DOCKETED	
Docket Number:	21-IEPR-06
Project Title:	Building Decarbonization and Energy Efficiency
TN #:	240098
Document Title:	Southern California Gas Company (SoCalGas) Comments - on the IEPR Commissioner Workshop on Grid-Interactive Efficient Buildings
Description:	N/A
Filer:	System
Organization:	Southern California Gas Company (SoCalGas)
Submitter Role:	Public
Submission Date:	10/19/2021 12:29:32 PM
Docketed Date:	10/19/2021

Comment Received From: Southern California Gas Company (SoCalGas)
Submitted On: 10/19/2021
Docket Number: 21-IEPR-06

Comments on the IEPR Commissioner Workshop on Grid-Interactive Efficient Buildings

Additional submitted attachment is included below.

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October 19, 2021

The Honorable J. Andrew McAllister
Commissioner, California Energy Commission
Docket Unit, MS-4
Docket No. 21-IEPR-06
715 P Street
Sacramento, CA 95814-5512

Subject: Comments on the IEPR Commissioner Workshop on Grid-Interactive Efficient Buildings

Dear Commissioner McAllister,

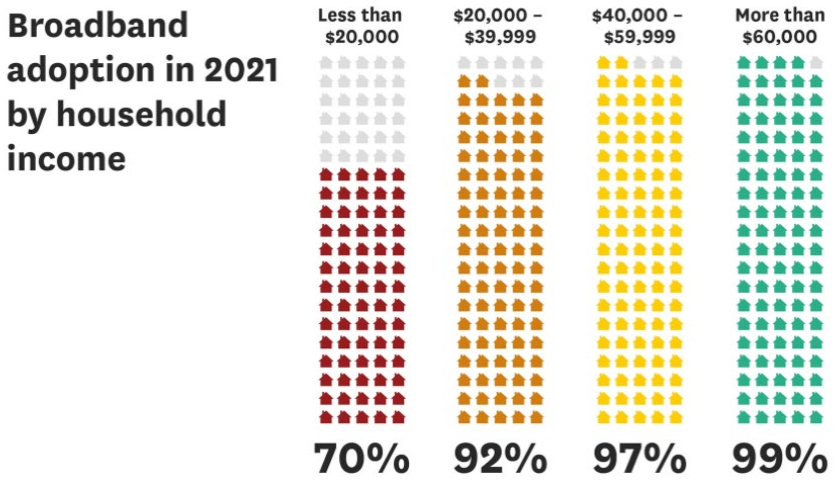
Southern California Gas Company (SoCalGas) appreciates the opportunity to provide comments on the California Energy Commission (CEC) Integrated Energy Policy Report (IEPR) Workshop on Grid-Interactive Efficient Buildings (GEBs). We commend the Commission for its continued emphasis on energy efficient buildings with smart technologies as a tool to promote greater affordability, resilience, and advance the public interest. Additionally, we appreciate the U.S. Department of Energy (U.S. DOE) for its thoughtfulness in highlighting *A National Roadmap for Grid-Interactive Efficient Buildings,* during the first session of the Workshop. SoCalGas shares the Commission's sentiment regarding equity, especially when considering the various use-cases and eventual deployment of GEBs throughout the State. Therefore, our comments address the following topics: **(1)** the digital divide in California must be considered when planning for the deployment of grid-interactive buildings to avoid unintended consequences of excluding low-income communities from the benefits that GEBs can provide; and **(2)** the CEC should support the development of smart technologies that work with gas appliances, since these technologies can result in energy savings and serve as reliable back-up energy sources to complement GEBs.

(1) The digital divide in California must be considered when planning for the deployment of grid-interactive buildings to avoid the unintended consequence of excluding low-income communities from the benefits that GEBs can provide.

GEB technologies are contingent upon reliable internet connectivity and per the U.S. DOE, "as the technological sophistication of our homes and workplaces continue to rise, so does the opportunity for buildings to play a larger role in shaping the energy system of the future…buildings, linked to one another across the grid and the internet, can be joined to improve themselves, each other, and America's energy system."[1] Without the thoughtful consideration of regional broadband connectivity differences across the State, the equitable deployment and adoption of GEBs are at risk.

Research estimates that approximately 1.3 million Californians do not have access to a wired internet connection capable of less than or equal to 25 megabits per second of download speeds,[2] which is a minimum requirement to conduct standard web browsing.[3] Further, approximately 890,000 California residents do not have access to wired internet providers within their region.[4] Figure 1 below reveals that California households with an annual household income of less than $20,000 have the lowest adoption rate of broadband, relative to all other household income classes measured in the survey and therefore income was a vital indicator of whether a household has internet access.[5]

Figure 1. California Broadband Adoption, Separated by Household Income levels[6]



[1] "Grid-interactive and Efficient buildings are Emerging as Dynamic Solutions to Many Energy Challenges," March 27, 2020. Available at https://www.energy.gov/eere/articles/grid-interactive-and-efficient-buildings-are-emerging-dynamic-solutions-many-energy-0

[2] "Internet Access in California," *BroadbandNow*, 2021. Available at https://broadbandnow.com/California.

[3] David Anders, "Internet speed classifications: What counts as fast internet," *AllConnect*, April 16, 2021. Available at https://www.allconnect.com/blog/internet-speed-classifications-what-is-fast-internet.

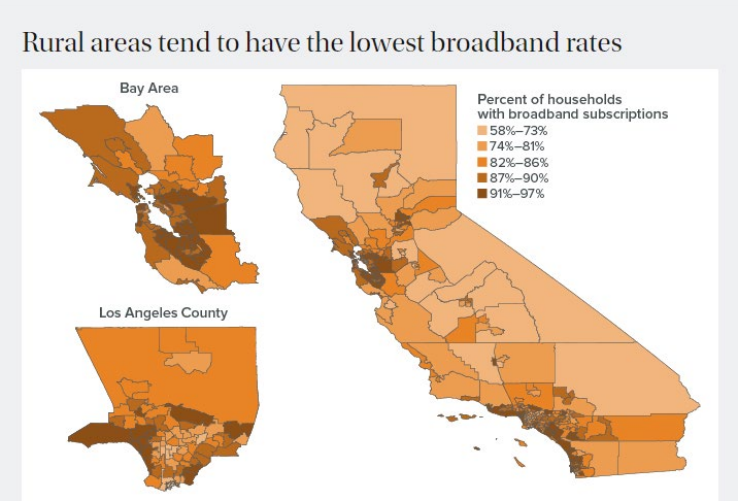
[4] "Internet Access in California," *BroadbandNow*, 2021.

[5] Ron MacKovich, "California surpasses 90% internet connectivity, but low-income households still lack access," *University of Southern California News*, March 30, 2021. Available at https://news.usc.edu/183952/california-internet-access-usc-survey-broadband-connectivity/.

[6] *Ibid*.

Researchers also found that in addition to significantly impacting low-income families statewide, the digital divide also greatly impacts rural families. Researchers at the University of Southern California (USC) have come to determine notable regional and demographic inequities with regards to internet connectivity. For instance, they found that 20 percent of Central Valley households and 19 percent of Los Angeles County households do not have an internet connection or must rely on a smartphone.[7] The 2019 American Community Survey found that only 68 percent of adults aged 65 or older located in rural California counties had broadband. Further, Figure 2 illustrates the large territory of rural California with household broadband subscription rates ranging from 58 percent to 73 percent and demonstrates that Los Angeles County and the Bay Area also face modest broadband rates in certain regions. Rural areas tend to have limited broadband due to financial, technological, and topological hurdles.[8] Failing to address the digital divide and charging forward with GEB development would have the unintended consequence of excluding low-income and rural communities from the benefits that GEBs can provide, such as resiliency and equal access to reliable and renewable clean energy.

Figure 2. Geographic Regions With Broadband Subscriptions[9]



[7] *Ibid*.
[8] Niu Gao and Joseph Hayes, "California's Digital Divide," *Public Policy Institute of California,* February 2021. Available at https://www.ppic.org/publication/californias-digital-divide/.
[9] *Ibid.*

(2) The CEC should support the development of smart technologies that work with gas appliances, since these technologies can result in energy savings and serve as reliable back-up energy sources to complement GEBs.

Recently, U.S. DOE Office of Fossil Energy and Carbon Management (FECM) announced the intent to fund the development of a Natural Gas Demand Response (DR) Pilot Program. Following the success of demand response programs in electricity markets, the FECM's Natural Gas DR Pilot Program aims to replicate that success in natural gas systems at a national level.[10] Natural Gas Demand Response would bring the same level of interactivity to the gas system as the current capability on the electric grid. SoCalGas respectfully recommends that the CEC support the development of smart technologies for natural gas appliances, which can result in increased energy efficiency and savings.

The presence of smart gas appliances in heavily electric GEBs integrates an additional energy source as a back-up to electricity. As evidenced by the Alabama Power's Smart Neighborhood example—which combines approximately 62 high-performance homes and a microgrid shared by the community[11]—natural gas utilities can provide similar back-up power sources for GEB community projects. Such back-up power sources would most likely improve the GEB value proposition, especially in areas prone to wildfires or Public Safety Power Shutoff (PSPS) events. According to the National Association of State Energy Officials (NASEO): "there can be GEB-pertinent interactions, such as peak demand reduction and grid-services that can be supplemented through an onsite fuel-consuming generation, such as fossil-fueled combined heat and power (CHP) and microgrids."[12] In addition, NASEO acknowledges that "electricity and onsite fuel use interact in certain systems, such as electric loads from fans distributing heat from fuel-burning furnaces."[13]

There is also potential to achieve energy savings by adopting smart technologies for natural gas appliances. Historically, it was not possible to connect tank water heaters that were lacking a connection to the electric grid to smart devices. Smart water heater controllers are available to address this technological limitation.[14] These devices enable users to set their water heater, so it runs to match their daily schedule and vacations, saving energy during idle periods. Some retrofittable smart water heater controllers are compatible with both gas and electric water heaters. There are many smart devices available on the market with similar capabilities. Smart devices that work for both gas and electric appliances present an opportunity to provide additional functionality to drive consumer behavior towards conservation and energy efficiency. Additional functionality on gas appliances

[10] "U.S. DOE Natural Gas Demand Response Pilot Program," *U.S. DOE FECM,* August 6, 2021. Available at https://www.energy.gov/fecm/articles/doe-announces-intent-fund-development-natural-gas-demand-response-pilot-program.

[11] "The First Smart Neighborhood of Its Kind in the Southeast," *U.S. DOE EERE*, June 13, 20218. Available at https://www.energy.gov/eere/buildings/articles/first-smart-neighborhood-its-kind-southeast.

[12] "Grid-interactive Efficient Buildings: State Briefing Paper," NASEO-NARUC Grid-interactive Efficient Buildings Working Group. Available at https://naseo.org/data/sites/1/documents/publications/v3-Final-Updated-GEB-Doc-10-30.pdf

[13] *Ibid.*

[14] *See e.g.,* Aquanta. Available at https://aquanta.io/.

allows for real-time augmentation of gas usage in the event of a system curtailment. SoCalGas estimates there were approximately 300 DR-enabled residential water heaters in its service territory in 2018.[15] This is a very low penetration rate compared to the roughly 4 million residential customers in SoCalGas's service territory that year.[16]

Conclusion

In conclusion, SoCalGas appreciates the opportunity to provide comments on the IEPR Workshop on GEBs. We commend both the California Public Utilities Commission and the CEC for their efforts in navigating the building decarbonization pathway by modulating load and using low-carbon resources. SoCalGas recommends additional consideration of the digital divide in California, especially when planning for the deployment of grid-interactive efficient buildings, to avoid unintended consequences. The CEC should also support the development of smart technologies that work with gas appliances, since these technologies can result in energy savings and serve as reliable back-up energy sources to complement GEBs. Collaborative problem-solving will be a critical aspect of achieving the energy efficiency doubling goal set forth by Senate Bill (SB) 350. Thank you in advance for your consideration of our comments.

Respectfully,

/s/ Kevin Barker

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[15] *See* Southern California Gas Company DR Program, Prepared Testimony of Darren Hanway on behalf of Southern California Gas Company, p.12, November 6, 2018. Available at A.18-11-005 | SoCalGas.
[16] "Natural Gas and California," CPUC. Available at https://www.cpuc.ca.gov/natural_gas/.