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Accounting for costs of Gas Infrastructure

i filed this once, but the site seemed to expect me to do so again. Apologies is this is redundant.

Additional submitted attachment is included below.



California Energy Commission Building Standards Office 1516 Ninth St. Sacramento, CA

Re: 2019 Building Energy Efficiency Standards Development Docket # 16-BSTD-06

April 21, 2017

Dear Christopher Meyers,

Stone Energy Associates appreciates the opportunity to submit comments related to the development of the 2019 Building Energy Efficiency Standards.

As the Commission and the utilities perform cost effectiveness analysis for each CASE proposal and potential measure for the 2019 Standards, it has stated the goal of being fuel neutral. To accomplish that the Commission should include all incremental costs for measures under consideration. Because electricity is required for all buildings (with possible rare exceptions), the cost of electrical service to a building is not incremental for any measures. Incremental line (wire) sizing, additional breakers, and additional wiring should be considered, but everything outside of the building is a basic requirement.

Since all-electric buildings <u>are</u> an option, the cost of providing natural gas service should be accounted for in the cost effectiveness analysis for gas water heating and gas space heating in dual-fuel buildings. To ignore that cost when gas appliances are not essential, favors gas rather than being fuel neutral.

As pointed out by Commissioner Hochschild in an article in the San Francisco Chronicle (May 20, 2016), progressive builders have already discovered that it is less expensive to build new homes without gas service. "By avoiding the need to install gas pipelines under the streets and inside homes, these forward-thinking builders are able to reduce the price of the home by \$4,500," according to Hochschild.

The gas infrastructure costs can be thought of as falling within one of four categories:

- Distribution main lines under the street,
- Gas meter and connection to the main,
- Gas piping within the building, and
- Exhaust venting.

Some data may be available that would allow the Commission to separate the cost of extending gas distribution lines from the cost of a connection to the main and installation of the gas meter.



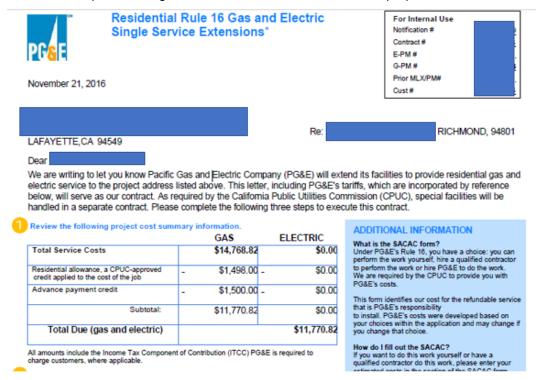
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The preponderance of data we have been able to gather combines those two costs. The table below shows that there is a wide range in costs. The two contractor quotes are for trenching and piping between the main and the building, but do not include the utility company's price for connecting the main and installing the meter. EPRI's estimate was intentionally conservative.

Price Quote	Source
\$8841 (single-family)	Palo Alto
\$17,634 (8-unit MF)	Palo Alto
\$1000 (single-family)	EPRI for SMUD
\$600 (per unit of MF)	Contractor quote, north coast
\$2000 (per bldg. of MF)	Contractor quote, north coast
\$14,768 (single-family)	PG&E, Richmond
\$10,000 (MF)	Pasadena

The most complete costing available to us is the PG&E contract proposal in Richmond.



Cost estimates for installing gas piping within residential buildings varies nearly as much as the costs for getting the gas to the building. Some of the estimates are derived from estimating web sites, and some are quotes from plumbing contractors on specific projects.



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Price Quote/Estimate	Source
\$578 - \$718 (single family)	Homewyse Web Site
\$300 - \$1000 (single family)	Costhelper.com
\$259 - \$733 (single family)	homeadvisor.com
\$200 - \$500 (singe family)	Fixr.com
\$550 (single family)	EPRI for SMUD
\$200/fixture (MF)	Contractor quote, north coast
\$200-\$300/fxtr. (MF)	Contractor quote, Pasadena

For a 40-unit apartment building where each unit has a gas water heater, gas furnace, and gas stove, the contractor quotes result in a cost between \$24,000 and \$36,000. While the cost of additional wiring to install heat pumps and an electric stove must be considered, in comparison, those costs are much lower (roughly 1/3 lower by some estimates).

KB Homes and City Ventures provided the Commission with a combined-cost figure of \$4500 <u>net savings</u> per single family home for going all-electric. Redwood Energy's experience with multifamily projects is that the net cost savings per unit for avoiding gas infrastructure in multifamily new construction ranges between \$2000 and \$3000 per dwelling unit.

These data should be considered indicative of the need to better understand the true costs of gas water heating and gas space heating. Though some of the data points are actual bids, the data set is not large enough to be considered definitive. The Commission should gather more data from more regions of the State, and across a wider range of building types and builders.

In light of the tragedy at San Bruno, the explosion in Woodside the next year, one in Fresno two years ago, a gas line explosion in Stanislaus County last year, and two gas (propane) explosions near Kirkwood in March of this year, as well as the climate impacts associated with burning gas and fugitive emissions from gas pipelines and storage like Aliso Canyon, it is important that the Standards not favor dual-fuel construction by ignoring some of the costs.

Therefore, Stone Energy Associates respectfully requests that the Building Standards Office:

- 1. Include the cost of all gas infrastructure in cost-effectiveness analysis while evaluating CASE proposals,
- 2. Base analysis on an independent evaluation of the costs of bringing natural gas down the street, piping from the main to buildings, and piping within the building, and
- 3. Consider including risk values for fires and explosions caused by either electrical service or natural gas service.

Thank you for considering these comments. Please let me know if any clarification is needed.

Sincerely,

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Nehemiah Stone



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