



Regionally Integrated Climate Action Planning Support

Multi-city Working Group June 27, 2023

RICAPS technical assistance is available through the San Mateo County Energy Watch program, which is funded by California utility customers, administered by Pacific Gas and Electric Company (PG&E) under the auspices of the California Public Utilities Commission and with matching funds provided by C/CAG and additional funding provided by Peninsula Clean Energy.

Agenda: Grid reliability + electrification part 3: Municipal Electrification

1:30-1:35: Welcome – Avana Andrade, Office of Sustainability (OOS)

1:35-1:50: Announcements

- BayREN Single Family Incentive Update, Alero Moju, OOS (5-10 mins)
- Berkeley Legal ruling update, Blake Herrschaft, Peninsula Clean Energy (5 minutes);
- Update: RICAPS programs for Electrification- Avana Andrade; OOS (1 minute)
- Introducing: Upcoming Grid Reliability Cut Sheet Forest Abbott-Lum; Rincon Consultants (2 minutes); Poll: CIP electrification list

1:50-2:00: Jurisdiction Peer-to-Peer Share Out – all-jurisdictions

2:00-2:40: Leading Electrification By Example - Local Examples Highlight Successes & Challenges: SFO; Multi-Jurisdiction NG Audit Tool (Willdan x Energy Watch); City of San Carlos; City of Brisbane

Part 1: How are electrification projects selected/ prioritized? SFO; Energy Watch (multi-jurisdiction) Part 2: Electrification Successes/ Challenges in the Wild: San Carlos; Brisbane; SFO 10 min Q&A

2:40-2:55: What do Cities need to electrify their buildings? What can PCE do to help? Peninsula Clean Energy, Blake Herrschaft (programs manager)

- Upcoming PCE programs under consideration + City feedback
- 10 min Q&A

2:55-3:00: Survey and Closing

Announcements

BayREN Home+ Incentive Changes

August 1, 2023

- "Combine one or more Building Shell measures with a Heating or Cooling measure" bonus no longer available
- "Combine attic with exterior wall insulation" bonus no longer
 available
- "Downsize heating and/or cooling system compared to existing system" bonus no longer available
- "Duct sealing < 10% total leakage" no longer available
- "Duct replacement < 5% total leakage" reduced to \$500
 - Existing ducts can also be sealed to < 5% total leakage and qualify!
- Fuel substitution heat pumps reduced to \$400
- Fuel substitution heat pump water heaters reduced to \$400
- Electric heat to heat pump upgrade reduced to \$250
- Electric water heater to heat pump water heater upgrade reduced to \$250
- Central A/C reduced to \$200
- Gas water heater replacements limited to tank water heaters only (no tankless) \$400.

June 1, 2023

- Safety test CAS rebate reduced to \$100
- Smart Thermostats measure no longer available in Home+
 - Refer customers to the Golden State Rebates Program
 - Refer customers to the <u>PG&E Rebates for Thermostats Program</u>

Projects with the measure changes going into effect 8/1/23 must be installed and submitted into the portal by July 31, 2023.

MUST be installed and submitted prior to deadline

*Include a time stamped photo as proof of installed equipment/measure

MUST be tested (CAS) and <u>CAS</u> Document submitted prior to deadline MUST be paid IN FULL and <u>Invoice submitted</u> prior to deadline MUST BE APPLIED FOR customer <u>signed BayREN</u> <u>Application</u> <u>submitted</u> prior to deadline

*If a permit or HERS is required, DO NOT Wait for Permit closure to apply. Provide <u>all other required documents</u> and apply.

https://www.bayren.org/news/bay-area-regional-energynetwork-announces-rebate-adjustments



Berkeley Legal Ruling Update

Blake Herrschaft, Peninsula Clean Energy

Introducing: Building Electrification + Grid Reliability Explainer

Why: Misconceptions that electrification policies will cause power outages cause constituent, and City Council resistance to passing local electrification policies which are critical for meeting climate goals

Purpose: Consolidate what we've learned about the relationship between electrification and grid reliability from RICAPS guest speakers (E3; CPUC; PG&E & other best practices research) into **2-3 graphic-heavy** pages; using public-facing language;

Function: Sustainability staff attachment to CAP + building decarbonization policies reports to City Council

Audience: City Council; electeds; general constituents



Hurdle >> Outcome Map

Hurdles block the strategy outcome needed for existing building electrification

Grid Upgrades Needed Backup Power Needed	Grid Reliability		Even if local policies are passed, hurdles remain	Potentially significant equity impacts: low-income people are left out of the clean energy transition, or are saddled with rising costs.
Electric Alternatives Not Avaialble Lack of Qualified Contractors Lack of contractor knowledge	Contractor/Workforce			
Lagging replacement times Cost unknowns / Variable Costs Unfair cost burden on low-income	Costs	E∖ aı r€		Home owners install gas because of cost unknowns and compliance avoidance
Increased upfront costs				
PG&E lack of coordination	Communication/Perception			Upset community members
Lack of information on Process/incentives				Continued gas install
Staffing needs	Staffing Resources/Compliance			(unpermitted) + low compliance rates
Low permit compliance				

How we got here recap: Electrification Hurdle/ Outcome Map from Feb RICAPS

Feedback!



How do you anticipate using this resource?

Are there any specific framings you've found to be effective in messaging electrification x grid reliability impacts?

How can we best tailor this to meet your needs?

General feedback!

Drop your answer in the chat, or complete the survey (link in chat) https://forms.gle/8LtSGFudAZtWS985A

Jurisdiction Peer-to-Peer Shareout

Leading Electrification by Example: Part 1: Project Selection & Prioritization

Introduction: San Francisco International Airport

•3.54 square miles

Buildings
103 buildings
21,000,000 sq. ft. floor area
28 average bldg age
37 building use types
\$53 Million in annual utility costs

Operations (2019) •7th busiest US airport •58M Passengers •46,000 employees

SFO Electrification Planning/Prioritization



Campus natural gas use and geographic location

2018 Campus Energy Use





SFO's Building Electrification Plan for Existing Buildings

Strategy A: Establish a Consolidated Asset Directory 2021 - 2022
 Strategy B: Strengthen Electrification Policy and Process 2022 - 2023
 Strategy C: Educate and Train Airport Tenants and Staff 2022 - 2023
 Strategy D: Implement Natural Gas Phase-Out 2024 - onwards



San Francisco International Airport Electrification Action Plan

Electrification Action Plan available here: https://www.flysfo.com/sites/default/files/SFO_2021_Electrification_Action_Plan_v2.pdf

GIS - Natural Gas Asset Manager



SFO Field Building Natural Gas Equipment Breakdown



Energy Watch Internship: Methane Gas Catalog Project

- Methane Gas Catalog Tool Documented equipment that uses natural gases ranging from water heaters, HVAC, stoves, etc.
- With the catalog tool, we can note the estimated age and use of natural gas of each piece of equipment
- Experiences in the field
- Physical visits to different cities and questioned any available representative about each buildings daily use
- General questions ranged from daily occupancy, if the equipment meets the needs of general use, and any plans to go toward electric

Energy Watch Internship: Methane Gas Catalog Project

 Water heater that is only used for the bathroom sinks, so a large one wasn't necessary



Leading Electrification by Example: Part 2: Electrification in Action: Successes + Challenges

San Carlos HPWH Installation (x2)





Fire Station #13





Adult Community Center





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Lessons Learned

- Have a good understanding of the hot water demand when electrifying
- Plan to upsize the tank when switching from a gas to electric
- Consider space constraints early
- For critical facilities, consider whether power will need to be shut off





Thank you

Adam Lokar Senior Sustainability Analyst <u>alokar@cityofsancarlos.org</u>

Learn more at <u>cityofsancarlos.org/sustainability</u>





Brisbane Community Pool Hot Water Electrification Project

ADRIENNE ETHERTON, SUSTAINABILITY MANAGER











Zero Net Energy Community Pool City of Brisbane

August 2018



Option 1: Carrier Natural Gas Boilers Adult pool efficiency: 97%



Option 2: AquaCal Heat Pumps Efficiency: 5.35 COP



Option 3: Electric Boiler Efficiency: 100%





Original Solution

 3 Big Boppers + Existing Gas Boiler Backup

• Requires 400A electrical service

• Not eligible for GK12 incentive

• 3 Big Boppers + Electric Resistance Backup

• Requires 800A electrical service

Electrification

Full

• Not eligible for PG&E OBF **Middle Ground**

• Not compatible with city climate goals

Replacement

Gas

• Likely if existing boiler fails before alternative is implemented





Identified Funding









Thank You!

Adrienne Etherton Sustainability Manager City of Brisbane aetherton@brisbaneca.org 415.508.2118



SFO N. Cargo Field Building Phased Electrification

470,000 sf, multi-tenant, yr built = 2000



SFO N. Cargo Field Building NG Equipment

38 natural gas equipment

- 16 Packaged AHU
- 4 Domestic Hot Water
- 18 Indoor Unit Heater

Phased Electrification



Current Project Scope

Three Packaged Air Handling Units

- a. two, 12.5 ton (150 MBH)
 - i. 1300 lbs
 - ii. Existing Electrical
 - 1. Panel= 100A
 - 2. Drawings = 60A
 - 3. Equip. Nameplate = FLA 31A (40Amps)
- b. one, 8.5 ton (102 MBH)
 - i. 1000 lbs
 - ii. Electrical
 - 1. Panel= 40A
 - 2. Drawing = 40A
 - 3. Equip. Nameplate = FLA 24A (30 Amps)



FLA = full load amps

Process

- Equipment Inventory / end of Life
- 2. Site Assessment
 - Roof Inspection (dead and live load)
 - Structure integrity
- 3. Electrical Inspection
 - Circuit breakers & load study
 - Conduit/wiring condition
- Drawing set & RFP

5. Unitary electric packaged heat pump retrofit (pre vs post)

- weight
 - 12.5 ton: 1300 to 1700lbs
 - 8.5 ton: 1000lbs same
- amps (480V)
 - 12.5 ton: 100 to 45A
 - 8.5 ton: 40 to 25A
- initial equipment cost (early 2022)
 - 12.5 ton: ~30% all-elec prémium
 - 8.5 ton: ~10% all elec premium

6. Now we wait...

Contact Information

Amy Nagengast San Francisco International Airport (SFO) Energy Program Manager amy.nagengast@flysfo.com

What do Cities need to electrify their buildings and what can PCE do to help?



Local Government Building Electrification Program

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RICAPS - 6.27.2023

Local Governments have decarbonization goals

Municipal Green Building Policy and Electrification

City facilities will follow the CALGreen Code and consider having new municipal buildings certified for LEED Silver or Gold status or equivalent. The new Community Center will be built to green building standards; however, at this point it is unknown what level of LEED standard will be achieved. The City is also looking at opportunities for including PV solar panels for the new Community Center.

In order to lead by example, all new construction projects by the City will be all-electric based on adopted Reach Codes and will strive to be zero net energy via on-site solar. The Community Center currently under design is committed to these goals.

Excerpt from Millbrae 2020 Climate Action Plan



New All-Electric Recreation Center

Local Governments sometimes struggle to fund electrification



East Palo Alto City Hall



Brisbane Community Pool



San Mateo Animal Shelter



Portola Valley Town Center



Menlo Park Burgess Pool



San Carlos Youth Center

Peninsula Clean Energy

Diverse portfolios need flexible incentives

Governments have the most varied portfolios imaginable

City hall Government offices Police stations Fire stations Animal shelters Human health and services Forensics labs Community pools Recreation centers

Youth centers Locations for weddings 911 dispatch center Juvenile hall Prisons Libraries Lifeguard stations Baseball fields

Tennis and pickleball courts Corps yard Airport Parks and Recreation Courthouse Registrar of voters Daycare center

Typical Cost Examples

Peninsula Conservation Center

- 8 Commercial HVAC Units
- \$172k total

Environmentalists pumped as nonprofit hub replaces its space heaters

With new equipment, Peninsula Conservation Center leads the charge on transitioning from gaspowered HVAC units to electric ones

by Gennady Sheyner / Palo Alto Weekly

Uploaded: Thu, Jan 26, 2023, 9:40 am Time to read: about 3 minutes

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A new all-electric heating, ventilation and air conditioning unit is lifted by a crane during its installation process on the rooftop of the

Menlo Park Burgess Pool

• \$800k requested



Brisbane Community Pool

• \$900k requested



Piedmont Pool - EBCE

• \$500k requested

What we told CAC

Citizen's Advisory Committee - 5.11.2023

Providing a flexible, per therm per year incentive



Recommended incentive structure

- Annual incentive application process
- Provide a per-therm incentive for electrification projects
- Require projects to be shovel-ready
- Provide funds up-front and verify upon project completion
- Allow for flexibility for sites requiring one-time, large electrical upgrades
- Limited funding per year (program size could be \$1-3 million per year)
- Allow limited (<20% annual usage) dual-fuel for specific projects with site or capacity issues

Possible timeline



Peninsula Clean Energy

Other Options





Peninsula Clean Energy

Questions and Feedback

Buildings and Portfolio Assessment

- Do you have **projects in mind** that are short on electrification funding?
- How much per project might you need?
- How many projects will need assistance?
- Have you **inventoried** your gas equipment?
- Have you reviewed your capital improvement plan to assess immediate upcoming opportunities.

Program Design and Financing

- Preference for loan or incentive?
 - Why?
- Any recommendations or experience on:
 - Loan term length
 - Other
- Any other feedback or recommendations?

Please go to the link in the chat to take your *quick* survey!