The Honorable Gavin Newsom
Governor, State of California
1021 O St., Room 9000
Sacramento, CA 95814

RE: Support Zero-Emission New Construction Building Standards Statewide

Dear Governor Newsom,

On behalf of the undersigned architects, designers, and building industry professionals operating in California, we write to urge you to protect public health and cut planet-warming emissions by directing state agencies to adopt a zero-emission building standard statewide through CALGreen.[1]

We can no longer delay the implementation of a unified state standard to ensure new homes and buildings are equipped with healthy electric heating equipment. While California has made significant progress in reducing emissions from other sectors, residential building emissions have only decreased by 3% in the past two decades, and the emissions from the commercial building sector have increased dramatically.[2]

Many designers, contractors, and affordable housing developers across California are already building zero-emission buildings because they improve air quality, reduce costs, and support the

[1] A zero-emission standard could be based on either nitrogen oxides (NO_x) or carbon dioxide (CO_2).
[2] SPUR analysis of Next 10. 2022 California Green Innovation Index, 2022 at https://www.spur.org/news/2023-06-26/buildings-weak-link-californias-race-slow-climate-change

state's climate objectives.[3] AIA California was successful in creating a Net Zero Design continuing education mandate for all California architects.[4] There is a growing consensus identified in the California Energy Commission's 2021 Integrated Energy Policy Report that building electrification is the most viable and affordable path to zero-emission buildings.[5]

All-electric construction has become the norm in numerous U.S. states. According to the American Housing Survey, between 34% and 37% of new homes constructed in the US since 2015 have adopted all-electric systems.[6] In 2020, electricity beat out natural gas as the main energy source for space heating for the first time.[7]

All-electric homes are also well represented in the existing building stock. The latest Residential Energy Consumption Survey (RECS) indicates that 25% of all U.S. homes are already all-electric.[8] In the Western states, the trend towards climate-friendly homes is even more pronounced, with Washington, Oregon, and Arizona boasting percentages of 41%, 34%, and 39%, respectively.

We are confident the building industry will be ready to effectively address all-electric building requirements by the time the 2025 code is implemented. California's heat pump market has surged since 2020. During the 2023 HP Forum, Consol reported that the market share of heat pumps in single-family new construction almost doubled, rising from slightly over 30% in 2020 to around 55% by the end of 2022.[9] During that same period of time, installation of heat pump water heaters tripled from about 5% to over 16%. This exciting market transformation occurred prior to the effect of the 2022 energy code, which is expected to further drive heat pump growth.

It is critical that California build more housing, more quickly. Building all-electric for new construction has proven to be cost-effective for many developers. In 2021, a leading affordable housing developer, National CORE, announced that all of its current and near-term developments will be built all-electric because it makes the most economic sense.[10] New buildings without combustion devices are often less expensive to build since developers and contractors can save on costs related to extending the gas services and plumbing the building for gas. It also costs less to install a single heat pump for heating and cooling than a separate

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[3] Shell, Scott. 2018. "Multi-Family Building Electrification Current examples." https://cao-94612.s3.amazonaws.com/documents/Scott-Shell-Oakland-Berkeley-All-electric-multi-family-buildings-6-13-19.pdf

[4] https://www.cab.ca.gov/docs/misc/ab1010_zncdce_faq.pdf

[5] Kenney, Michael, Jacob Wahlgren, Kristina Duloglo, Tiffany Mateo, Danuta Drozdowicz, and Stephanie Bailey. 2022. Final 2021 Integrated Energy Policy Report, Volume I: Building Decarbonization. California Energy Commission. Publication Number: CEC-100-2021-001-V1.

[6] United States Census Bureau, 2021 American Housing Survey, https://www.census.gov/programs-surveys/ahs/data/interactive/

[7] https://whyy.org/articles/electric-heat-natural-gas/

[8] EIA, 2020 Residential Energy Consumption Survey (RECS), https://www.eia.gov/consumption/residential/data/2020/state/pdf/State%20Fuels%20Used.pdf

[9] Consol, 2023 Heat Pump Forum https://efiling.energy.ca.gov/GetDocument.aspx?tn=251405&DocumentContentId=86256

[10] "Here's how California can cut affordable housing costs," *CalMatters,* 2021. https://bit.ly/3SCdaoS

gas furnace and AC.[11] According to a 2019 report from E3, new all electric homes cost between $3k-$10k less than a mixed fuel home.[12] Similar upfront cost savings were found by Frontier Energy and RMI.[13,14]

When including operational costs, RMI found that a representative all-electric new home in Oakland would have a net present savings of $2,300 over its lifetime compared to a mixed fuel home.[15] For multifamily buildings, the Cost Effectiveness Explorer tool developed by the California Energy Codes and Standards Program estimates that a five story all-electric multifamily building would have on-bill life cycle savings of $9,417 per unit and a simple payback period of 6.5 years for the incremental cost of electrification plus solar.[16] A three story building has similar results.[17] For non-residential buildings, the Cost Effectiveness Explorer shows that an efficient, all-electric retail store will have on-bill lifecycle savings of $31,216 per 10,000 sq ft of space and a simple payback period of 2.5 years.[18]

In addition to being cost-effective, homes and buildings built to a zero-emission code will help ensure Californians stay safe amid weather extremes and climate disasters like annual wildfire smoke. Utilizing heat pumps for heating provides the added benefit of boosting climate resilience by bringing cooling to regions where it hasn't previously been needed, like Northern California. Heat pumps also provide additional air filtration, which is important to ensure vulnerable lungs get relief at home when our state is blanketed in wildfire smoke for weeks on end. For health and safety reasons, we simply cannot build the highly-efficient homes and buildings we need this century while still burning fossil fuels indoors.

For all the reasons cited, we believe now is the time to move forward with clear and simple mandatory measures requiring zero emissions buildings for new commercial and residential developments of scale. This is particularly important for those project proposals that would otherwise involve expanding the fossil fuel distribution network. Postponing action on these particular kinds of development proposals will unnecessarily lock in new infrastructure and the costs and other impacts they incur, which is contrary to the overall movement toward broad and pervasive electrification that has become a foundational premise to meeting California's greenhouse gas reduction goals.

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[11] NRDC, Price comparison of heat pumps vs gas furnace and AC systems, 11/12/2020, https://efiling.energy.ca.gov/GetDocument.aspx?tn=235580&DocumentContentId=68513
[12] Mahone, A., et al., *Residential Building Electrification in California*, April 15, 2019, page 55, E3, http://bit.ly/3QVg72o
[13] California Energy Codes and Standards. 2022 Single Family New Construction Cost-effectiveness Study, page 20: https://bit.ly/477mYf3
[14] Billimoria, Sherri, et al., *The Economics of Electrifying Buildings: How Electric Space and Water Heating Supports Decarbonization of Residential Buildings*. Rocky Mountain Institute, 2018, http://www.rmi.org/insights/reports/economics-electrifying-buildings/
[15] Ibid
[16] California Energy Codes and Standards Program, Cost Effectiveness Explorer https://explorer.localenergycodes.com/jurisdiction/oakland-city/study-results/3-PGE?only_study_type=new-buildings&exclude_type_fuel_ids=1&exclude_type_prototype_ids=1
[17] Ibid
[18] Ibid

California should act promptly to improve the health and well-being of present and future generations, reduce costs, and regain California's climate policy leadership.[19] Please direct your agencies to take this action and create a mandatory zero-emission new construction requirement.

Thank you,

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[19] https://legistar.council.nyc.gov/LegislationDetail.aspx?ID=4966519&GUID=714F1B3D-876F-4C4F-A1BC-A2849D60D55A&Options=ID%7cText%7c&Search=2317

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