

San Francisco Zero Emission Building Taskforce - Existing Commercial Buildings Work Group:

Meeting #3 Notes

Existing Commercial Buildings Work Group – Meeting #3

Monday, March 24, 2020 from 1:00pm-3:00pm online

Hosted by: San Francisco Department of Environment Taskforce

Facilitated by: Michelle Vigen Ralston, Common Spark Consulting

Attendees

White background indicates attendance; grey indicates absence.

| Name | Organization | Representation |
|------------------|---|--|
| Johnathan Kocher | 350 Bay Area | Environmental Advocate - Local |
| Danielle Mieler | San Francisco Office of Resilience and Capital Planning | City Resilience Planning |
| Amanda von Almen | Salesforce | Tenant & Ownership – Large Commercial |
| Zachary Brown | CBRE | Real Estate Services and Ownership Representation – Large Commercial |
| Tristram Coffin | Whole Foods | Commercial Tenant |
| Hannah Kaye | PG&E | Utility |
| Daniel Considine | Boone Energy | Building Efficiency Consultant |
| Jim Coyle | Equity Community Builders | Contractor/Developer |
| Barry Giles | The Net Zero Existing Buildings Company | Building Efficiency Consultant |
| Rami Moussa | Point Energy Innovations | Engineer |
| Raphael Sperry | Arup | Consultant |
| Elizabeth Joyce | Arup | Consultant |
| Ryan Tinus | Hudson Pacific Properties | Ownership – Large Commercial |
| Laura Ettenson | Natural Resources Defense Council | Environmental Advocate - National |
| Michael Hyams | CleanPowerSF | Utility/CCA |
| Jim Kelsey | kW Engineering | Engineer |
| Tony Birdsey | Tishman Speyer | Ownership – Large Commercial |

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| Bill Whitfield | Shorenstein Realty Services | Ownership – Large Commercial |
| Alex Spilger | Cushman Wakefield | Real Estate Services – Large Commercial |
| Lauren Riggs Burt | Google | Tenant & Ownership – Large Commercial |
| Bill Whitfield | Shorenstein Realty Services | Ownership – Large Commercial |
| Sean Donnelly | TMG Partners | Ownership – Large Commercial |

San Francisco Environment Staff in attendance included: Cyndy Comerford, Climate Program Manager; Barry Hooper, Green Building Specialist; Rich Chien, Senior Program Coordinator; Paris Smith, Green Building Energy Associate

Consultant Team: Lane Burt, Ember Strategies; Michelle Vigen Ralston and Jack Chang, Common Spark Consulting

Meeting Notes

1. Introductions and Public Webinar Reflections

Facilitator Michelle Vigen Ralston began the meeting by inviting participants to describe what they have found unexpectedly easy or difficult about sheltering in place during the ongoing coronavirus pandemic.

Vigen Ralston then asked participants to reflect on the March 11, 2020 public webinar that drew more than 90 people. The workshop heard an update about the progress of the Existing Commercial Buildings Work Group and discussed how the city could help stakeholders complete the transition to zero-emissions building operations by 2050.

Barry Hooper said webinar participants received a clear message that all stakeholders faced shared risks from climate change and shared interests in mitigating climate change’s worst effects. Barry summarized a table that outlines what the city heard from the Work Group members, how they were translating that in their own thinking and some of the details and nuance around each issue.

| Task Force Input | SFE Interpretation | *Fine Print |
|---|--|---|
| Send a strong clear signal. | All commercial buildings must decarbonize by 2035. | Large buildings may have resources, but struggle with complexity and timing. Small buildings can act, but lack resources. |
| Planning is key. | The City will help owners create an electrification plan. | City-supported pilots and case studies are needed. Technologies and approaches must improve. Capital planning cycles are key. |
| The City must be reasonable. | Every building will face unique challenges in complexity, cost, and degree of control. | The City must create a process for considering extensions. Steam users, tenant equipment, etc, are known issues. |
| The City must validate success. | Fully decarbonized buildings should be recognized. | The recognition needs to be public in the local market and usable by ESG reporting mechanisms like GRESB. |
| Investigate a complementary geographic approach. | We need a decarbonization masterplan. | Network and resilience benefits accrue block by block. Gas rates are driven by fixed costs, creating equity concerns as the system shrinks. |

Building types: One participant noted concern at the public webinar about challenging building types where space may not be readily available for heat pumps. One example given was the Transamerica Pyramid tower. The participant said district heating could be a solution for challenging building types, and people could examine electrifying district heating resources.

Timing: Another participant noted concerns brought up at the webinar about the timing, whether 2035 was realistic for phasing out natural gas use in all large existing commercial buildings. The participant suggested requiring each large commercial building file a master plan within five years detailing how its owners planned to meet the 2035 requirements. That would allow the city to grade building master plans and identify what kinds of help buildings might need to meet the 2035 goal. The participant also noted that the resiliency conversation should include other types of emergencies other than earthquakes, such as floods, to measure the resiliency advantages of electricity versus natural gas dependence in buildings. Such resiliency measures should also take into account the city’s zero-carbon goals.

Another participant noted that with the current pandemic-related market turmoil, pushing back the compliance date from 2030 to 2035 would help building owner planning cycles incorporate decarbonization needs. The participant also said the city needs to communicate the coming changes to all building owners so they can start planning the transition now. Class A buildings, in particular, have institutional investor requirements for ESG reporting. He added that smaller buildings often don’t plan their renovations using capital planning cycles. Finally, the participant noted that current low natural gas prices don’t make the finances look appealing yet for switching to all-electric buildings.

2. Strategic Energy Assessment Tool

SEA Description: Hooper described the Strategic Energy Assessment (SEA) tool developed by the city of San Francisco to help building owners plan for energy performance improvement or decarbonization by combining energy planning, property condition assessment, and deferred maintenance management in a

discounted cash flow context. He described the SEA as an alternative to ASHRAE energy audits, with data requirements adapted directly from ASHRAE's Normative Forms, and procedures & output inspired by & compatible with the ASTM Property Condition Assessment standard. The city already requires buildings to perform energy audits every five years, but ASHRAE audit standards are designed to identify immediate-term cost-effective energy efficiency opportunities. Electrification of large buildings is not expected to be commonly accomplished in a single retrofit, so it is necessary to empower engineers and owners with a procedure to envision a future decarbonized state of the building and its systems, and identify upcoming opportunities for progress toward the future state. Least-cost transition requires planning to occur before a major opportunity arises.

The SEA emphasizes that inaction has a cost; by quantifying the effect of energy inefficiencies and maintenance deferral on net operating income, the SEA helps the engineer to estimate the *cost of inaction* as a baseline condition. The engineer develops multiple scenarios for efficiency and decarbonization, and places them into the realistic context provided by the baseline. By grounding scenarios in the discounted cash flow metrics commonly used in real estate investment decisionmaking, the net impact of a given investment can be incorporated into real estate investment and maintenance decisions. The SEA eliminates the payback period concept, and instead emphasizes capital planning over a longer period (expected to generally be 5 - 15 years depending on owners' hold plans). The SEA focuses on different ways major equipment replacements can affect building positioning and current and future property valuation; it's intended to enable an engineer think and communicate from the point of view of property owners. The tool wasn't originally designed with building electrification specifically in mind, but can be used for the purpose today; SFE is seeking input to improve the tool to better aid planning for building electrification.

For example, a conventional energy audit process would often result in a recommendation how a system can be replaced with a more efficient version of the same system – such as replacing a chiller with a high-efficiency chiller of similar capacity. However, if a building's envelope will require investment for safety or or tenant comfort in the coming years, then the envelope improvement could reduce cooling load. In such a case, delaying a central system overhaul might allow for lower total capital cost *and* lower operating cost by deferring the central plan upgrades until after the envelope. In turn, envelope upgrades may work out best for both owner and tenants if implemented as major tenants turn over. Scenario planning can help tool users project out different net present values and cash flows in light of both the owner's objectives and the city's goals or policies.

Iterating on the SEA: One participant offered that city is ending a three-year cycle of energy audits and has another two years until the next round of audits; since the SEA is a prototype they hope the city will commit to iteratively improving the SEA tool over the next 18 months. SFE is interested in hearing from stakeholders about what they would like to see included in such a tool. Hooper noted that the tool was already accepted in lieu of an audit for compliance with the Existing Buildings Ordinance. In particular, the city needs guidance on the framing at the start of the process to set expectations and facilitate effective communication, as well as outputs to best stoke building owners interest to prioritize, investigate, and plan for favorable scenarios. One pilot has been completed; it was not entirely successful. Ownership, property management, and the consulting engineer were each very sophisticated and great candidates for the process, but there were two break points: (A) The consulting engineers did not receive the clear message from the owner that decarbonization was a priority, and (B) the owner delegated the project entirely to the building engineer, who was experienced in energy efficiency. All building systems had

recently been overhauled to current efficiency standards. As a result, the scenarios developed confirmed the building is currently very energy efficient and well managed and noted opportunities for improvement, but did not systematically catalog opportunities for decarbonization.

A meeting participant identified himself as part of the engineering firm that worked on the pilot and said he was a fan of what he described as the SEA's forward-looking approach. He noted that the SEA wouldn't work for a client who wanted the cheapest possible audit. Instead, it required engagement from building owners but also had higher potential value than a traditional audit given such engagement.

Discount rate: Another participant asked whether the tool would use a standardized discount rate for forecasting 10-year discounted cash flows. The city responded that the tool contains reasonable defaults which can be used, but users can apply their own discount and utility rate escalation.

Carbon emissions: A building owner representative asked whether the tool would be able to estimate carbon emissions reductions as a result of building improvement investments. Lane Burt, a consultant to the city, responded that a carbon calculator has been added to the tool so that it can more explicitly serve as an electrification tool. A representative of Arup, the consultancy that developed the tool, said the tool features emission intensity values that can be edited by the user, enabling analysis of emission scenarios. The tool also lets a user project how different energy conservation measures can be implemented to impact a building's emissions profile.

Cash flows: A participant asked whether the tool can modify anticipated cash flows for buildings and also whether it would accept key metrics needed by the Investor Confidence Project. The Arup representative said the SEA lets owners enter different operating expenses, revenues, rents, fees, and other costs to project building cash flow. The tool wasn't developed with the Investor Confidence Project in mind but has the same type of information, and both ICP and SEA are built upon existing standards, so it would be easy to transition, such as for the purpose of qualifying for On Bill Financing from a California utility.

A participant asked whether the tool could accommodate for different upgrade schedules, for example for electrical and mechanical upgrades that are occurring during overlapping times. Burt confirmed the tool can accommodate varying upgrade schedules.

One participant asked about the cost of an SEA assessment, and the engineering firm representative responded that in the pilot the SEA had cost about the same as a Level 2 audit. He acknowledged that in order to keep the analysis cost similar, there is a trade-off between the technical detail to develop very specific recommendations in an audit vs. deeper thinking to develop long term scenario options in SEA.

Vigen Ralston asked stakeholders whether they felt the SEA would help them meet a 2035 compliance date for achieving zero operational carbon emissions. Some stakeholders nodded in agreement, no one spoke against it. A building owner representative responded that his company could electrify the equipment and base building support if they received a clear signal with incentives and sticks in place.

Building loads: The same building owner above said their biggest engineering concern was whether the electrical infrastructure serving the building could support the additional load requirements created by phasing out natural gas. He asked whether the SEA could project building load changes.

Hooper said the tool doesn't perform any engineering but provides a framework for engineers to perform calculations and put them in context for building owners. Burt said more planning information should be shared between engineers and owners so that engineers can solve the right problems going forward, including potential modifications down the line that will create additional load.

A participant asked about projected future energy rates and infrastructure needs in the city. A PG&E representative said the utility couldn't predict future energy prices but that the California Public Utilities Commission was directing PG&E to develop more attractive residential rates for electrification. The representative also noted that solar generation on buildings could help offset additional load. Burt added that the SEA does allow users to enter different escalating electricity and gas rates.

3. Next Steps

Hooper said the ongoing coronavirus pandemic made it difficult to confidently predict next steps in the city's Zero Emission Building Task Force. The original plan was to incorporate stakeholder input from four work groups into the Climate Action Plan and accompanying Roadmap to Zero Emission Buildings and publish both by November. Rich Chien, staff lead for the Climate Action Plan, said that for now, staff planned to stick to that schedule. Hooper suggested that in the meantime, the city could set up focus group meetings on the SEA based on interest in learning how to apply the tool.

Vigen Ralston ended the meeting by asking participants how confident they felt, on a scale of 0 to 10, that the city could reach its zero building emissions goals by 2050. She also asked participants to name something they had learned during the work group discussions. Almost all participants said they felt maximum 10-level confidence in the city's ability to cut all building emissions by 2050.