

State of California

## Memorandum



Date: July 10, 2020

To: Gary Barsley, Southern California Edison (SCE); Henry Liu, Pacific Gas and Electric (PG&E); Chan Paek, Southern California Gas (SCG); Ed Reynoso, San Diego Gas and Electric (SDG&E)

CC:

From: Peter Biermayer - Utilities Engineer, Industrial/ Agricultural Programs and Portfolio Forecasting Section, Energy Efficiency Branch, Energy Division, CPUC

Subject: Disposition Rejecting Residential Tankless Water Heater, Gas – Fuel Substitution:  
**SWWH029-01**

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### 1. Discussion and Direction

The California Public Utilities Commission (CPUC) rejects the statewide workpaper for Residential Tankless Water Heater, Gas – Fuel Substitution: SSWH029-01. This workpaper is a new Phase 2 workpaper submitted on June 1, 2020.

SCG can resubmit the workpaper using the values in the fuel substitution calculator and the methodology in the Fuel Substitution Guidance document.

### 2. Workpaper Summary

This fuel substitution workpaper is for the installation of an efficient above code, natural gas instantaneous condensing water heater to replace a standard code compliant electric water heater. This workpaper does not meet all fuel substitution guidance document requirements<sup>1</sup>.

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<sup>1</sup> Fuel Substitution Technical Guidance for Energy Efficiency, V1.1, dated 10/31/2019.  
<https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442463564>

### 3. Critical Review Issues

Fuel substitution guidance stipulates, for calculation of source energy savings, program developers must use the Fuel Substitution Calculator available at: <https://www.cpuc.ca.gov/General.aspx?id=6442463306>. This submitted workpaper has modified the fuel substitution calculator's Annual Source Energy and Emission Factors, therefore, this workpaper does not follow CPUC guidance and is rejected.

Rather than utilizing the process for determining if measures pass the Fuel Substitution Test as outlined in the Fuel Substitution Guidance Document, Southern California Gas developed a methodology for calculating measure and baseline source energy using heat rates from the Avoided Cost Calculator. In a meeting with staff, Southern California Gas justified their decision to use heat rates from the Avoided Cost Calculator by citing D.19-08-008, which stated: "We agree with PG&E, SCE, NRDC, and Sierra Club that using the heat rate values embedded in the ACC is the best method currently available for calculating source energy...In addition, there is value in the added granularity of using hourly heat rates, rather than relying on a single average heat rate, if possible." (p.17) In developing the Technical Guidance Document, CPUC staff determined that using hourly heat rate values from the 2020 Avoided Cost Calculator was not practically feasible given the complicated nature of performing hourly calculations utilizing 8760 heat rates and 8760 load shapes over the measure's expected useful life. The CPUC does not currently have a database of all load shape permutations easily available to staff or stakeholders, and verifying the accuracy of the Fuel Substitution Test Calculations would require stakeholders to access such information and Staff to review the accuracy of all load shape submissions.

Therefore, Staff determined that developing annualized values was preferable given resource constraints. D.19-08-008 anticipated this possibility and stated: "While the avoid methodology, as described, would be more accurate, it may not be immediately feasible utilizing the ACC and CET tools, and their embedded assumptions. Thus, a simplified approach using the annual system average heat rate may be more practical. Either the more accurate or the simplified approach would be acceptable to the Commission, and methods may improve overtime. Thus, we delegate to Commission staff to develop technical guidelines..." (p.18)

To utilize an annualized approach, staff considered both heat rates from the avoided cost calculator and other sources within the CPUC. Staff determined that averaging the annual heat rates included in the 2020 Avoided Cost Calculator over each year of the measure expected useful life, or the entire measure expected useful life, as Southern California Gas has done, produced values that did not accurately represent the measure source energy or carbon emission impact. To balance administrative feasibility and methodological accuracy, CPUC Staff developed annual emissions intensity factors relying on values from the CPUC's IRP Proceeding (R.16-02-007) and described in the Fuel Substitution Technical Guidance Document (p. 30).

The benefit of this approach is that it more accurately forecasts what the source energy and emissions impact of a fuel substitution measure will be, while utilizing annual values. To develop the factors, Staff and contractors used the 2017-2018 CPUC Reference System Plan load, total retail sales, and total CAISO Emissions forecasts for 2018 through 2030. For values beyond 2030, Staff estimated energy intensity of the grid using the assumption that the SB 100 goals will be achieved. The 2021 Avoided Cost Calculator adopted the same method for its short and long run emissions calculations (D.20-04-010, p.2).

Southern California Gas' proposed methodology is not consistent with the Avoided Cost Calculator updates adopted in D.20-04-010 and effective as of January 2021. Southern California Gas' methodology is not more accurate or rigorous than the method utilized by the Fuel Substitution Guidance Document. Moreover, there is no process set up for stakeholder to vet individually hourly profiles at this point. Therefore, allowing SCG this exception at this point would inconsistently apply the Fuel Substitution Test for Southern California Gas compared with other fuel substitution workpapers already accepted and reduce transparency to the process. To avoid applying inconsistent standards across fuel substitution workpapers and to maintain consistency with the 2021 Avoided Cost Calculator, Energy Division Staff reject Southern California Gas' workpaper.