San Mateo County Emissions

2015 RICAPS EMISSIONS INVENTORY
2018 “Back of Envelope” Calculation

- Upstream fugitive emissions are not accounted for so NG impact is likely significantly higher.
- Air travel and embedded carbon of products not included

- Electricity: 15%
- Building Natural Gas: 20%
- Transportation & Equipment: 61%
- Waste & Water: 4%

7%
High-Level Roadmap: Transportation

TRANSPORTATION ELECTRIFICATION

Current
- EV Ride & Drive Campaign
- New EV Dealer Incentive Program
- DriveForward Electric (Low Income EV Program)
- EV Charging Infrastructure Program (in development)

Pilots
- Smart Charging
- Low Power Charging

Forthcoming
- Transportation Network Companies (Ride-Hailing)*
- Curbside Charging Pilot*
- Municipal Fleets
- E-Bikes

* Approved
High-Level Roadmap: Buildings

2018 | 2019 | 2020 | 2021 >>>

Transportation
- Personal cars
- Fleets/Shared

Renewables
- Municipal
- Community

Building Electrification
- New
- Existing

Load Shape
- Analytics
- Storage
- Load Control, VGI

BUILDING ELECTRIFICATION

Current
- Reach Codes

Forthcoming – approved
- Technical Assistance & Contractor Training
- Consumer Education Campaign

Forthcoming – to be proposed
- Low income turnkey program
- HPWH incentives
- Heat pump technology pilot
## High-Level Roadmap: Distributed Generation

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<tr>
<th>Year</th>
<th>Personal cars</th>
<th>Fleets/Shared</th>
<th>Municipal</th>
<th>Community</th>
<th>New</th>
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### Renewables & Storage

**Current**
- Muni Critical Facilities

**Forthcoming**
- Medically Vulnerable Resilience
- Solar + storage systems (resi, muni, comm)

These programs are managed by Power Resources.
COVID/Recession Impacts

• Significant uncertainty
  • Duration of pandemic crisis
  • Length of current shutdown
  • Whether future shutdowns will be required

• Economic & Social Impacts
  • Reduced vehicle purchases
  • Reduced property owner investments
  • Potential ongoing “distancing” requirements/preferences

• Program Emphasis
  • Transportation as economic multiplier
  • Infrastructure for jobs
  • Low-income strategies
  • Fewer group events, more custom or peer-to-peer
Transportation Electrification
Transportation Emissions Detail

2019 Transportation GHG Emissions

- **Personal Pax Cars**: 33%
- **Rental Pax Cars**: 5%
- **Com. Pax Cars**: 2%
- **Gov. Pax Cars**: 1%
- **Personal LD Truck/SUV**: 21%
- **Com. LD Truck/SUV**: 2%
- **Rental LD Truck/SUV**: 2%
- **MD Trucks**: 15%
- **HD Trucks**: 7%
- **Buses**: 2%
- **All Others**: 10%

Ride-Hail drivers = 100,000 – 200,000 daily vehicle-miles travelled in San Mateo County

Source: CARB Model for 2019 for San Mateo County
2045 Replacement Analysis

- ~680,000 vehicles in SMC (80k fleet incl. ~50% SFO rentals)
- Carbon neutral by 2045 (Brown EO)
- Transportation emissions decrease of 45% by 2030 (AB 32)

Requires:
- 19% YOY EV growth
- EVs are 42% of new vehicle sales by 2025 and 100% by 2031
- All gas vehicles replaced ~2042
- Vehicle lifetimes must be kept to no more than 13 years and may require early retirements
COVID/Recession & Program Plans

- EV Ready – infrastructure incentive program
- Lyft EV rental pilot
- New & Possible adjustments:
  - E-Bikes and Fleets
  - Ride & Drive program
  - EV purchase incentive (incentive level, delivery model, new/used)
Existing Building Electrification
Natural Gas Emissions Breakdown

Residential Sector Characteristics

- **# Total Housing units**: 279,457
- **% Single Family units (1-4 units)**: 73%
- **% Multi Family units**: 27%

Commercial Sector Characteristics

- **# of employees**  |  **% of businesses** |  **% of employees**
- 0-9                 |  78%                |  13%
- 10-49              |  17%                |  25%
- 50-499             |  5%                 |  38%
- 500+               |  0.23%              |  24%

Sources:
- 2018 PG&E Gas data
- 2010 California Residential Appliance Saturation Survey
- 2006 California Commercial End-Use Study
Existing Building Objectives

• Create initial momentum and establish market
• Low hanging fruit first (single family water heaters)
• Partner with regional and statewide programs (BayREN, BDC, SGIP, etc.)
• Establish workforce readiness
• Promote economic benefits through job creation

Already approved
• Contractor training
• Marketing program
1. Low Income Program
   • Program: Turnkey electrification & healthy home upgrades for low income residents.
   • Goal: 400-500 homes over 4 years.
   • Addl Objectives: Low income benefits, jobs, workforce development

2. Heat Pump Water Heater Program
   • Program: Gas to HPWH replacement incentive. Combine with BayREN incentives.
   • Goal: ~1,200 over 4 years
   • Addl Objectives: Decarbonization, jobs, market development

3. Technology Pilot
   • Program: Pilot integrated electric space and water heating with load shifting thermal storage. Potentially lower cost than separate retrofits.
   • Goal: Pilot in ~5 homes to prove viability & help technology development to address market needs
CAC Support Opportunities

1. Transportation (1 group)
   - Help promote EV engagement strategies, leverage networks and relationships with community groups (rec. meet monthly)

2. Buildings (3 groups)
   - 1-2 CAC members participate in low income RFP process (ad hoc)
   - HPWH outreach subcommittee to assist with promotion and buy-in with other enviro groups (rec. meet monthly)
   - 1-2 CAC members as part of the tech pilot “assessment team” (rec. meet qtly)