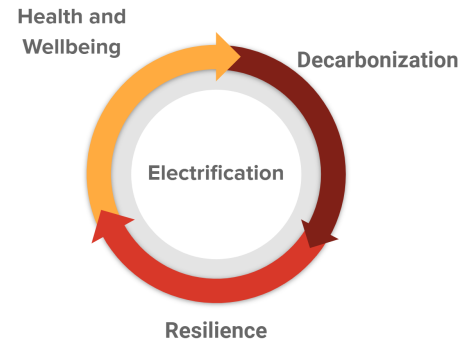


Summary of Findings

San Francisco Zero Emission Buildings Taskforce: New Construction Work Group – June 2020

About the Zero Emission Buildings Taskforce

San Francisco has long recognized the economic, public health, and quality-of-life benefits of climate action. In 2018, San Francisco Supervisor Raphael Mandelman led the Board of Supervisors to approve a declaration of Climate Emergency, and San Francisco Mayor Breed joined 23 mayors from around the world in signing C40’s [Net Zero Carbon Buildings Declaration](#), committing to eliminate carbon emissions from new construction citywide no later than 2030, and eliminate emissions from all buildings in the city by mid-century. To further the City’s commitment to climate action, racial equity and a just transition, Mayor Breed directed the Department of Environment to convene a Zero Emission Building Taskforce (ZEBT). The ZEBT gathered leaders from across the building sector to provide guidance on how best to fulfill the City’s commitments equitably and effectively.



“An all-electric City for buildings, residences and transportation is how the City leads the way towards an emissions-free future.”

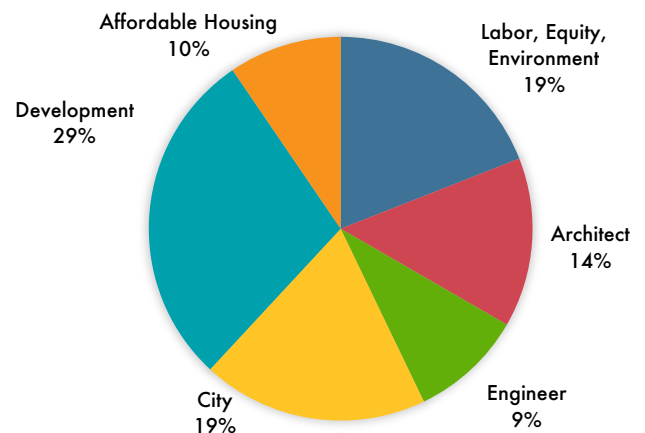
- Mayor London Breed, April 22, 2019

This document summarizes the outreach to and feedback from the New Construction Workgroup of the ZEBT. The New Construction workgroup was established to inform Supervisor Rafael Mandelman’s ordinance proposing to require new buildings to be “all-electric”. The City requested guidance on timing, applicability, implementation, and equity of the ordinance, as well as support and follow up necessary to successfully transition to all-electric new construction. Both Mayor Breed and Supervisor Mandelman demanded inclusivity in the process, and equity in implications.

Stakeholder Outreach

The City is committed to extensive outreach and education for San Franciscans about the climate emergency and the City’s goals, as well as transparency in data & analyses that inform policies and programs. The workgroup brought together participants from key perspectives, including community and neighborhood advocacy groups, affordable housing developers, commercial and residential owners and developers, investors, design professionals, environmental advocates, workforce and labor representatives, and City departments. Staff provided supporting technical, legal, financial, and budgetary analysis, as well as considerations of administrative practicality.

Workgroup Representation





In addition to meetings of the workgroup, the City hosted a well-attended kickoff workshop and meetings reviewing specific issues or in-depth considerations & concerns.

Outreach Events

| Date | Event | Participants |
|---------|---|--------------|
| Jan 8 | Kickoff Workshop: <i>Building the All-Electric City</i> | 72 |
| Jan 24 | ZEBT New Construction Workgroup Meeting #1 | 19 |
| Feb 19 | ZEBT New Construction Workgroup Meeting #2 | 17 |
| Feb 19 | Presentation to Bayview Hunters Point Environmental Justice Response Task Force | 23 |
| Feb 20 | Presentation to Building Owners & Managers Association of San Francisco, Energy & Environment Committee | 19 |
| Feb 24 | ZEBT – Executive Steering Committee | 21 |
| Feb 25 | San Francisco Energy Fair – Public expo on electrification | 450 |
| April 3 | ZEBT New Construction Workgroup Meeting #3 | 19 |
| Apr 23 | All Electric New Construction: Considerations for Affordable Housing | 41 |
| May 12 | Exceptions Process Review | 11 |
| May 15 | Draft All Electric Ordinance: Considerations for Restaurants | 8 |
| May 18 | ZEBT – Executive Steering Committee | 28 |
| May 29 | All Electric New Construction: Infill Sidewalk Electric Vaults | 22 |
| June 19 | Draft All Electric Ordinance: Check-in with Climate Emergency Coalition | 9 |

Precedent

From 2017-2019, Marin County, Palo Alto, San Francisco, and other California jurisdictions adopted local laws to incentivize all-electric design. These laws increased energy efficiency requirements for “mixed fuel” buildings (e.g. buildings that use natural gas), while maintaining requirements for all-electric buildings. These actions became a statewide trend within the last year: 30 local governments around California have passed policies to support electrification in new construction. Several Bay Area cities, including Berkeley, San Jose, and Menlo Park adopted policies that went further, eliminating natural gas, primarily in single-family homes and low-rise multifamily buildings. In January 2020, San Francisco adopted an ordinance eliminating



natural gas in newly constructed municipal buildings, and an ordinance which favors electrification in residential and commercial buildings by increasing energy performance requirements for buildings that install gas systems.

Supervisor Raphael Mandelman challenged the ZEBT New Construction Workgroup to take the next step: an ordinance requiring the elimination of natural gas from new construction for the benefit of public health, fire safety, and climate action. For San Francisco, the logic of electrification is clear and was presented by Department of Environment staff during the public kickoff meeting of the New Construction Workgroup:

- **Decarbonization of grid-supplied electricity is happening rapidly.** The San Francisco Department of the Environment (SFE) [Climate Storyboard](#) shows that emissions from operation of buildings citywide declined 51% from 1990 to 2018 due to grid decarbonization and energy efficiency.
- **Emissions from electricity use in San Francisco are on the path to zero.** Today natural gas represents 82% of remaining emissions from buildings in San Francisco.
- **Electrification of the remaining fossil fuel energy uses in San Francisco buildings is required to reach zero emissions.** In the near future, natural gas-fired boilers, water heaters, furnaces, ovens, ranges, and clothes dryers will comprise virtually all the greenhouse gas emissions from San Francisco's buildings. Eliminating these emissions by switching to carbon-free energy for space and water heating, creating what the Mayor has called an 'all electric city,' is the new strategy to reach zero emissions.

In response, the New Construction Workgroup provided the following feedback about timing, applicability, implementation, and equity of the ordinance:

Act now - Delay will not make transition easier. The future is electric. It is urgent to halt future emissions by no longer constructing buildings that use natural gas. Leaders in design and construction are aware of the case for electrification and how to deliver it, but direct and consistent messaging from the City on the 'all-electric' future must continue. Costs are competitive and technology is available. Complexities for some use types (e.g. power supply for small in-fill projects, restaurant cooking methods, and complex process loads) may require exceptions in some cases. Clear and urgent communication from the City will spur already permitted projects (where a new mandate cannot apply) to consider electrification to avoid future re-engineering costs (e.g. if the building is to be sold).

Health and resilience are equity imperatives. Many stakeholders are not aware of outage times for the electrical systems compared to the gas network after a seismic event,¹ or the health impacts of indoor combustion of fossil fuels – the consequences of which are magnified for low-income communities and communities of color that already suffer greater prevalence of asthma due to poor indoor air quality. These co-benefits join carbon reduction to justify electrifying new construction. A focus on health and resilience also underscores that electrification must not delay the development of much-needed affordable housing.

Help projects make smart design choices. As San Francisco buildings decarbonize, any new natural-gas-using equipment will become a liability for building owners. The City must communicate now, and repeatedly, with project teams and developers about this shift. Compared to all existing buildings, few projects are impacted, but the impact on individual projects nearing completion of design could be significant. Project costs grow with each delay and any time redesign is

¹ It is estimated that after a 7.9 earthquake it would take six months to restore gas services citywide, while electricity could be restored in less than a week. Source: San Francisco Lifelines Council (2014) "Lifelines Interdependency Study"

[sfgov.org/orr/sites/default/files/documents/Lifelines%20Council%20Interdependency%20Study.pdf](https://www.sfgov.org/orr/sites/default/files/documents/Lifelines%20Council%20Interdependency%20Study.pdf)



required. In all cases, earlier notice mitigates the impact. By aligning City policies and programs, the City can send and reinforce a clear message of electrification and find creative ways to help owners and developers make timely, cost-effective decarbonization decisions. Coordinating with PG&E and SFPUC to ensure grid capacity and to provide a clear map of utility infrastructure can further inform building applicants' plans.

Workforce development and stakeholder education are essential. Projects transitioning to all-electric new will spur the workforce to evolve. To support the equitable growth and retention of a diverse workforce, as well as a just transition, it will be necessary for construction training and workforce development programs to train workers on installation and maintenance of zero carbon electric equipment and provide the pathways to employment necessary to construct the All-Electric City.

In parallel, design and construction professionals understand the City's message that policy has changed and the necessary electrification is both cost effective and technically feasible. This City must invest in education and partner with local institutions and utilities to smooth out the learning curve and support a successful transition.

| New Construction Workgroup Input | Findings | *Fine Print |
|---|--|--|
| Act now - delay will not make transition easier. | Efficient zero emission technologies are available and fossil fuel systems in new construction will become liabilities for owners. | An All Electric City will take time to build. The Climate Emergency is underway. Stop adding to the problem. Demand spurred by new construction requirements will help the workforce evolve. |
| Health and resilience are paramount to equity. | Health, wellbeing and resilience support eliminating fossil fuels. | After seismic events, electric service will recover much faster than gas - with implications for building operations. Electrification must not thwart housing development. |
| Facilitate smart decisions. | Projects in development will benefit from early warning; a clear, unambiguous message from the city will help. | A rapid change in requirements will be felt strongly by a handful of projects already in design – but fixing the problem now avoids the need to retrofit in the future. Communicate now, so they have time to act. |
| Workforce development and stakeholder education are essential. | Zero emissions is a significant shift in design and construction practice. | Successful implementation of the ordinance will require the city to invest resources in outreach and education, and to support workforce training. |

For detailed meeting agendas, notes and presentations, see SF Environment's web page: [Zero Emission Building Taskforce](#).

Contributions

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New Construction Workgroup

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| Ted Tiffany | Guttman & Blaevoet | Engineer |
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| David Fahy | San Francisco Local 38 Plumbers & Pipefitters | Labor |
| Richard Berman | Port of San Francisco | City |
| Lisa Fisher | Planning Department | City |
| James Zhan | Department of Building Inspection | City |
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New Construction Workgroup, Continued

| Facilitation and Support | | |
|---------------------------------|---------------------------|-------------|
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