooking is *significantly associated* with childhood asthma, much less that it *causes* childhood asthma.[49]

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[46] LBNL, Indoor Air Quality Overview | Indoor Air (last visited 12/13/2025). *See also* U.S. EPA: Introduction to Indoor Air Quality | US EPA (noting "many sources of indoor air pollution" including combustion appliances, tobacco, various building materials and furnishings, heating and cooling systems, and outdoor sources) (last visited 12/13/2025).

[47] In proceedings on decommissioning the gas system, various parties agreed that indoor air quality was not a practical metric for comparing census tracts because of its highly individual nature, the lack of historical data, and the lack of a system of measuring and tracking it. *E.g.* Sierra Club, California Environmental Justice Alliance, and Natural Resources Defense Council Opening Comments, R.20-01-007, at 13-14 (noting indoor air quality "varies considerably by several factors including outdoor air pollution levels, indoor air pollution sources, and the type of housing or building, and there are not adequate measures of these factors to meaningfully prioritize by census tracts").

[48] Draft Staff Proposal at 19.

[49] The Staff Proposal also references carbon monoxide poisoning, but cites nothing to support that claim. Studies in fact suggest that gas stoves do not contribute meaningfully to carbon monoxide in indoor air. For example, *Daouda, et al.* (2024), on which CEJA has relied, found that carbon

The most recent and comprehensive meta-analysis of studies on health impacts associated with gas cooking as compared to electric was funded by the World Health Organization (WHO), conducted by researchers at the WHO, Liverpool University, and Peking University, and published in *The Lancet* in 2024 ("WHO study"). The WHO study expressly found that there was "**no significant increase in risk**" of asthma in children for gas stove use, [50] making it clear that a causal relationship cannot be established between gas stove use and asthma. In other words, there is no scientific statistical support for the assertion that replacing a gas stove with an electric stove will make any difference for the risk of or incidence of childhood asthma.

The WHO study also explained that prior studies purporting to find such an association between gas stoves and childhood asthma—like those relied upon by the Staff Proposal[51]—failed to account for confounding factors (such as smoking) and therefore "overestimate" the true risk.[52] The Staff Proposal relies on statements about gas cooking and childhood asthma in *Zhu, et al.* (2020), which in turn relied on a meta-analysis by *Lin et al*. (2013).[53] The *Lin et al.* study is

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monoxide emissions from gas and induction stoves are not significantly different and are within health-related standards. *See* A.24-12-009, Rebuttal Testimony of Roy Christian on behalf of Southern California Gas Company, Ex. SCG-02 ("Christian Rebuttal") at 5 (citing Daouda, et al., *Out of Gas, In with Justice: Findings from a gas-to-induction pilot in low-income housing in NYC*, Energy Rsch. & Soc. Sci., Oct. 2024).).

[50] *Ibid.* (emphasis added). *See also* American Gas Association (AGA), *World Health Organization funded study finds gas stoves not associated with childhood or adult asthma - American Gas Association* (explaining the findings of the WHO study). A systematic review one year prior similarly concluded that there was not sufficient evidence of a causal relationship. *See* W. Li, C. Long, T. Fan, E. Anneser, J. Chien, and J. Goodman, Science Direct – Global Epidemiology, *Gas Cooking and Respiratory Outcomes in Children: A Systematic Review* (December 2023) at 6-7, 11, 14, *available at:* https://www.sciencedirect.com/science/article/pii/S259011332300010X; *see also* Christian Rebuttal at 2 (discussing this study).

[51] The Staff's position echoes CEJA's testimony from the recent MTI proceeding, which relied on the same older studies to make the same claims—and ignored the recent studies. *See* A.24-12-009 (MTI Proceeding), Direct Testimony of Kjellen Belcher on behalf of CEJA, Ex. CEJA-01, at 3 & n.10, 6 & n.25, and 18 & n.81.

[52] WHO Study, at 290. The WHO study also found that when only high-quality studies were considered, there was no significant association between gas stove use and chronic obstructive pulmonary disease.

[53] *See Zhu, et.al.* (2020). "Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California." Report to Sierra Club National, Oakland, CA. Fielding School of Public Health, Dept. of Environmental Health Sciences, UCLA; *Lin et al*. (2013), "Meta-analysis of the effects of indoor nitrogen dioxide and gas cooking on asthma and wheeze in children." *Int. J. Epidemiol.* 42(6):1724-1737).

based on older data—much of it before 2000—that often failed to account for confounding factors and, as the WHO study explains, therefore overestimated the risk.

Moreover, while *Lin et al.* found a statistically significant association between gas stoves and childhood asthma, they also found no statistically significant association between NO_2 (the pollutant purportedly linking gas stoves and asthma) and asthma, a contradiction that remains unexplained. Indeed, the validity of *Lin et al.'s* conclusions was questioned at the time by a much larger contemporaneous study that found no association between gas stoves and childhood asthma.[54]

The Staff Proposal also cites *Gruenwald et al.* (2022)[55]—but even the authors of that report acknowledged that their report does not claim or establish causation.[56] That article merely used the older, unreliable risk estimate from Lin et al. to calculate the proportion of the population that the increased risk would represent.[57] In the absence of a causal relationship, any claim that a certain percentage of childhood asthma is "attributable to" gas stove use is meaningless.

In short, the Staff Proposal puts forth no scientifically valid evidence that the incidence of childhood asthma would be reduced by replacing gas cooking with electric, or that a causal relationship between gas stoves and childhood asthma exists, and thus its claims of associated health cost savings cannot soundly serve as the foundation for a cost measure.

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[54] *See* Wong, GW; Brunekreef, B; Ellwood, P; Anderson, HR; Asher, MI; Crane, J; Lai, CK; ISAAC Phase Three Study Group. 2013. "Cooking fuels and prevalence of asthma: A global analysis of phase three of the International Study of Asthma and Allergies in Childhood (ISAAC)." *Lancet Respir. Med.* 1(5):386-394. doi: 10.1016/S2213-2600(13)70073-0.). *See also* SoCalGas Rebuttal Testimony, at JEG-14-15.

[55] Gruenwald, T; Seals, BA; Knibbs, LD; Hosgood, HD III. 2023. "Population attributable fraction of gas stoves and childhood asthma in the United States." Int. J. Environ. Res. Public Health 20:75.

[56] *See* https://www.washingtonexaminer.com/policy/energy-environment/what-to-know-gas-stove-study. ("RMI manager Brady Seals told the *Washington Examiner* in an email Wednesday that the think tank's study 'does not assume or estimate a causal relationship' between childhood asthma and natural gas stoves.'").

[57] *See* Cox, LA Jr. 2024. "Challenging unverified assumptions in causal claims: Do gas stoves increase risk of pediatric asthma?" Glob. Epidemiol. Vol. 8 Dec. 2024: https://doi.org/10.1016/j.gloepi.2024.100160https://doi.org/10.1016/j.gloepi.2024.100160.; Li W, Goodman JE, Long C. 2024. "Population attributable fraction of gas cooking and childhood asthma: What was missed?" Global Epidemiology. 2024 Mar 11;7:100141. doi: 10.1016/j.gloepi.2024.100141. PMID: 38510536; PMCID: PMC10951895.

Moreover, Staff's suggested costs appear to be grossly overstated, and there is no way to accurately assess the numbers because Staff do not explain how they arrived at the per-household cost savings from the nationwide statistics. The Staff Proposal cites a literature review by *Perry et al.* to argue that electrifying kitchen stoves in California could save households between $559 and $2,473 annually. The basis for Staff's arrival at this number raises many questions. To begin with, Staff states that childhood asthma is estimated to cost an average "of $3,076 to $13,612 per child in the United States."[58] However, these two numbers do not represent a range, but were instead the result of two separate studies; the former number reflected the general population while the latter looked only at Medicaid-enrolled children.[59] The latter number thus is not appropriate to use for the general population in California, and a "median value" between these two numbers cannot be properly used.

Second, it is not clear how the Staff get from a "per child" cost savings to the claimed per-household savings in IOU territories. The $3,076 represents the costs per child *with asthma*,[60] not the costs per child. In other words, that cost would only apply to children who have asthma, which the same study estimated at 13% nationally. Yet the Staff Proposal does not appear to account for the 13%, and instead simply appears to take the $3,076 and calculates 20% of it as the cost savings "per child" (representing the supposed 20% reduction in incidence of asthma from removing gas stoves); this fails to adjust the costs for the 13% of children with asthma to reach an overall "per child" cost.[61]

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[58] Perry et. al., "The Economic Burden of Pediatric Asthma in the United States: Literature Review of Current Evidence," 2019. DOI: 10.1007/s40273-018-0726-2.

[59] *Id.* at 165.

[60] *Id.* at 164 ("Annually, for an average child with asthma, this translates to a total cost of US$3076 (US$3279 in 2018 dollars.").

[61] Moreover, it is not clear that the $3,076 represents medical costs from asthma rather than overall healthcare costs; if the latter, the number substantially overstates the asthma-related costs. *See id*. at 162 ("Average annual costs per child with asthma ranged from US$3076 (2015 dollars) to US$13,612 (dollar valuation year not reported). When compared to children with-out asthma, children with asthma had significantly higher total annual costs (US$3076–13,612 vs. US$1628–6695)." Other information in the article suggests that the $3,076 substantially overstates the cost per child with asthma: The article estimates the total cost of pediatric asthma as $5.92 billion (from *Sullivan et al*.) and the total number of children with asthma as 6 million, which would produce a cost per child with asthma of $987. *Id.* at 155.

Finally, it is puzzling that in its single paragraph proposing to use indoor air quality health impacts as a cost measure, the Staff Proposal includes two references to health impacts from outdoor appliances.[62] It does not explain how impacts on, or purported health costs associated with, outdoor air quality are relevant to the consideration of the health cost impacts (if any) of indoor air quality.

In sum, while these "savings" are unproven given the WHO and other studies discussed above, these questions further demonstrate the need for enhanced transparency and stakeholder involvement for the inputs proposed for consideration as part of this cost-effective assessment.

The Commission should reject ED's proposal to treat the purported health benefits of indoor air quality from stove electrification as a cost-effectiveness metric: the approach is impractical to implement, rests on outdated and confounded studies, and relies on unsupported and likely overstated cost estimates. Absent robust, causal, and transparent evidence, and clear, auditable methodology for translating any demonstrated health effects into per-household values, indoor air quality, as proposed by the Staff Proposal, cannot be reasonably incorporated into EE cost-effectiveness screening.

IV. CONCLUSION

SoCalGas appreciates the opportunity to provide comments on the Staff Proposal and requests its recommendations be incorporated and considered as set forth above.

Respectfully submitted on behalf of SoCalGas,

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[62] Staff Proposal at 19.