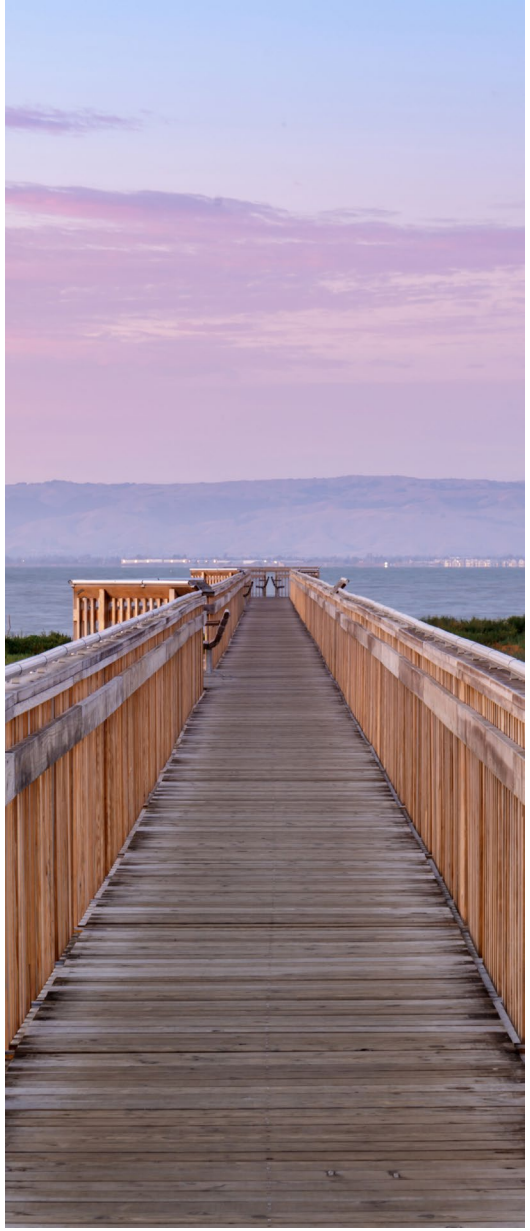
City of Palo Alto Utilities

Facility Managers Meeting

October 30, 2025

Promptly Starts at 8:00 AM



AGENDA

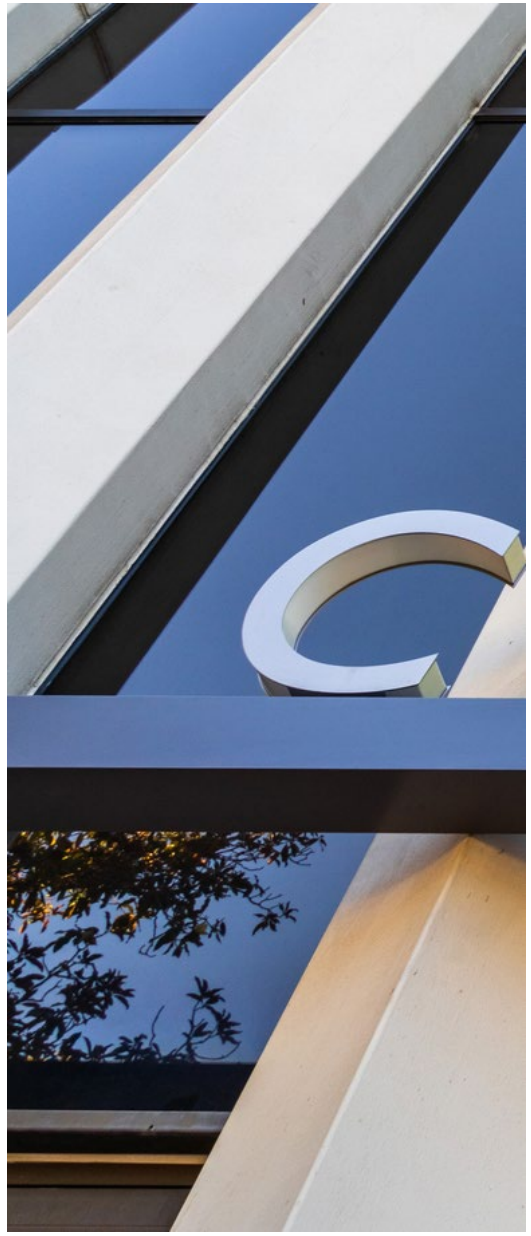
AMI Update	Planned Electrical Shutdowns	Business Customer Rebate Catalog	Gas Rates
EV Workplace & Grants	**Case Study: Heat Pump HVAC**	**Palo Alto Unified School District: Project Presentation**	**Q&A**

CITY OF PALO ALTO

Hiromi Kelty

Utility Program Services Manager

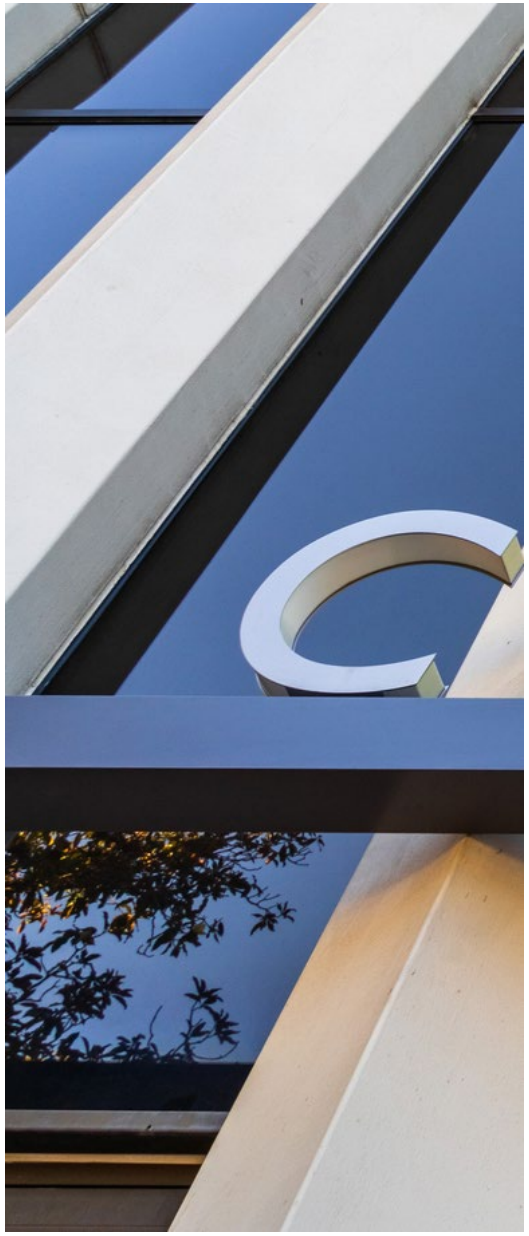
Looking to 2026



OUTOOK FOR 2026

- City of Palo Alto’s Sustainability and Climate Action (S/CAP) Goals

California's Goal:	Palo Alto's Goal:
48% BELOW 1990 LEVELS BY 2030	80% BELOW 1990 LEVELS BY 2030
Carbon Neutral BY 2045	Carbon Neutral BY 2030



COMMERCIAL PROGRAMS TEAM

Programs

- Launch of new Commercial program – characterization tool, technical; assistance that will get more in the details
- Launch of Advanced HPHVAC program – pilot wrapping up
- Boiler replacement

Admin

- AMI
- Gas forecast
- My last FMM

THANK YOU
Keep making the world a better place!

CITY OF PALO ALTO

Rui Silva
Operations Supervisor, Electric & Fiber Utilities

Advance Metering Infrastructure (AMI) Update

ADVANCE METERING INFRASTRUCTURE (AMI)

CITY OF PALO ALTO

- The City is upgrading its utility metering system with Advanced Metering Infrastructure (AMI), which is commonly referred to as “smart meter” or “smart grid” technology

- AMI allows a utility to digitally read utilities meters to measure energy and water usage at a home or business

- AMI allows customers to view hourly energy and water usage online and receive leak alerts

BENEFITS

CITY OF PALO ALTO

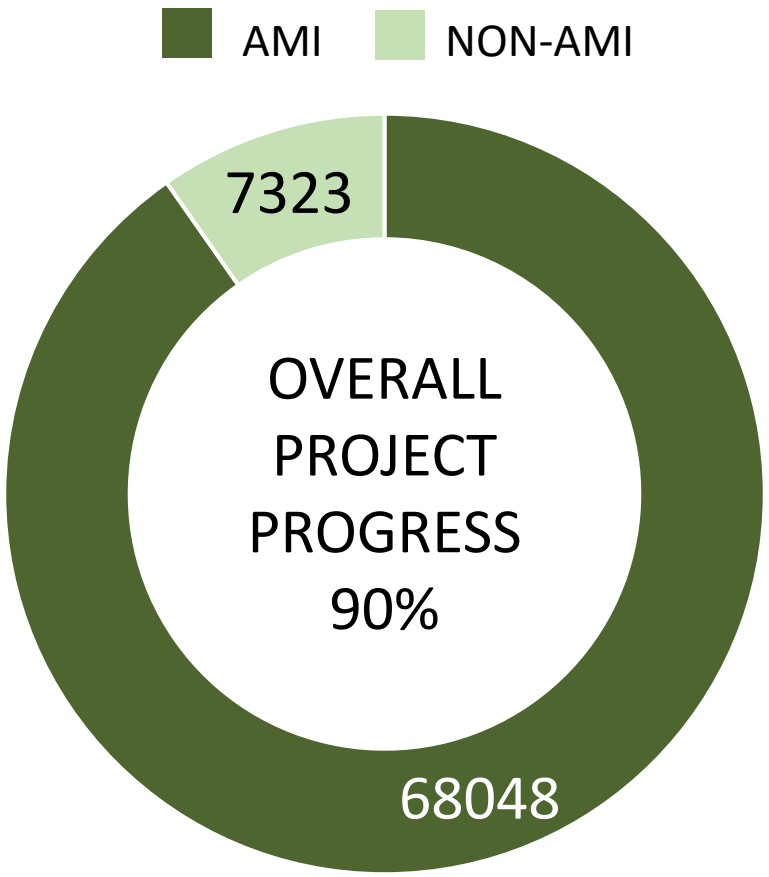
CUSTOMERS

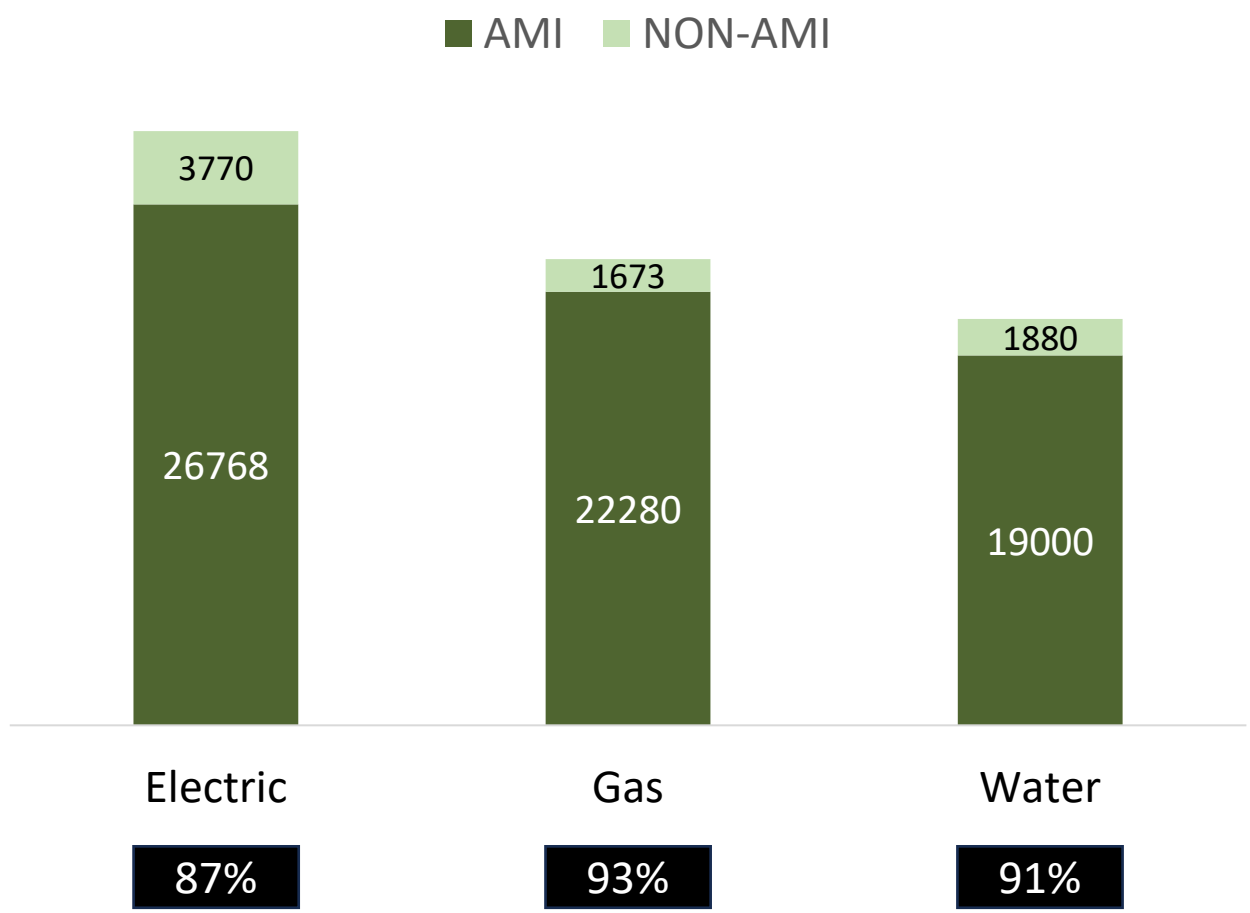
- The ability to track ongoing utility consumption data to make informed decisions about energy and water use
- Enabling the timely detection of water leaks
- Better supporting customer adoption of solar panels, energy storage, and electric vehicles
- Reduced power restoration time for outages

CPAU

- Enabling implementation of time-of-use (TOU) electricity rates
- Providing near-real time data on energy and water consumption and voltage information
- Enabling enhanced responsiveness to maintain equipment, which will result in higher levels of electric reliability
- Faster detection of electrical outages, causes, and shorter restoration time
- Reduced operational costs
- Better distribution system management, leading to greater reliability

DEPLOYMENT UPDATE





NEW BASE STATION

CITY OF PALO ALTO

DOWNTOWN / STANFORD HOSPITAL / STANFORD MALL

- Meters in basements
- Meters inside buildings
- Deep meter vaults

CITY OF PALO ALTO

Amir Amin
Power Engineer

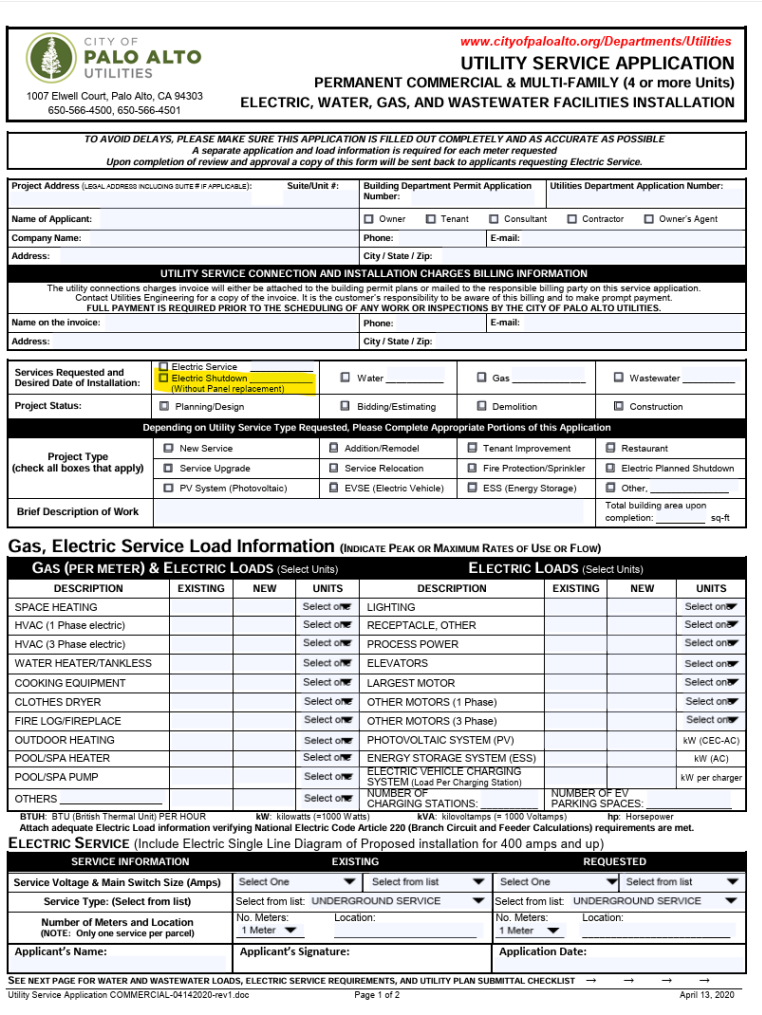
Planned Electrical Shutdowns

UTILITY SERVICE APPLICATION

Step 1: The applicant will fill out the utility service application

- **This form can be found on the city's website (https://www.paloalto.gov/Departments/Utilities/Utilities-Services-Safety/New-Connection-or-Upgrades-to-Utilities/Application-Forms-Guidelines)**

- The applicant must ensure the Electric Shutdown check box is marked on the application form



CITY OF PALO ALTO UTILITIES
1007 Elwell Court, Palo Alto, CA 94303
650-566-4500, 650-566-4501

www.cityofpaloalto.org/Departments/Utilities

UTILITY SERVICE APPLICATION
PERMANENT COMMERCIAL & MULTI-FAMILY (4 or more Units)
ELECTRIC, WATER, GAS, AND WASTEWATER FACILITIES INSTALLATION

TO AVOID DELAYS, PLEASE MAKE SURE THIS APPLICATION IS FILLED OUT COMPLETELY AND AS ACCURATE AS POSSIBLE
A separate application and load information is required for each meter requested
Upon completion of review and approval a copy of this form will be sent back to applicants requesting Electric Service.

Project Address (LEGAL ADDRESS INCLUDING SUITE # IF APPLICABLE):	Suite/Unit #:	Building Department Permit Application Number:	Utilities Department Application Number:
Name of Applicant:		☐ Owner ☐ Tenant ☐ Consultant ☐ Contractor ☐ Owner's Agent	
Company Name:		Phone:	E-mail:
Address:		City / State / Zip:	

UTILITY SERVICE CONNECTION AND INSTALLATION CHARGES BILLING INFORMATION

The utility connections charges invoice will either be attached to the building permit plans or mailed to the responsible billing party on this service application. Contact Utilities Engineering for a copy of the invoice. It is the customer's responsibility to be aware of this billing and to make prompt payment.
FULL PAYMENT IS REQUIRED PRIOR TO THE SCHEDULING OF ANY WORK OR INSPECTIONS BY THE CITY OF PALO ALTO UTILITIES.

Name on the invoice:	Phone:	E-mail:
Address:	City / State / Zip:	

Services Requested and Desired Date of Installation:	☐ Electric Service _____ ☐ Electric Shutdown _____ (Without Panel replacement)	☐ Water _____	☐ Gas _____	☐ Wastewater _____
Project Status:	☐ Planning/Design	☐ Bidding/Estimating	☐ Demolition	☐ Construction

Depending on Utility Service Type Requested, Please Complete Appropriate Portions of this Application

Project Type (check all boxes that apply)	☐ New Service	☐ Addition/Remodel	☐ Tenant Improvement	☐ Restaurant
	☐ Service Upgrade	☐ Service Relocation	☐ Fire Protection/Sprinkler	☐ Electric Planned Shutdown
	☐ PV System (Photovoltaic)	☐ EVSE (Electric Vehicle)	☐ ESS (Energy Storage)	☐ Other, _____
Brief Description of Work				Total building area upon completion: _____ sq-ft

Gas, Electric Service Load Information (INDICATE PEAK OR MAXIMUM RATES OF USE OR FLOW)

GAS (PER METER) & ELECTRIC LOADS (Select Units)				ELECTRIC LOADS (Select Units)			
DESCRIPTION	EXISTING	NEW	UNITS	DESCRIPTION	EXISTING	NEW	UNITS
SPACE HEATING			Select one	LIGHTING			Select one
HVAC (1 Phase electric)			Select one	RECEPTACLE, OTHER			Select one
HVAC (3 Phase electric)			Select one	PROCESS POWER			Select one
WATER HEATER/TANKLESS			Select one	ELEVATORS			Select one
COOKING EQUIPMENT			Select one	LARGEST MOTOR			Select one
CLOTHES DRYER			Select one	OTHER MOTORS (1 Phase)			Select one
FIRE LOG/FIREPLACE			Select one	OTHER MOTORS (3 Phase)			Select one
OUTDOOR HEATING			Select one	PHOTOVOLTAIC SYSTEM (PV)			kW (CEC-AC)
POOL/SPA HEATER			Select one	ENERGY STORAGE SYSTEM (ESS)			kW (AC)
POOL/SPA PUMP			Select one	ELECTRIC VEHICLE CHARGING SYSTEM (Load Per Charging Station)			kW per charger
OTHERS _____			Select one	NUMBER OF CHARGING STATIONS: _____		NUMBER OF EV PARKING SPACES: _____	

BTUH: BTU (British Thermal Unit) PER HOUR **kW**: kilowatts (=1000 Watts) **kVA**: kilovoltamps (= 1000 Voltamps) **hp**: Horsepower
Attach adequate Electric Load information verifying National Electric Code Article 220 (Branch Circuit and Feeder Calculations) requirements are met.

ELECTRIC SERVICE (Include Electric Single Line Diagram of Proposed installation for 400 amps and up)

SERVICE INFORMATION	EXISTING	REQUESTED
Service Voltage & Main Switch Size (Amps)	Select One / Select from list	Select One / Select from list
Service Type: (Select from list)	Select from list: UNDERGROUND SERVICE	Select from list: UNDERGROUND SERVICE
Number of Meters and Location (NOTE: Only one service per parcel)	No. Meters: 1 Meter Location:	No. Meters: 1 Meter Location:
Applicant's Name:	Applicant's Signature:	Application Date:

SEE NEXT PAGE FOR WATER AND WASTEWATER LOADS, ELECTRIC SERVICE REQUIREMENTS, AND UTILITY PLAN SUBMITTAL CHECKLIST → → →

Utility Service Application COMMERCIAL-04142020-rev1.doc Page 1 of 2 April 13, 2020

SUBMISSION OF REQUEST TO THE ELECTRIC UTILITY

Step 2: The applicant must email their utility service application along with listed information below to ElecEngEstimators@paloalto.gov for processing

- **Scope of Work**
- **Requested Date(s)**
- **Requested Time(s)**
- **Estimated Duration**
- **Contact information for on-site person responsible**

NOTE: A minimum of an 8-week notice period is required to schedule the shutdown

INVOICING & TENATIVE SHUTDOWN DATE

Step 3: The estimator will provide an invoice to the customer along with a tentative shutdown date

- **Timeline:** 3 – 5 business days
- **Fees for shutdown requests:** Can vary depending on the scope of work required from the electric utility
- **Shutdown requests on weekends :** More expensive because crews must be scheduled to complete work specifically for that customer vs. shutdowns during weekdays where crews can complete other work

NOTE: The tentative shutdown date is not confirmed until the customer has paid their invoice, and late payment may result in the outage date needing to be rescheduled

SCHEDULING

Step 4: The electric operations coordinator (Roberto Helena) will formally schedule the work in the calendar

- **Timeline:** 4 – 6 weeks

OUTAGE EXECUTION & RE-ENERGIZATION

Step 5: On the day of the shutdown, the electric operations team will disconnect and ground the service conductors to the site

- **Upon completion:** The customer's contractor notifies the operations team that the switchboard is ready for re-energization
- The electric operations team will remove grounds and restore power
- **Timeline:** 1 - 2 hours (both for outage execution & re-energization)

CITY OF PALO ALTO

Jesus Prado

Key Account Representative

Business Customer Rebates

THE BUSINESS CUSTOMER REBATE CATALOG (BCR)

What is the BCR? Comprehensive catalog that list over 50 prescriptive and custom measures

Last updated in **2022**

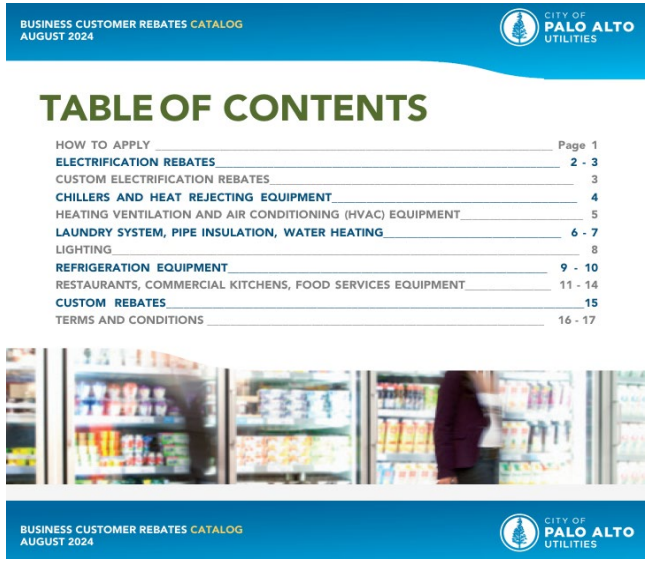
Updates in 2026 to stay competitive with e-TRM and other rebate programs in CA

Changes in AB 2208: Prohibit sale of pin-based CFL lamp and linear fluorescent lamps

Examples

Prescriptive : Commercial Heat Pump Water Heater

Custom : LED Lighting


BUSINESS CUSTOMER REBATES CATALOG
AUGUST 2024

CITY OF PALO ALTO UTILITIES

TABLE OF CONTENTS

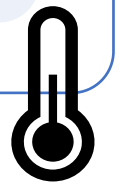
BUSINESS CUSTOMER REBATES CATALOG
AUGUST 2024

CITY OF PALO ALTO UTILITIES

WHAT IS IMPROVING?

We will be adding additional prescriptive rebates to the catalog, focused on

Refrigeration



Commercial kitchen equipment

WHAT ABOUT LIGHTING?

Lighting projects may still be deemed savings under "**Accelerated Replacement**" terms

- Documentation will be very important to be able to claim a baseline in cases where the lighting fixture is not reached End of Useful Life

Under "**Optimization**" lighting measure. Better technology LEDs

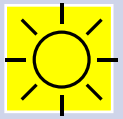
- Same watts, more lumens
- 2 lamps to 1 lamp configurations

LIGHTING CONTROLS. BEYONG LAMPS & FIXTURES

Establishing a **standalone rebate** for lighting control systems

Time-Based Controls. Office hours, outdoor lighting schedules

Centralized Lighting Control Systems. Building Energy Management Systems (BEMS) or lighting control panels, zoning, real-time adjustments, individually controlled and configuration



Dimming Controls. Manual dimmer and automatic dimming

PROJECTS COMPLETED & IN THE PIPELINE

Why is the Business Customer Rebate Catalog Important?

All Commercial Programs	2023	2024	2025	Projects Under Installation
Number of Projects	21	18	15	14
kWh	2,479,815	2,295,710	1,067,811	4,629,044 *
Therm	71,020	26,870	7,420	80,089 *
Customer Rebates	**$447,070**	**$278,375**	**$144,331**	**$538,196 ***

*Estimates

Start planning and learn more! Sign Up for the CIEEP Program

WHAT NEXT?

WE DISTRIBUTE THE UPDATED CATALOG, EXPECTED Q1 2026

GUIDANCE ON LEVERAGING REBATES

SPEED UP END OF USEFUL LIFE AND LED REPLACEMENT PROJECTS

NEW PRESCRIPTIVE REBATE OFFERINGS

QUESTIONS ABOUT YOUR BUILDING AND OPERATIONS, CONNECT WITH US FOR COMPLIMENTARY ENERGY AUDIT FOCUSED ON LOW-COST AND ENERGY EFFICIENCY MEASURES

CITY OF PALO ALTO

Eric Wong
Resource Planner

Gas Rates

What Makes Up Your Gas Rate?

Fixed Charge ($/month)

Monthly Service Charge

- Fixed costs such as meter reading, customer service, etc

Volumetric Charges ($/therm)

Supply Charges

- Commodity Charge: cost of purchasing natural gas
- Transportation charge: cost to transport gas over PG&E's pipelines to Palo Alto
- Cap and Trade Compliance Charge: regulatory compliance with State Cap & Trade Program
- Carbon Offset Charge: cost of Council-approved Carbon Neutral Gas Program

Distribution Charge

- Cost to operate the gas distribution system in Palo Alto

Recently Implemented Cost Containment

- **Scheduled larger CIP projects every other year** achieving efficient project management and lower construction costs *(estimated $50K per CIP project)*
- Expanded use of bank draft **reducing credit card fees**
- **Implemented mobile workforce applications**, reducing administrative data entry time, freeing up staff for other work
- Eliminated majority of permanent Meter Readers through **installed AMI** *(AMI "Opt-out" customers read manually)*
- **Outsourcing** production and mailing of CPAU bill reducing production, staffing, and equipment costs
- Marketing shift to **paperless billing** reducing printing and mailing expenses

Future Changes to Your Gas Rate

Gas Cost of Service Analysis

- Updates the allocation of costs among customer classes
- Utilities Advisory Commission (UAC) Meeting on Nov 5
  Staff Report: https://cityofpaloalto.primegov.com/viewer/preview?id=0&type=8&uid=409e421c-653c-411a-883d-bf860a3cd22d
- City Council consideration in December

Fiscal Year Rate-setting Process

- Annual budget cycle
- Establishes revenue required to safely operate the system
- Council approves rates in June, with new rates effective on July 1
- Preliminary Financial Forecast for FY 2027, UAC meeting on Nov 5
  Staff report: https://cityofpaloalto.primegov.com/viewer/preview?id=0&type=8&uid=23fa9b75-e6ee-4cda-b46a-d9306cc59610

How to Participate in the Public Process

- Contact UAC: UAC@paloalto.gov
- Contact City Council: City.Council@PaloAlto.gov
- Speak at a public meeting

George Lee
Founder & CEO

Workplace & Fleet EV Charging
Be Grant Ready!

Agenda

- Purpose and goal
- How many and where?
- Grants – what are they looking for?
- Turnkey costs
- OPF Energy – local provider
- IXP PRISM – semi-permanent EV charging

PURPOSE AND GOALS

- Provide EV charging as an employee amenity
- Reduce corporate transportation emissions
- Daytime charging is ideal for California grid stability

40+ Ports @ 3410 Hillview in 2021 BAAQMD

HOW MANY AND WHERE?

- 2025 CalGreen (Title 24, Part 11) effective Jan 1, 2026 is 25% of total spaces to be EV-Installed
- Dual and Quad port chargers in parking rows are most cost effective to deploy
- On new or existing solar columns are also ideal locations

40+ Ports @ 3475 Deer Creek in 2020 BAAQMD

HOW MANY AND WHERE?

- Most if not all ports are utilized
- Average session energy 20kWh
- Many existing chargers can be replaced with modern multi-port chargers
- Facility Aware Load Management is essential

10+ Ports @ Coyote Hill in 2025

HOW MANY AND WHERE?

- Not all parking spots have to be EV only
- Adjust signage and striping as necessary
- Install at scale for lowest turnkey cost
- Remobilization of construction crews is expensive and difficult

100+ Ports @ Palo Alto Unified in 2020 BAAQMD

GRANT TYPES

- **Air District (BAAQMD)** – Lowering mobile carbon source emissions. A competitive applications process and bonus points for disadvantages communities
- **State (CALeVIP)** – Achieve EV charging port goals by 2030. Priority disadvantaged communities
- **Utility (CPAU)** – Delivering more electricity for sustainable transportation
- **Private (OPF Energy)** – Increase EV charging ports, maximize energy delivered, and collect LCFS credits

TURNKEY COSTS

- Deployed port costs range $3k to $15k depending on “grant” optimization
- Ongoing software, network, repair, and maintenance costs can be significant at $300+ per port a year
- OPF Energy waives ongoing costs for assignments LCFS credits. This ensures incentives are aligned and chargers have the highest uptime and reliability

WRKPLC LEVEL 2	WRKPLC ADA	DESIGN/ PERMIT	CHARGERS	INSTALLATION	PROJ TOTAL	GRANT $3K PORT	NET COST	COST PER PORT
4	1	$10,000	$7,500	$55,000	$72,500	$15,000	$57,500	**$11,500**
23	2	$10,000	$7,500	$175,000	$222,500	$75,000	$147,500	**$5,900**
47	3	$10,000	$7,500	$250,000	$335,000	$150,000	$185,000	**$3,700**

OPF INSIGHT

- **Facility Energy Monitoring**
  - Voltage, Amperage, Frequency
  - Peak Demand

- **Facility Aware EV Load Management**
  - Reduce Peak Demand
  - Example: keep total number under 75kW

Insights @ Palo Verde Elementary School in 2025

IXP PRISM

- **Semi-permanent EV Charing**
  - Deploys under 1 hour
  - Integrated lighting and security cameras

PRISM @ City of Palo Alto Municipal Service Center

OPF INSIGHT

🚗🔋 Optimal Power Flow (OPF)

Is a power system optimization problem that determine the **best control actions** to meet demands ⚡ while **minimizing costs or losses** 💰, respecting all network operating limits such as **line capacity** and **voltage levels**

💬✉ **Get in touch: george@opf.energy**

Shelby Sinkler

Sustainability Program Administrator

Case Study – Heat Pump HVAC

COMMERCIAL HEAT PUMP HVAC PILOT PROGRAM

LIMITED-TIME BOOSTED INCENTIVE FOR COMMERCIAL HEAT PUMP HVAC UNITS

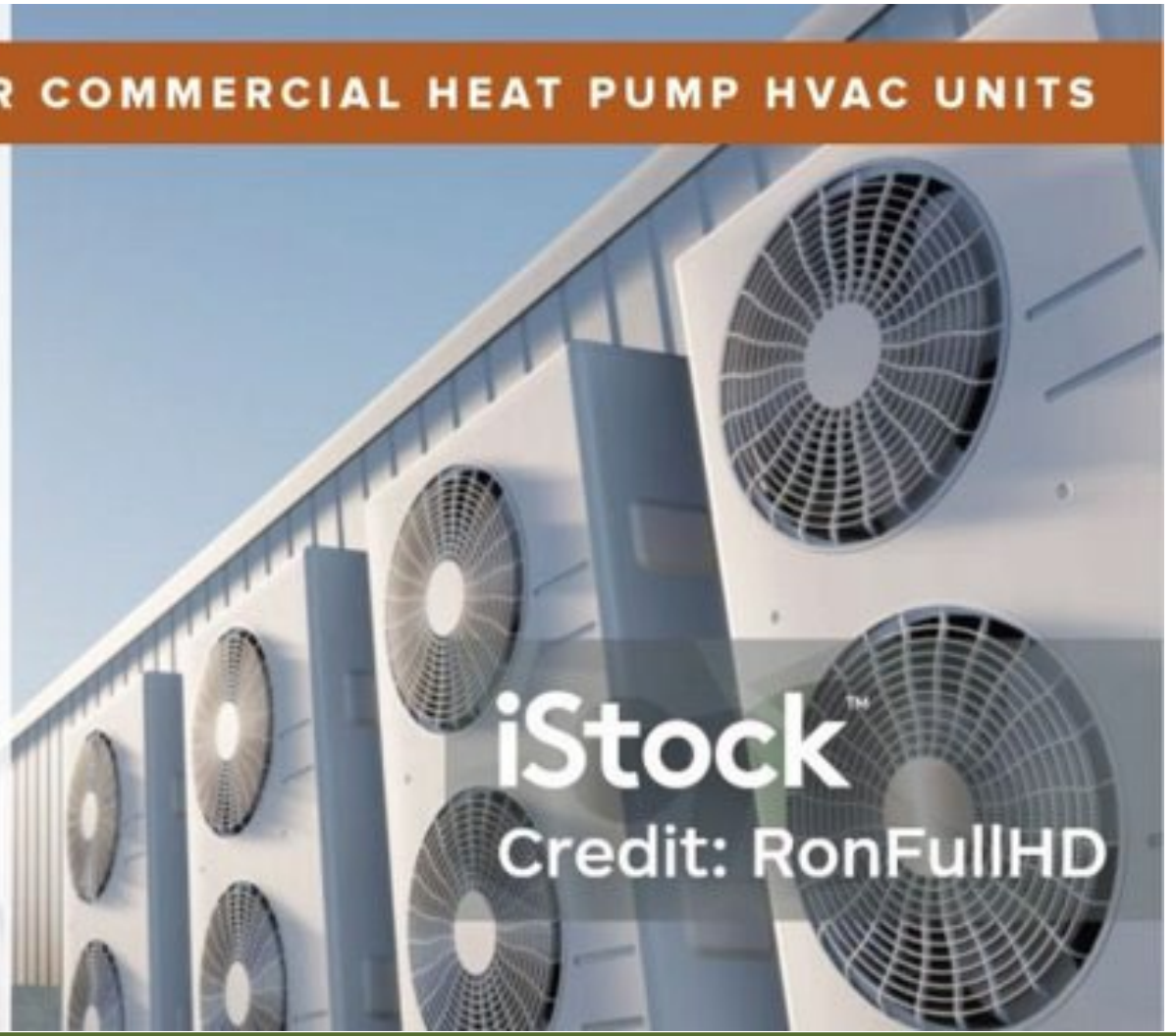
The Good News:

Our standard incentive is $650/ton with a $100,000 cap.

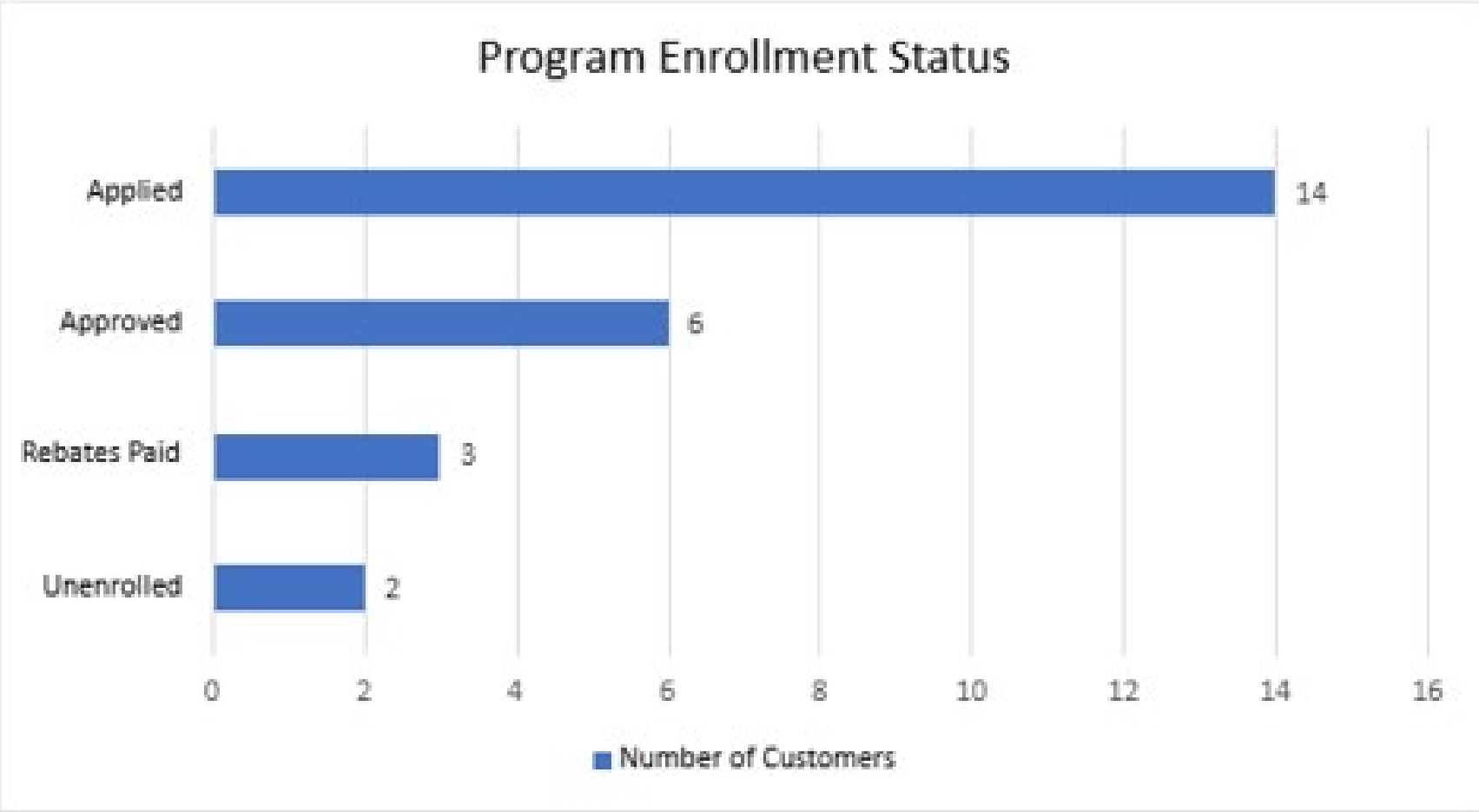
The BETTER News:

Our limited-time boosted incentive is **$3,500/ton** with a **$120,000 cap**!

The City of Palo Alto Utilities is offering increased incentives for businesses in Palo Alto interested in switching their natural gas space heating with an electric heat pump HVAC system. The boosted incentive are available to the first 10 applicants to complete their project within eight months.



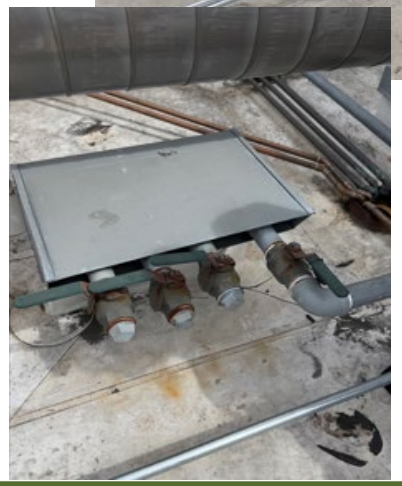
PILOT PROGRAM PARTICIPATION



HEAT PUMP HVAC PROJECT CASE STUDY

City of Palo Alto Facility

- New downtown community/teen center
- Project details
  - Retrofit project
  - Number of units: 7
  - Tonnage: 31
- Heat pump HVAC estimate: $325,523
- Gas estimate: $209,316
- Additional permitting-related fees estimated to be around $12,000
- Rebate amount: $108,500



CITY OF PALO ALTO

Brian Ward

Key Account Representative

Palo Alto Unified School District - Project Presentation

BIG STRIDES FOR CLEANER ENERGY IN PALO ALTO'S SCHOOLS!

Partnering for a Sustainable Future

- The City of Palo Alto Utilities (CPAU) and the Palo Alto Unified School District (PAUSD) are proud partners in advancing electrification and sustainability across local schools
- Together, we're reducing greenhouse gas emissions, modernizing infrastructure, and creating healthier, more efficient learning environments for students and staff
- These joint projects demonstrate what's possible when local agencies collaborate to make long-term climate action tangible in our community

PARTNERSHIP FOR A SUSTAINABLE FUTURE

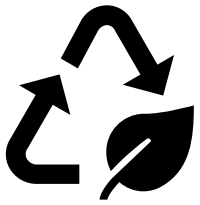
The City of Palo Alto Utilities has awarded significant rebates to the Palo Alto Unified School District in support of major electrification upgrades across multiple campuses

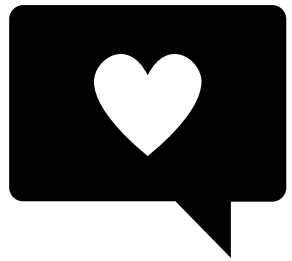
Projects include:

- Transformer upgrades to expand electric capacity
- New EV chargers for staff and public use
- High-efficiency electric heat pump systems replacing natural gas

BIG STRIDES FOR CLEANER ENERGY IN PALO ALTO'S SCHOOLS!

"Partnerships like this reflect our shared vision and a future where innovation, education, and sustainability work hand in hand for the next generation"





QUESTIONS & ANSWERS

FEEDBACK & THANK YOU!

Topic	Speaker
1. 2026 Utility Outlook	Hiromi Kelty
2. AMI Update	Rui Silva
3. Planned Electrical Outages	Amir Amin
4. Business Customer Rebate Catalog	Jesus Prado
5. Gas Rates	Eric Wong
6. Workplace Charging – Grant Ready!	George Lee
7. Case Study: Heat Pump HVAC	Shelby Sinkler
8. PAUSD – Projects & Recognition	Brian Ward