Comment Received From: Holland & Knight LLP
Submitted On: 5/21/2021
Docket Number: 21-BSTD-02

Comments in Response to the Comment Letter Submitted by Earthjustice and Sierra Club for the 2022 Energy Efficiency Standards

Additional submitted attachment is included below.

Holland & Knight

50 California Street, Suite 2800 | San Francisco, CA 94111 | T 415.743.6900 | F 415.743.6910
Holland & Knight LLP | www.hklaw.com

Jennifer L. Hernandez
+1 415-743-6927
Jennifer.Hernandez@hklaw.com

May 21, 2021

Via Electronic Submission

Michael J. Sokol
California Energy Commission
Docket Unit, MS-4
Docket No. 21-BSTD-02
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Comments in Response to the Comment Letter Submitted by Earthjustice and Sierra Club for the 2022 Energy Efficiency Standards (TN # 237462)

Dear Mr. Sokol,

This letter is submitted in response to the comment letter submitted by Earthjustice and Sierra Club (collectively "Commenters") on the Notice of Preparation ("NOP") for the California Energy Commission's ("CEC") proposed 2022 amendments to the California Building Efficiency Standards (the "Project") contained in Title 24, Part 6 of the California Code of Regulations. The letter submitted makes a number of incorrect assertions and claims regarding the CEC's obligations under the California Environmental Quality Act ("CEQA") (Pub. Res. Code § 21000 *et. seq.*), related to the anticipated environmental review for the Project.

- First, we agree that the environmental analysis needs to account for more than just the difference between the Project and the 2019 Building Efficiency Standards. However, like the NOP, the Commenters' claim that the environmental analysis should be limited in scope as the Project will only create impacts related to greenhouse gas ("GHG") emissions, energy, air quality, and public health fails to account for the "whole of the action" under CEQA, which requires the EIR to analyze the Project's reasonably foreseeable direct and indirect impacts.

- Second, the Commenters assert that the Project is required to "mitigate environmental impacts through the adoption of electric alternatives." While the Commenters never make clear whether they are advocating for electric-appliances in lieu of gas appliances (the "all-electric scenario") as an alternative to the Project or a mitigation measure, CEQA would not mandate an all-electric scenario under either circumstance. An all-electric scenario as an alternative is not environmentally superior and an attempt to require electric appliances as a mitigation measure would itself result in environmental impacts, potentially impacts that would exceed the Project itself, that must be analyzed under CEQA. The Commenters mistakenly assume that the adoption of electric alternatives in lieu of gas appliances would have fewer environmental impacts than a mixed-fuel scenario, despite numerous reports and studies that conclude the opposite.

- Lastly, the Commenters ignore the devastating impacts the Project would have on California's lower-income households and communities of color. Working-class households already pay a higher percentage of their income for energy as compared to wealthier households, and this will only be exacerbated if the Project mandates that households increase their reliance on electric-based technology.

The Commenters' misinterpretations and assumptions regarding impacts of both the Project and a potential all-electric scenario improperly limit what should be a robust CEQA process and Environmental Impact Report ("EIR") intended to inform government decision-makers and the public alike, of the full scale of the Project's environmental impacts.[1]

While California regulators consider themselves trendsetters on climate policy, they have done so on the backs of California's working class families and communities of color. As we have previously noted, California's regulatory climate programs have persistently and unlawfully engaged in a pattern of intentionally imposing higher cost burdens to California residents and citizens in areas with less costly, and less temperate climates, than coastal areas.[2]

Energy poverty is poised to join the ranks of housing poverty as a racially disparate harm intentionally inflicted on communities of color by California's climate regulators.[3] California has one of the highest poverty rates in the nation, and is estimated that more than *7 million California residents live in poverty.*[4] And despite the fact that on average, Californians use about half as much energy as the typical American household, electricity rates continue to rise.[5] While electricity rates went up 7.7 percent across all sectors in California between April 2019 and April 2020, residential customers were hit with a 13.4 percent increase over April 2019 prices.[6] Radical electricity rate increases place a higher cost burden on California's most economically-vulnerable communities and will be exacerbated by the Project, leaving households to choose between paying to cool their homes during a summer heat wave or paying for rent and other household necessities such as food, healthcare, and transportation. As we have previously

---

[1] Cal. Code. Regs., tit. 14 ("CEQA Guidelines"), § 15121(a).
[2] *See, e.g.,* Bryce, R., *How California Promotes Energy Poverty,* National Review Online (Aug. 3, 2015), https://www.manhattan-institute.org/html/how-california-promotes-energy-poverty-6168.html (finding that residents in Kings County, where the median household income is $48,133 paid more than twice as much for their electricity bills in 2013 compared to their Mill Valley residents, where the average median household income is $90,839).
[3] *Id.*
[4] U.S. Census Bureau, *The Supplemental Poverty Measure: 2018,* at 28 (Oct. 2019), https://www.census.gov/content/dam/Census/library/publications/2019/demo/p60-268.pdf.
[5] Bryce, R., *The High Cost of California Electricity Is Increasing Poverty,* FreOpp (July 3, 2020), https://freopp.org/the-high-cost-of-california-electricity-is-increasing-poverty-d7bc4021b705.
[6] *Id.*

commented, CEQA must analyze the direct and reasonably foreseeable indirect consequences the Project will have on communities of color and lower-income households.

Therefore, Holland & Knight further submits these comments in light of our commitment to the social and economic equity for California's working class families, who will undoubtedly suffer disparate impacts resulting from the Project.

I. The Commenters assert that the Project's environmental impacts are limited, however, CEQA requires an analysis of the "whole of the action", including the Project's reasonably foreseeable direct and indirect consequences.

We agree with the Commenters that the EIR should "assess the impacts of new construction under the proposed 2022 Building Code requirements compared to a scenario where the construction has not occurred."[7] However, the Commenters imply that the Project's impacts are limited to GHGs, energy, air quality, and public health. This is incorrect. As previously explained in our comment letter on the NOP, the EIR must also analyze all impacts related to additional infrastructure necessary to facilitate an all-electric scenario. This includes direct, indirect, and cumulative impacts resulting from an all-electric scenario, including impacts to utilities and service systems, energy-efficiency, public safety, wildfires, biological resources agricultural and forestry resources, air quality, GHG, and the social and economic impacts to California's working-class households and communities of color.[8]

As it relates to GHGs, rather than suggesting that the EIR must discuss the extent of the Project's direct and indirect impacts, the letter asserts "[t]he 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," and whether the Project "is sufficient to protect public health in light of…new information."[9] This is based on a purported urgency to move forward with building electrification based on reports or policies that urge such an acceleration. While moving forward rapidly with building electrification is a laudable goal that may have some interplay with the required CEQA analysis, the limited scope of analysis suggested by the Commenters fails to acknowledge the extent of the Project's direct and reasonably foreseeable indirect impacts and is an incorrect interpretation of CEQA that fails to account for the "whole of the action" as defined by Cal. Code Regs., tit. 14 ("CEQA Guidelines"), § 15378(a).

In *California Unions for Reliable Energy v. Mojave Desert Air Quality Management District ("CURE"),* the Air District adopted a regulation to allow road paving project as offsets for particulate matter emissions from other sources.[10] The Air District took a stance similar to

[7] NOP Comment Letter from Commenters, to California Energy Commission (TN #237462) (Apr. 15, 2021), hereinafter "Electrification Comment Letter", https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-BSTD-02.
[8] NOP Comment Letter submitted by Holland & Knight LLP to Mr. M. Sokol, CEC (TN #237498) (Apr. 19, 2021), hereinafter "HK Comment Letter", https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-BSTD-02.
[9] Electrification Comment Letter at 4.
[10] *California Unions for Reliable Energy v. Mojave Desert Air Quality Management District* (2009) 178 Cal.App.4th 1225, 1230 *("CURE")*.

that suggested by the NOP, and implicitly supported by the Commenters, that the project's impacts were limited because the regulation did not "authorize any actual road paving… it cannot possibly have any environmental effects. Any future paving offsets will be subject to environmental review if and when the applicants seek them, but at this point, their environmental effects are speculative."[11] The court disagreed, finding that the regulation allowing road paving *may result in a number of direct and indirect impacts* on biological resources, including but not limited to: mortality due to road construction, increased frequencies of roadkill from vehicle travel on paved roads; noise pollution, soil disturbance and erosion, and increase of roadway pollutants and associated habitat loss, degradation and fragmentation; alteration of wildlife movement; changes in wildlife populations; and growth-inducing effects.[12] The court found that the agency failed to comply with CEQA because the approval of a regulation allowing road paving was the first step in a process of road paving occurring.

Similar to *CURE,* the adoption of the Project is the first step in a process which will lead to the construction of new buildings and alterations to existing buildings, leading to more demand for electricity, leading to the construction, installation, operation and maintenance of facilities, services, and utilities that would serve those buildings. An increased reliance on the electric grid and increased demand for electricity due to the Project would foreseeably trigger the need to install, operate, and maintain renewable energy sources, batteries and storage systems, and transmission and distribution lines, which would undoubtedly create other environmental impacts that would need to be analyzed in the EIR.[13] Multiple studies have shown that the state does not have a sufficient renewable energy supply to meet the state's *current demand*, and thus such impacts are reasonably foreseeable consequences of the Project.[14] Power outages that took place as recently as August 2020 were triggered by "insufficient resources" to meet the state's demand.[15] Other studies have estimated that in order to meet the state's mid-century targets based on reliance on wind and solar alone, the state would need to "deploy those sources at five times the best historic rate, every year for the next 25 years - the equivalent of nearly ten of the world's largest onshore or offshore windfarms *every year*."[16] Thus, the EIR must analyze the Project's direct and reasonably foreseeable indirect impacts, including impacts to utilities and service systems, energy-efficiency, public safety, wildfires, biological resources, agricultural and forestry resources, air quality, GHGs, and social and economic impacts.

---

[11] *CURE* at 1230.
[12] *Id*.
[13] *See, e.g.,* HK Comment Letter.
[14] *See*, ScottMadden, *Informing the Transmission Discussion, A Look at Renewables Integration and Resilience Issues for Power Transmission in Selected Regions of the United States*, Executive Summary (Jan. 2020), https://www.scottmadden.com/content/uploads/2020/01/ScottMadden_WIRES_Informing-the-Transmission-Discussion_1-Executive-Summary_2020_0115.pdf.
[15] Letter from Marybel Batjer, President, California Public Utilities Commission ("CPUC"), Stehen Berberich, President and Executive Officer, California Independent System Operator ("CAISO"), and David Hochschild, Chair, CEC to Governor Gavin Newsom, at 2 (Aug. 19, 2020), https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/News_Room/NewsUpdates/2020/Joint%20Response%20to%20Governor%20Newsom%20Letter%20August192020.pdf.
[16] Clean Air Task Force, *Comments On SB 100 Joint Agency Report - Charting a Path to a 100% Clean Energy Future*, (Sept. 19, 2019) https://efiling.energy.ca.gov/GetDocument.aspx?tn=229800&DocumentContentld=61244, (emphasis in original).

Instead, the Commenters have attempted to limit the scope of environmental review by asserting a nonexistent legal standard under CEQA as to whether the Project "address[es] the climate crisis" and alleging that the "relevant question for the EIR is whether the 2022 Building Code is sufficient to protect public health in light of this new information." [17] This is simply contrary to statutory and legal authority that requires a more expansive and thorough analysis under CEQA. To provide a legally-sufficient analysis as required by CEQA, the environmental review must quantify the increased electricity demand that would be generated by the Project, assess how many additional generation, distribution, or transmissions assets may be needed to facilitate this increased demand, and fully explain and analyze the potential environmental impacts that would result from these actions.[18]

II. The Commenters assert that the adoption of electric alternatives will mitigate environmental impacts of the Project, however, they mistakenly assume that an all-electric scenario would have fewer environmental impacts than a mixed-fuel scenario, despite numerous reports and studies to the contrary.

Commenters assert that, to the extent the Project continues to allow gas appliances in standard building design, the Project would result in significant GHG, energy, air quality, and public health impacts that can be mitigated through the adoption of electric alternatives, including stating that the Project results in an "inefficient use of energy from continued reliance on gas appliances."[19] As a threshold matter, it is not clear whether the Commenters suggest the adoption of a project alternative or adoption of a mitigation measure that requires electric appliances in lieu of gas appliances (an "all-electric scenario"). In its letter, the Commenters appear to confuse the legal standard for these two separate EIR components by citing to authority regarding a lead agency's obligations as it relates to the discussion and adoption of project alternatives and mitigation measures in the same sentence, even though they are governed by separate legal standards.[20] While CEQA requires the discussion of project alternatives that offer substantial environmental advantages over the proposed project, CEQA does not require a lead agency to adopt a project alternative that does not reduce a project's environmental impacts.[21] In addition, CEQA requires that an EIR discuss mitigation measures that can minimize a project's significant environmental effects, but the effects of the mitigation measures themselves must also

---

[17] Electrification Comment Letter at 4.

[18] *See*, *Goleta Union School District v. Regents of University of California* (1995) 37 Cal.App.4th 1025 (requiring a proposed long range plan to analyze the plan's impacts on school overcrowding which may trigger the need for mitigation); *see also, El Dorado Union High School District v. City of Placerville* (1983) 144 Cal.App.3d 123 (holding that a project proposing residential development also needed to analyze project's impacts on the development on schools and overcrowding when there is substantial evidence indicating an impact on schools).

[19] Electrification Comment Letter at 4.

[20] *Id.,* at 11 citing to *Friends of Oroville v. City of Oroville* (2013) 219 Cal.App.4th 832 (an EIR must evaluate the feasibility of mitigation measures) and *Center for Biological Diversity v. San Bernardino Cty.* (2010) 185 Cal.App.4th 866 (discussing an EIR's evaluation of project alternatives).

[21] *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 566; *Watsonville Pilots Assn. v. City of Watsonville* (2010) 183 Cal.App.4th 1059, 1089 (holding that EIR should identify alternatives that meet project objectives while reducing environmental impacts); *Citizens for E. Shore Parks v. State Lands Commission* (2011) 202 Cal.App.4th 549, 563 (alternative did not reduce any of the identified significant project impacts); *Mann v. Community Redev. Agency* (1991) 233 CA3d 1143 (proposed alternative not shown to be environmentally superior).

be analyzed and described.[22] The Commenters provide no reliable evidence that an all-electric scenario as a project alternative or a mitigation measure would result in fewer impacts to the environment than the Project itself, nor that electric appliances are more energy efficient or safer than natural gas ones, and there is substantial evidence, as explained below, that requiring an all-electric scenario would result in greater environmental impacts than the Project.

Impacts on GHG Emissions. The Commenters suggest that an all-electric scenario will unequivocally reduce GHG emissions "[b]ecause electric appliances result in significant reductions in GHG pollution that will increase as the grid becomes less carbon intensive, [the] 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."[23] In an effort to establish that reliance on natural gas appliances will result in GHG impacts, Commenters offer statistical data relating to the number of gas customers added to the state, and the number of homes built with gas infrastructure in recent years, however these numbers fail to demonstrate that the continued ability to use natural gas appliances would result in significant GHG impacts.[24] The Commenters also attempt to downplay the environmental impacts associated with electric appliances and refrigerant leakage by asserting that the "risk of refrigerant leakage does not come close to offsetting the substantial GHG benefits from heat pump adoption…"[25] Not only does the Commenters' position fail to acknowledge the reasonably foreseeable impacts of the Project, but it also mischaracterizes the GHG impacts of electric-based technologies.

The Commenters rely upon a 2019 study conducted by Energy + Environmental Economics ("2019 E3 Study") to assert that building electrification reduces GHG emissions by approximately 30 to 60 percent. To demonstrate their point, Commenters simply provide a graph from the 2019 E3 Study, while providing no context regarding the assumptions made in the study. The graph purports to show that an all-electric scenario would result in a 45 percent reduction in GHG emissions by 2020, 61 percent by 2030, and 82 percent by 2050.[26] The results for 2030 and 2050 rely on an assumption that *next generation* low-GWP refrigerants are used in all applicable heat pump systems.[27] This assumption is flawed because it is unclear whether low-GWP technology is available for all heat pump technologies. The 2017 CARB Final Short-Lived Climate Pollutant Reduction Strategy ("SLCP Reduction Strategy") recognized that "significant research is underway to assess the safety and *feasibility* of low-GWP refrigerants in commercial refrigeration, commercial AC, and residential AC [and that] *not every end-use sector has low-GWP options commercially available today*..."[28] CARB's analysis also recognized that low-GWP technology is not always the most energy efficient as it can take more energy to

[22] CEQA Guidelines §§ 15626.4(a)(1); 15126.4; *Stevens v. City of Glendale* (1981) 125 Cal.App.3d 986 (vacating certification of an EIR because agency adopted a mitigation measure that was not discussed in the EIR without considering whether a supplement to the EIR should have been prepared to examine the measure's impacts).
[23] Electrification Comment Letter at 6.
[24] *Id.,* at 5.
[25] *Id.,* at 7.
[26] 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.
[27] *Id.*
[28] CARB, Short-Lived Climate Pollutant Reduction Strategy, at 94 (March 2017), https://ww2.arb.ca.gov/sites/default/files/2020-07/final_SLCP_strategy.pdf (emphasis added).

achieve the same ends as traditional technology: "If energy consumption increases, the additional GHG emissions from electricity generation will defeat the purpose of the low-GWP requirements."[29] For these reasons, the conclusions in the 2019 E3 Study cannot be relied upon.

The Commenters also attempt to rely on a graph from a 2016 article to demonstrate that requiring heat pump technology will result in decreased GHG emissions, and thus allow the EIR analysis to conclude that GHG impacts are less than significant.[30] This graph cannot be relied upon because the article acknowledges that the "calculations do not reflect the lifecycle GHG emissions associated with the operation of each appliance over its expected life, nor does it reflect the hourly operation of the water heater."[31] In addition, studies have indicated that the GHG impacts of electric appliances fluctuate depending on the time of day, due to the source of the electricity. Household energy demand peaks in the morning and evening hours when intermittent renewable power, particularly solar, is unavailable. At these times, electric supplies must be produced from other sources, including natural gas-fired peaker plants. Converting fuels, such as natural gas, to electricity to meet home demands is less efficient than directly using natural gas and results in higher GHG emissions.[32] Several studies refute Commenters' claim that electric homes result in fewer GHG impacts. In fact, a Stanford University researcher has estimated that when renewable power is unavailable, such as during the evening hours, residential *electricity consumption produces three times more GHG emissions* than natural gas.[33] These findings refute the notion that GHG emissions from electric generation remains consistent throughout the day. Instead the use of heat pump technologies results in varying levels of GHG emissions, depending on a number of factors, including the time of use and the source of energy (e.g., solar, wind, gas-fired peaker plants) being converted to fuel the heat pump.

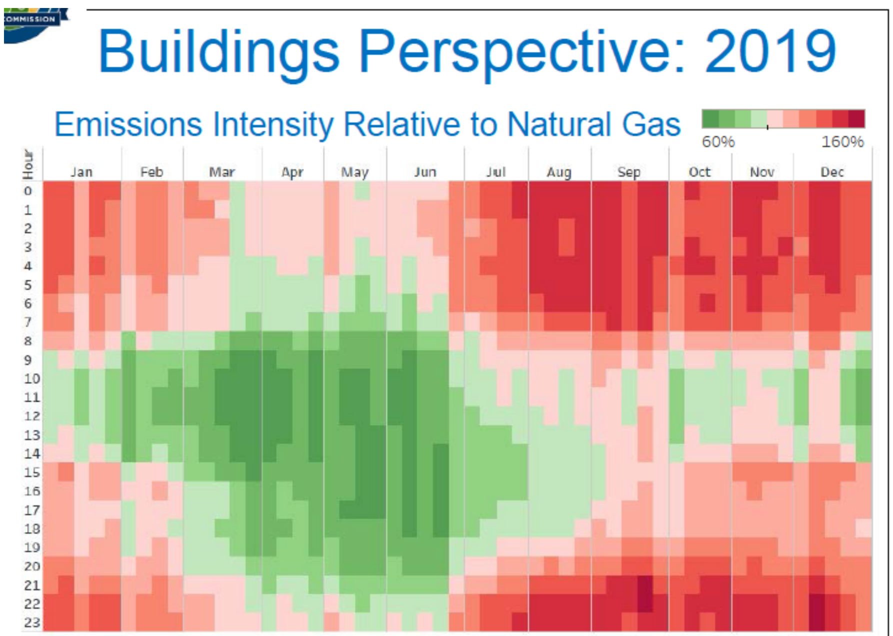
Further, a 2019 study published by the U.S. Department of Commerce, National Institute of Standards and Technology ("NIST") that analyzed energy use, environmental impacts, and economic performance of residential buildings using either electricity or natural gas for space and domestic water heating concluded that a natural gas-heated home is more economical, results in "lower environmental impacts across numerous impact categories," including lower GHG emissions, has a faster heating response time, and generates a greater level of indoor comfort than an all-electric residence. In particular, *GHG emissions were found to be higher in an all-electric home* because of the higher amount of fuels required to produce electricity for use in the home as compared with the use of natural gas equipment in a residence.[34] Although California

---

[29] *Id.*, at 94-95.
[30] Mahone, A., et al., *What If Efficiency Goals Were Carbon Goals*, American Council for an Energy-Efficient Economy, at 9-7, (2016), https://aceee.org/files/proceedings/2016/data/papers/9_284.pdf.
[31] *Id.,* at 7.
[32] *See, e.g.,* Thurber M., *Gas-fired generation in a high-renewables world*, Stanford University School of Earth, Energy & Environmental Sciences and Precourt Institute for Energy Natural Gas Initiative, NGI Research Brief (June 2018), https://ngi.stanford.edu/sites/g/files/sbiybj14406/f/NGI_Brief_2018-06_R3_Thurber.pdf.
[33] Kovscek, A. *Is a natural gas ban an "antidote to climate change"?*, San Jose Mercury News (Nov. 12, 2019), https://www.mercurynews.com/2019/11/12/6621534/.
[34] E. O'Rear, D., et al., *Gas vs electric: Heating system fuel source implications on low-energy single-family dwelling sustainability performance*, Journal of Building Engineering (Sept. 2019), https://tsapps.nist.gov/publication/get_pdf.cfm?pub_id=926046.

has a larger proportion of renewable utility-scale energy than Maryland, the CEC has shown that, consistent with the NIST study, in California buildings that rely on natural gas generate substantially lower GHG emissions on average than buildings that rely on electricity. As demonstrated in Figure 1, in 2018 the *CEC estimated that electricity use in buildings produces a greater level of GHG emissions than natural gas use for approximately 60 percent of the year*.[35] This is because natural gas results in lower GHG emissions during a significant majority of the morning and evening hours in all months, which are the periods of highest residential energy demand. The significantly lower GHG emissions in California buildings that rely on natural gas reflects the fact that, except during daytime hours from about March to June, intermittent solar and wind is insufficient to meet in-state building energy demand. When intermittent renewable energy is not available, electrical generation is less efficient and produces a greater level of GHG emissions than if the building were relying on natural gas.

Figure 1. Emissions Intensity Relative to Natural Gas[36]



The Commenters further attempt to downplay the potentially significant impacts that heat pump technology can have on GHG emissions by claiming that "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."[37] Commenters rely on an email from a private party that purports that low-GWP heat pump technology is dominant in the marketplace and point to an example of one of the most advanced technologies used in heat pump water heaters ("HPHW") to demonstrate that the risks associated with refrigerant leakage are low. According to the unpublished email, HPHWs models

[35] CEC, Building Decarbonization, 2018 Update – Integrated Energy Policy Report, IEPR Workshop Presentation by M. Brook, at 16 (June 14, 2018), hereinafter "2018 Building Decarbonization Update."
[36] 2018 Building Decarbonization Update, at 16.
[37] Electrification Comment Letter at 8.

that utilize a low-GWP refrigerant (R-134) also include design features that would discourage leakage during the HPHW's lifetime. Commenters assert on the basis of this sole example of low-GWP HPHW, that the risks associated with refrigerant leakage under a "worst-case scenario" would be minimal compared to gas water heaters (releasing 0.86 MT CO2e from HPHWs using low-GWP refrigerants versus 8.9 MT CO2e from a gas water heater).[38]

The assertions and conclusions made by commenters cannot be relied upon for several reasons. First, the Commenters merely rely upon one example of technology that utilizes low-GWP refrigerants to discuss impacts for all electric appliances that utilize refrigerants. This one example is not indicative of environmental impacts for all heat pump technology. Second, the Commenters ignore the reality that not all buildings will be equipped with the most up-to-date low-GWP technologies, or even that low-GWP technologies may not exist for many applications. The Commenters' analysis thus does not account for the installation or utilization of heat pump technologies that continue to rely on high-GWP refrigerants. These assumptions are not only inappropriate but can result in staggering differences in an environmental analysis. For example, R-410A is a high-GWP refrigerant that has commonly replaced older technologies that are associated with levels of higher ozone depletion. R-410A belongs to a group of hydrofluorocarbons ("HFC") that have a high-GWP that is *2,088 times that of* CO_2.[39] The use of heat pump technologies that utilize R-410A thus present significant potential environmental impacts if the systems leak during operation or at the end of their life cycle. Some estimates assume a leakage rate of three to five percent, which can present significant GHG impacts given the concentrated levels of CO_2.[40] An EIR analysis cannot simply overlook the substantial potential impacts associated with refrigerant leakage from heat pump systems and conclude that the adoption of such technologies would result in less than significant GHG impacts. For these reasons, the Commenters' assertion that an all-electric scenario would reduce the Project's GHG impacts to less than significant levels cannot be relied upon.

Energy Impacts. Like the Commenters we agree that the Project will result in energy impacts that must be analyzed by the EIR. However, the Commenters misinterpret CEQA, specifically Appendix F, to assert that the key purpose of an EIR's energy analysis is to demonstrate a "decreased reliance on fossil fuels." This is incorrect. Appendix G requires the EIR to analyze whether the Project would "[r]esult in [a] potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources…"[41] Further, Appendix F requires a more comprehensive discussion regarding a project's energy impacts, including but not limited to: (i) the project's energy requirements and energy use efficiencies by amount and fuel type; (ii) the project's effects on local and regional energy supplies and requirements for additional capacity; and (iii) the project's effects on peak and base period demands for electricity and other forms of energy.[42]

---

[38] Electrification Comment Letter at 6.
[39] WSP, Importance of Refrigerants in Heat Pump Selection webpage, (Mar. 28, 2018), https://www.wsp.com/en-GB/insights/the-importance-of-refrigerants-in-heat-pump-selection.
[40] *Id.*
[41] CEQA Guidelines, Appendix G, Section VI. Energy; *see also,* CEQA Guidelines, Appendix F, Section I; Pub. Res. Code § 21100(b)(3).
[42] CEQA Guidelines, Appendix F, Section II.C.

To support their position, Commenters once again point to heat pumps in an attempt to demonstrate the energy efficiencies of electric-based technologies by stating "heat pumps substantially reduce gas demand due to superior efficiency and reliance on electrical power from an increasingly decarbonized grid."[43] Commenters attempt to limit the discussion regarding the Project's energy impacts and efficiencies to GHG emissions resulting from gas use only, and conclude that the adoption of electric-based technologies will reduce gas consumption, thereby meeting the state's energy conservation goals. However, a recent study conducted by the UCLA Institute of Environment and Sustainability concluded "that aggressive electrification of residential end-use appliances has the potential to exacerbate daily peak electricity demand"[44] and that even if additional intermittent wind and solar generation capacity is deployed, and "[u]nder best case efficiency assumptions, full electrification is expected to increase daily peak loads, on average throughout the year, by 80%. Conversely, under worst case assumptions, daily peak loads are estimated to increase by an average of 265%."[45] Thus, even with the potential for energy efficiency stemming from the fuel switch, *the potential impacts on daily peak electricity loads are likely to be dramatic*.

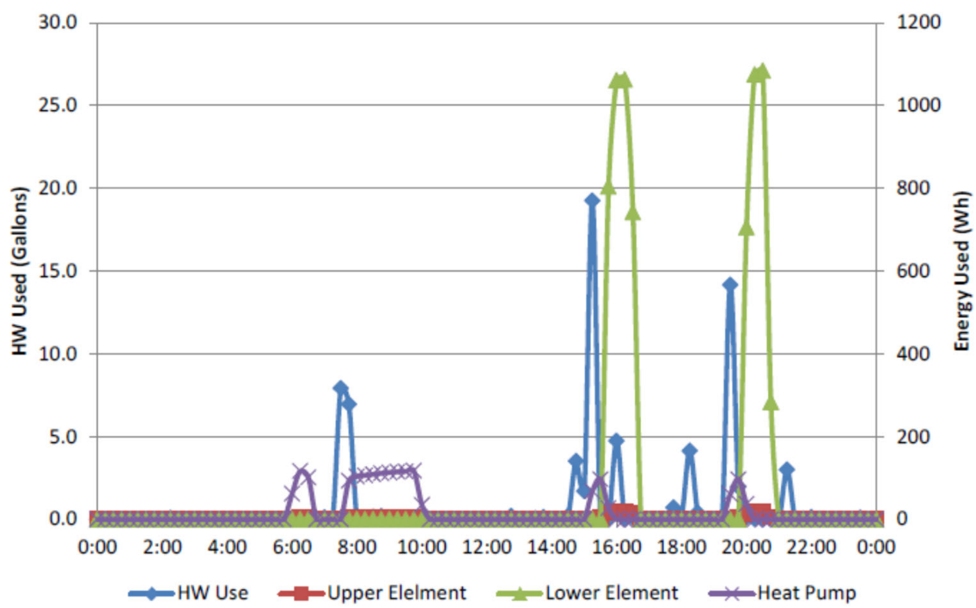
Further, Commenters glaze over energy efficiency considerations associated with heat pump technologies by providing data associated with only the most "advanced" technologies available, and fail to account for the variable factors that affect the efficiency of heat pump technologies. For example, the efficiency of heat pump technologies varies depending on a number of factors, including the temperature of water adjacent to the condenser, ambient air temperature and humidity, set point temperature, hot water draw profile, and operating mode.[46] While all of these factors impact efficiency, ambient air temperatures or colder climates can have major efficiency implications. This is because, rather than generating heat, heat pump technologies use electricity to move heat from a cool space to a warm space, much like a refrigerator. HPHWs will only operate in heat pump or hybrid mode if the ambient temperature of the air entering the water heater is between approximately 45°F and 110°F. When the temperature of the incoming air drops below 45°F, the HPHW will switch into electric resistance mode which reduces the efficiency of the unit.[47] California is home to no less than half a dozen climate regions in which temperatures fall below 45°F or less during winter months.[48] Given the state's climate diversity, which ranges from dry desert, mild coastal, to cold mountainous regions, it would be unreasonable to assume that energy efficiency rates for HPHW would be

[43] Electrification Comment Letter at 8.
[44] Fournier, D., et al., *Implications of the timing of residential natural gas use for appliance electrification efforts, Environmental Research Letters 15*, no. 12, UCLA Institute of Environment and Sustainability, at 1 (Nov. 2020) , https://iopscience.iop.org/article/10.1088/1748-9326/aba1c0/pdf
[45] *Id.,* at 5.
[46] U.S. Department of Energy Office of Energy Efficiency & Renewable Energy, *Energy Savings and Breakeven Cost for Residential Heat Pump Water Heaters in the United States,* at 12 (July 2013), https://www.nrel.gov/docs/fy13osti/58594.pdf.
[47] U.S. Department of Energy Office of Energy Efficiency & Renewable Energy, *Measure Guideline: Heat Pump Water Heaters in New and Existing Homes*, at 8 (Feb. 2012), hereinafter "*Heat Pump Water Heaters in New and Existing Homes*," https://www.nrel.gov/docs/fy12osti/53184.pdf.
[48] These regions include 2, 11, 12, 13, 14, and 16. Pacific Energy Center, *Guide to California Climate Zones and Bioclimatic Design* (Oct. 2006), https://www.pge.com/includes/docs/pdfs/about/edusafety/training/pec/toolbox/arch/climate/california_climate_zones_01-16.pdf.

consistent statewide or that such technologies would be energy efficient in colder regions. The loss of efficiency in cooler climates is demonstrated in a 2013 study conducted by the National Renewable Energy Laboratory ("NREL"), which highlights the fact that areas such as the Pacific Northwest are particularly susceptible to higher energy impacts resulting from heat pump technologies. The report concluded that in homes in cooler climate zones, it "can take up to three times as much energy for the [electric resistance] heating equipment to meet the space heating load imposed by HPWH on the conditioned space."[49] Because of these operational limitations, HPHWs are intended for warmer climate zones, whereas the potential environmental benefits of this technology would be canceled out in other, less temperate climate zones.[50]

In addition, hot water demand also affects heat pump's energy efficiency. As common sense would dictate, electricity consumption increases with overall water consumption. However, as demonstrated in Figure 2 below, if the hot water demands are intense, a hybrid HPHW will revert into electric resistance mode, which consumes at least as twice as much electricity when compared to heat pump mode and would therefore greatly exacerbate or increase energy impacts.[51]

Figure 2. Electricity Demand for HPHWs Relying On Electric Resistance[52]



[49] U.S. Department of Energy Office of Energy Efficiency & Renewable Energy, *Energy Savings and Breakeven Cost for Residential Heat Pump Water Heaters in the United States,* at 27 (July 2013), https://www.nrel.gov/docs/fy13osti/58594.pdf.

[50] A 2018 study from Rocky Mountain Institute ("RMI") found that the trend for electric heating is most popular in temperate and warmer climates. Over 50 percent of homes in the states of Florida, South Carolina, Arizona, Louisiana, Alabama, Tennessee, North Carolina, Texas, Washington, and Mississippi rely on electric heating, while the states with the least reliance on electric heating are in colder climates, including Rhode Island, New Hampshire, Michigan, Maine, and Vermont. RMI, *The Impact of Fossil Fuels in Buildings: A Fact Base*, at 58-59 (Dec. 2019), https://lpdd.org/wp-content/uploads/2020/03/Building-Electrification-fact-base-report.pdf.

[51] *Heat Pump Water Heaters in New and Existing Homes* at 5.

[52] *Heat Pump Water Heaters in New and Existing Homes* at 7.

Without a diversity of energy options available to consumers, the reliance on electric-based technologies during peak usage hours, when consumers are most likely to be in need of hot water and other heating needs to perform household functions, will increase. Additionally, because the efficiency of heat pump technology is strongly dependent on ambient temperature, any analysis of such technologies must account for the state's diversity of climate zones. For these reasons, it is unreasonable to assume that an all-electric scenario would unequivocally reduce impacts to energy to less than significant levels as purported by the Commenters.

Health and Air Quality Impacts. The Commenters assert that the use of gas appliances, in particular gas stoves, pose air quality impacts to residential users. Their position relies heavily on two reports sponsored by the Sierra Club, one from UCLA and another sponsored in partnership with the Rocky Mountain Institute ("RMI"), which suggest a causal relationship between gas stoves and childhood asthma. However, reliance upon these reports is misplaced for the reasons set forth below. Moreover, other studies have shown that using indoor natural gas appliances does not contribute in any significant way to indoor air pollution and that the use of natural gas appliances does not impose appreciable health and safety risks beyond those imposed by electric appliances.

Both the UCLA and RMI reports rely on a 2013 meta-analysis ("Lin Study") that looked at 19 epidemiological studies[53] to conclude that gas cooking has a "clear association" with an increased risk of asthma. However, the Lin Study's conclusion is questionable because the underlying studies did not sufficiently account for confounding factors. Nine of the 19 studies did not account for tobacco smoke, and 4 did not adjust for any confounding factors at all. It is also worth noting that 74 percent (14 out of 19) of the epidemiological studies compiled and evaluated by the Lin Study were conducted prior to 2000, when a greater proportion of residences likely had gas stoves with gas-fed pilot lights. Nevertheless, *all six* of the studies that addressed North America found *no association* between gas stoves and asthma in children. And the only California study, which followed 3,535 children with no history of asthma from 1993 to 1998, likewise found no evidence of an association between children who lived in homes with gas stoves and asthma diagnosis.[54] Indeed, the Lin Study's conclusion is contradicted by a much larger international study also published in 2013, which "detected no evidence of an association between the use of gas as a cooking fuel and either asthma symptoms or asthma diagnosis."[55] That study, the International Study of Asthma and Allergies in Children ("International Study"), collected data from 510,000 children between 1999 and 2004 – as compared to 66,000 children from 1972 to 2009 for the Lin Study. And while the Lin Study failed to account for confounding variables, the International Study adjusted "for sex, region of the world, language, gross national income, maternal education, parental smoking, and six other subject-specific covariates."

[53] Lin W., et al., *Meta-analysis of the effects of indoor nitrogen dioxide and gas cooking on asthma and wheeze in children*, Int. J. Epidem., at 42:1724–37 (Dec. 2013).
[54] McConnell R., et al., *Indoor risk factors for asthma in a prospective study of adolescents*, Epidemiology, 13:288–95 (May 2002), https://pubmed.ncbi.nlm.nih.gov/11964930/.
[55] Wong, G.W.K, et al., *Cooking fuels and prevalence of asthma: a global analysis of phase three of the International Study of Asthma and Allergies in Childhood ("ISAAC"),* Lancet Respir Med. (July 2013), at 1:386-94.

Because the Lin Study is more limited in scope, uses older data and is subject to several methodological deficiencies, it is not reasonable to continue to rely on its conclusions, particularly in light of the contradictory conclusions made by the International Study. Therefore, it is unreasonable for Commenters to rely upon the UCLA and RMI analyses as a basis to continue to suggest that the use of natural gas has a "clear association" with health and safety concerns.

II. The Commenters ignore the disproportionate impact the Project will have on working-class families and communities of color.

There is a significant failure across the board to recognize the causal relationship between the physical changes that will result from the Project's increased reliance on the electric grid and the social and economic impacts the Project will have on California's consumers, disparately impacting communities of color and working class families. CEQA Guidelines § 15131(b) states that "[e]conomic or social effects of a project may be used to determine the significance of physical changes caused by the project. For example, if the construction of a new freeway or rail line divides an existing community, the construction would be the physical change, but the social effect on the community would be the basis for determining that the effect would be significant."

California already suffers from the highest poverty rates in the U.S.[56] The Project's increased reliance on electricity will exacerbate costs that have been steadily increasing for years, to which "lower- and average-income households bear a greater burden."[57] Between 2019-2021 alone, price increases for three of the state's largest investment-owned-utilities[58] have sky-rocketed by 20 percent.[59] These increases have the most significant impact on low- to middle-income households, which tend to pay a higher percentage of their income for energy compared to wealthier households.[60] Additionally, studies have found that California's "low income and environmental justice communities…continue to experience high energy costs and energy insecurity, as well as high rates of disconnection when households [cannot] afford their bills."[61] The Project will result in thousands of dollars in added costs for newly constructed homes, alterations, and additions making home ownership less attainable for working-class families and communities of color. The Project EIR must disclose and analyze this impact.

---

[56] Downs, R., *Census Bureau: California has the highest poverty rate in the U.S.*, UPI (Sept. 13, 2018), https://www.upi.com/Top_News/US/2018/09/13/Census-Bureau-California-has-highest-povertyrate-in-US/1611536887413/.

[57] Energy Institute at Haas, UC Berkeley, *Designing Electricity Rates for An Equitable Energy Transition: Executive Summary*, at 4, (Feb. 23, 2021), https://www.next10.org/publications/electricity-rates.

[58] These include Pacific Gas & Electric, Southern California Edison, and San Diego Gas & Electric .

[59] CPUC, Utility Costs and Affordability of the Grid of the Future: An Evaluation of Electric Costs, Rates, and Equity Issues Pursuant to P.U. Code Section 913.1 (Feb. 2021), https://www.cpuc.ca.gov/uploadedFiles/CPUC_Website/Content/Utilities_and_Industries/Energy/Reports_and_White_Papers/Feb%202021%20Utility%20Costs%20and%20Affordability%20of%20the%20Grid%20of%20the%20Future.pdf.

[60] Drehbol, A., et al., *How High Are Household Energy Burdens? An Assessment of National and Metropolitan Energy Burdens across the United States*, American Council for an Energy-Efficient Economy (Sept. 10, 2020), https://www.aceee.org/research-report/u2006.

[61] Greenlining Institute, Affordable Clean Energy, https://greenlining.org/our-work/energy/affordable-clean-energy/.

III. Conclusion

The EIR must analyze Project impacts against the existing physical environment; however, the Commenters have failed to acknowledge that CEQA requires an analysis of the "whole of the action." The Commenters' position fails to account for all reasonably foreseeable direct and indirect impacts of the Project, including economic and social impacts to disadvantaged communities. Further, CEQA does not require the adoption of an all-electric scenario as either a project alternative or a mitigation measure because it would not result in an environmentally superior project nor result in fewer environmental impacts than the Project itself. We continue to urge the CEC not to abandon its responsibilities pursuant to CEQA, and ensure that the EIR contains a thorough analysis as required by law.

Sincerely yours,

Jennifer L. Hernandez

HOLLAND & KNIGHT LLP