



City Council Staff Report

From: City Manager

Report Type: CONSENT CALENDAR

Lead Department: Utilities

Meeting Date: April 22, 2024

Staff Report: 2402-2612

TITLE

Adopt a Resolution Authorizing the City Manager or Their Designee to Execute an Amendment to the Power Purchase Agreement with Ameresco Half Moon Bay LLC for the Purchase of up to 60,000 Megawatt-Hours per Year of Biogas Energy Over a Term of up to 20 Years for a Total Not to Exceed Amount of \$147.2 Million; CEQA Status: Not a Project under CEQA Guidelines Section 15378(a)

RECOMMENDATION

Staff and the Utilities Advisory Commission (UAC) recommend that the City Council adopt a Resolution (Attachment A) to:

1. Authorize the City Manager, or their designee, to execute Amendment No. 1 (Exhibit A to Attachment A) to the Power Purchase Agreement (PPA) with Ameresco Half Moon Bay LLC (Ameresco) to increase the generating capacity of the Ox Mountain landfill-gas-to-energy (LFGTE) project, increase the contract price, and extend the contract term by approximately 17 years;
2. Increase the maximum spending authority under the PPA from \$61,800,000 to \$147,200,000; and
3. Waive the application of the anti-speculation requirement of Section D.1 of the City's Energy Risk Management Policy as it may apply to surplus electricity purchases resulting from the City's execution of this amendment, due to the small increase in the facility's generating capacity and the City's need for the output to continue complying with its Renewable Portfolio Standard (RPS) procurement and Resource Adequacy requirements.

EXECUTIVE SUMMARY

In 2005, the City executed a PPA with Ameresco to purchase 50% of the output of the Ox Mountain LFGTE facility. This agreement, lasting 20 years, aimed to secure a baseload source of renewable energy for the City. With the availability of additional landfill gas at the facility, Ameresco recently proposed an amendment to extend the contract term by 17 years, increase the project's capacity from 10 megawatts (MW) to 13 MW, and adjust the agreements' pricing

structure. An economic assessment of the amendment suggests it would offer a net benefit to the City, with the project's energy, renewable energy credits (RECs), and resource adequacy (RA) capacity providing an estimated net value of at least \$6 per megawatt-hour (MWh). Despite uncertainties, market trends favor the project's long-term value.

The amendment would increase Palo Alto's electric supply by 7.2% during the 2029-2046 period, enhancing the supply portfolio's diversity and aiding the City's compliance with its Renewable Portfolio Standard (RPS) obligations. Operational risks are largely mitigated, as the project is established, Ameresco is an experienced LFGTE project operator, and payments under the PPA are contingent on energy delivery, reducing financial exposure.

The recommended Ox Mountain PPA amendment offers a strategic opportunity to secure a long-term supply of baseload renewable energy, enhance the resilience of the City's electric supply portfolio, and advance the City's sustainability objectives. Approval is recommended to capitalize on the project's long-term benefits while mitigating risks and meeting regulatory obligations.

BACKGROUND

As part of its early sustainability efforts, in January 2005, Council approved the PPA with Ameresco to obtain half of the electric output of the Ox Mountain LFGTE generating facility in Half Moon Bay over a 20-year term ([Resolution 8495¹](#), [CMR 100:05²](#)). Under this contract, which was one of the City's first renewable energy PPAs, the City agreed to purchase a 50% share of the output of the facility over a 20-year contract term. The City of Alameda executed a PPA at the same time to purchase the other 50% of the facility's output under identical contract terms.

The contract price was \$52/MWh in the first year (2009), escalating at 1.5%/year, and the project achieved commercial operations in April 2009. (The current contract price is \$65.01/MWh.) The total generating capacity of the facility is currently 10 MW, and in addition to the round-the-clock renewable electricity it provides, the project is also a valuable source of local resource adequacy (RA) capacity in the Bay Area. Since it began operating, the facility has also been highly reliable, with an average availability rate of over 90%.

Although the City executed the PPA with Ameresco long before the state imposed an RPS mandate on municipal utilities like Palo Alto³, the state's RPS program rules do now apply to all utilities in the state, including Palo Alto. These rules require that an increasing percentage of retail sales be served by qualifying renewable generation; currently, the major RPS targets that apply to all utilities are 50% by 2026 and 60% by 2030. Palo Alto satisfies its RPS requirements

¹ Resolution 8495: <https://www.cityofpaloalto.org/files/assets/public/v/1/city-clerk/resolutions/reso-8495.pdf>.

² CMR 100:05: <https://www.cityofpaloalto.org/files/assets/public/v/1/agendas-minutes-reports/reports/city-manager-reports-cmrs/year-archive/2005/01-january/4149.pdf>.

³ The RPS mandate was first imposed on Palo Alto by SB X1-2 in 2011, and subsequently raised by SB 350 in 2015 and SB 100 in 2018.

through a diverse portfolio of qualifying renewable resources – including wind, solar, bioenergy (such as the Ox Mountain landfill gas project), and small hydro.

ANALYSIS

In May 2022, Ameresco approached Utilities staff, along with staff from the City of Alameda, to inquire about their interest in purchasing additional output from the Ox Mountain LFGTE project, as well as extending the contract beyond its current 2029 end date. In early 2023 the City and Ameresco signed a non-binding Letter of Intent (LOI) to memorialize these discussions. Although the LOI did not commit the parties to moving forward with this contract amendment and extension, it did establish a deadline by which such an agreement finalized and executed: April 29, 2024. Over the subsequent months, as Ameresco worked through its development process for the expansion capacity, the parties continued negotiating the terms of an amendment, ultimately arriving at the recommended proposal.

Ox Mountain Amendment Summary

The key commercial terms contained in the recommended amendment include the following:

- *Expansion Capacity* – Ameresco will add additional generating capacity to the Ox Mountain project, bringing its total capacity up from 10 to 13 MW (of which Palo Alto will receive a 50% share).
- *Contract Term* – The original PPA is set to terminate in April 2029; the amendment would extend the PPA term to 20 years from when the expansion capacity comes online, which is expected to be in the spring of 2026. Hence the amendment would extend the original PPA's term by about 17 years.
- *Price* – The original PPA price is \$52/MWh, escalating at 1.5%/year. In the spring of 2026, when the expansion capacity is expected to come online, the PPA price will be \$66.98/MWh. The amendment would raise the contract price for the whole project to \$74/MWh, escalating at 1%/year (except in years when the inflation rate exceeds 3%, in which case the price escalator would jump to 2%). Additionally, the new contract price will be reduced by \$0.93/MWh if the expansion capacity does not qualify as RA capacity for the City.⁴
- *Termination Right* – Ameresco will have the right to terminate this amendment if it is unable to successfully complete the environmental and/or air quality permitting processes for the expansion capacity, or if the improvements required to receive these permits make the expansion capacity uneconomic for them to proceed with.

⁴ The 3 MW of expansion capacity will have to go through a deliverability study process at the California Independent System Operator (CAISO) before it qualifies as RA capacity for the City. However, given that the facility is located in the transmission-constrained Greater Bay Area, staff expects it to qualify.

Economic Assessment of the Ox Mountain Amendment

The Ox Mountain PPA has provided excellent value to CPAU customers for the past 15 years, while also reducing the supply portfolio's seasonal energy and RA capacity deficits, thereby reducing budget uncertainty. The project provides three valuable products to the electric portfolio: energy, resource adequacy, and RECs. If the sum of these three values is greater than the cost of the power purchase agreement, the City will see a net monetary benefit from this contract.

The primary value provided by this PPA is from the baseload electrical energy that the resource produces. Based on forward energy curves as of February 1, 2024, the value of this energy is estimated to be approximately \$70/MWh between 2026 and 2033.

In addition to the energy component, each MWh of the Ox Mountain project's generation qualifies as a "Bucket 1" renewable energy credit (REC), which is projected to have a value between \$9 and \$21/MWh over the 20-year extension term. (Recently, supply conditions have been extremely tight; last fall the City sold surplus Bucket 1 RECs for over \$70/MWh.)

Finally, the LFGTE plant capacity qualifies as local RA, which the City can count towards its annual local and system RA requirements. RA is typically transacted and priced on a \$/kW-month basis and is projected to range from \$7/kW-month to \$12/kW-month over the 20-year extension term, which translates to approximately \$10 to \$16/MWh for the Ox Mountain project.

In aggregate, the total value of the amended Ox Mountain PPA is estimated to range between \$87 and \$112/MWh. On the other hand, the PPA price, when levelized over the 20-year extension term, is expected to be in the range of \$80 to \$85/MWh (depending on the number of years when the inflation rate exceeds 3%).

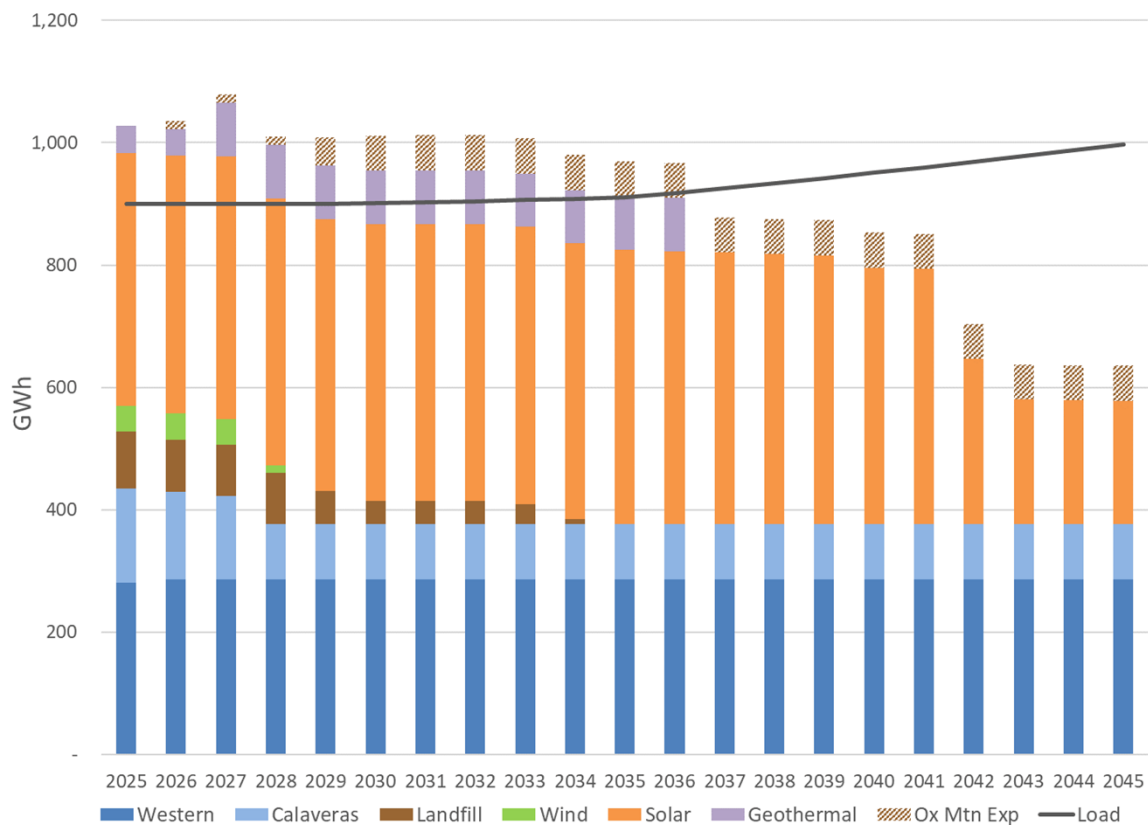
With each of these revenue streams, there is a large degree of uncertainty around what will happen to future prices from changes to macro-economic conditions, regulations, interdependent regional power markets, and overall market uncertainty. That said, forward pricing curves project off-peak power prices to become more valuable than on-peak prices within the next few years, and proposed changes to the RA market rules would reward generators that produce in times of the grid's greatest need. Furthermore, under the state's RPS legislation, all load serving entities are required to increase their share of renewable energy in their portfolios (to 60% by 2030), so there is increasing demand for RECs. All of these trends support the expected long-term value of the Ox Mountain project, given its ability to generate renewable energy around the clock. Staff conservatively estimates the project will provide a net benefit of at least \$6/MWh over the amended contract term, with the potential for significant upside if market prices stay high and there are further challenges to bringing new resources onto the grid in the coming 5-10 years.

Electric Portfolio Impact

The City's share of the Ox Mountain project's output is currently about 44,000 MWh/year (equivalent to 5.5% of Palo Alto's 2022 retail energy sales). If the expansion capacity is approved

this amount would be expected to grow to about 57,000 MWh/year (7.2% of retail energy sales). The existing supply portfolio⁵ is projected to have an overall surplus position through 2034 even without executing the Ox Mountain amendment, as shown in Figure 1 below. However, there is significant uncertainty around both the load and hydro generation projections shown here. With respect to load, there is the potential for significant growth from data centers, electric vehicles, and building electrification; meanwhile, the impacts of climate change are likely to significantly reduce the long-term level of hydro generation. Combined, these two factors could flip the portfolio’s overall surplus positions of the next several years to deficit positions—which is why staff recommends waiving the anti-speculation requirement of the City’s Energy Risk Management Policy for this agreement.

Figure 1: Projected Annual Load-Resource Balance with Ox Mountain Expansion & Extension

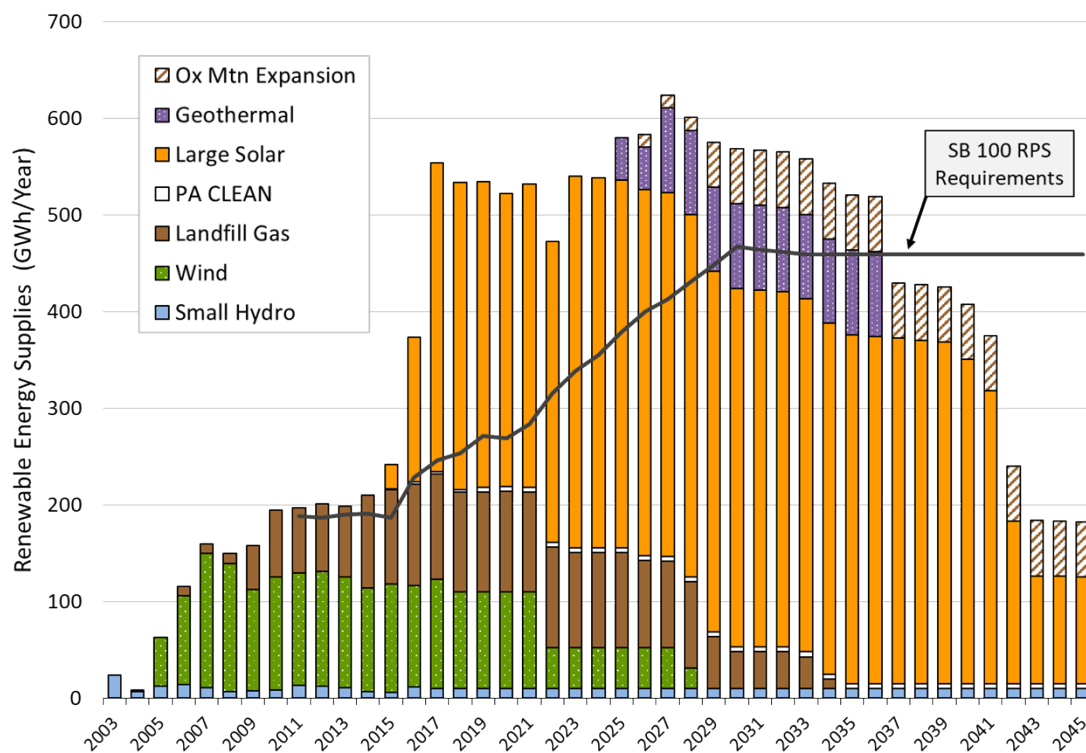


In addition to increasing and further diversifying Palo Alto’s electric supply portfolio in accordance with the City’s adopted Integrated Resource Plan, the project will also help the City comply with its RPS Procurement Plan obligations. The City is on track to meet state RPS targets

⁵ All six of the City’s solar PPA extend to 2040 or later, while the landfill gas PPAs are currently scheduled to expire between 2026 and 2034. The City has one remaining wind PPA which expires in June 2028. Furthermore, the City can renew the Western Base Resource contract for a new 30-year term that would start in 2025, and for planning purposes it is currently included in the supply portfolio baseline assumptions. Lastly, the City owns its share of the Calaveras project and it is therefore expected to remain in the portfolio indefinitely.

through 2036, as shown in Figure 2 below; the amended Ox Mountain PPA would help to significantly reduce Palo Alto's RPS procurement deficits beyond that point. In addition, this amendment would increase the volume of Bucket 1 RECs the City is able to swap for lower-cost Bucket 3 RECs under the REC Exchange Program and reduce the City's local RA capacity deficit positions.

Figure 2: RPS Supplies & Requirement Levels with Ox Mountain Expansion & Extension



Risk Management Assessment

Given that this project is an existing power plant, there is no development risk, and instead only operational risk. And as noted above, Ameresco is an experienced operator of LFGTE power plants like this one, and the Ox Mountain facility has an excellent reliability record. Finally, and perhaps most importantly, under the terms of the proposed PPA the City is not at risk for paying for output that is not delivered. As with all of the City's PPAs, the City will make no payments under the PPA until energy from the project is delivered.

FISCAL/RESOURCE IMPACT

If Council approves the execution of this amendment with Ameresco, the City will purchase up to 60,000 MWh/year over the course of the 20-year contract extension term, for a total not-to-exceed amount of \$101.2 million (an average of \$5.06 million per year). Over the entire term of the PPA the maximum spending authority, which was originally set at \$61.8 million in 2005, would be increased to \$147.2 million. These values are considered upper limits on the output the facility could potentially generate; the actual output the City will purchase under this amendment over

the contract term is expected to be slightly lower. Funding for the purchase of the additional renewable energy provided by the expansion of the Ox Mountain facility will be included in the Electric Utility Fund beginning in FY 2026.

POLICY IMPACT

Approval of the proposed amendment is in conformance with the City's Sustainability and Climate Action Plan (S/CAP), Integrated Resource Plan, Carbon Neutral Plan, and RPS Procurement Plan, specifically the City's Renewable Portfolio Standard to meet at least 60% of the City's electric sales from renewable energy.

STAKEHOLDER ENGAGEMENT

Utilities staff has coordinated with key staff from departments involved in the negotiation and management of the Ox Mountain PPA with Ameresco, including the Administrative Services Department and the City Attorney's Office, as well as staff from the City of Alameda and the Northern California Power Agency (NCPA).

In addition, the UAC reviewed staff's recommendation to approve the amendment at its April 3, 2024 meeting. The UAC asked questions about the amendment provisions, including Ameresco's termination right, and about the request to waive the anti-speculation requirement. They also inquired about how the amended contract price compares to the City's other renewable energy contracts and to the market price for other baseload renewable energy resources. The UAC agreed that this amendment represents a good deal for the City and voted unanimously (5-0) to recommend that the City Council approve it.

ENVIRONMENTAL REVIEW

The City Council's approval of this amendment to purchase additional output from the Ameresco facility does not meet the definition of a project under the California Environmental Quality Act (CEQA), pursuant to Public Resources Code Section 21065 and CEQA Guidelines Section 15378 because it will not result in a direct or indirect physical change in the environment. San Mateo County completed a Negative Declaration for the landfill gas recovery facility in 1999.

ATTACHMENTS

Attachment A: Resolution Approving Amendment No. 1 with Ameresco Half Moon Bay, LLC

APPROVED BY:

Dean Batchelor, Director of Utilities