



March 5, 2021

Barry Hooper  
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Dear Mr. Hooper:

On behalf of BOMA (Building Owners and Managers Association) San Francisco, I would like to thank you for the opportunity to comment on the Draft Climate Action Plan (“the Plan”). Our members agree with the stated goals of decarbonizing the built environment, and BOMA has a long history of championing sustainability. BOMA is pleased to continue our partnership with the Department of the Environment in helping craft workable policy solutions to address the climate crisis.

BOMA San Francisco actively engages with city, state, and federal officials to advance sustainability within the commercial real estate industry. To that end, BOMA has participated in the Zero Emissions Building Task Force – Commercial Buildings Work Group, partnered with SF Environment to offer education to our membership on the Refuse Separation Ordinance, and collaborated with the Mayor’s Office on the 100% Renewable Electricity Ordinance. We are proud of our sustainability efforts, and BOMA International was recently named as one of the 100 Associations That Will Save the World, by the American Society of Association Executives (ASAE).

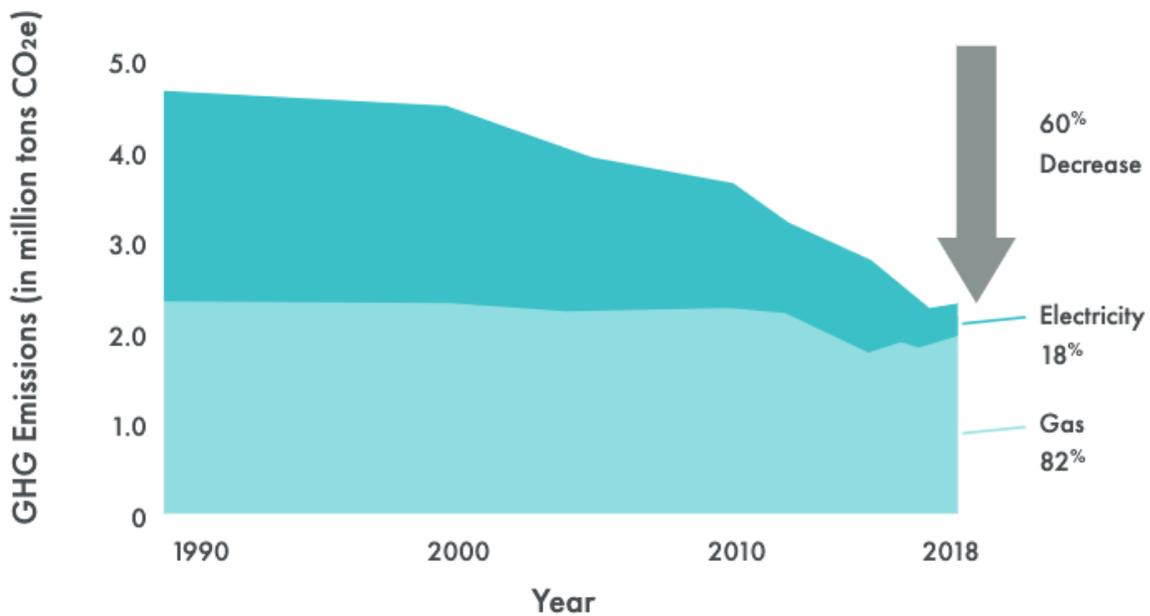
As operators and leaders of the most efficient building stock in the world, we hope to work together to craft equitable policy solutions that reduces carbon emissions. We can further magnify the impact of our work as other jurisdictions follow our lead. However, if we fail to collaborate and resolve difficult issues, we will end up with a plan that promulgates unrealistic policy and leads to adversarial working relationships, raises emissions, damages the business environment in San Francisco and ultimately fails to accomplish its core climate goals.

We stand ready to assist to find comprehensive climate change solutions for San Francisco and offer the following comments and questions for consideration:

### **Foundations of the plan**

We are concerned that the Plan does not speak in detail to the City’s GHG accounting and draws premature conclusions about the pathways to achieve the City’s goals in the Building Operations and Energy Supply segments of the Plan.

Like a building, all good plans rely on firm foundations. The Plan focuses on natural gas as the only possible pathway based on greenhouse gas accounting data prepared by the city. The argument is that due to rapidly decarbonizing electric supply, natural gas is the only logical pathway for reductions, as illustrated in the figure below.

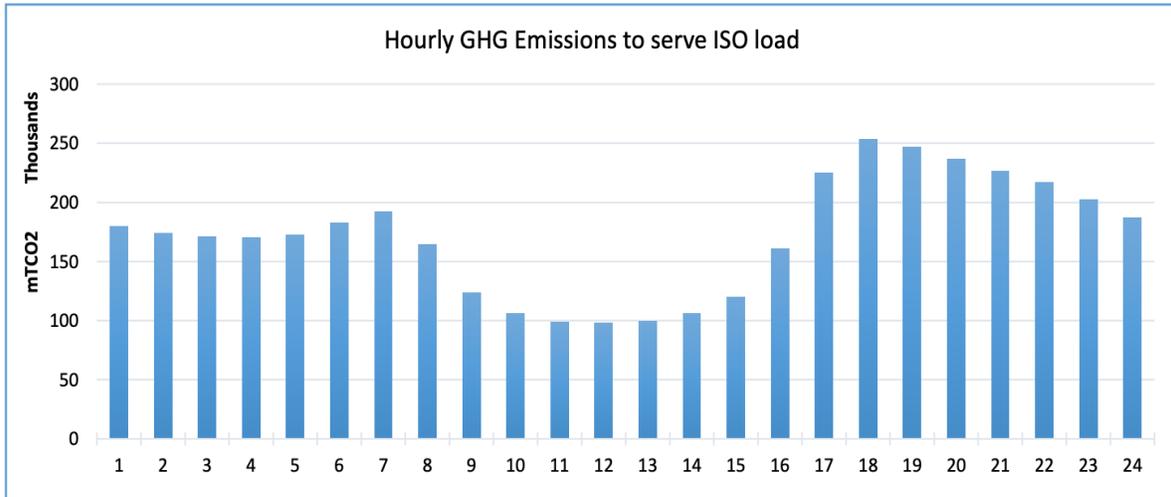


BOMA buildings are subject to state, national and international performance standards that have varying treatments of site emissions, but all of which encourage both electric and thermal efficiency. BOMA members therefore focus on *all sources* of energy reduction, and are surprised by staff's accounting compared to the data published by the California grid and our member's carbon accounting for electricity in various programs like ENERGY STAR.

As an example, it is hard to understand the City's view that electric heating is essentially zero carbon today with data from CAISO that shows the following hourly emissions for a recent heating month<sup>1</sup>.

<sup>1</sup> See GHG Emissions Tracking Report, Nov 2020: <http://www.caiso.com/Documents/GreenhouseGasEmissions-TrackingReport-Nov2020.pdf>

**FIGURE 3 – Total hourly GHG emissions to serve ISO load.** This figure reflects the hourly sum of GHG emissions from internal ISO dispatches and GHG emissions from imports serving ISO load for the month of November 2020.



The City’s accounting ignores system-level emissions from the grid that reflect the realities of each day’s dispatch of resources, system level reliability resources and imports, and would ignore electric efficiency pathways to achieve the City’s goals.

The accounting is also not consistent. The City’s building benchmarking databases published as part of the benchmarking ordinance show GHG emissions with emissions supply factors apparently higher than listed in The Plan<sup>2</sup> and does not tie to the graph repeated in the plan and reproduced below. The City should have comprehensive consistent and third party audited policies for GHG emissions accounting.

The Plan therefore provides conflicting signals about decarbonization as it seems to incorrectly place little value on electric reductions and place undue emphasis on natural gas elimination as the only pathway to achieve the goals.

**Questions about the GHG Accounting in the Plan**

1. What accounting protocol is the city using for the GHG analysis of the plan?
2. Is there a written document for how buildings Scope 2 emissions should be calculated across all city programs?
3. Has the GHG inventory been third-party reviewed for accuracy?
4. Have CAISO, CARB and CEC approved or commented on the City’s carbon inventory?
5. What assumptions are made in each of the major electric providers assumptions about the GHG impact of additional load due to this policy as well as EV adoption?
6. The State has several policy efforts at greening natural gas supply. What assumptions were made about the impact of those efforts in the carbon inventory?

<sup>2</sup> See: <https://data.sfgov.org/Energy-and-Environment/Existing-Buildings-Energy-Performance-Ordinance-Re/j2j3-acqj>



### *Considerations:*

- By the Plan's accounting, on-site renewables provide no decarbonization benefit. Then why does the city source them, including paying a premium for city sited generation? Why would the goals and supporting actions of ES-2 (Invest in local renewable energy) have any carbon benefits?
- The Plan's accounting leads to surprising conclusions. Is an electric building with an ENERGY STAR score of 10 better for achieving the city's goals than a building with an energy star score of 99 that happens to use gas for space heating? That would seem to follow from the Plan's implication.

### **Emission Reductions and Grid Capacity**

The Plan focuses its attention on natural gas and assumes that a fuel switching mandate is a smooth path to emissions reductions. This may be true in residential, but large commercial buildings have unique attributes that raise significant questions about the end result of the regulation.

Building design is a central issue. Typical office space heating designs in our market rely on a central boiler system to feed a hot water loop at ~ 180F supply temperature to deliver space heating through perimeter terminal units in the building. Electrifying this design has three options, two of which are already being quoted by our members, and a third which has not been seen in the US, and has just a handful of installations in Europe:

1. Replace Hot water terminal unit (e.g., VAVs) with electric reheat
2. Replace gas boilers with electric resistance boilers
3. Install high temperature heat pumps, typically with waste heat as a heat source such as data center<sup>3</sup>

Our conclusion is that the Plan should make more careful assumptions about both the electric capacity needed as well as the efficiency losses from policies that will lead to installations of mostly electric resistance heating. Our concern is that especially with the advancing timelines, that the policy could lead BOMA members to be forced into electrification in ways that might not decrease but actually increase carbon emissions and exacerbate our carbon emissions.

That might have further unintended consequences as much of the balance of the Plan's reductions come from transport electrification. Many members have serious concerns about the grid capacity to handle the increased load, and PG&E's attendance at stakeholder meetings is not sufficient to allay these concerns. As the events in Texas demonstrate, insufficient power is devastatingly disruptive to society.

### **Cost Implications for Tenants and Small Business**

In BOMA's view, the reductions achieved through mandatory electrification of space heating are likely to be highly capital and operationally expensive.

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<sup>3</sup> See for example: <https://ochsner-energietechnik.com/>



On the capital side, we see costs in the same order of magnitude for electric boilers, but with air distribution costs for most buildings exceeding \$1 per foot. Members examining electrification report that the building's feeds will need to be upgraded. Pricing is forthcoming from PG&E, but it is not uncommon to face a service fee of \$100,000 or more to bring 3,000 amp service to a commercial building. Finally, if existing equipment becomes "stranded" due to legislation following the plan, then there will be capital costs associated with the write off and early replacement of capital equipment.

On the operational side, California continues to lead the nation in high electricity prices, and as recent CPUC Research shows, those rates are expected to climb leading to \$0.30/kWh power prices in 2030.<sup>4</sup> On a fuel equivalent basis, electric resistance heat costs 4 times that of natural gas. This translates into increased operating costs. We estimate an impact of over \$0.50 per square foot, for a total increase of 20% of the average utility bill for BOMA members.

Commercial buildings are largely passthrough entities organized to allocate the common costs of a building to tenants that desire a long-term lease. For the vast majority of our members all operational costs, and all capital costs associated with regulatory rule changes will be borne by tenants.

Cost allocations might also limit the impacts associated with the Plan. Buildings might be stationary, but tenants are not, and just this year our membership has seen large leases leave for lower cost areas -- even Pacific Gas & Electric is now operating in lower cost Oakland. Departing tenants might lower San Francisco emissions, but proper plan accounting will quantify and detail how we are measuring leakage from reductions from tenants that leave the city. We also share the concern that our members' small business tenants will be the most affected, especially as it relates to one-time capital expenses.

Finally, we worry about the economics and sustainability of the gas system for other users. As large commercial users electrify, that will cause price increases to smaller users still on the gas infrastructure, which will disproportionately negatively affect mid and lower income communities. Social equity is somewhat included in the plan, but without specific accounting of these costs, as well as upstream emissions impacts and leakage it is hard to see the full spectrum of the results of a widespread natural gas ban.

## **Other Considerations and Recommendations**

### **Low GWP Refrigerants (BO-4)**

We are encouraged to see a short discussion of the role of GWP refrigerants. External research, such as Project Drawdown,<sup>5</sup> shows this to be one of the most attractive sectors for emissions reductions, and BOMA members have been leaders in careful refrigerant management and upgrades. Conversely many smaller and lower-class buildings have notoriously poor refrigerant practices, it's not uncommon to see multiple recharge tanks stored next to equipment because leakage rates are so high. BOMA highly encourages additional investigation of this opportunity as simple education and incentive programs can yield huge reductions from stopping high GWP leaks.

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<sup>4</sup> See CPUC White Paper: [Utility Costs and Affordability, Feb 2021](#)

<sup>5</sup> See <https://drawdown.org/>



## Upstream Emissions

The plan also omits any discussion of the accounting of natural gas emissions impacts from end-user relative to methane leakage from upstream production and transmission. The plan doesn't specifically address upstream considerations and decommissioning the actual gas lines serving residents and businesses.

## Regulatory Authority

Title 24 has been a major driver of changes to tenant spaces through updated code requirements and yet has not yet addressed electrification. A major policy failure would be overlapping or even conflicting approaches between Title 24 and regulations that could potentially follow the Plan.

Finally, we wonder whether these policies will ever reduce emissions because they won't survive collision in the courts with affected parties or other regulatory agencies that claim precedence. Many of our members have been following Local Law 97 in New York City, which has been through many twists and turns and has diverted critical sustainability teams away from projects and into following winding policy fights between the New York City and New York State leadership.

## Questions about the feasibility of the plan:

1. What technology and efficiencies were assumed would replace gas space heating?
2. Has an independent analysis been conducted of the rules around large offices and a technical evaluation completed about what the likely result will be as well as the associated carbon reductions?
3. What technical studies have been conducted by PG&E to demonstrate the grid investments needed to accommodate load. Are these reflected in IRP studies and have they been filed with CAISO?
4. What are the plan's leakage (in GHG accounting) assumptions? How many tenants will leave the city due to another high-cost burden?
5. The plan is very short on details on the refrigerant portion of the city's emissions as well as leakage rates. What carbon reduction is possible here and what studies have been done to estimate the opportunity?
6. What is the plan's treatment of upstream methane emissions? How will equity be addressed in a shrinking gas system?
7. Please detail the discussion the city has had with CEC, CARB, CPUC, and other relevant state agencies about the plan. Has the city analyzed their response to lawsuits that challenge the regulatory authority? How much has been budgeted for the legal defense of the rules?

## Implementation Suggestions:

Our comments are hopefully clear about the costs of compliance and skepticism of automatic carbon reductions from gas bans. We understand that the plan seeks to answer the question of how to achieve the City's goals and is not yet regulation, but will influence an eventual ordinance. As such we have several implementation suggestions:



## BO 2-6 Annual fees in lieu of electrification

BOMA supports BO 2-6 (3) allows payment of annual fees in lieu of electrification, as this helps our members make the economic case for electrification and helps avoid the most-costly retrofits. We suggest the fees are tied to other traded environmental commodities on a kBTU-equivalent basis, such as the California Carbon Allowance market or Low Carbon Fuel Standard (LCFS). The City participates in both markets, recently granting permission to sell LCFS credits generated by Muni.

BOMA would prefer that any fees associated with BO 2-6 are simply channeled to environmental credit retirement. Should the City wish to invest the funds in low-income decarbonization, then that investment needs to have equal or lower cost per ton of emissions reductions and address issues such as additionality and leakage.

## Exclusions and Exceptions

The magnitude of the challenge of gas bans is tremendous, and for the most affected members who have been diligently leading on emissions rightly feel they are being punished just because of a corner case of how a building was constructed 80 years ago. BOMA recommends compliance exceptions for buildings with:

- ENERGY STAR score of 90 or above in the compliance year
- No feasible path to electrification other than electric resistance heat, as certified by a California registered Professional Engineer
- No economic path to electrification with a project simple payback, including non-compliance fees of 6 years or greater, as certified by a California registered Professional Engineer

## **Other uses of Natural Gas**

We would also like to raise the following use types of natural gas in the city that are particularly complex and require both discussion and narrative additions in the plan:

1. **Steam:** Many BOMA members rely on the steam loop (about 180 buildings). You have indicated verbally that steam is judged as a Scope 2 emission at the building level, and therefore electrification rests on Clearway Community Energy, but this needs written confirmation in the plan as well as the financial and technical feasibility of electrification of the plant. BOMA members on steam need written confirmation that they are not subject to this ordinance as long as Clearway is a going concern.
2. **Fuel Cells:** The plan is silent on fuel cells, but many operate in the city with long asset lives and local resiliency and back up applications. BOMA recommends exclusion of fuel cells from the list of carbon reduction. It would be highly ironic and a sign of conflicting policy agendas if one part of government subsidized their installation through SGIP and a locality banned them due to emissions impacts.
3. **Cogeneration Facilities:** Many buildings make effective use of waste heat from cogeneration facilities. We recommend these are excluded from the plan.

4. **Absorption Chiller:** The plan is silent on natural gas use for cooling. Several large installations of absorption chillers help alleviate peak load on the hottest days, where California carbon intensity is the highest. We recommend these are excluded from the plan.
5. **Biomethane:** The plan is silent on biomethane or future renewable gas options and the GHG accounting for those fuel sources, yet those resources are under active development and will be delivered in the time period.

### Conclusions and BOMA support

We hope these comments are useful to your team as they refine the plan and think through policy recommendations that are woven through the plan. Our hope is that together we can answer our questions and work together on a plan that BOMA can wholeheartedly support and continue our international leadership on the response to the climate crisis.

We welcome further discussion with our members to answer and refine these issues.

Sincerely,



John R. Bryant  
Chief Executive Officer  
BOMA San Francisco



May 14, 2021

Barry Hooper  
Senior Green Building Coordinator  
1155 Market St. 3<sup>rd</sup> Floor  
San Francisco, CA 94103

**Re: BOMA San Francisco Proposed Climate Action Plan Exemptions**

Dear Mr. Hooper:

Thank you for your time on our April 21 call to discuss BOMA San Francisco's member feedback on the Draft Climate Action Plan. BOMA found the conversation to be both productive and helpful as we seek to find common ground between our members' sustainability priorities and the Plan's strategies. We look forward to our continued collaboration and remain hopeful that the final plan will reflect our members' feedback.

In response to our April 21 call, BOMA has sought to identify the most pressing issue areas that we believe must receive exclusions in the final Plan. We have chosen these specific issue areas because, as you correctly note, the forthcoming Plan simply seeks to answer the question of how to achieve the City's climate goals. We believe that it is critical that the final Plan reflect these exclusions before legislation is considered. With this in mind, and given our discussion and prior comments (see our letter on March 5, 2021), we would encourage the following exceptions to the Plan as they will not advance the City's goals and are in direct conflict with other California policies:

1. Exclusion where no feasible path to space heat electrification exists other than electric resistance heat, as certified by a California registered Professional Engineer
2. Exclusion for use types with net carbon benefits including:
  - a. Fuel Cells
  - b. Absorption Chillers
  - c. Cogeneration Facilities
  - d. Systems using biogas

In addition, the Plan speaks to equity and we remain deeply concerned about stranded capital investments in our member buildings. Any ordinance that leads to unanticipated capital expenditures will fall directly on the accounts of tenants in all member buildings, meaning small businesses in San

Francisco will directly be challenged with large capital expenditures. As such we recommend the following exclusions to enhance the equity considerations in the Plan:

3. Any building whose gas use is from a system that remains within its useful life, as per manufacturer's guidelines, shall not be subject to early replacement under the Plan.
4. Any building with no feasible economic path to electrification with a project simple payback, including noncompliance fees of 6 years or greater, as certified by a California registered Professional Engineer, shall not be levied with more than 10 years of annual fees.

We urge the addition of these elements to the final Plan. We would appreciate your consideration and respectfully request the opportunity to meet again and discuss the specific issues raised in this letter with the hope that BOMA San Francisco can stand in support with the conclusions of the Plan.

Sincerely,

A handwritten signature in black ink, appearing to read "John R. Bryant". The signature is stylized and cursive, with the first name "John" being the most prominent part.

John R. Bryant  
CEO, BOMA San Francisco