

From: Robert Whitehair <>

Sent: Wednesday, July 15, 2020 3:53 PM

To: clerk@sanmateo.org; City Council (San Mateo) <CityCouncil@cityofsanmateo.org>; Andrea Chow <achow@cityofsanmateo.org>

Subject: Reach Codes Policy Direction July 20, 2020 City Council Agenda

Please include this information and the attachments with the Council agenda package for July 20. Thank you.

Honorable Mayor Goethals and Honorable Members of the City Council

Congratulations again, to the City of San Mateo for winning the TrailBlazer Award from Sustainable San Mateo County, for being the first San Mateo County City to adopt a Reach Code, last year. Not only was San Mateo the first City in the County to adopt a Reach Code, it was the 5th in the State. Now, a total of 31 California cities and counties have adopted Reach Building Codes. As this welcome trend passed through the state, I was pleased to see that as each city or county adopted a Reach Code, the newest version became ever more stronger.

Since the time of San Mateo's action, San Jose, Menlo Park, Pacifica, Brisbane and many other California cities, as well as San Mateo County have adopted very strong Reach Codes, much stronger than San Mateo's first code. The City of Burlingame was the latest to adopt a strong Reach Code eliminating almost all natural gas, even applying such strong no-gas measures to home reconstruction.

A Sierra Club press release describing what all 31 have done, is attached to this email, as is a summary of Reach Codes, prepared by the California Energy Commission.

It is my hope, and my request to you, that natural gas be eliminated in new Multi-family construction in San Mateo.

PG&E has recognized that "natural" gas - methane - is on the way out, and has also recognized that in the next 2022 Title 24 Building Code cycle, that it is no longer appropriate to oppose elimination of gas in new construction. See this link: <https://www.greentechmedia.com/articles/read/pge-gets-on-board-with-all-electric-new-buildings-in-california>

Meanwhile, natural gas is becoming a "stranded asset" as utilities give up on natural gas, and cancel gas pipelines:

<https://cleantechnica.com/2020/07/06/gigantic-atlantic-coast-gas-pipeline-done-in-by-humble-household-heat-pump/amp/>

In June, a group of us prepared a white paper on Reach Codes, which is attached. I ask that it be added to the public record. The gist of the paper is this:

- We ask the City of San Mateo to continue to show leadership and forward thinking by adopting an all-electric Reach Code for low-rise and mid-rise multifamily projects, similar to the policy that San Mateo County adopted in February, 2020. Now is the time for action.
- We recognize that apartment developers are sometimes caught between a rock and a hard spot and need assistance as they begin to build the capacity to implement all electric systems. Your leadership can go a long way in making all-electric happen.
- Retrofitting new Fossil Gas buildings later will be expensive and therefore unlikely, leaving stranded assets for owners.
- If the reach code proposal remains a simple addition to the code that would allow dual fuel or less, with extremely minor incentives for all-electric construction, we do not believe that it will be a worthwhile effort. We

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believe that stronger measures are necessary. Small differential type reach codes have been tried in other cities, including Palo Alto's 2016 Reach Code, and it was ineffective. Those cities with earlier differential codes have now transitioned to all-electric reach codes.

Again, congratulations, and please adopt a strong Multi-family Reach Code in San Mateo!

Robert Whitehair

Active Local Government Efforts

Decarbonization Code Comparison Matrix as of 3/30/2020

Number of California Jurisdictions: 30

Jurisdiction	Approach			Systems			Building Types								Add-Ons		
	Natural Gas Infrastructure Moratorium	All-Electric Reach	Electric-Preferred	Whole Building	Water Heating	Space Heating	Low Rise Residential	City-Owned Properties	High Rise Residential	Hotel	Retail	Office	Restaurant	Life Sciences	Additional Solar	Electric Vehicles	Natural Gas In Lieu Fee
Alameda	X			X				X									
Berkeley	X		X	X			X	X	X	X	X	X	X	X			
Brisbane*		X			X	X	X	X	X	X	X	X	X				
Campbell		X			X	X	X									X	
Carlsbad		X			X		X								X		
Cupertino		X		X			X	X	X	X	X	X	X			X	
Davis			X	X			X										
Hayward		X	X	X			X	X	X	X	X	X	X	X	X		
Healdsburg		X			X	X	X	X	X	X	X	X	X	X			
Los Altos Hills		X			X	X	X	X	X	X	X	X	X				
Los Gatos		X		X			X									X	
Marin County			X	X			X	X	X	X	X	X	X	X		X	
Menlo Park*		X			X	X	X	X	X	X	X	X	X		X	X	
Mill Valley			X	X			X		X							X	
Milpitas			X	X			X	X	X	X	X	X	X	X			
Morgan Hill	X			X			X	X	X	X	X	X	X	X			
Mountain View*		X		X			X	X	X	X	X	X	X		X	X	
Pacifica		X			X	X	X	X	X	X	X	X	X		X	X	
Palo Alto*		X	X	X			X	X	X	X	X	X	X	X			X
Richmond		X		X	X	X	X	X	X	X	X	X				X	
San Francisco	X		X	X			X	X	X	X	X	X	X		X	X	
San Jose*	X		X	X			X	X	X	X	X	X	X	X	X	X	
San Luis Obispo			X	X			X	X	X	X	X	X	X	X	X		X
San Mateo			X	X			X					X			X	X	
San Mateo County		X		X			X	X	X	X	X	X	X			X	
Santa Cruz	X			X			X	X	X	X	X	X		X			
Santa Monica			X	X			X	X	X	X	X	X	X	X	X		
Santa Rosa		X		X			X										
Saratoga		X			X	X	X	X	X	X	X	X	X	X		X	
Windsor		X		X			X										
*City Council opted to go beyond staff recommendation.																	

See [Sierra Club's summary](#) of each ordinance here.

California Statewide Codes and Standards [maps](#) and tracks codes adopted by the CEC [here](#).

Adopted Language 2019-2020

- All-Electric Only - Whole Building
- All-Electric Only - Specific Systems
- Electric-Preferred
- Other Approaches



California's Cities Lead the Way to a Gas-Free Future

By [Matt Gough](#) July 8, 2020



A coalition of organizations supports San Jose going all-electric.

Photo courtesy of Mothers Out Front

Updated July 8: Burlingame is the 31st city to commit to going gas-free.

Cities and counties in California serve as guiding lights as the state navigates a transition from gas to clean-energy buildings. Motivated by the climate crisis, worsening air pollution, escalating gas rates, and safety risks from gas, a new cohort of local government leaders is emerging in California. Over 50 cities and counties across the state are considering policies to support all-electric new construction.

This blog summarizes the cities and counties that have already adopted gas-free buildings commitments or electrification building codes (i.e., “reach codes” that go beyond the statewide building code) and is regularly updated to reflect the latest wins in California. Ordinance language is also linked below.

To urge your city council members to be climate leaders and to create a gas-free future for our homes and buildings, please [sign this petition](#). To get more involved in the campaign, please [sign up here for updates](#) on what is happening in your city.

So far, 31 cities (listed with the most recent city first) have adopted building codes to reduce their reliance on gas. More to come with your help! Stay tuned....

31. [Burlingame](#)- Requires all electric new construction for projects with exemptions for single-family and commercial projects for gas cooking and fireplaces.

30. [Santa Cruz](#)- Requires all electric new construction with exemptions for projects that are deemed to be in the public interest and for restaurant cooking.

29. [Hayward](#)- All new residential buildings are required to be all-electric and nonresidential and high-rise residential buildings are electric preferred. Mixed-fuel buildings must install solar panels, and the energy budget must be 10 percent better than code.

28. [Richmond](#)- Requires new residential buildings over three stories to have prewiring for electric readiness and to support all-electric clothes dryers and space and water heating. Allows gas to power stoves and fireplaces. Requires all buildings under three stories to build all-electric and install a minimum amount of on-site solar based on square footage.

27. [San Mateo County](#)- Requires that no gas or propane plumbing is installed in new buildings, and that electricity be used as the energy source for water and space heating and cooking and clothes drying appliances.

26. [Campbell](#)- Requires all-electric space and water heating in new residential buildings, accessory dwelling units, and major remodels.

25. [San Francisco](#)- Prevents natural gas from being built into municipal buildings, requires commercial and multifamily buildings over four stories to be 10 percent better than the California Energy Commission’s (CEC) requirements, multifamily buildings less than three floors to be 11 percent better than CEC code, and single-family homes be 28 percent better than CEC code.

24. [Los Altos Hills](#)- Requires electric space and water heating in new low-rise residential buildings.

23. [Cupertino](#)- Requires all buildings, including accessory dwelling units, to be all-electric. Also requires outdoor pools, spas, and barbeques to be included within the definition of an all-electric building.

22. Los Gatos- Requires all newly constructed single-family and low-rise multifamily buildings to be all-electric.

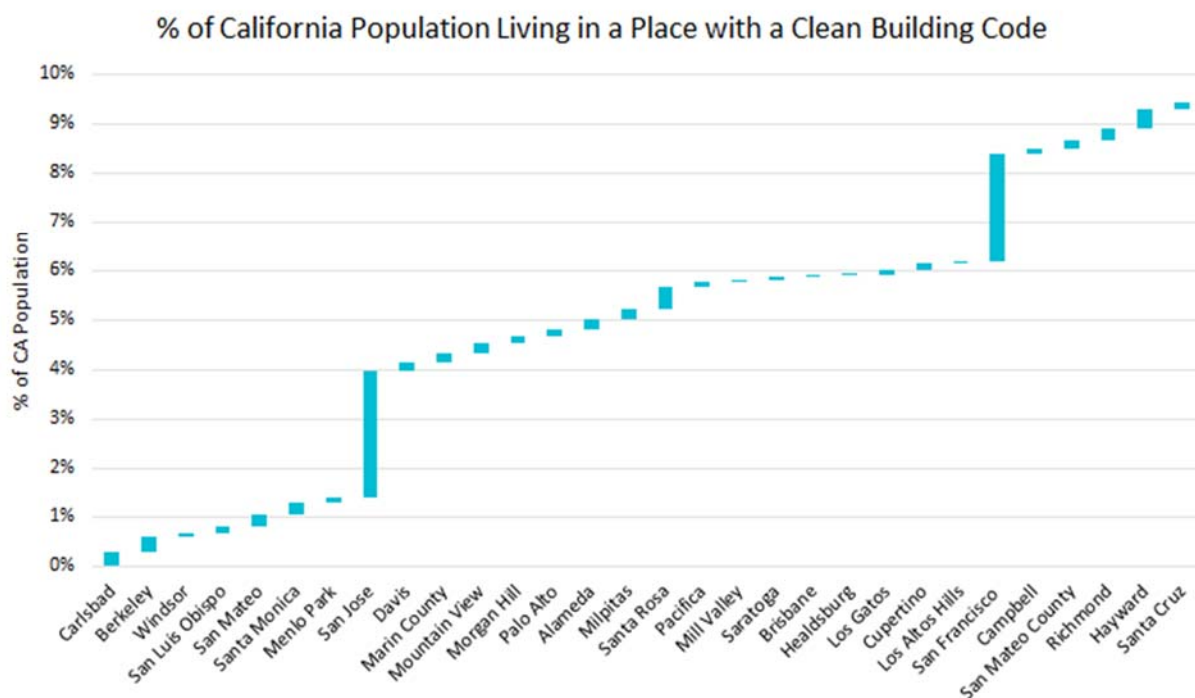
21. Healdsburg- Requires electrification for most appliances but grants an exemption for gas cooking and fireplaces.

20. Brisbane- Requires all newly constructed single-family homes and low-rise multifamily buildings to be all-electric. Allows exemptions for cooking appliances but requires pre-wiring for electric readiness.

19. Saratoga- Requires all newly constructed buildings to be all-electric.

18. Mill Valley- Requires all newly constructed residential buildings to be all electric.

17. Pacifica- Requires electrification for most appliances but grants an exemption for gas cooking and fireplaces in new residential buildings. Requires water and space heaters, cooking appliances, fireplaces, and clothes dryers to be all-electric for new nonresidential buildings. Public agencies providing emergency services and nonresidential kitchens are exempted.



16. Santa Rosa- Requires all newly constructed low-rise residential buildings to be all-electric.

15. Milpitas- Limits gas infrastructure for newly constructed buildings on city-owned property.

14. Alameda- Limits gas infrastructure for new residential construction on city-owned property.

13. Palo Alto- Limits gas infrastructure for newly constructed buildings. Directs city staff to begin working on ordinances prohibiting gas infrastructure in new buildings and to continue their work on exploring scalable, cost-effective rebates for retrofitting existing homes.

12. Morgan Hill- Phases out gas hookups in all newly constructed residential buildings and most nonresidential buildings.

11. Mountain View- Requires electrification for new residential and nonresidential buildings. Does not exempt gas stoves, fireplaces, or firepits in residential buildings.

10. Marin County- Offered three compliance pathways for newly constructed buildings in unincorporated buildings: one for all-electric construction, one for limited mixed-fuel construction that has fewer efficiency requirements because it uses less gas but allows gas stoves, and one for mixed-fuel construction that requires the most strict compliance with Cal Green Tier 1 and electrification-readiness requirements.

9. Davis- Requires higher energy-efficiency standards and electrification readiness in mixed-fuel buildings.

8. San Jose- Requires new low-rise residential buildings and municipal buildings to be all-electric. Prohibits new gas hookups for new low-rise residential buildings and new municipal buildings. The code also requires greater access to electric vehicle charging for new construction.

7. Menlo Park- Requires all-electric new construction for residential buildings as well as new nonresidential buildings but allows an exemption for cooking appliances in low-rise residential buildings.

6. Santa Monica- Requires additional energy-efficiency measures for new residential and nonresidential buildings that use gas.

5. San Mateo- Incentivizes office buildings and single-family and multifamily buildings to exceed the statewide building code requirements. Adds additional requirements for rooftop solar and electric vehicle charging.

4. San Luis Obispo- Requires additional energy efficiency and electrification readiness for all newly constructed buildings and adds a small fee for new mixed-fuel buildings based on expected gas consumption.

3. Windsor- Mandates all-electric new construction for low-rise residential buildings, including single-family homes, multifamily homes with fewer than four stories, and detached accessory dwelling units (but attached ones are exempt).

2. Berkeley- Phases out gas hookups in all newly constructed residential buildings and most nonresidential buildings.

1. Carlsbad- Requires heat pump water heaters or solar thermal water heating in new residential buildings that have fewer than four stories.

City and county leadership is essential not just for local climate action but also to convince the California Energy Commission to require or at least support all-electric new construction in the statewide building code (Title 24).

The CEC updates Title 24 every three years. The 2019 version of Title 24 went into effect January 1, 2020. The CEC is already working on the next iteration of Title 24, which will come out in 2022. All of this community and city support for more-ambitious building codes sends a strong signal to the CEC to align the statewide building code with climate science and require all-electric new construction. Californians deserve nothing less.

June 10, 2020

To: City of San Mateo Sustainability and Infrastructure Commission, City of San Mateo
Copy: San Mateo City Council

Subject: Reach Codes

Dear Mr. Rafael Reyes, Chair of the San Mateo Sustainability and Infrastructure Commission, and Commission members:

We are writing to you today as important, vested stakeholders in the discussion about building “Reach Codes.” We would like to thank the San Mateo Sustainability and Infrastructure Commission for discussing at its May 13, 2020 meeting, new Reach Codes for Low Rise (≤ 3 Floors) and Mid Rise (4 to 7 floors) multi-family buildings. We believe that City staff has worked hard to create a policy that incentivizes all-electric construction in place of fossil fuel gas. However, other cities have found this approach not to be effective.

1. **Recommendations.**

We request a robust Reach Code that would require all-electric installations now, in Low Rise and Mid Rise multi-family buildings including full wiring and full electrical equipment installation for cooking, clothes drying, space heating/cooling, and domestic hot water, in addition to more robust requirements for Electric Vehicle charging. Fossil gas would be prohibited.

2. **Other stakeholders.**

It is our understanding that staff is having discussions with apartment developers about the new codes, and will after that, will prepare an ordinance for City Council review at an upcoming study session. City staff has graciously allowed us to be stakeholders in this conversation.

3. **Reach Code progress in California.**

We note that Reach Codes are part of the evolutionary process under Title 24 of the building code, as updated every three years by the California Energy Commission and the Building Standards Commission. The City Ordinance changes now being contemplated for San Mateo come under the 2019 code effective this year. The 2022 codes are already under development, to be effective January 1, 2023.

We point this out because the next round of codes will get tougher as The State of California heads toward the elimination of all fossil fuels in retail electric production, by 2045, as required by SB100 and also heads towards carbon neutrality in 2045, under California Executive Order B-55-18

The City of San Mateo is to be congratulated for receiving the prestigious “Trailblazer” Reach Codes Award from Sustainable San Mateo County. It is our understanding that San Mateo received this award because of its forward thinking and courage in being among the first cities in San Mateo County to adopt a new Reach Code. That reach code for which they received the award allowed “mixed fuel” with modest efficiency requirements (“compliance margins”) in single family construction.

Since then, 14 other local codes have been passed Reach Codes with increasingly stronger provisions requiring all-electric new construction in both single family and multi-family construction, with few exceptions. Brisbane, Campbell, Cupertino, Los Altos Hills, Los Gatos, Menlo Park, Mountain View, Pacifica, Saratoga, and San Mateo County now require electric heating and water heating in new construction. San Mateo County, for example, requires all-electric new construction for all building types and all appliances. Further, the City of San Jose is currently developing a policy, for possible adoption later this year, extending the current prohibition on gas use in new homes and small apartments to *all* multifamily and commercial developments.

Very few cities opted for an approach that allows gas installation with efficiency improvements (“compliance margins”) because it was demonstrated from past experience with Palo Alto and Marin that reach codes with this approach intending to incentivize electric buildings over gas were not effective – few builders opted to go electric. For more information on the types of reach codes adopted by different cities, see the California Building Decarbonization Coalition status table [here](#).

The nine cities and the County of San Mateo each justified the requirement for all electric new construction with concern for the climate crisis, including significant warming impacts of gas (which is mainly made up of the chemical methane). The City Councils of many cities noted interest in reducing fossil fuel use and reducing the associated health impacts, air pollution, and safety hazards. Comments were made from the dais about wanting to leave a livable world for children and grandchildren, and that any inconvenience of switching to electric technology was well worth it. Many city leaders also noted that electric construction – if well-designed – would save money.

4. Apartment Developer Input to Reach Codes.

We believe that your strategy for receiving input from Apartment Developers will allow the City of San Mateo to continue to show strong leadership in developing powerful, forward thinking Reach building codes. Because we are also stakeholders investing our time and energy to this endeavor, a group of us in Fossil Free Buildings Silicon Valley has over the past 12 months been speaking with apartment developers of all sizes, types and funding sources. The information we have gathered is clear – elimination of gas in multi-family development may be difficult for some developers, but is doable given strong leadership and thinking about the future. We thank the City for listing us as resources for developers and respectfully request full consideration of our concerns and recommendations.

5. Our investigation of Apartment Developer Issues.

In our research, we have documented that apartment construction is expensive and despite some public opinion to the contrary, market rate developers do not get rich by building apartments. Investment profit margins are thin, construction costs are ever increasing, and sub-contractors, who bear the bulk of liability should some new methodology prove unreliable, are understandably reluctant to change to something new. We found in our research, reluctance to install readily available equipment for electric heat pump water heaters, heat pumps for heating and cooling, and electric induction cooking.

Finally, not all Mechanical, Electric and Plumbing (MEP) designers are familiar with all-electric design, nor are all MEP subcontractors. But at the same time there is a substantial new effort to get all contractors trained by BayREN, PG&E and Bay Area CCAs (Community Choice electrical energy Aggregators). We believe that designers, builders, contractors and sub-contractors will need to update their skills because local policy and ordinances throughout the Bay Area are moving towards all-electric.

Affordable housing developers operate in a somewhat different environment. Funding of affordable properties is extremely complex and time consuming. Construction money comes from a wide variety of sources – tax increment financing, outright government grants, private grants, housing vouchers, and other sources not available to the market rate developers.

For tax increment financing, affordable housing developers must get in line at a California state agency, and then compete for money with other regions of our state, where construction costs are lower. Meanwhile, affordable housing developers also face the same issues as market rate developers – there are not yet a lot of subcontractors able and willing to assume the liability for relatively new technology, not all MEP designers have the capability to handle these projects, and building space is tight, especially as many affordable housing projects are urban infill projects.

6. Market Conditions Favor All-Electric Construction

Market conditions may at first glance make strong, all-electric Reach Codes impossible.

We argue the contrary.

We recognize that all-electric Reach Codes **may be** more difficult to implement for some developers that are more familiar with somewhat older methods of installing the least expensive natural gas stove, water heater and furnaces. However, many developers are already building all-electric and saving money by doing so. Studies have shown that installation of all electric appliances and equipment in new construction is equal in cost to natural gas, if installation is completed at the time of original construction. For instance, in all of the buildings analyzed by the 2019 Nonresidential New Construction Reach Code Cost Effectiveness Study, all-electric versions cost less to construct than their mixed-use counterparts.

7. The Climate Crisis.

We all agree that the climate crisis is real. The situation is dire – Green House Gases (GHG) from human development are threatening the air we breathe and the air that keeps the planet cool. These impacts are both global and local.

San Mateo for example is facing the imminent threat of sea level rise, leading to significant expenditures for construction of higher and stronger levees. The San Mateo County Sea Level Rise Vulnerability Assessment completed in March 2018 found that in the event of a mid-level 2100 sea level rise scenario, property with an assessed value of \$34 billion would be flooded on the Bayshore and on the Coastside north of Half Moon Bay.

Globally, the impact on the planet of burning fossil fuels is well documented. Methane, one of the prime ingredients of “natural” gas, is 20 to 80 times more potent than carbon dioxide. Many have also documented the impacts from burning natural gas, from leaks, and other sources.

Significant health hazards from gas use in our homes have been brought to light by recent reports including this one from the UCLA School of Public Health: [Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California](#). In addition to highlighting that long-term exposure to air pollution makes people more vulnerable to the coronavirus and other respiratory diseases, the study analyzed specific health benefits from residential electrification in California. One major finding: ***Replacing all residential gas appliances with clean electric alternatives would cut particulate matter pollution (PM 2.5) enough to result in approximately 350 fewer deaths each year, 900 fewer cases of bronchitis each year, and \$3.5 billion in health savings each year. (in the bay area the benefits exceed \$1 billion)***

This [Factsheet summarizes the main reasons for concern over Fossil Gas](#) (health, climate, fracking, ecosystem, cost, safety, etc.).

8. The possibility of Retrofits.

Many developers and designers to whom we have spoken say that they could always retrofit at some later date. Unfortunately, retrofitting involves ripping open walls and floors to install electrical wiring. Retrofitting is time consuming and much more expensive than installation at the time of original construction. Low rise and mid-rise multifamily construction typically consists of wood framing. There is no space between floors and wood framing that would easily accommodate later installation of electric conduits. Additionally, electrical transformer and service panel space will not be available.

Operationally, entire portions of buildings would need to be vacated, at a tremendous loss in operating revenue. **To be blunt, retrofitting is an expensive and unlikely proposition.** The time to install all-electric is at the time of original construction.

For information about existing all-electric homes, apartments, and commercial buildings and electric products in popular use, please see the ***guidebooks for all-electric zero carbon construction*** on the [Fossil Free Buildings Campaign site](#).

IN SUMMARY

- We ask the City of San Mateo to continue to show leadership and forward thinking by adopting an all-electric Reach Code for low-rise and mid-rise multifamily projects, similar to the policy that San Mateo County adopted in February, 2020. Now is the time for action.
- We recognize that apartment developers are sometimes caught between a rock and a hard spot and need assistance as they begin to build the capacity to implement all electric systems. Your leadership can go a long way in making all-electric happen.
- Retrofitting new Fossil Gas buildings later will be expensive and therefore unlikely, leaving stranded assets for owners.
- If the reach code proposal remains a simple addition to the code that would allow dual fuel or less, with extremely minor incentives for all-electric construction, we do not believe that it will be a worthwhile effort. We believe that stronger measures are necessary. Small differential type reach codes have been tried in other cities, including Palo Alto's 2016 Reach Code, and it was ineffective. Those cities with earlier differential codes have now transitioned to all-electric reach codes.

We thank you again for this opportunity to be part of the decision process and discussion with the developers. We not only believe that this is another example of San Mateo's transparent government, we also believe we can have a positive impact on the process.

Sincerely,

Katie Ackerly, David Baker Architects
 Sven Thesen, Project Green Home
 Terry Nagel, Chair, Sustainable San Mateo County
 Robert Whitehair, San Mateo Resident
 Teri Whitehair, San Mateo Resident
 Adam Loraine, San Mateo Resident
 Diane Bailey, Menlo Spark
 Bret Andersen, Carbon Free Palo Alto
 Adam Nugent, San Mateo Resident
 Nancy Schneider, San Mateo Resident
 Debbie Mytels, Peninsula Interfaith Climate Action
 Lexi Crilley, co-lead of Silicon Valley Youth Climate Strike
 Wendy Chou, San Mateo Resident
 Doug McGlashan, San Mateo Resident
 Ricki McGlashan, San Mateo Resident
 Karen Maskel, San Mateo Resident
 Steve Maskel, San Mateo Resident

To: City of San Mateo
 Sustainability and Infrastructure Commission

Madeline Bernard, San Mateo Resident
Libby Traubman, San Mateo Resident
Bruce Naegel, Sustainable Silicon Valley
Dashiell Leeds, Sierra Club Loma Prieta Chapter