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Earthjustice and Sierra Club Scoping Comments on EIR for 2022 Update to Building Code

Additional submitted attachment is included below.

Docketed in 21-BSTD-02

April 15, 2021

Docket No. 21-BSTD-02

California Energy Commission
1516 Ninth Street
Sacramento, California 95814

Re: Scoping Comments on the Environmental Impact Report for the Proposed 2022 Update to Building Energy Efficiency Standards (Title 24, Part 6)

Earthjustice and Sierra Club appreciate the opportunity to provide comments on the scope of the Environmental Impact Report ("EIR") for the 2022 Update to the Building Energy Efficiency Standards ("2022 Building Code" or "Project"). To the extent the 2022 Building Code proposes to include gas appliances in the standard designs for new construction, the greenhouse gas ("GHG"), energy, air quality and public health impacts from the 2022 Building Code would be significant under the California Environmental Quality Act ("CEQA"). These impacts can be mitigated through inclusion of efficient electric appliances such as heat pump space and water heating as a feasible alternative to continued reliance on gas appliances.

I. The Energy Commission Should Evaluate Impacts from the 2022 Building Code Against the Actual Environment, Not the Existing Regulatory Regime.

At the April 9th Scoping Meeting, Energy Commission staff indicated potential impacts from the 2022 Building Code would be evaluated based on a comparison with the regulatory standards set forth in the 2019 Building Code. This approach should not be used because it improperly understates impacts from the proposed 2022 Building Code. When the project is a revision or an update to a plan, policy, or regulation, the agency should not analyze the project's potential impacts simply by comparing the project to the existing regulatory framework. *Env't Plan. & Info. Council v. Cnty. of El Dorado* (1982) 131 Cal.App.3d 350, 353 ("*EPIC*"). Rather, CEQA requires the agency to consider the impacts of the revision on the "*existing physical conditions in the affected area*." *Id.* at 355 (emphasis added); *see also Christward Ministry v. Super. Ct.* (1986) 184 Cal.App.3d 180, 190 ("comparison of potential impacts under the amendment with potential impacts under the existing general plan is insufficient"); *Watsonville Pilots Assn. v. City of Watsonville* (2010) 183 Cal.App.4th 1059, 1080 ("The EIR must evaluate

the environmental impact of a new general plan on the 'actual environment' rather than comparing it to the impact of the preexisting general plan.").

For example, in *EPIC*, the county argued that two updated area plans would not have significant effects on the environment because they established population limits far lower than those allowed under the existing plans. 131 Cal.App.3d at 357. The county reasoned that potential environmental impacts from the updated plans as compared to the existing plans would "intuitively . . . decrease" by the same percentage as the decreased population limits. *Id.* The court held that simply comparing the updated plans with the existing plans was insufficient: "[CEQA] evinces no interest in the effects of proposed general plan amendments on an existing general plan, but instead has clearly expressed concern with the effects of projects on the *actual environment upon which the proposal will operate*." *Id.* at 355 (emphasis added).

The 2022 Building Code sets the energy efficiency requirements applicable to newly constructed buildings as well as additions and alterations to existing buildings. In the case of new construction and additions, the existing physical environment is one where these buildings do not yet exist. To comply with CEQA, the Energy Commission should assess the impacts of new construction under proposed 2022 Building Code requirements compared to a scenario where the construction has not occurred. Because the Commission is responsible only for setting standards for determining building energy performance, only the impacts associated with building energy requirements need be assessed. The extent to which the 2022 Building Code represents an incremental improvement over the 2019 Building Code is irrelevant because this has no bearing on existing environmental conditions. CEQA is intended "to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return." *Cleveland Nat'l Forest Found. v. San Diego Ass'n of Gov'ts.* (2017) 3 Cal. 5th 497, 503 (citation omitted). In proposing to assess impacts of the 2022 Building Code based on the extent to which they represent improvements over the 2019 Building Code and not their actual impact on the physical environment, the EIR would improperly minimize the climate, air quality and public health impacts of new construction that continues to rely on fossil fuels in direct contravention of CEQA's informational mandates. *Laurel Heights Improvement Ass'n v. Regents of Univ. of California* (1988) 47 Cal. 3d 376, 390 ("The foremost principle under CEQA is that the Legislature intended the act 'to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.'") (quotation omitted).

II. The EIR Must Account for Advances in the Regulatory and Scientific Understanding of the Critical Role of Building Electrification in Addressing the Climate, Air Quality, Energy and Public Health Impacts of Buildings.

CEQA requires public agencies "to ensure that such analysis stay in step with evolving scientific knowledge and state regulatory schemes." *Cleveland Nat'l Forest Foundation*, 3 Cal.

5th at 504. Accordingly, even if reliance on the 2019 Building Code as the baseline from which to evaluate project impacts was permissible, the EIR must still account for the recent regulatory and scientific understanding of the critical role and urgency of building electrification in meeting California's decarbonization objectives since adoption of the 2019 Building Code. The Energy Commission adopted a negative declaration for its environmental review of the 2019 Building Code in May 2018.[1] Since that time, the Energy Commission has recognized that "[i]f the decisions made for new buildings result in new and continued fossil fuel use, it will be that much more difficult for California to meet its GHG emission reduction goals."[2] Similarly, in a resolution adopted last year, the California Air Resources Board ("CARB") recognized the importance of "electrification of appliances, including stoves, ovens, furnaces, and space and water heaters, in the 2022 code cycle for all new buildings in order to protect public health, improve indoor and outdoor air quality, reduce GHG emissions, and set California on track to achieve carbon neutrality."[3] CARB also recognized "the conclusion of recent studies that 100 percent electrification of natural gas appliances in California would result in significant health benefits and reduction of greenhouse gas (GHG) emissions from natural gas combustion in residential buildings."[4] In its Building Decarbonization proceeding, the California Public Utilities Commission ("CPUC") has also recognized the problems with continued investment in fossil fuel infrastructure, directing all incentives for the Building Initiative for Low-Emissions Development ("BUILD") Program to "new residential housing that is at a minimum, all-electric" to avoid "the risk of locking in new natural gas assets that could be unused or underutilized before the end of their life."[5]

Recent studies examining pathways to carbon neutrality significantly accelerate the needed pace of building electrification. For example, Southern California Edison's ("SCE") *Clean Power and Electrification Pathway – Pathway 2045* reaches carbon neutrality in part by achieving efficient electric space and water heating in roughly one third of all California buildings by 2030.[6] As concluded in the CEC Report, *The Challenge of Retail Gas in California's Low-Carbon Future*, "[i]f building electrification is delayed, missing the lower-cost opportunities for all-electric new construction and replacement of equipment upon failure, there is a greater risk that expensive early retirement of equipment may be needed, or that the climate

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[1] CEC, Docket 17-BTSD-02, Resolution 18-05-0-2, Resolution Adopting Negative Declaration and Proposed Regulations (May 9, 2018).
[2] CEC, *2018 Integrated Energy Policy Report Update, Vol. II*, at 26 (adopted Feb. 20, 2019) ("2018 IEPR Update"), https://efiling.energy.ca.gov/getdocument.aspx?tn=227391
[3] CARB Resolution 20-32, *California Indoor Air Quality Program Update*, at 3 (Nov. 19, 2020), https://ww3.arb.ca.gov/board/res/2020/res20-32.pdf.
[4] *Id.* at 2.
[5] CPUC, D.20-03-027, *Decision Establishing Building Decarbonization Pilot Programs*, at 65 (Mar. 26, 2020), https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M331/K772/331772660.PDF.
[6] SCE, *Pathway 2045 – Update to the Clean Power and Electrification Pathway*, at 11 (Nov. 2019), https://www.edison.com/content/dam/eix/documents/our-perspective/201911-pathway-to-2045-white-paper.pdf.

goals could be missed."[7] Accordingly, the Energy Commission cannot simply conclude that the 2022 Building Code would have a less than significant GHG impacts because it reduces emissions compared to 2019 requirements. The relevant question is whether the 2022 Building Code results in the deep GHG reductions necessary to address the climate crisis in light of the evolving regulatory and scientific understanding regarding the key role of building electrification in meeting those objectives.

The same advances in scientific and regulatory understanding apply to other potential impacts of the 2022 Building Code. For example, this past year, the Energy Commission held a first-of-its-kind workshop on indoor air quality impacts from gas combustion, an impact that was not widely understood or before the Commission at the time of the 2019 Building Code. The relevant question for the EIR is whether the 2022 Building Code is sufficient to protect public health in light of this new information, not whether it is simply an improvement from the 2019 Building Code. Since adoption of the 2019 Building Code, the Energy Commission has also recognized that "[u]sing heat pumps for space and water heating, as well as other uses, is cost-effective in the long run simply because electrification technologies can be significantly more efficient than natural gas technologies."[8] With regard to examining energy impacts and energy conservation under Appendix F of the CEQA Guidelines, the evolving regulatory and scientific understanding of the superior efficiency of heat pumps underscores the extremely inefficient use of energy from continued reliance on gas appliances that was not as clear at the time of adoption of the 2019 Building Code.

III. To the Extent the 2022 Building Code Incorporates Gas Appliances Into Standard Building Design, the Project Would Have Significant Greenhouse Gas, Energy, Air Quality and Public Health Impacts that Can Be Mitigated With Adoption of Electric Alternatives.

A. Greenhouse Gas Impacts

Increases in GHG emissions may constitute a significant environmental effect under CEQA. *Cleveland Nat'l Forest Found.*, Cal.5th at 503. Stationary energy use represents a major source of GHG emissions, much of which comes from gas end uses such as space and water heating in buildings. A recent analysis by the Rocky Mountain Institute ("RMI") shows that California has the second-largest volume of building GHG emissions in the United States, representing 8 percent of the total national GHG emissions from buildings.[9] Between 2013 and

[7] CEC, *The Challenge of Retail Gas in California's Low-Carbon Future*, at 2 (Apr. 2020), https://ww2.energy.ca.gov/2019publications/CEC-500-2019-055/CEC-500-2019-055-F.pdf.
[8] 2018 IEPR Update at 32.
[9] RMI, *The Impact of Fossil Fuels in Buildings: A Fact Base*, at 16 (Dec. 2019), https://lpdd.org/wp-content/uploads/2020/03/Building-Electrification-fact-base-report.pdf.

2017, California added nearly 250,000 gas customers, more than any other state during that time period.[10] In 2018 alone, 75,000 new California homes were built with gas infrastructure.[11]

As the Energy Commission determined in its 2018 IEPR Update, new construction "essentially lock[s] in energy infrastructure," meaning that each new gas-fueled home constructed in 2022 and beyond will emit GHGs at the current rate for at least the next 30 to 40 years.[12] The clear effect of such new construction will be a long-term commitment to increased GHG pollution. At a time when California must rapidly reduce GHG pollution from existing levels, allowing gas in new construction digs the hole deeper by locking in even more sources of climate pollution. More specifically, in the near term, RMI estimates that waiting just three years—that is, until the 2025 building energy code cycle—to require building electrification will result in an additional *3 million metric tons* of carbon emissions by 2030, "the equivalent of putting 650,000 more cars on the road for a year."[13] Inclusion of gas appliances in the standard design for new building types will substantially increase statewide GHG emissions and result in significant GHG impacts.

Conversely, there is clear evidence that use of electric appliances in lieu of gas alternatives will significantly reduce GHG emissions. In *Residential Building Electrification in California*, Energy and Environmental Economics ("E3") determined that "electrification is found to reduce total greenhouse gas emissions in single family homes by approximately 30 to 60 percent in 2020, relative to a natural gas-fueled home."[14] Moreover, "[a]s the carbon intensity of the grid decreases over time, these savings are estimated to increase to approximately 80 to 90 percent by 2050, including the impacts of upstream methane leakage and refrigerant gas leakage from air conditioners and heat pumps."[15] As shown in the graph below, the GHG savings from heat pumps are substantial today and will only increase as California continues to decarbonize its grid as required under SB 100.

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[10] *Id.* at 40.
[11] RMI, *California Should Go All-Electric in New Construction—State's Largest Utility Agrees*, (June 26, 2020), https://rmi.org/california-should-go-all-electric-in-new-construction-states-largest-utility-agrees/.
[12] CEC, *2018 Integrated Energy Policy Report Update, Vol. II*, at 6 ("2018 IEPR Update") https://efiling.energy.ca.gov/getdocument.aspx?tn=227391.
[13] RMI, *California Can't Wait on All-Electric New Building Code*, (July 28, 2020), https://rmi.org/california-cant-wait-on-all-electric-new-building-code/.
[14] E3, *Residential Building Electrification in California*, at iv (Apr. 2019), https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf.
[15] *Id.*

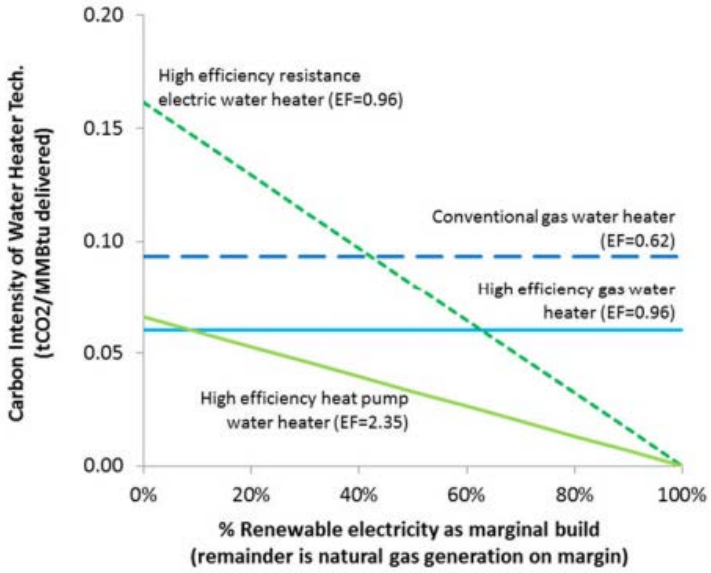


Figure 3. Carbon intensity of water heater technologies, as a function of renewable electricity percentage.
Source: Author's calculations [16]

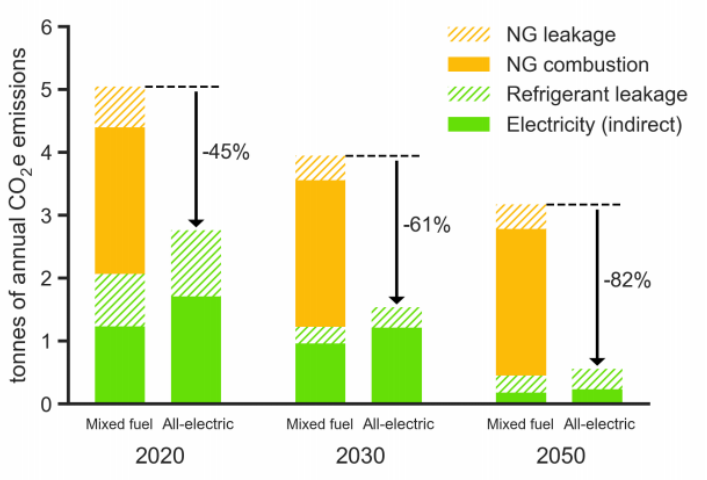
Because electric appliances result in significant reductions in GHG pollution that will increase as the grid becomes less carbon intensive, adoption of electric appliances in the standard design for new construction would support a finding that GHG impacts from the 2022 Building Code are less than significant.

Notably, the impact of refrigerant emissions from most heat pump technologies is relatively minor compared to the emissions benefits of avoiding gas combustion, even without accounting for methane leakage attributable to gas use. For example, most HPWH models currently on the market use approximately 1.3 lb. of HFC R-134a (1430 GWP100).[17] HPWHs are factory-sealed and typically do not leak significantly during their operating life. Most units do not even have a service valve where refrigerant could be added, as such valves are a source of leakage. Even if all HPWH refrigerant were released to the atmosphere at the end of the units' life (which is a worst-case scenario as we expect that as the market develops, processes to recover their refrigerant at the end of their life will be implemented) this end-of-life refrigerant release would emit approximately 0.86 MT CO2e per unit. However, over a 15-year life, a HPWH avoids 8.9 MT CO2e compared to a gas water heater, not including avoided methane leakage.[18] Therefore, refrigerant leakage offsets less than 10 percent of the lifetime emissions

[16] Amber Mahone et al., *What If Efficiency Goals Were Carbon Goals*, at 9-7, American Council for an Energy-Efficient Economy (2016), https://aceee.org/files/proceedings/2016/data/papers/9_284.pdf.
[17] Ben Larson, Larson Energy Research, Email Communication Jan. 30, 2020.
[18] For each year of operation, a HPWH avoids 0.595 MT CO2e kg CO2 annually compared to a gas water heater, not including avoided methane leakage. *See* Brockway & Delforge, *Emissions reduction potential from electric heat pumps in California homes* (2018) 31 The Electricity Journal 44, 49 ("Brockway & Delforge") https://www.sciencedirect.com/science/article/abs/pii/S1040619018302331.

savings in the worst-case scenario, even without accounting for the climate impacts from fugitive methane from fossil gas production, processing, and distribution, or behind-the-meter leakage which would further increase the emissions reduction benefits of HPWHs. Under these assumptions, the combustion emissions avoided by a HPWH versus a standard gas water heater offset the maximum potential refrigerant leakage after only 1.4 years of operation.

In *Residential Building Electrification in California*, E3 also identified significant GHG reductions from all-electric homes compared to homes with gas appliances when accounting for refrigerants.[19]



The risk of refrigerant leakage does not come close to offsetting the substantial GHG benefits from heat pump adoption and does not merit continued reliance on gas appliances in the standard building designs in the 2022 Building Code.

In addition, conflicts with plans, policies, or regulations "adopted for the purpose of reducing the emission of greenhouse gases" may also constitute significant GHG impacts under CEQA. *See* 2019 CEQA Statute and Guidelines, App. G, § VII(b) ("CEQA Guidelines"); Cal. Code. Regs. tit. 14, § 15064.4(b)(3). A building code that assumes use of gas appliances in its standard design would conflict with multiple state policies and regulations that have as their purpose the reduction of GHG emissions, including: (1) Exec. Order B-55-18, which established a statewide goal of carbon neutrality by 2045;[20] (2) Exec. Order S-3-05, which established statewide GHG emission reduction targets, including the reduction of GHG emissions to 80% below 1990 levels by 2050;[21] and (3) AB 32 and SB 32, which require the state to reduce its

[19] E3, Residential Building Electrification in California at vi (Apr. 2019), https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf.
[20] Governor's Exec. Order No. B-55-18 (Sep. 10, 2018).
[21] Governor's Exec. Order No. S-3-05 (June 1, 2005).

GHG emissions to 1990 levels by 2020, and 40% below 1990 levels by 2030, respectively.[22] In AB 32 and SB 32, the Legislature "emphatically established as state policy the achievement of a substantial reduction in the emission of gases contributing to global warming." *Ctr. for Biological Diversity v. Dep't of Fish and Wildlife* (2015) 62 Cal.4th 204, 215. Because building electrification is essential to meeting the state's GHG reduction mandates, the failure of the 2022 Building Code to incorporate all-electric appliances in standard building designs will not only conflict with state law and policy in theory, but by actually *increasing* GHG emissions, they will affirmatively obstruct it in fact.

B. Energy Impacts

An energy impact analysis under Appendix F of the CEQA Guidelines is a mandatory requirement under CEQA and the failure to evaluate a project's energy impacts renders an EIR inadequate. CEQA Guidelines, App. F, at Sec. II; *see Ukiah Citizens for Safety First v. City of Ukiah* (2016) 248 Cal.App.4th 256; *see also California Clean Energy Comm. v. City of Woodland* (2014) 225 Cal.App.4th 173. To comply with CEQA, an EIR must include a full energy impact analysis.

A key purpose of the evaluation of project energy impacts under Appendix F is "decreasing reliance on fossil fuels[,] such as coal, natural gas and oil." CEQA Guidelines, App. F, at Sec. I. New projects lock in energy system infrastructure for decades.[23] As a result, if new projects are continuously powered by carbon-emitting energy sources such as natural gas, "it will be that much more difficult for California to meet its GHG emission reduction goals."[24] Appendix F also specifies that a project should include "total energy requirements of the project by fuel type and end use." CEQA Guidelines, Appendix F, at Sec. II. Accordingly, the EIR should evaluate the extent to which end uses, such as gas-powered space and water heating, require continued dependence on fossil fuels and identify ways to decrease that dependency.

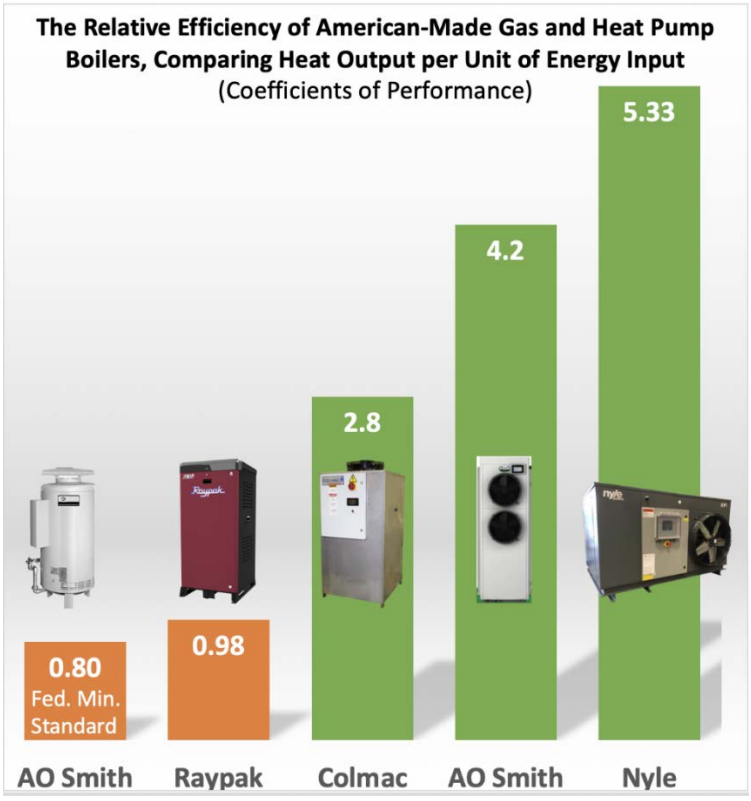
In furtherance of CEQA's energy conservation mandates, heat pumps substantially reduce gas demand due to their superior efficiency and reliance on electric power from an increasingly decarbonized grid. When a gas generator is on the margin, its GHG emissions are directly proportional to the amount of gas it burns since there is no large-scale CO_2 capture from power plants currently and for the foreseeable future. The same holds true with onsite combustion furnaces and water heaters: their gas use is directly proportional to their GHG emissions. Therefore, GHG emissions are a good proxy for the amount of gas used in both scenarios. As set forth in *Emission reduction potential in electric heat pumps in California homes*, switching from a gas water heater to a HPWH could reduce emissions, and therefore corresponding gas use, between 50 and 70 percent per household annually, depending on the

[22] Assem. Bill. No. 32, (2005–2006 Reg. Sess.) Ch. 488 (Health & Saf. Code § 38500 *et seq.*); Sen. Bill. No. 32, (2015–2016 Reg. Sess.) Ch. 249 (Health & Saf. Code § 38566).
[23] 2018 IEPR Update at 18.
[24] *Id.*

efficiency of the gas technology it replaces.[25] Similarly, switching from a gas furnace to a high-efficiency air-source space heating heat pump could reduce emissions, and therefore corresponding gas use, between 46 and 54 percent annually per household.[26] Notably, the significant reductions from fuel switching are likely understated. The study is based on the 2018 version of the California Public Utilities Commission Avoided Cost Calculator that did not incorporate additional renewable deployment from the passage of Senate Bill 100 or account for any load management, such as flexible HPWHs, which would further reduce GHGs by charging during times of higher renewable penetration. The notion that heat pumps have no net gas reduction benefits because they are powered from an electric system that includes centralized gas-fired generation is false. Heat pumps substantially reduce reliance on fossil fuels as compared to gas appliances and further CEQA's energy conservation requirements.

Moreover, as the introduction to Appendix F of the CEQA Guidelines highlights, "[t]he goal of conserving energy implies the wise and efficient use of energy." CEQA Guidelines, Appendix F, at Sec. I. Potential mitigation for a project's energy impacts includes measures "to reduce wasteful, inefficient and unnecessary consumption of energy during" project operation. *Id.* at Sec. II.D.1. Advanced electric heat pump appliances are two to over four times more efficient than gas appliances.[27] Rather than needing to generate heat through the combustion of fossil gas, heat pumps extract existing heat from the surrounding environment. Because electricity is used to move heat around rather than to create it, the efficiency of heat pump water and space heating is far greater than 100 percent (energy services delivered are much greater than energy input). For example, as set forth in the graph below, the federal minimum efficiency for a gas boiler has a coefficient of performance ("COP") of 0.80 with the most efficient gas boiler on the market reaching a COP of 0.98 or an approximately 20 percent improvement. In contrast, the COP of HPWH models is 350 to over 650 percent greater than the minimal standards for gas boilers.

[25] Brockway & Delforge.
[26] *Id.* at 50.
[27] U.S. Dep't of Energy, *Heat Pump Systems*, https://www.energy.gov/energysaver/heat-pump-systems (as of Apr. 13, 2021).



Given the low inherent efficiencies of gas space and water heating as compared to heat pump options, inclusion of gas space or water heating in standard building design cannot be reasonably construed as "the wise and efficient use of energy" and would result in significant energy impacts.

C. Health and Air Quality Impacts

Health and safety effects, including adverse health impacts from air pollutants, may constitute significant environmental impacts for the purposes of CEQA. *See, e.g., Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 517–22; 14 CCR § 15126.2(a). Here, to the extent the 2022 Building Code assumes gas appliances in standard building designs, the proposed 2022 Building Code will increase noxious air pollutants, causing significant adverse public health impacts.

Gas appliances in buildings make up a quarter of California's NO_x emissions from natural gas. NO_x is a precursor to ozone and particulate matter, which are key pollutants to curb in order to comply with state and federal ambient air quality standards. Moreover, the combustion of gas in household appliances, such as stoves, produces harmful indoor air pollution, specifically nitrogen dioxide, carbon monoxide, nitric oxide, formaldehyde,

acetaldehyde, and ultrafine particles, often in excess of the levels set out by the California Ambient Air Quality Standards and the National Ambient Air Quality Standards.[28]

In particular, CARB has warned that "cooking emissions, especially from gas stoves, are associated with increased respiratory disease."[29] Children in homes with gas stoves are particularly at risk. A meta-analysis examining the association between gas stoves and childhood asthma found that "children in homes with gas stoves have a 42 percent increased risk of experiencing asthma symptoms (current asthma)" and "a 24 percent increased risk of ever being diagnosed with asthma by a doctor (lifetime asthma)."[30] Other health effects of NO_x in children may include cardiovascular effects, increased susceptibility to allergens and lung infections, irritated airways and other aggravated respiratory symptoms, such as chest tightness, wheezing and coughing, and learning deficits.[31] This evidence—as well as related evidence submitted by numerous stakeholders in the docket for the 2022 Standards rulemaking —is substantial and supports the conclusion that a Building Code Update that incorporates gas appliances into its standard design would have significant public health and air quality impacts.

II. The EIR Must Adopt All Feasible Mitigation and Alternatives that Avoid or Lessen the Significant Impacts of the 2022 Building Code.

To the extent the 2022 Building Code contemplates gas appliances in its standard design, project impacts will be significant. A lead agency may not lawfully approve a project where "there are feasible alternatives or feasible mitigation measures available which would substantially lessen [its] significant environmental effects." CA Pub. Res. Code § 21002. In evaluating a mitigation measure, the agency must demonstrate that the mitigation will be either (1) effective in reducing a significant environment impact, or (2) ineffective or infeasible due to specific legal or "economic, environmental, social and technological factors." 14 CCR §§ 15021(b), 15364; *Friends of Oroville v. City of Oroville* (2013) 219 Cal.App.4th 832, 841–44; CA Pub. Res. Code §§ 21002, 21061.1; *see also Center for Biological Diversity v. San Bernardino Cty.* (2010) 185 Cal.App.4th 866, 883 (infeasibility requires "evidence that the

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[28] *See, e.g.*, Logue et al., *Pollutant Exposures from Natural Gas Cooking Burners: A Simulation-Based Assessment for Southern California* (2014) 122 Env'tl. Health Perspectives 43, 43–50; Klug et al., *Cooking Appliance Use in California Homes—Data Collected from a Web-Based Survey* (Aug. 2011) Lawrence Berkeley Nat'l Lab'y; Manuel, *A Healthy Home Environment?* (2019) 107 Env'tl. Health Perspectives 352, 352–57; Mullen et al., *Impact of Natural Gas Appliances on Pollutant Levels in California Homes* (2012) Lawrence Berkeley Nat'l Lab'y; Dr. Zhu et al., *Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California* (Apr. 2020), UCLA Fielding School of Pub. Health, at 12–13.

[29] CARB, *Combustion Pollutants & Indoor Air Quality*, https://ww2.arb.ca.gov/resources/documents/combustion-pollutants-indoor-air-quality (as of November 19, 2020).

[30] Seals & Krasner, *Gas Stoves: Health and Air Quality Impacts and Solutions* (2020), Rocky Mountain Institute, Physicians for Social Responsibility, and Sierra Club, at 13, https://rmi.org/insight/gas-stoves-pollution-health/.

[31] *Id.*

additional costs or lost profitability are sufficiently severe as to render it impractical to proceed").

Here, the potential impacts of gas appliances can be mitigated through replacement with electric alternatives. In the 2018 IEPR Update, the CEC itself recognized the "growing consensus that building electrification is the most viable and predictable path to zero-emission buildings . . . due to the availability of off-the-shelf, highly efficient electric technologies (such as heat pumps) and the continued reduction of emission intensities in the electricity sector."[32] As demonstrated by cities such as San Francisco and Berkeley, which no longer allow gas connections in new development, incorporation of electric appliances in the standard design for new construction under Title 24 is feasible mitigation that should be adopted as part of the 2022 Building Code.

Thank you for your consideration of these Scoping Comments. Please contact Matt Vespa at mvespa@earthjustice.org with any questions or concerns. We look forward to working with the Commission on its environmental review of the proposed 2022 Building Code.

Dated: April 15, 2021

Sincerely,

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[32] 2018 IEPR Update at 20.