



UTILITIES AT A GLANCE

FISCAL YEAR 2020



HELLO NEIGHBOR!

The City of Palo Alto Utilities (CPAU) is honored to provide you with five municipal utility services: electricity, water, wastewater, natural gas, and fiber optics. The City's Public Works Department also provides refuse collection and processing for recycle, compost and garbage, wastewater treatment, and stormwater management services.

We work hard to provide you with safe, reliable, environmentally sustainable, and cost-effective services.

CPAU is owned by the people we serve — you! Our employees are your neighbors and friends. Members of the Utilities Department workforce take great pride in public service, appreciation received from our customers, and awards and recognition from the industry.

Important decisions are made locally, by both citizens and their elected officials, not some far-off body of regulators in Sacramento. We call that local solutions for local issues. In Palo Alto, we put the “public” in “Public Power.”

You benefit from local control of utilities in several ways:

- community values drive our policies, programs and services
- reliable and safe operations
- a high level of responsiveness and accountability to our customer-owners
- competitive prices

When you share your voice and viewpoints with us, you help influence our decisions. By working together, we can produce better results. We welcome your input on important issues. Please stay engaged with us.

28.2% of Palo Alto's power comes from solar



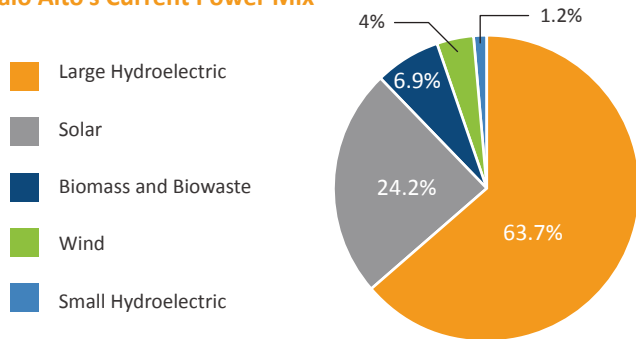
ELECTRICITY

Your electricity is carbon neutral. All of it! Since 2013, Palo Alto has provided 100% carbon neutral electricity. Carbon neutral means that we match electricity demand with carbon-free supply on an annual basis.

Our electric portfolio includes solar, wind, and hydroelectric generation — all carbon-free! We also generate electricity from landfill gas, which keeps harmful methane out of the environment while lighting local homes and businesses.

The pie chart that follows shows where our electricity came from for the year ending June 30, 2019. Our fuel mix may change annually, primarily due to hydrological conditions. Power content labels are available at cityofpaloalto.org/powercontentlabel

Palo Alto's Current Power Mix



On top of these sustainability benefits, our power still costs less than that delivered by neighboring utilities in the Bay Area.

Strong community support for renewable energy has enabled CPAU to surpass the state's requirement that renewable energy accounts for 60% of a utility's electricity resources by 2030. CPAU has long been a leader in reducing greenhouse gas (GHG) emissions and energy consumption since establishing its first Climate Protection Plan in 2007.

In 2020, we launched an update to our Sustainability and Climate Action Plan (S/CAP) and have engaged the community through a series of webinars about the S/CAP. Find the schedule and recordings of past events at cityofpaloalto.org/climateaction

In addition, we offer numerous programs to support you in using electricity as wisely as possible. Through conservation and rebate programs, we have helped customers use energy more efficiently while keeping utility bills low, and we're not slowing down.

Your electricity is carbon neutral. All of it!
Since 2013, Palo Alto has provided 100% carbon neutral electricity.

Our community has also embraced clean transportation, and 10% of residents now drive an electric vehicle (EV) — the highest adoption rate in the country. Each EV that replaces a fossil fuel vehicle removes over 4 metric tons of carbon dioxide a year.

We are continually investigating new carbon-free resource options as well as fresh conservation and rebate programs to keep the electricity portion of your bill as low as possible.

CPAU holds workshops and webinars to share helpful information on ways you can improve the efficiency and comfort of your home and building energy use. Your community-owned utility offers free utility bill consultations, subsidized home efficiency assessments, and rebate programs to make it even easier on your pocketbook and to help keep your ongoing utility costs low.



Have questions about your bill?
Contact the Home Efficiency Genie at (650) 713-3411 or advisor@efficiencygenie.com, or Utilities Customer Service at (650) 329-2161.



Road transportation represents the largest percentage of Palo Alto's existing carbon footprint. Reducing vehicle miles traveled (VMT) is one solution for reducing transportation-related GHG emissions.



CPAU offers rebates for customers who purchase EVs and EV chargers.

We can't clean our air and prevent global climate change simply by using renewable energy. Our transportation options must be expanded to include awareness of alternatives to single-occupant and internal combustion engine vehicles. One example of this would be EVs that can be charged with renewable electricity.

Toward that end, we offer incentives for businesses, multifamily properties, schools, and nonprofits to install EV charging equipment on their premises. CPAU also partners with state and regional groups to provide EV rebates to our community members. Interested in learning more? Check out cityofpaloalto.org/ev

Road transportation represents the largest percentage of Palo Alto's existing carbon footprint — and it's a congestion headache! Reducing vehicle miles traveled (VMT) is one solution for reducing transportation-related GHG emissions.

Encouraging more active means of transportation, such as walking, biking, and transit, is a strategic priority for the City. Other public policy efforts that will lower GHG emissions include increasing the availability of mass transit and shared-mobility services. To learn how to start biking to reduce your personal VMT, check out the City's Safe Routes webpage at cityofpaloalto.org/saferoutes

For those who need to travel distances that are not reachable via biking or transit, CPAU is encouraging EV adoption by:

- expanding the City's EV charging infrastructure
- offering rebates, in partnership with the state, to customers who purchase or lease an eligible battery electric or plug-in hybrid EV
- providing rebates and technical assistance to customers who install EV chargers at multifamily properties and nonprofits
- working with community members to find other ways to increase the number of EVs registered in Palo Alto

As important as alternate mobility is to fighting GHG emissions and climate pollution, it is still only another piece of the puzzle. Reducing the use of natural gas in homes, buildings, and businesses is another important step the City is taking to improve our climate.

This is an evolving public policy effort, guided by our City's local policies and state laws to encourage building electrification. In 2019, the City passed an Energy Reach Code requiring all-electric design for residential new construction projects. Palo Alto has been promoting the benefits of an all-electric lifestyle to homeowners with resources, such as our electrification webpage at cityofpaloalto.org/electrification

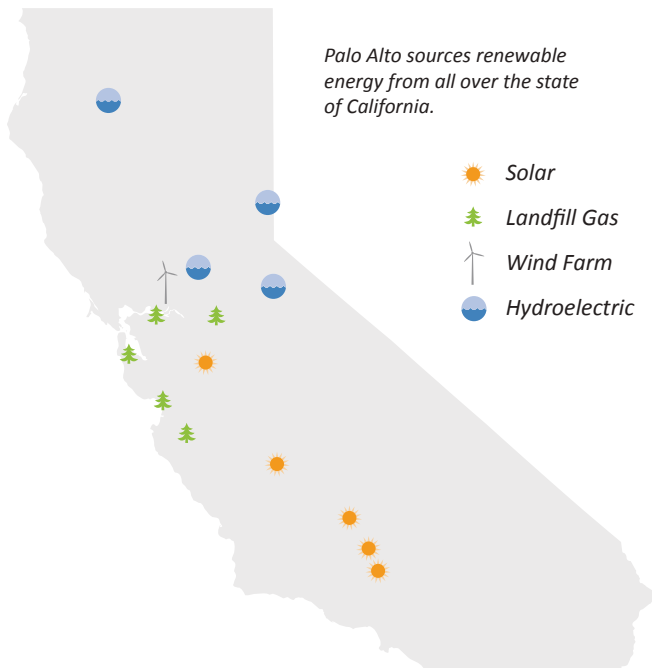
We are working on ways to integrate these technologies into our community, while continuing to provide you with the same reliable, low-cost utility service you have come to expect from the City.

At the same time, we are continuing to digitize our electric business to improve worker safety, streamline processes, lower costs, and improve your CPAU experience.

CPAU ELECTRIC SYSTEM AT A GLANCE — FY 2020

Number of customer accounts	Residential: 25,876 Commercial: 3,973
Miles of 60 kilovolt sub-transmission lines	19 miles
Miles of primary overhead distribution lines	116 miles
Miles of primary underground distribution lines	195 miles
Highest peak load in megawatts	176 MW
Substations (with 300 megavolt amps total capacity)	9
Total annual kilowatt-hours purchased	880,509,000 kWh
Total carbon neutral power sources	100%
Traffic signals (intersections) maintained	109
Streetlights maintained	7,033
Savings through efficiency programs (cumulative savings, FY 2008–2019, in kilowatt-hours)	83,975,000 kWh

More information is available on the CPAU website.



Palo Alto's drinking water is among the purest in the world.



In recent years, California has been hit with multi-year droughts that have challenged all of us. Water consumption, rarely thought about by most of us, has become a conscious choice. Palo Altans have risen to the occasion, conserving more water than was required by the state. Thank you for using water wisely!

The severe water challenges of a few years ago are becoming a near-permanent aspect of life in our state. Warming temperatures mean less snow and rainfall, which ultimately means less water for a growing population.

That's why CPAU has so many water-conservation programs in place, such as our Landscape Rebate Program, indoor and outdoor water surveys, and water-saving measures required by the Green Building Ordinance. The community's efforts to use water wisely have resulted in a reduction in per capita water use of more than 15% over the past 10 years. Conservation is becoming a way of life for all of us to prevent undue strain on our water resources. You can find useful information and ideas for reducing your water use at cityofpaloalto.org/water

DRINKING WATER & RECYCLED WATER

The water that comes out of your faucet starts as snow in the Sierra Nevada and Yosemite National Park, approximately 200 miles east of Palo Alto. As the snow melts each spring, water drains into the Tuolumne River, beginning its three-day journey to our community. Along the way, it is stored in a series of reservoirs, including the Hetch Hetchy, San Antonio, and Calaveras.

Two unique features of this system stand out: the drinking water provided is among the purest in the world, and the system for delivering that water is almost entirely gravity-fed, requiring almost no use of fossil fuels to move water from the mountains to your tap.

The severe water challenges of a few years ago are becoming a near-permanent aspect of life in our state. ...That's why CPAU has so many water-conservation programs in place.

At the same time, we are investing in advanced metering technology and other system upgrades to ensure that we can provide for the growing needs of our community. Our century-old network of pipes, pumps and distribution services needs to be maintained and upgraded to reduce water leaks and to make sure the system continues to meet your needs. In recent years, we have repaired or replaced over 60 miles of water pipes so we can continue delivering safe, reliable water to homes and businesses.



Palo Alto's drinking water comes from the Tuolumne River in the Sierra Nevada mountains.



Water usage typically rises during the summer, due to outdoor watering of lawns and plants, and declines in the winter.

To ensure that the water we deliver to homes and businesses meets or exceeds federal and state drinking-water standards, your water is tested and treated every day. Thousands of tests are performed to ensure that the water we deliver is safe and pure.

PROGRESS FACTS

15%

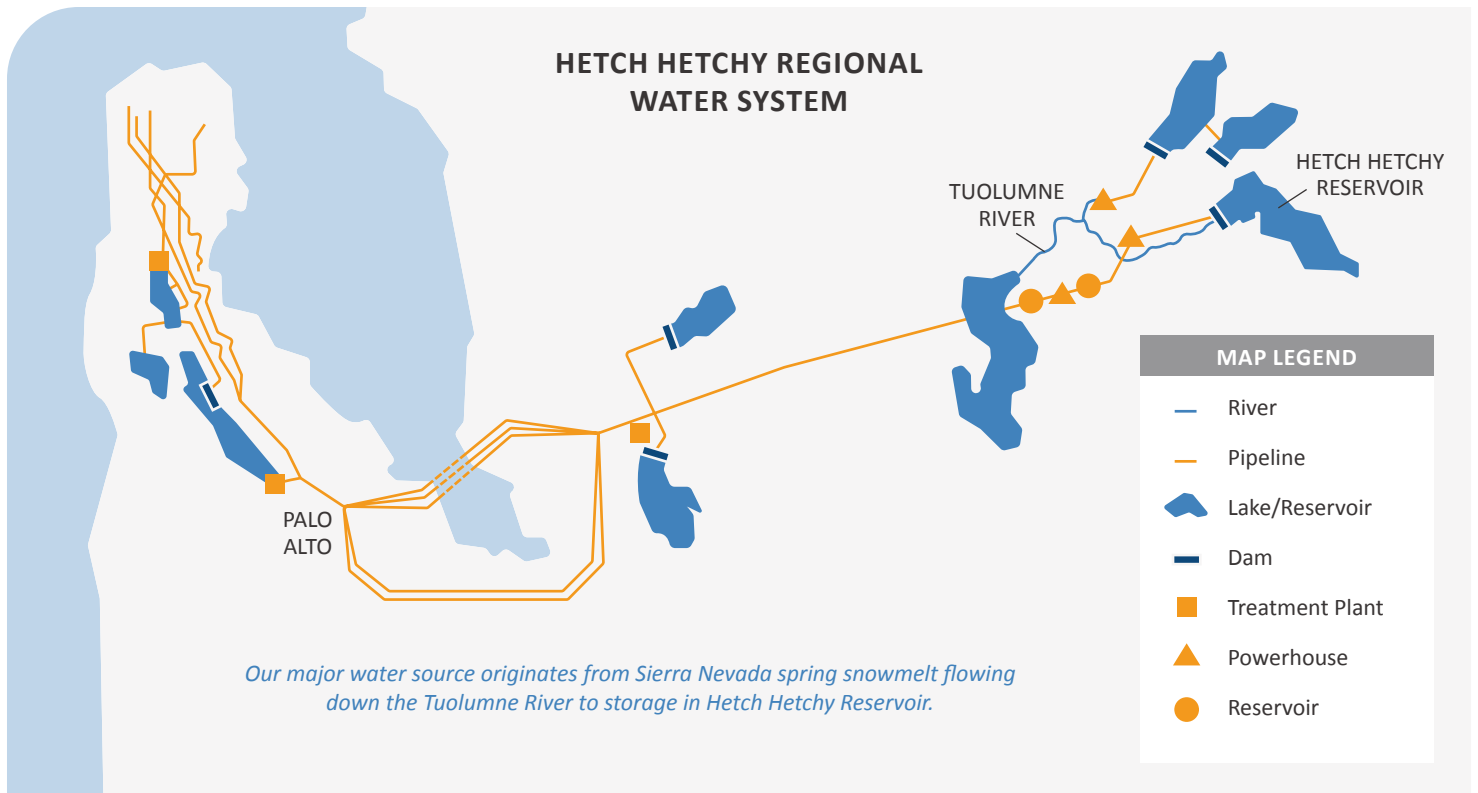
per capita reduction in water use by Palo Alto residents over the past 10 years

60

miles of water pipes repaired and replaced in recent years

17,000,000

gallons of wastewater treated every day



Ever wonder what happens to water after you flush the toilet or wash the dishes? In most parts of Palo Alto, your wastewater travels through sewer lines to the Regional Water Quality Control Plant, which treats over 17 million gallons of wastewater each day! Following a day-long treatment process that removes pollutants, most of the treated wastewater is discharged at the Palo Alto Baylands and the Renzel Marsh Freshwater Pond along East Bayshore Road. Ultimately, water from the Renzel Marsh Pond ends up in San Francisco Bay, where it helps to maintain a healthy ecosystem.

Some of the wastewater is treated to high-quality recycled water standards that meet rigorous state requirements for non-potable uses. This recycled water is transported through a network of purple pipes that are separate from the drinking water network.

CPAU uses recycled water to irrigate the municipal golf course, the Regional Water Quality Control Plant and Greer Park. Recycled water also supplies the duck pond and industrial processes at the Regional Water Quality Control Plant.

Using recycled water instead of clean drinking water for non-potable purposes such as irrigating landscapes and flushing toilets takes the pressure off our freshwater resources and helps buffer our community against droughts.

We are always evaluating other ways to increase the use of treated wastewater. Learn more at cityofpaloalto.org/recycledwater

CPAU WATER SYSTEM AT A GLANCE — FY 2020

Number of customer accounts	Residential: 16,579 Commercial: 4,029
Miles of water main	236 miles
Number of wells	8
Number of reservoirs	7
Total storage capacity	13 million gallons
Total water purchased	3.56 billion gallons
Peak flow in million gallons per day	18.5 MGD
Fluoride added in parts per million	0.7 ppm
Savings through water conservation (cumulative savings, FY 2008–2019, in gallons)	490,601,232

More info is available on the CPAU website.

CPAU WASTEWATER SYSTEM AT A GLANCE — 2020

Number of accounts	Residential: 20,496 Commercial: 1,914
Effluent treated from Palo Alto sewers	2.225 billion gallons per year
Total miles of sanitary sewer lines	216 miles

More information is available on the CPAU website.



For more info about how you can help in keeping our water clean, visit cleanbay.org/residential



NATURAL GAS

In our community, natural gas is one option customers can use to heat homes and businesses, cook food, dry clothes, and heat water for showers and industrial processes. CPAU has operated a gas distribution system in Palo Alto since 1917. Safety is our top priority, and we work hard to ensure that our gas systems are operated and maintained to deliver a safe and reliable supply for our customers.

As you might imagine, we use more gas during the winter to heat our homes and buildings as compared to the summer.



A CPAU Utility worker replacing a natural gas main.

In decades past, natural gas was the lowest-cost, cleanest option compared to other available heating sources. Nevertheless, natural gas is a fossil fuel that produces carbon dioxide, a common GHG, when burned. In addition, natural gas itself is primarily methane, a GHG more potent than carbon dioxide. Some methane inevitably leaks into the atmosphere when natural gas is produced and transported.

The good news is that the expansion of renewable electricity and the deployment of new heat-pump technologies make electric water and space heating a more climate-friendly alternative. When compared to heat pumps powered by Palo Alto's carbon neutral electricity, natural gas is no longer the cleaner option. We recognize that support for these new products is increasing across the Bay Area and beyond, and we are committed to helping Palo Altans find more ways to reduce their

2019's efforts in gas reduction equal removing 191 passenger vehicles from the road for a whole year!



carbon emissions.

In fiscal year 2019, CPAU's gas efficiency programs reduced gas use by 167,186 therms, which is about 0.44 percent of the City's total gas use. The avoided GHG emissions from the gas efficiency savings is equivalent to taking 191 passenger vehicles off the road for a year.

A big part of a decarbonized energy future starts with stakeholder engagement. Talking to customers, business leaders, and energy experts is the first step in planning a long-term transition away from natural gas. Our programs, policies, and education efforts are developed with support and input from our community stakeholders and customers.

A big part of a decarbonized energy future starts with stakeholder engagement. Talking to customers, business leaders, and energy experts is the first step in planning a long-term transition away from natural gas.

If you have a gas service at your home or business, you can do your part to reduce your carbon footprint by reducing your gas usage. When your gas appliances reach the end of their lifespan, consider replacing them with efficient electric alternatives. The City offers rebates of up to \$1,500 for the replacement of a gas water heater with a heat-pump water heater. Since CPAU's electricity is carbon neutral, there will be an immediate positive impact on the climate.

While we recognize the industry's support for and movement toward building electrification, CPAU is committed to maintaining the existing gas distribution system safely as long as it operates. Learn more about how to safely operate gas appliances at your home and what our responsibilities are for maintaining the natural gas distribution system at cityofpaloalto.org/gassafety

CPAU NATURAL GAS AT A GLANCE — 2020	
Number of Customer Accounts	Residential: 21,451 Commercial: 2,319
Pressure of distribution system (in pounds per square inch)	The City of Palo Alto operates the natural gas distribution system at a maximum operating pressure of 25 psi, with the exception of the Veterans Administration Hospital, which is operated at 40 psi.
Total miles of gas mains	211 miles
Total miles of gas service lines to customer premises	201 miles
Savings through efficiency programs (cumulative savings, FY 2008–2019)	2,518,425 therms

More information is available on the CPAU website.



The City offers rebates of up to \$1,500 for the replacement of a gas water heater with a heat-pump water heater.

FIBER OPTICS

Local businesses and organizations are honing their digital edge using CPAU’s fiber-optic network. As barriers of time and space recede in a tech-oriented economy, having secure access to fast internet service is no longer a luxury. It is a necessity.

Palo Alto is recognized worldwide as a leader in cutting-edge technological development, a place where innovative ideas are developed and launched. Known as the “Birthplace of Silicon Valley,” Palo Alto is where a number of today’s major high-tech companies were incubated.


CPAU got into the fiber optic business more than 20 years ago for the same reason it got into the electricity business 120 years ago: to better serve residents and businesses at a competitive price.

Little surprise, then, that CPAU has developed a dark fiber ring of nearly 49 miles for ultra-fast internet access to support innovation, education, and commerce. Dark fiber, which consists of preexisting underground infrastructure and city services, requires hardware and software connections to run those city services. While fiber optic cables that are actively sending data via light wavelengths are considered “lit,” the rest of the unused fibers laying in wait are deemed unlit — or “dark.”

Cities around the country have also chosen to offer unused capacity on their fiber optic systems. CPAU originally built its fiber optic network to upgrade its own electric power system, but the nature of fiber optics is that capacity is often far greater than needed for solely our own organization’s purposes.

ZERO WASTE PALO ALTO

The goals for the Refuse Fund are to minimize waste generation and maximize recycling and reuse programs to achieve zero waste by 2030; to protect the environment by safely collecting and disposing of hazardous waste; and to effectively maintain and monitor the City’s closed landfill to meet all regulatory requirements.



Learn more about the City’s Zero Waste programs at zerowastepaloalto.org or call (650) 496-5910.

Achieving zero waste together

As the world’s economies digitize, academic researchers, engineers, health care professionals, system designers and data exchange firms cannot exist without the fast and secure internet access offered by fiber optic.

Palo Alto has nearly 90 miles of fiber optic cable, the same distance as driving from Downtown North to Greenmeadow and back — over 11 times!



CPAU FIBER OPTICS AT A GLANCE — 2020	
Customer Count	194
Year of fiber optic backbone construction	1997
Route miles of fiber cable (complete backbone):	47.96 miles
Backbone fiber-miles (number of fiber route miles)	6,005.9 miles
Miles of overhead fiber optic cable	23.36 miles
Miles of underground fiber optic cable	66.4 miles
Commercial buildings connected to fiber optic backbone in Palo Alto	201
Gross sales “dark fiber* licensing” — customer & City sales combined	\$4.4 million

* “Dark” refers to fiber infrastructure that is leased to customers.

ZERO WASTE PALO ALTO AT A GLANCE — 2020	
Percent of waste diverted from landfill	81% (calendar year 2019)
Tons of materials recycled or composted	51,852 tons
Percent of commercial accounts with compost and recycling service	100%
Percent of households with mini-can garbage service	44%
Number of households participating in the Household Hazardous Waste (HHW) program	4,519

MAILING AREA

CONTACT INFORMATION

GENERAL INFORMATION (650) 329-2161

UTILITIES EMERGENCIES

Electric Downed Lines and Outages (650) 496-6914
Gas Leaks & Pipe Breaks (650) 329-2579
Water Main & Hydrant Leaks (650) 329-2579
Street Light Outages (650) 496-6914
Sewer Issues (650) 329-2579

CUSTOMER SERVICE

Billing Questions (650) 329-2161
Low Income Assistance (650) 329-2161
Credit & Collections (650) 329-2161
Utility Service On/Off (650) 329-2161

Call **811** Before You Dig (avoid pipelines)

KEY UTILITIES CONTACTS

Homepage
Service Disruptions
Utility Program Services
Fiber Optics Information
Engineering
Electric Operations
Water/Gas/Wastewater Operations
Refuse Collection Services
Recycle/Compost/Landfill FAQs
Household Hazardous Waste

cityofpaloalto.org/utilities
cityofpaloalto.org/outageinfo
(650) 329-2241
(650) 329-2275
(650) 566-4500
(650) 496-6934
(650) 496-6982
(650) 493-4894
(650) 496-5910
(650) 496-5910

PaloAlto311, available on the City's website and the app store.

