ELECTRIFY SAN MATEO

BUILDING FOR THE FUTURE

City of San Mateo Sustainable Buildings Strategy

Feedback Meeting

3.5.25

Presentation Goals

- Project Overview: City of San Mateo Sustainable Buildings Strategy
  - Building electrification
  - Project overview and timeline
- Gain Your Input on Existing Building Decarbonization Policies
  - Explanation of Types of Policies
  - Activity
  - Discussion / Q&A
  - Next Steps

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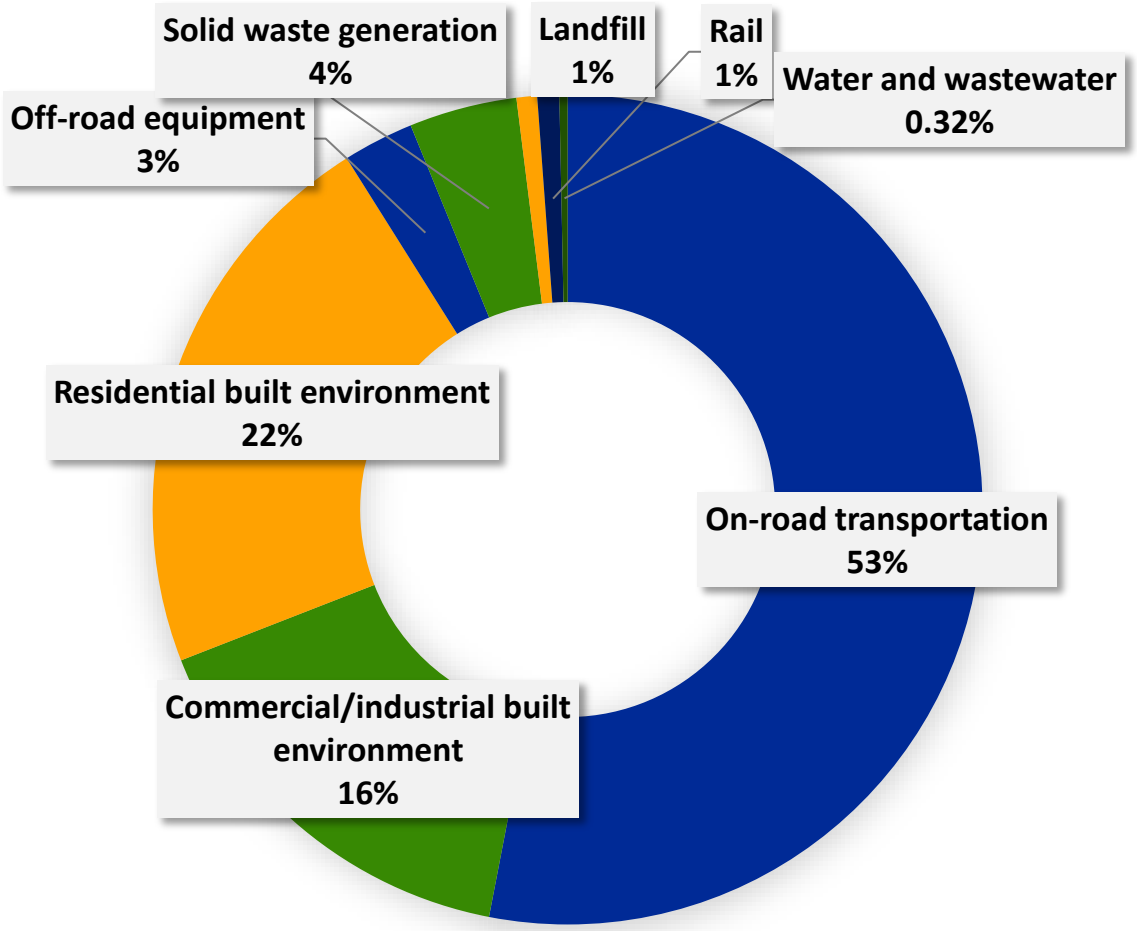
Project Overview

Building electrification background

Strategy development timeline

Electrify San Mateo: Building For the Future



2019 Greenhouse Gas Emissions

- San Mateo Climate Action Plan: GHG reduction goals
- San Mateo City Council priority: Decarbonize existing buildings by 2030
- Electrification of existing buildings is the most cost-effective way to achieve carbon-free buildings

What is existing building electrification?

Switching from using natural gas to carbon-free electricity for heating/ cooling, cooking, and clothes drying in our homes, apartments, offices, stores, and beyond

Space heating and cooling: Gas Furnace → Heat Pump

Water heating: Gas water heater → Heat Pump Hot Water Heater

Cooking: Gas stove → Induction Stove

Clothes Drying: Gas Clothes Drying → Electric Dryer

Co-Benefits of Electric Buildings

- **Greenhouse gas emission reductions**
  - Forecasted Built Environment emissions: 38% in 2030, 39% in 2045

- **Community Health**
  - Electronic appliances → improved air pollution, reduced risk of asthma (particularly childhood asthma)

- **Energy Affordability**
  - Gas bills could more than double over time

- **Resilience & Safety**
  - Decreased fire & carbon monoxide risk, increased resilience with solar

- **Equity**
  - Equitable access to health, safety, upgraded buildings & comfort benefits.

Sustainable Buildings Strategy Project Goals

- Actionable roadmap with real steps for City of San Mateo to electrify buildings
- Approach must
  - Be **cost effective** + most effective in reaching climate goals
  - Use **best available science and data**
  - **Community driven** approach: engage early and often, two phases of community outreach
  - **Policy Analysis Framework** used as Criteria to Select Best-fit Policies: Effectiveness + Equity Criteria

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City of San Mateo Sustainable Buildings Strategy

Strategy Development Timeline

- Phase 1: Community Outreach: Effectiveness + Equity Criteria Feedback
- Results of building inventory and market segmentation
- Draft prioritized policies list

- Phase 2: Outreach: Community feedback on policies & pathways
- Incorporation of community feedback in prioritized policy list
- Drafting of pathway

- Development of Equity + Effectiveness Criteria
- Identify range of feasible policy options
- Building Inventory and Market Segmentation Analysis

- Incorporation of community feedback for equity and effectiveness criteria
- Draft policies & pathways list- Community feedback

- Public review of draft strategy

Community Concerns

- **Cost**
  - Short term investment but can save you money over time; variable

- **Availability of Incentives**
  - Incentives are variable; uncertainty of federal funding

- **Gas Rates**
  - Gas is considered cheaper than electricity

- **Grid Reliability**
  - Power outages from PSPS and increased electricity demand could strain the grid

Costs: Upfront Residential Electrification Costs

Incremental costs for electrification are higher, but can reach parity with rebates.

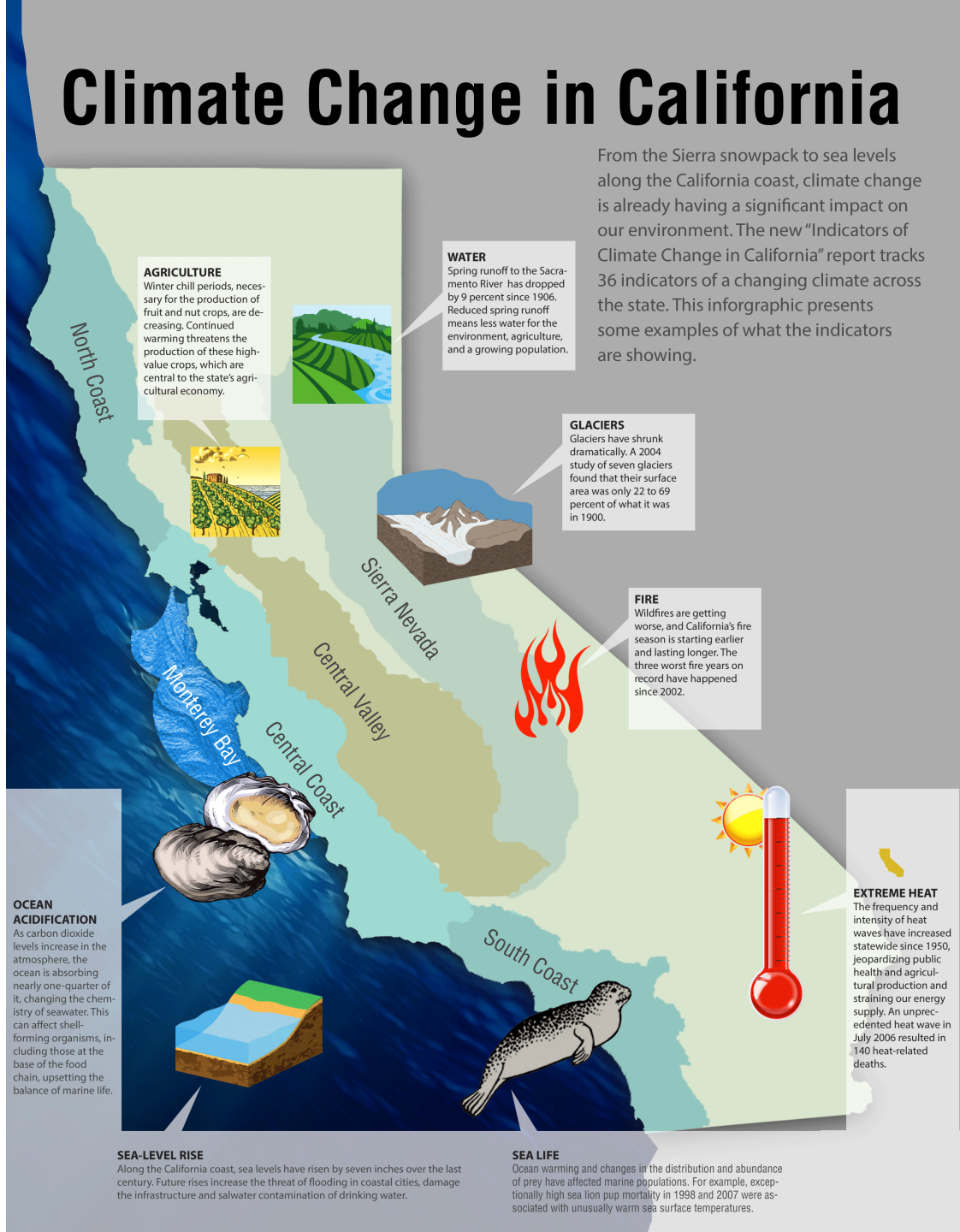
Whole home electrification could save San Mateans $1,700 when compared to the cost of gas-for-gas appliance replacements.

Incremental cost of full-home electrification after rebates: +$3,836 to -$1,700 (cost savings)

Average PCE household Saves money on bill (~$300) on e-elect rate.

Cost of Doing Nothing

- Cost of mitigation vs cost of rebuilding after climate disaster
  - LA fires ($250 Billion in damages)
  - San Diego floods ($1.4 Billion in damages)
- Building electrification is the most cost-effective strategy to decarbonize the building stock



Grid Reliability

- State and local agencies are planning for electrification.
- EV impacts far outweigh building impacts
- Currently planning for a 27% increase in peak demand by 2035

Decarbonization Topic	What's Included in Resource Planning Through 2040?
 Building Electrification	New Construction: 100% all-electric space and water heating in new construction for residential buildings beginning in 2026; and 2029 for the commercial sector. Existing Buildings: 100% replace on burnout for space and water heaters in the Bay Area AQMD territory in 2027 and 2029; and 2030 for the rest of the State 'More ambitious' scenarios that also electrify cooking and clothes drying were modeled not selected for inclusion in the forecast due to high rates of uncertainty for building electrification. 2035 Electrification Load Impact: 5,378 MW.* * These increases to load could be significantly reduced through reductions in demand from solar, energy storage, and energy efficiency, cumulatively subtracting -4,785 MW from this total. This also applies to the projections for vehicle electrification.
 Vehicle Electrification	Passenger Vehicles: 13.7 million ZEVS on road by 2035 Commercial Vehicles: 407,000 million ZEVS on road by 2035 2035 Electrification Load Impact: 4,810 MW, with most (3,949 MW) coming from passenger vehicles
 Projected 2035 Statewide Electrical Demand	Managed Peak by 2035: 56,937 MW, equal to a ~27% increase from the actual 2023 peak of 44,534 MW

Community Input on Existing Building Decarbonization Policies

Building electrification & existing policy + climate goals

Existing Building Decarbonization Policy Types

Option 1: Business as Usual

Option 2: Reach Codes for Renovations

Option 3: Zero NOx Equipment Requirements

Option 4: Commercial Building Performance Standards

Option 5: Municipal Electric First Policy

Option 1: Business as Usual

- Continue to adopt *new construction* "reach codes" (ordinances that surpass the state's buildings code) to require more sustainable new buildings than the state code

- Focus on education, outreach, and incentives for existing buildings

    - Current incentives: Peninsula Clean Energy, Inflation Reduction Act, and California TECH

PENINSULA CLEAN ENERGY

Option 2: Reach Codes for Renovations

- Explore and adopt *existing building* reach codes for limited appliances
  - would require electric appliances during major renovations or additions in existing buildings
  - 2-way AC Requirement
  - Energy efficiency/Electrification checklist for renovations over $ amount

Option 3: Zero NOx Equipment Requirements

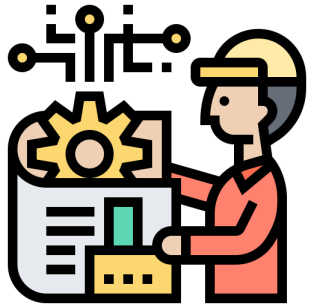
- The Bay Area Air District (BAAD) will require property owners in nine Bay Area counties, including San Mateo, to switch their water heaters (starting in 2027) and space heating equipment (starting in 2029) to electric when they need to be replaced

- This proposed policy would move up the deadline so that this requirement would be in effect in ahead of BAAD's requirements

Option 4: Commercial Building Performance Standards

- Adopt a policy standard for commercial buildings over a specific square footage (ex: 20,000 sq. ft.)
- Policy would require disclosing building energy use, increasing energy efficiency, and eventually, electrifying buildings as a phased approach

Benchmark
Report MT CO2e and square footage



Retrocommission
Engineering report on energy saving opportunities

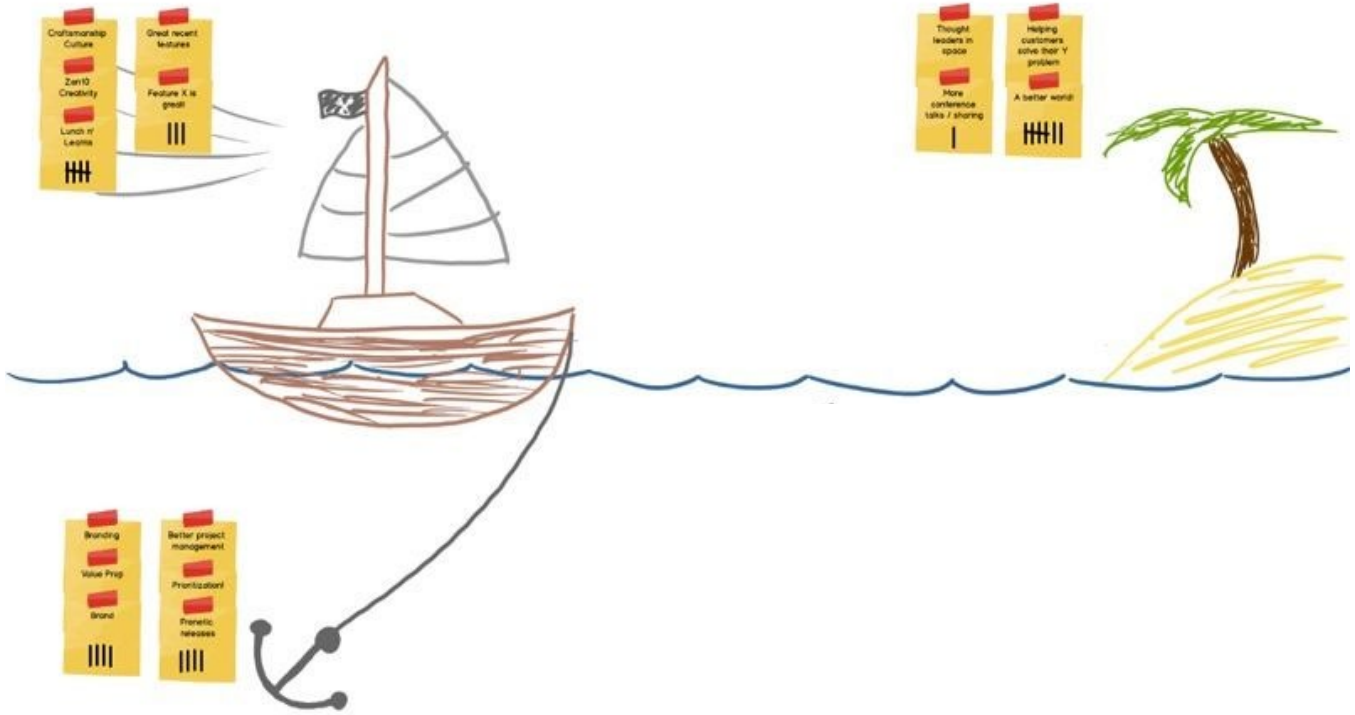
Performance Standard
Complete projects to reach the threshold

Option 5: Municipal Electric First Policy

- Require City facilities to transition to electric equipment upon replacement
- Provides exemptions for infeasible projects

Sailboat Activity

- Activity to brainstorm electrification challenges and support solutions to help us achieve our decarbonization goals



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Thank You!

- Please do our voting activity on the way out to be entered into a raffle
- If you have friends/ family who could not come today, there is an upcoming virtual workshop or an online survey

Link to Register for Virtual Workshop Thursday March 13, 12:00-1:00 pm

Online Survey

More Building Electrification resources:

Questions? Contact:
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Thank you!

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