DOCKETED	
Docket Number:	19-BSTD-03
Project Title:	2022 Energy Code Pre-Rulemaking
TN #:	235362
Document Title:	Rocky Mountain Institute Comments - Rocky Mountain Institute Comments on Oct 6, 2020 Workshop
Description:	N/A
Filer:	System
Organization:	Rocky Mountain Institute
Submitter Role:	Public
Submission Date:	10/20/2020 3:58:52 PM
Docketed Date:	10/20/2020

Comment Received From: Rocky Mountain Institute
Submitted On: 10/20/2020
Docket Number: 19-BSTD-03

Rocky Mountain Institute Comments on Oct 6, 2020 Workshop

Additional submitted attachment is included below.

October 20, 2020

California Energy Commission
Docket Office, MS-4
1516 Ninth Street MS-4
Sacramento, CA 95814-5512

Re: Follow-up Comments to the October 6, 2020 All-Electric Workshop, Docket #19-BSTD-03 (2022 Energy Code Pre-Rulemaking)

Dear Commissioners and Staff:

Thank you for leading the October 6, 2020 workshop that included a focus on electrification as part of the Title 24 2022 Energy Code Pre-Rulemaking. Bill Pennington's opening remarks, on behalf of Commissioner McAllister, clearly articulated that strong policy to pursue decarbonization should be the state's highest priority goal, including identifying ways to encourage the expanded use of heat pumps through the 2022 building code.

Throughout this proceeding, the California Energy Commission (CEC or Commission) has acknowledged its vital role in helping the state achieve its climate goals. However, the information presented during the October 6 workshop indicates that the Commission's planned approach to decarbonizing buildings this code cycle will still allow the installation of gas appliances. This is not compatible with California's statewide climate goals or with the needs of our planet today; we cannot wait another three years to stop the installation of gas equipment. The Commission should demonstrate climate leadership by requiring a single all-electric baseline in the 2022 code cycle.

Meanwhile, the Commission's current path places it on a trajectory to fall short of the state's climate, air quality, and equity goals. As over 150 organizations have commented,[1] the Commission should adopt an all-electric Title 24 code for 2022. In order to put California on a path to achieve its climate goals, as well as to restore clean and healthy air to all Californians, including the state's most vulnerable communities, the Commission cannot continue to allow an expansion of gas infrastructure and should instead require a

[1] Including at least 9 environmental justice organizations (e.g. California Environmental Justice Alliance), 23 health professional organizations and individuals (e.g. Alliances of Nurses for Healthy Environments), 35 elected officials (e.g. from the city of Santa Barbara), 81 environmental organizations (e.g. Natural Resources Defense Council), industry (e.g. Sunrun), utilities (e.g. Pacific Gas and Electric Company), labor groups (e.g. National Electrical Contractors Association, Los Angeles Chapter), and others. Full docket link: https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-BSTD-03

single all-electric baseline for the 2022 code cycle.

If the CEC fails to enact a single all-electric baseline in the 2022 building code, the next opportunity will be the 2025 cycle, implemented in 2026, meaning California will be putting gas infrastructure into the ground for at least the next six years. This infrastructure will cost billions of dollars and typically has a 50- to 60-year asset life, which means that ratepayers will be paying for the cost of this infrastructure for many decades.[2] The three-year delay will also result in at least 3 million additional metric tons of carbon emissions by 2030, using conservative estimates for new construction.

If instead the state replaces all residential gas appliances with clean electric alternatives, it could cut air pollution enough to save 350 lives and $3.5 billion in health costs every year.[3] The costs, emissions, and negative health impacts associated with continued gas use in buildings are unnecessary and avoidable.[4]

Additionally, all-electric buildings can help put California on a path toward meeting its air quality standards. Gas appliances release nitrogen oxide (NOx) emissions, which are dangerous on their own but are also a precursor to other harmful pollutants, including ozone and fine particulates ($PM_{2.5}$). Air Districts throughout the state consistently fail to meet air quality standards for these pollutants: 40 of California's 58 counties are designated as areas that are in non-attainment of the National Ambient Air Quality Standards.[5] Meanwhile, over 5 million Californians have asthma, putting them at increased risk of health impacts from these pollutants, and resulting in $11 billion in statewide costs each year.[6] While the state desperately needs to reduce NOx emissions from all sources to address these pollution impacts, adding more gas buildings to the state will only make the problem worse.

Buildings in California already release 107 tons of NOx per day, nearly as much as the 118 tons/day of NOx from all the state's light-duty passenger vehicles, and six times as much as

---

[2] Gridworks. California's Gas System in Transition (Sept. 2019). https://gridworks.org/wp-content/uploads/2019/09/CA_Gas_System_in_Transition.pdf

[3] UCLA Fielding School of Public Health/ Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California | COEH - Center for Occupational & Environmental Health (Apr. 2020). https://coeh.ph.ucla.edu/effects-residential-gas-appliances-indoor-and-outdoor-air-quality-and-public-health-california.

[4] Denise Grab and Amar Shah. California Can't Wait on All-Electric New Building Code. RMI (Jul. 2020). https://rmi.org/california-cant-wait-on-all-electric-new-building-code/

[5] Environmental Protection Agency, Current Nonattainment Counties for All Criteria Pollutants, (Mar. 31, 2020). https://www3.epa.gov/airquality/greenbook/ancl.html

[6] California Department of Public Health, Asthma's Impact on California (Feb. 2013), https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/EHIB/CPE/CDPH%20Document%20Library/AsthmaImpactFactSheet.pdf .

the 18 tons/day from power plants.[7] An analysis by RMI estimates a new single family home with gas emits 3 pounds of NOx annually.[8] Assuming 50,000 new single family gas homes are built each year,[9] that's 500 additional tons of NOx pollution annually by 2030[10] that could easily be avoided by building homes without gas connections. Considering that all-electric homes are cheaper to construct,[11] having a policy that won't cost anything but will reduce NOx emissions is a win-win for the State.

All-electric homes can also help address equity concerns, because gas stove pollution does not impact all Californians equally. The costs and burdens of fossil fuel pollution disproportionately impact low-income and disadvantaged communities.[12] The U.S. Environmental Protection Agency found that homes with a gas stove have 50-400% higher concentrations of NO_2 than homes with electric stoves, and NO_2 exposure can exacerbate asthma.[13] Low-income communities and communities of color have higher rates of asthma, which makes them more susceptible to harm from NO_2 pollution from gas stoves.[14] Also, housing characteristics that are more common in low-income, multifamily housing, such as smaller unit size and inadequate ventilation, contribute to higher levels of NO_2 pollution in homes that use gas stoves for cooking.[15,16] The Commission can help reduce the pollution that burdens disadvantaged and low-income communities by ensuring new homes are built

---

[7] California Air Resources Board, 2016 SIP Emission Projection Data, 2012 Estimated Annual Average Emissions Statewide (2019). https://www.arb.ca.gov/app/emsinv/2017/emssumcat_query.php?F_YR=2012&F_DIV=-4&F_SEASON=A&SP=SIP105ADJ&F_AREA=CA#AREAWIDE

[8] RMI estimated NOx emissions for mixed fuel versus all-electric new single-family home in South Coast Air Quality Management District, using SCAQMD's NEAT calculator (link: http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan/neat-main) and inputs from E3's 2019 analysis on Residential Building Electrification (link: https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf).

[9] US Census Bureau Building Permits Survey, 2018 Housing Units by State; HUD Survey of Single-Family New Construction, 2018 % of New Homes by Primary Heating Fuel

[10] 3 lbs NOx per year / 2000 lbs per ton * 50k new SF homes per year * 7 years of new construction (beginning in 2023)

[11] Energy + Environmental Economics. Residential Building Electrification in California (April 2020). https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf

[12] Greenlining. Equitable Building Electrification (2019). https://greenlining.org/publications/reports/2019/equitable-building-electrification-a-framework-for-powering-resilient-communities/

[13] US Environmental Protection Agency, Integrated Science Assessment (ISA) For Oxides of Nitrogen – Health Criteria, Final Report (2016). p. 1-18. https://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=310879

[14] Brady Seals and Andee Krasner. Health Effects from Gas Stove Pollution, (2020). https://rmi.org/insight/gas-stoves-pollution-health/

[15] Gary Adamkiewicz et al., "Moving Environmental Justice Indoors: Understanding Structural Influences on Residential Exposure Patterns in Low-Income Communities," *American Journal of Public Health*. 2011, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3222513/

[16] Goldstein IF, Andrews LR, Hartel D. 1988. Assessment of human exposure to nitrogen dioxide, carbon monoxide and respirable particulates in New York inner-city residences. *Atmospheric Environment* 22(10):2127–2139.

all-electric.

Californians are now and likely will continue to spend more time in our homes than ever before, in the face of the global pandemic, longer and hotter summers, and more wildfires. Now is the time for CEC to ensure homes are built healthy, clean, and safe by adopting a single all-electric baseline in 2022.

Respectfully submitted,

Denise Grab
Leah Louis Prescott
Jonny Kocher
Rocky Mountain Institute