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NCPA Comment on the 2019 TDV of Energy

Additional submitted attachment is included below.

BEFORE THE CALIFORNIA ENERGY COMMISSION

In the matter of:	**Docket No. 16-BSTD-06**
2019 Building Energy Efficiency Standards	**RE: 2019 Time Dependent Value of Energy**

THE NORTHERN CALIFORNIA POWER AGENCY COMMENTS ON THE 2019 TIME DEPENDENT VALUE (TDV) OF ENERGY

The Northern California Power Agency[1] (NCPA) appreciates the opportunity to provide these comments to the California Energy Commission ("CEC" or "Commission") on the 2019 Time Dependent Value ("TDV") of Energy, as presented and discussed at the Staff Workshop on May 12, 2016.

I. INTRODUCTION

NCPA supports the efforts of the CEC to achieve energy savings and greenhouse gas emission reductions throught the adoption of updates to the Title 24 Building Energy Efficiency Standards ("Title 24" or "standards"). Title 24 has historically been focused on overall reductions in energy use, rather than emissions. Since emissions vary depending on the energy source, reductions in energy use do not correspond uniformly to reductions in emissions. With the Governor's goal of reducing greenhouse gas emission by 80% of 1990 levels by 2050, it is imperative the Title 24 updates support energy efficiency AND greenhouse gas emission reductions in new and, when appropriate, existing buildings.

The focus of these comments is on the negative unintended impacts of the proposed 2019 TDV methodology with regards to electric heat pump technologies for water and space heating. In particular, the proposed TDV methodology does not fully reflect the decreasing carbon intensity of publicly-owned utility ("POU") resource portfolios or the performance improvements of high efficiency electric heat pump technologies. As such, the proposed TDV methodology is likely to result in otherwise avoidable in-state greenhouse gas emissions by advocating natural gas as the fuel source to satisfy water and space heating needs. The following sections outline NCPA's concerns in greater detail.

[1] NCPA is a California Joint Powers Agency established in 1968. Its Members are: the Cities of Alameda, Biggs, Gridley, Healdsburg, Lodi, Lompoc, Palo Alto, Redding, Roseville, Santa Clara, and Ukiah, the Bay Area Rapid Transit Agency, the Port of Oakland, and the Truckee Donner Public Utility District; and one Associate Members: the Plumas-Sierra Rural Electric Cooperative. These Members serve nearly 650,000 electric consumers in Central and Northern California.

II. TDV METHODOLOGY IS FLAWED AND INHERENTLY BIASED FOR GAS

The models upon which the TDV values are based do not reflect current practices. The current 2016 TDV values are vastly different for gas and electricity. For example, in Climate Zone 12, where Sacramento is located, the TDV values for electricity during peak hours are a hundred times greater than the TDV values for gas for an equivalent unit of onsite energy usage. Because lower TDV values are favorable, this inequity embedded in the TDV methodology causes a structural bias against electric heat pump technologies for water and space heating. Up until now, this bias favoring natural gas systems could be justified from both an emissions and consumer cost perspective. However, the decreasing carbon intensity of electricity and the development of high efficiency electric heat pump technologies have upended the assumptions within these models. As such, the outdated assumptions upon which the models are premised must be revised.

The TDV metric represents energy cost from a customer perspective, based on the hourly or monthly cost of energy, scaled to retail rate levels. Using the draft 2019 TDV model results that are posted on the CEC website, NCPA estimated the TDV values for the following electric versus gas appliances with equivalent usage/load in Climate Zone 4:

End Use	Gas baseline equipment	Annual TDV	High efficiency electric alternative	Annual TDV	% TDV difference of electric appliance to gas appliance
Water Heating	Gas Tankless Water Heater with EF = 0.82	43,100	Electric Heat Pump Water Heater with EF = 2.8	36,200	19%
Space Heating	Gas Furnace with AFUE 95.5	88,400	Ductless Heat Pump with HSPF = 9.0	68,700	22%

Natural gas is used as the reference fuel for water and space heating. This effectively prevents an all-electric home from passing the Title 24 standards, despite the fact that these homes would have zero or very low GHG emissions (depending on the carbon intensity of the electric supply). This is troubling because it is much more cost-effective to incentivize energy efficiency and greenhouse gas emission reductions in the initial design phase, rather than trying to capture these savings in retrofits later on.

III. TDV METHODOLOGY DOES NOT ACCOUNT FOR THE AVOIDED COSTS FOR THE CONSTRUCTION OF GAS INFRASTRUCTURE

On March 20, 2016, Commissioner Hochschild co-wrote an article[2] with former Commissioner of the California Public Utilities Commisison and currernt Member of the California ISO Board of Governors, Mark Ferron, arguing for the conversion to clean electricity

[2] Hochschild, D. and Ferron, M. "California's next frontier: clean electricity for everything." *San Francisco Chronicle*. May 20, 2016. Available: http://www.sfchronicle.com/opinion/article/California-s-next-frontier-clean-electricity-7872652.php

and to "electrify almost everything." In particular, the authors note that the transition from fossil fuels to electricity could net significant cost savings: "California home builders such as City Ventures and KB Homes have begun building homes without gas lines, where gas central heating, hot water and stoves are replaced by electric appliances. 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."

Staff from the City of Palo Alto Utilities ("CPAU") raised this very point during the Staff Workshop on May 12, 2016. CPAU staff noted that the current TDV methodology does not credit all-electric buildings buildings with the savings associated with avoiding the gas infrastructure within the building (e.g. gas meter, gas lines). E3 responded to the comment by confirming that the proposed TDV methodology does not account for the cost savings of avoided gas infrastructure and this is an issue that should be explored further.

IV. TDV METHODOLOGY DOES NOT ACCOUNT FOR LOWER POU RETAIL RATES COMPARED TO IOUS

The TDV methodology does not accurately reflect the electric retail rates for POUs. To illustrate this point, the table below compares the forecasted residential retail rates[3] for PG&E, Sacramento Municipal Utility District ("SMUD"), and CPAU:

Year	PG&E	SMUD	CPAU
2020	$0.211	$0.152	$0.144
2021	$0.215	$0.157	$0.145
2022	$0.220	$0.162	$0.145
2023	$0.222	$0.167	$0.148

Based on forecasted rate data above, PG&E's average residential rate will be 31.8% higher than the rate charged by CPAU to its customers in 2020. As such, the proposed electric TDV values do not accurately reflect the energy costs for buildings in POU service territories. While it may not be cost effective to switch from gas space heating to electric heat pump space heating in the PG&E service territory, it can be very cost effective to do so in NCPA member communities, such as Palo Alto. The proposed TDV methodology unfairly penalizes electric end uses in cities that have lower electric rates than the IOUs.

V. TDV METHODOLOGY DOES NOT REFLECT THE LOWER CARBON INTENSITY OF MANY NCPA MEMBERS' RESOURCE PORTFOLIOS

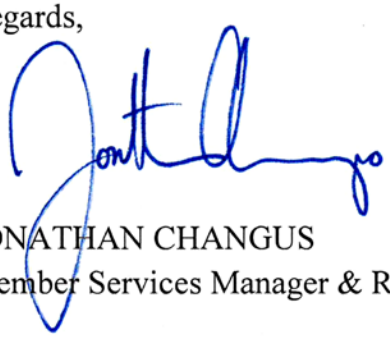
A number of POUs manage energy portfolios that consist of proportionally more renewable resources than the statewide mix. In addition, other carbon-free resources, such as

[3] PG&E and SMUD forecasted residential rates are drawn from the CEC website and can be downloaded at: http://www.energy.ca.gov/title24/2019standards/prerulemaking/documents/2016-05-12_workshop/TDV_2019_Model_Release_05-12-2016/

large hydropower, generate electricity while creating zero or very little greenhouse gases. For example, the resource mix for many NCPA members has a lower carbon intensity than the investor owned utilities and or the state average: The City of Biggs (61.0%), City of Ukiah (57.0%), Silicon Valley Power (51.4%), Truckee Donner Public Utility District (51.0%), City of Healdsburg (51.0%), CPAU (49.0%)[4], and City of Gridley (41.0%) have each reported more electric energy generated by carbon-free resources than the statewide total of 35.0%. [5]

NCPA reiterates our appreciation for the Commission's consideration of our comments. NCPA welcomes the opportunity to work further with the Commission and other stakeholders in the development of a TDV methodology that appropriately values low or zero carbon electricity in support of both the state's energy efficiency and greenhouse gas emissions reduction goals.

Regards,



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[4] For CPAU, the 49% represents carbon-free electric supply from eligible renewables and large hydroelectric; the remaining 51% is made carbon neutral through the purchase of Renewable Energy Credits.
[5] The most recent POU Power Content Labels (CY 2014) can be accessed on the CEC website at: http://www.energy.ca.gov/pcl/labels/2014_labels/all_labels/