



City Council Staff Report

From: City Manager

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Lead Department: Utilities

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Report Staff: 2307-1743

TITLE

Informational Report on the Annual Review of the City's Renewable Procurement Plan, Renewable Portfolio Standard Compliance, and Carbon Neutral Electric Supplies for 2022

EXECUTIVE SUMMARY

Like all electric utilities in California, Palo Alto is subject to the state's Renewable Portfolio Standard (RPS) mandate of 60% by 2030. The City has also adopted a Carbon Neutral Plan, which led to the achievement of a carbon neutral electric supply portfolio starting in 2013 (and which was updated by Council in August 2020). In 2011, in compliance with state RPS regulations, the Council also formally adopted an RPS Procurement Plan and an RPS Enforcement Program that recognize certain elements of the state's RPS law applicable to publicly-owned utilities. The RPS Enforcement Program requires the City Manager, or their designee, the Utilities Director, to conduct an annual review of the Electric Utility's compliance with the procurement targets set forth in the City's RPS Procurement Plan.

This staff report satisfies the reporting requirements of the City's RPS Enforcement Program, while also providing an update on the City's compliance with the Carbon Neutral Plan. The City continues to meet both its RPS and Carbon Neutral Plan objectives—even after selling 184,000 MWh of renewable energy in 2022.

BACKGROUND

The City currently has two independent procurement targets related to renewable and carbon neutral electricity:

- RPS Procurement Plan (60% by 2030): The City's official renewable electricity goal is contained in the RPS Procurement Plan that the City was required to adopt under Section 399.30(a) of California's Public Utilities Code. This was adopted in December 2011 ([Staff](#)

[Report 2225](#)¹, [Resolutions 9214](#)² and [9215](#)³) and updated in November 2013 ([Staff Report 4168](#)⁴, [Resolution 9381](#)⁵), December 2018 ([Staff Report 9761](#)⁶, [Resolution 9802](#)⁷), and December 2020 ([Staff Report 11650](#)⁸, [Resolution 9929](#)⁹). The last update to the RPS Procurement Plan brought it into alignment with the state's 60% RPS requirement (SB 100), which was signed into law in 2018. The RPS Procurement Plan and RPS Enforcement Program complement each other: the Procurement Plan establishes official procurement targets, while the Enforcement Program specifies the reporting and monitoring that is required of the Utilities Director while working to achieve those targets.

The procurement requirement in the current version of the City's RPS Procurement Plan is that the City acquire renewable electricity supplies equal to 60% of retail sales by 2030, which is in line with the state's current RPS mandate. The RPS Procurement Plan also contains an escalating set of targets for six interim Compliance Periods (2011-2013, 2014-2016, 2017-2020, 2021-2024, 2025-2027, and 2028-2030), as well as subsequent 3-year compliance periods beginning in 2031.

- Carbon Neutral Plan (100% Carbon Neutral Electricity by 2013): The Carbon Neutral Plan was adopted in March 2013 ([Staff Report 3550](#)¹⁰, [Resolution 9322](#)¹¹) and updated in August 2020 ([Staff Report 11556](#)¹², [Resolution 9913](#)¹³), and requires that the City procure a carbon neutral electric supply portfolio, which started in calendar year (CY) 2013. In general, this goal is primarily met through purchases made under the City's long-term

¹ Staff Report 2225 <https://www.cityofpaloalto.org/files/assets/public/from-archive/agendas-minutes-reports/reports/city-manager-reports-cmrs/2011/final-staff-report-id-2225-renewable-energy-procurement-enforcement-prog-12-12-11.pdf>

² Resolution 9381 <https://www.cityofpaloalto.org/files/assets/public/city-clerk/resolutions/reso-9214.pdf>

³ Resolution 9251 <https://www.cityofpaloalto.org/files/assets/public/city-clerk/resolutions/reso-9215.pdf>

⁴ Staff Report 4168 https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2013/final-staff-report-id-4168_rps-procurement-plan-update.pdf

⁵ Resolution 9381 <https://www.cityofpaloalto.org/files/assets/public/city-clerk/resolutions/reso-9381.pdf>

⁶ Staff Report 9761 https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2018/final-staff-report-id9761_approval-of-the-2018-electric-integrated-resource-plan-and-related-documents.pdf

⁷ Resolution 9802 <https://www.cityofpaloalto.org/files/assets/public/city-clerk/resolutions/reso-9802.pdf?t=40498.07>

⁸ Staff Report 11650 <https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2020-2/id-11650.pdf?t=41063.12>

⁹ Resolution 9929 <https://www.cityofpaloalto.org/files/assets/public/city-clerk/resolutions/resolutions-1909-to-present/2020/reso-9929.pdf>

¹⁰ Staff Report 3550 https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2013/final-staff-report-id-3550_electric-supply-portfolio-carbon-neutral-plan.pdf

¹¹ Resolution 9322 <https://www.cityofpaloalto.org/files/assets/public/city-clerk/resolutions/reso-9322-33835.pdf>

¹² Staff Report 11556 <https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2020-2/id-11566.pdf>

¹³ Resolution 9913 <https://www.cityofpaloalto.org/files/assets/public/city-clerk/resolutions/reso-9913.pdf?t=40151.26>

renewable power purchase agreements (PPAs) and output from its hydroelectric resources. However, when the City Council approved an update to the Carbon Neutral Plan in August 2020, they also approved a new procurement strategy whereby the City does not keep all of the output of its long-term, in-state PPAs, but instead exchanges that output for less expensive out-of-state renewable generation (with the net proceeds used to fund local decarbonization programs).

ANALYSIS

The City continues to meet its objectives under the RPS Procurement Plan and the Carbon Neutral Plan, and achieved an RPS level of 38.8% in 2022. This value slightly exceeded the state's 38.5% RPS procurement "soft target" for the year, and the City remains compliant with the state RPS procurement mandate, which is evaluated over a multi-year horizon (2021-2024 in this case). The City also has more than enough RPS supplies under contract to far exceed the state's soft target levels in the later years of the four-year compliance period. Below is a summary of CPAU's progress toward satisfying its renewable energy and carbon neutral procurement targets¹⁴.

RPS Procurement Plan Compliance

In CY 2022, the City initially received 469,064 MWh of renewable energy through its long-term contracts for wind, solar, landfill gas, and small hydro resources (which represents 56.7% of the City's total retail sales for that period). Additionally, the City received 156,090 MWh of large hydroelectric generation (representing 18.9% of the City's total retail sales), which is not classified as eligible renewable generation by the state. Based on the Council's decision in August 2020 to pursue the "REC Exchange Program" ([Staff Report 11556](#)¹⁵, [Resolution 9913](#)¹⁶) the City sold 184,000 MWh of in-state renewable energy supplies, yielding \$2.77 million in sales revenue, while purchasing 428,000 MWh of out-of-state renewable energy¹⁷, at a cost of \$2.03 million. Figure 1 below depicts the City's load and supply resources for CY 2022, before and after the REC Exchanges described above. Accounting for these transactions, the City's net renewable energy supplies totaled 713,064 MWh, which represents 86.2% of the City's total retail sales for 2022. However, under the state's RPS regulations the majority of the out-of-state renewable energy purchases were not able to be applied to the City's RPS requirement, hence the City's official RPS level was only 38.8%.

¹⁴ Renewable and Carbon Neutral Electricity Supply Procurement Details

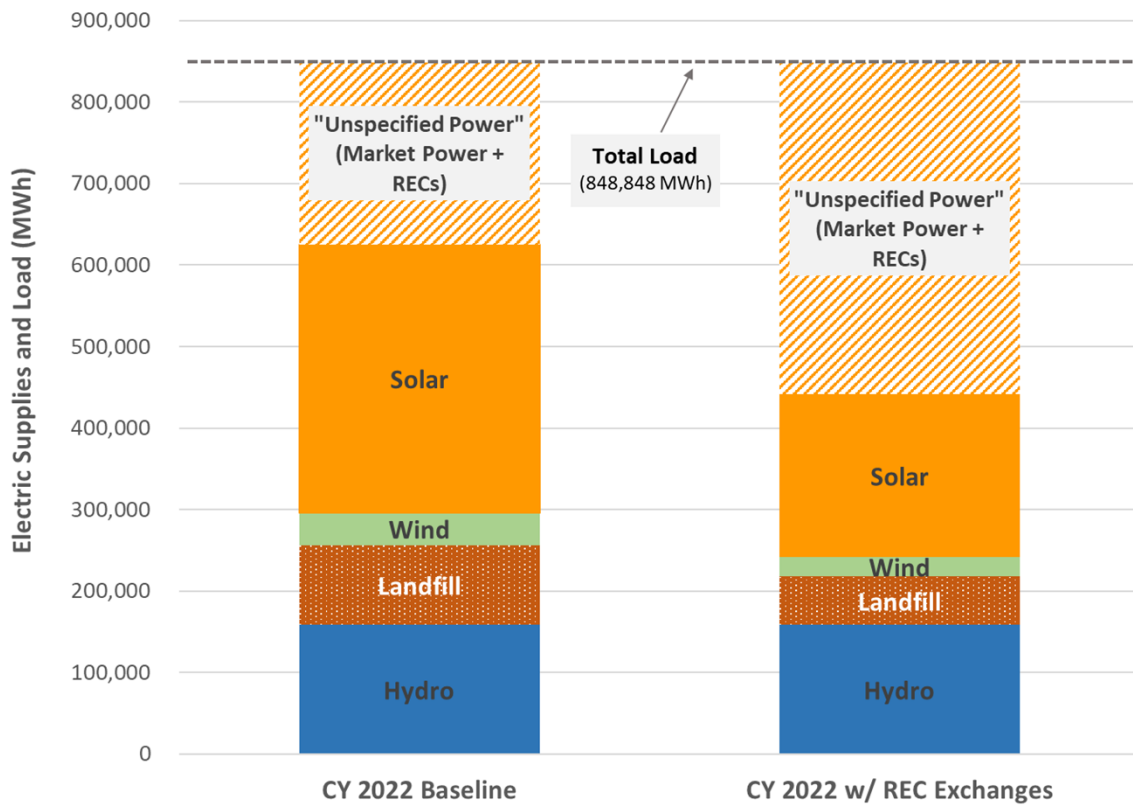
<https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/reports/city-manager-reports-cmrs/attachments/09-18-2023-id-2307-1743-linked-document.pdf>

¹⁵ Staff Report 11556 <https://www.cityofpaloalto.org/files/assets/public/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2020-2/id-11556.pdf>

¹⁶ Resolution 9913 <https://www.cityofpaloalto.org/files/assets/public/city-clerk/resolutions/reso-9913.pdf?t=40151.26>

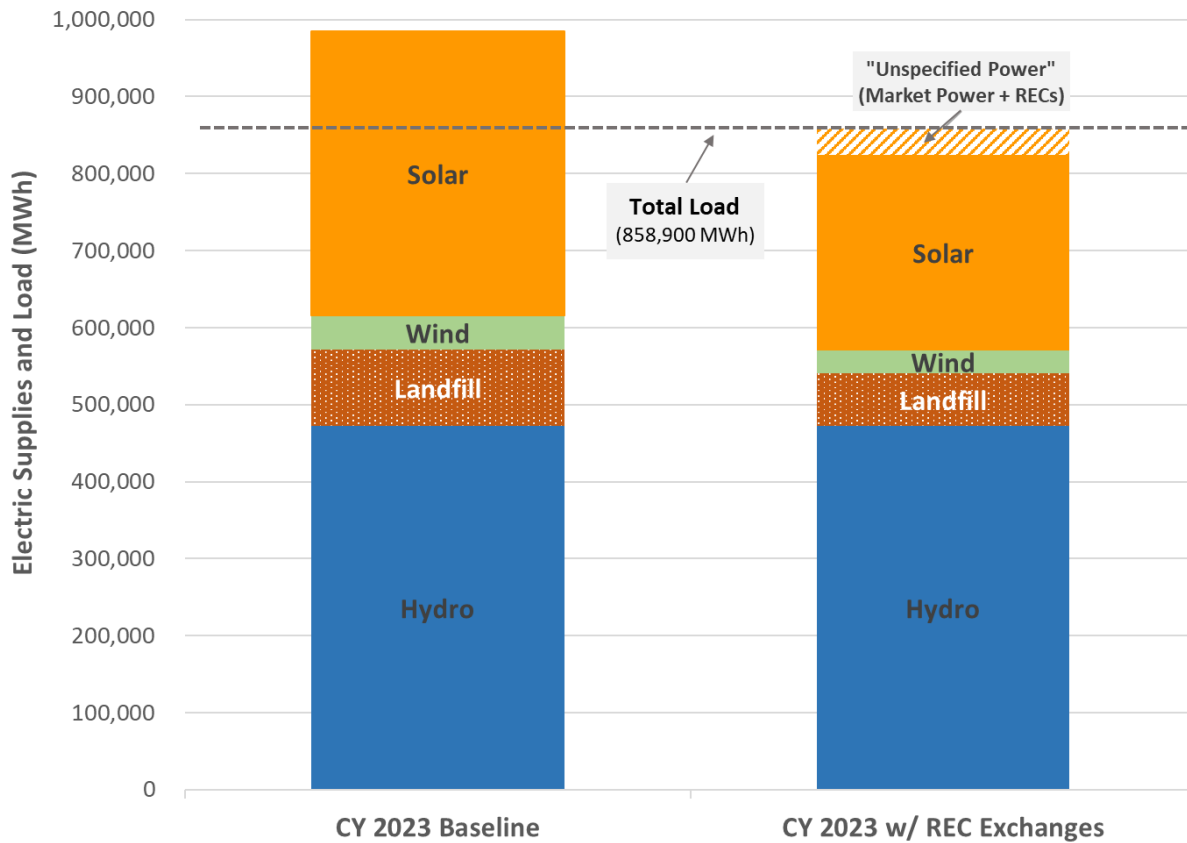
¹⁷ Not including 28,000 MWh of RECs purchased on behalf of PaloAltoGreen customers.

Figure 1: CY 2022 Electric Load and Supply Resources, With and Without REC Exchanges



For CY 2023 to date, staff has contracted to sell about 160,000 MWh of in-state renewable generation and has purchased about 200,000 MWh of out-of-state renewable generation. Figure 2 below depicts the City's projected load and supply resources for CY 2023, before and after the REC Exchanges described above. Once these transactions are accounted for, they will yield a total of about \$2.8 million in net revenue, and an official RPS level of 41.25% (equal to the state's RPS soft target for 2022).

Figure 2: Projected CY 2023 Electric Load and Supply Resources, With and Without REC Exchanges



In accordance with the state’s RPS Program requirements, CPAU’s Procurement Plan develops a renewable electric supply portfolio that balances environmental goals with system reliability while maintaining stable and low retail electric rates. The state RPS program requires retail electricity suppliers like CPAU to procure progressively larger renewable electricity supplies across a series of separate multi-year Compliance Periods. CPAU’s procurement targets, as well as its actual/projected procurement volumes and RPS levels, for the first three Compliance Periods are summarized in Table 1 below.

Table 1: RPS Compliance Period Procurement Targets and Actual Procurement

RPS Compliance Period	Years	Retail Sales (MWh)	Procurement Target (MWh)	Actual/Projected Procurement (MWh)	% of Retail Sales
1	2011-2013	2,837,773	567,555	607,740	21.4%
2	2014-2016	2,801,056	605,949	826,855	29.5%
3	2017-2020	3,487,686	1,043,424	1,619,303	46.4%
4	2021-2024	3,286,954	1,311,952	1,311,952	39.9%
TOTALS		12,413,469	3,528,880	4,365,850	35.2%

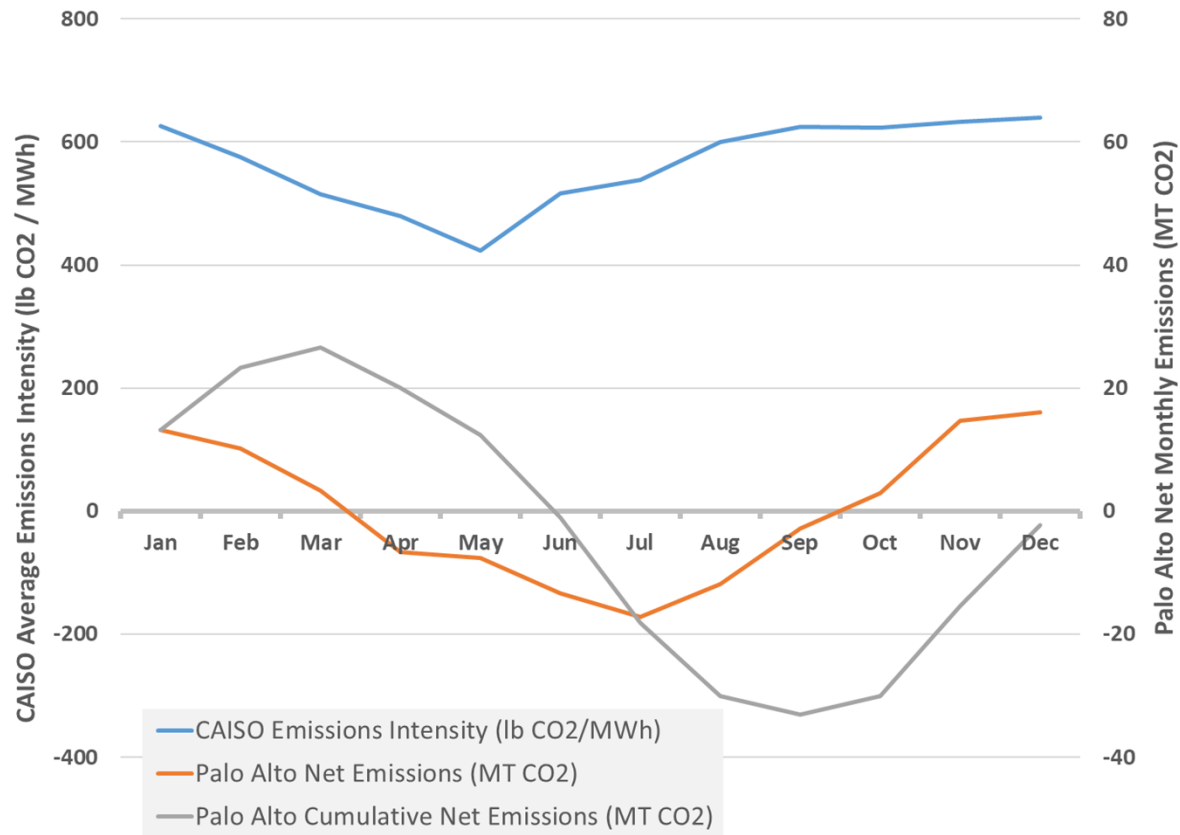
Carbon Neutral Plan

In CY 2022, CPAU achieved its goal, set forth in the Carbon Neutral Plan, of an electric supply portfolio with zero net greenhouse (GHG) emissions for the eighth consecutive year. Carbon neutrality was achieved in CY 2022 through existing hydro and renewable generation (wind, solar, and landfill gas). As discussed above, due to the Council's adoption of the REC Exchange Program in August 2020, the City sold 184,000 MWh of in-state renewable energy supplies in CY 2022, yielding \$2.77 million in sales revenue, while purchasing 428,000 MWh of out-of-state renewable energy, at a cost of \$2.03 million (resulting in net revenue of \$0.74 million). Accounting for these transactions, the City's net renewable energy supplies totaled 713,064 MWh, which represents 86.2% of the City's total retail sales for 2022. The remainder of the City's needs were supplied by large hydroelectric resources.

When the City Council approved an update to the Carbon Neutral Plan in August 2020, the primary change was to adopt an *hourly* carbon accounting methodology as the basis for determining whether the City has met its carbon neutrality objective. Using an annual accounting approach, the City had an overall *surplus* of 20,306 MWh of carbon neutral generation compared to its load (equal to 2.4% total load), and thus substantially *exceeded* the carbon neutrality standard. Meanwhile, under the hourly carbon accounting approach,¹⁸ the City's electric supply portfolio also exceeded the carbon neutrality standard, being responsible for a net negative amount of GHG emissions: -27,335 metric tons of CO₂ equivalent. See Figure 3 below for a depiction of the City's monthly total net CO₂ emissions for 2022, as well as the monthly average emissions intensity for the California electric grid.

¹⁸ The City's hourly carbon accounting methodology entails calculating the City's net surplus or deficit carbon neutral supply position relative to its load in every hour of the year. The grid average electricity emissions intensity for each hour is then applied to each of these hourly surpluses or deficits to yield a net emissions contribution (or reduction) that the City's electric supply portfolio is responsible for in that hour. These hourly emissions totals are then summed across the entire year to yield the City's annual emissions total for the year.

Figure 3: CY 2022 Monthly Net Electric Supply Emissions and CAISO Emissions Intensity



For CY 2023, above average hydro conditions are expected to result in about 54% of the City's electric supply needs being supplied by hydroelectric resources (compared to a long-term annual average of about 45%), with the remainder coming from non-hydro renewable energy resources.

POLICY IMPLICATIONS

This report implements Sections 4 and 5 of the City's RPS Enforcement Program, which require an annual review of the Electric Utility's compliance with the CPAU RPS Procurement Plan to ensure that CPAU is making reasonable progress toward meeting the compliance obligations established in the CPAU RPS Procurement Plan.

FISCAL/RESOURCE IMPACT

This is an informational report that has no fiscal or resource impact to the Utilities Department or the City. As noted above, the implementation of the REC Exchange Program resulted in net revenue of \$0.74 million for CY 2022.

ENVIRONMENTAL REVIEW

The Council's review of this report does not meet the definition of a "project" pursuant to Public Resources Code Section 21065, thus California Environmental Quality Act review is not required.

APPROVED BY:

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