



City of Palo Alto

(ID # 14678)

Utilities Advisory Commission Staff Report

Meeting Date: 2/1/2023

Report Type: VII. NEW BUSINESS

Title: Staff Recommend the Utilities Advisory Commission Recommend the City Council Approve and Authorize the City Manager or Their Designee to Execute a Third Phase Agreement With Northern California Power Agency for the Purchase of up to 87,600 Megawatt Hours per Year of Geothermal Energy From Calpine Corporation's Geysers Power Company, LLC Over a Term of up to 12 Years for a Total Not to Exceed Amount of \$76.2 Million

From: Director of Utilities

Lead Department: Utilities

RECOMMENDATION

Staff recommends that the Utilities Advisory Commission (UAC) recommend that City Council:

1. Authorize the City Manager, or their designee, to execute a Third Phase Agreement (Attachment A) with the Northern California Power Agency (NCPA) to purchase up to 87,600 MWh of renewable energy/year from a portfolio of geothermal projects owned by Calpine Corporation's Geysers Power Company, LLC, over a period of 12 years, at a total cost not to exceed \$76.2 million;
2. Authorize the City Manager, or their designee, to execute on behalf of the City all related documents or agreements necessary to administer the Third Phase Agreement that are consistent with the Palo Alto Municipal Code and City Council approved policies, including, but not limited to, collateral assignment agreements; and take any and all actions as are necessary or advisable to implement and administer the Third Phase Agreement;
3. Authorize the City Manager, or their designee, to approve and execute amendments to the Third Phase Agreement, as may be required from time to time, so long as the contract price and length of the agreement remain unchanged; and
4. 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 participation in the Calpine contract, due to the variability of the City's hydroelectric resources and uncertainty around the City's long-term load forecast.

Background

SB 100 & Carbon Neutral Plan goals

As part of ongoing efforts to meet the City's Carbon Neutral Plan requirements, as well as to comply with the state Renewable Portfolio Standard (RPS) mandate of providing at least 60% of sales from qualifying renewable resources by 2030, staff pursued a power purchase agreement (PPA) opportunity presented by Calpine to NCPA. Calpine is offering to sell power from a geothermal¹ power plant, which qualifies as an in-state "Bucket 1" renewable resource under the state's RPS requirements.

Existing RPS portfolio

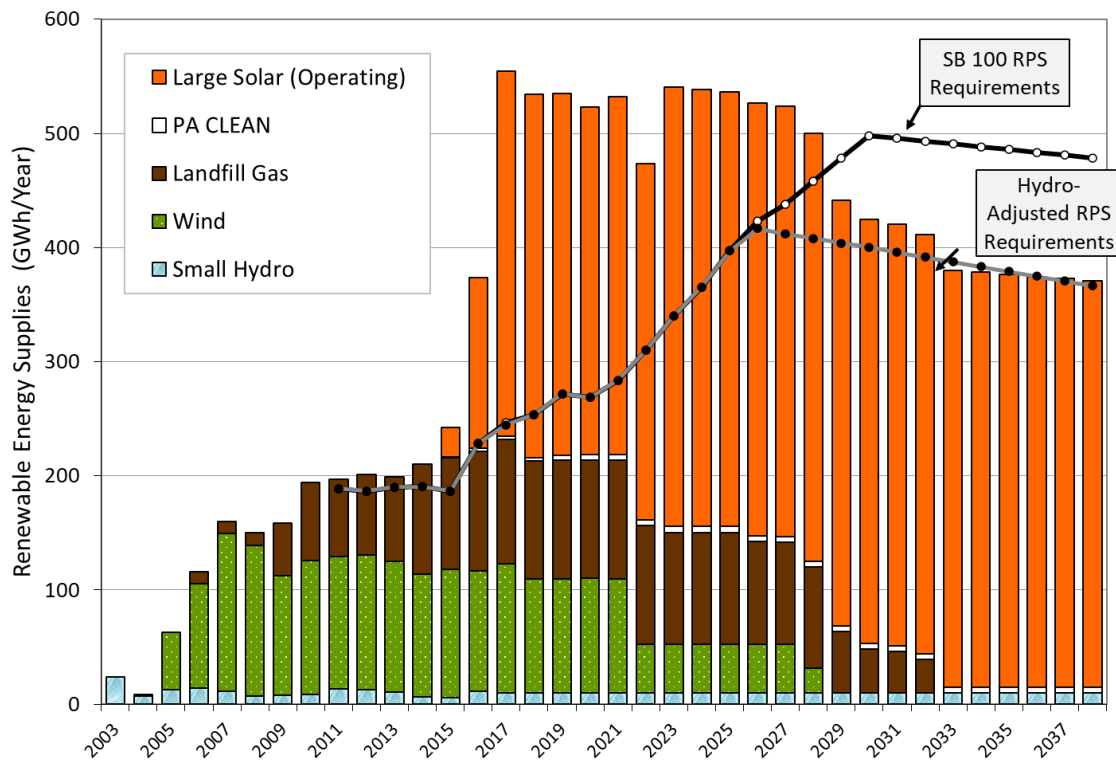
Over the past three years, the City has had an average RPS level of 63%² and is projected to maintain a high percentage of its power from renewable resources well into the future. Figure 1 below shows Palo Alto's projected RPS requirements along with the City's existing supply resources. Starting in 2029, the City is projected to have a deficit relative to its RPS requirement level (depending on the amount of large hydroelectric output the City receives³).

¹ Geothermal power plants have a small amount of carbon emissions associated with their operations from the natural release of greenhouse gases from the geysers

² This value refers to the total renewable energy content of the City's supply portfolio, including all of its in-state ("Bucket 1") renewable resources and its unbundled, out-of-state ("Bucket 3") renewable energy credits (RECs). For state RPS reporting purposes, the volume of Bucket 3 RECs that can be counted is limited; under this more restrictive framework the City's reported RPS level has averaged 31% over the last three years.

³ Under the state's RPS law, utilities that receive significant amounts of generation from certain large hydroelectric facilities are able to satisfy their RPS requirements with a lower RPS level than is required of other utilities. Such utilities are only required to achieve an RPS level equal to the difference between their total retail sales volume and the amount of generation they receive from qualifying large hydro facilities.

Figure 1: Palo Alto's Existing RPS Supplies and RPS Requirement Levels



Discussion

The Market for Renewable Resources in California

The pricing and availability of renewable resources in California has evolved significantly over the past decade as state and federal policies have shifted the market landscape. While the trend over the last decade has been the declining cost of renewable PPAs, the last two years has seen increasing challenges to developing and building renewable projects resulting from material shortages, supply chain issues, inflation, labor shortages, and tariffs. Before 2020, the market would generally have been described as a buyer's market, however, in the last two and a half years, this characterization has shifted to a seller's market as there are more renewable buyers, increasing challenges to completing projects, and as a result PPA prices have risen from record lows.

While the downward trend in renewable energy pricing has reversed in the last couple of years, staff expects the generous subsidies included in the Inflation Reduction Act (IRA), which was signed into law August 16th, 2022, to eventually push renewable energy prices lower again. There are many details in the IRA that are being outlined by the Treasury Department, and the initial feedback from developers is that it is still too early to understand the net impact this law will have on Palo Alto's renewable resource options. Ultimately staff expects the IRA to reduce the cost of renewables. However, the consensus view in the California market is that it will likely be several years before these cost reductions materialize, given the extent of the current supply-demand imbalance and the various development challenges.

While the market prices for intermittent renewable resources such as solar and wind, and energy storage systems have fluctuated in recent years, the price for baseload firm renewable resources such as geothermal energy has remained relatively steady. The price for energy from geothermal resources is relatively high, reflecting its higher cost of development and its higher value to the electrical grid.

Results of Palo Alto's Renewable RFP (2022 RFP)

As staff discussed at the June UAC meeting, staff issued a Request for Proposals of new renewable and/or carbon-free generating resources and energy-storage resources. Staff's evaluation of the four conforming project proposals (all of which were for solar resources) indicated that their "green premiums" (i.e. their net cost to the City – their total value less their total cost) ranged from \$3/MWh to -\$18 /MWh. In comparison, the Calpine geothermal project's net cost is estimated at -\$3/MWh (see below for more detail on this analysis). But in the course of reviewing the four responsive proposals, staff (1) became aware of efforts at the federal level to pass significant new clean energy legislation (in what became the IRA), and (2) learned about the Calpine geothermal project proposal. As a result of these two events, staff decided to reject the four conforming proposals received through this RFP.

Calpine Geothermal Project Summary

In May 2020, Calpine submitted a proposal to NCPA's⁴ Renewables RFP for the sale of energy and associated attributes from Calpine's⁵ existing portfolio of geothermal projects located in The Geysers area of Northern California. At the time Calpine submitted its proposal, NCPA members were evaluating other lower-cost project proposals. But shortly thereafter, the price of renewable projects started to significantly increase, due to the confluence of factors noted above. So in September 2021, NCPA requested proposal updates from Calpine and the other RFP respondents to see if their projects were still available and if there were any changes in price and/or terms initially offered. Section 2.30.340(d) of the City's Municipal Code permits the City to procure wholesale utility commodities and services through public agencies, including NCPA. After receiving the updated information, NCPA and member utility staff⁶ reviewed and analyzed the projects again and determined the geothermal output from Calpine would best diversify their renewable energy portfolios, aid them in achieving California RPS requirements, help meet their sustainability goals, and meet the needs of their expected load growth.

⁴ NCPA is a not-for-profit Joint Powers Agency whose membership includes municipalities, a rural electric cooperative, and other publicly owned entities, including the City of Palo Alto. The mission of NCPA is to provide members cost effective wholesale power, energy-related services, and advocacy on behalf of public power consumers through joint action.

⁵ Calpine Corporation (Calpine) was founded in 1984 and, through its wholly-owned subsidiary GPC, is the largest owner of geothermal plants in The Geysers area in Northern California, with 725 MW of green energy capacity operating around the clock. The Geysers area is known as the world's largest geothermal field spanning an area of 30 square miles in Sonoma, Lake, Mendocino, Marin, and Napa counties.

⁶ The City of Alameda, City of Biggs, City of Gridley, City of Lodi, City of Lompoc, Port of Oakland, and City of Santa Clara are all expected to sign onto the Third Phase Agreement to receive output from this project.

Over the course of 2022, NCPA staff led negotiation of a PPA with Calpine for renewable energy and RA from Calpine's Geysers geothermal facilities on behalf of the interested NCPA members. To enable NCPA to enter into the PPA with Calpine, participating NCPA members must execute a Third Phase Agreement with NCPA, which specifies the rights and obligations of NCPA and participating members regarding governance and administration of the PPA. The Third Phase Agreement also obligates the participating members to pay their assigned contract percentage share of all project costs (outlined in Exhibit A of the attached Third Phase Agreement), including but not limited to, administrative services costs, scheduling coordination costs, and all other costs related to the PPA.

Santa Clara, as the initial project participant, executed the Third Phase Agreement on December 23, 2022, which enabled NCPA to execute renewable energy and RA Agreements with Calpine for output from the Geysers geothermal facilities. As described in Exhibit A of the attached Third Phase Agreement, participating members become project participants by exercising their right to accept a transfer of a portion of the project participation percentage from Santa Clara by April 30, 2023.

In total, NCPA members have expressed interest in purchasing up to 100 MWs of generating capacity from Calpine for a term of 12 years. Palo Alto requested up to 20 MW of this capacity, but given the demand from NCPA members, has only been allocated 10 MW, with 5 MW starting in 2025, and 5 additional MW starting in 2027. This total geothermal capacity is expected to generate up to 876,000 MWh annually, of which Palo Alto would receive up to 87,600 MWh/year. This project will increase and further diversify Palo Alto's renewable energy portfolio in accordance with the City's adopted Integrated Resource Plan and RPS Procurement Plan. The proposed 10 MW share of the Calpine geothermal output is equivalent to 10.6% of Palo Alto's 2021 retail energy sales.

Due to increased demand for renewable energy generation resources, Calpine is limiting the amount of time it will reserve the quantity, price and terms of a PPA for prospective buyers. Therefore, staff recommends authorizing the City Manager to enter into the aforementioned Third Phase Agreement with NCPA. The benefits of the Calpine project are: (1) the units are fully constructed and are already in operation; (2) geothermal resources are baseload generators, meaning they produce a nearly uniform level of energy on a 24-hour basis; and (3) the units provide local resource adequacy (RA) capacity, of which the City has a significant shortage. Unlike many other new renewable energy projects, this project doesn't carry any development risk.

Economic Assessment of Calpine Geo Contract

The Calpine Geothermal PPA is expected to provide good value to CPAU customers while also reducing the supply portfolio's seasonal energy and RA capacity deficits, thereby reducing budget uncertainty. The geothermal project provides three valuable products to the electric portfolio: energy, resource adequacy, and renewable energy credits (RECs). If the sum of these

three values is greater than the cost of the power purchase agreement, then the City will see a net monetary benefit from this contract.

The primary value provided by this PPA is from the baseload energy output that the geothermal resource produces. Based on forward energy curves as of December 12, 2022, the average value of this energy is \$71.80/MWh between 2025 and 2030.⁷

In addition to the energy component, each MWh of geothermal generation qualifies as a “Bucket 1” renewable energy credit (REC), which historically has been valued between \$12-\$18/MWh. Recently, Palo Alto sold surplus RECs for as much as \$20/MWh.

Finally, the geothermal 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 has ranged between \$6/kW-month to \$8/kW-month recently, which would translate to approximately \$8 to \$11/MWh for the geothermal project. Staff transacted for system RA at a price around \$15/MWh in October 2022, well above historical RA prices. The increase in RA prices is driven by increasing system RA requirements and reduced qualifying capacity of solar resources, leading to a market shortage of RA in high load summer months.

These benefits of the geothermal PPA in aggregate are estimated to range between \$92 to \$101/MWh against a PPA price of \$79/MWh.

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 geothermal project, given its ability to generate renewable energy around the clock. The geothermal project’s inability to reduce output during the sunshine hours will expose it to some lower prices, but these downsides are expected to be offset by the other trends mentioned. Staff conservatively estimates the geothermal project will provide a net benefit of at least \$3/MWh⁸, 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.

⁷ Note that all energy prices in California have increased sharply over the past two years, not just those of renewable energy projects: Two years ago, forward energy curves pegged the value of this product at \$33/MWh, and even three months ago its value was projected to be just \$54/MWh.

⁸ The conservative net value estimate of \$3/MWh is based on the lower-end estimates of the value of the project’s RPS and RA products (\$12/MWh and \$8/MWh, respectively) and an energy value of \$62/MWh instead of \$71.80/MWh. The lower energy value estimate is equivalent to the energy value estimate of a few months ago, before the recent run-up in power and gas market prices.

Risk Management Assessment

Given this project is an existing power plant, there is no development risk, and instead only operational risk. There are some unique operational risks to running a geothermal power plant, but NCPA, who owns and manages an existing geothermal plant nearby, has confidence in Calpine's history of managing their steam fields and the plant's ability to reliably produce power over the term of the agreement.

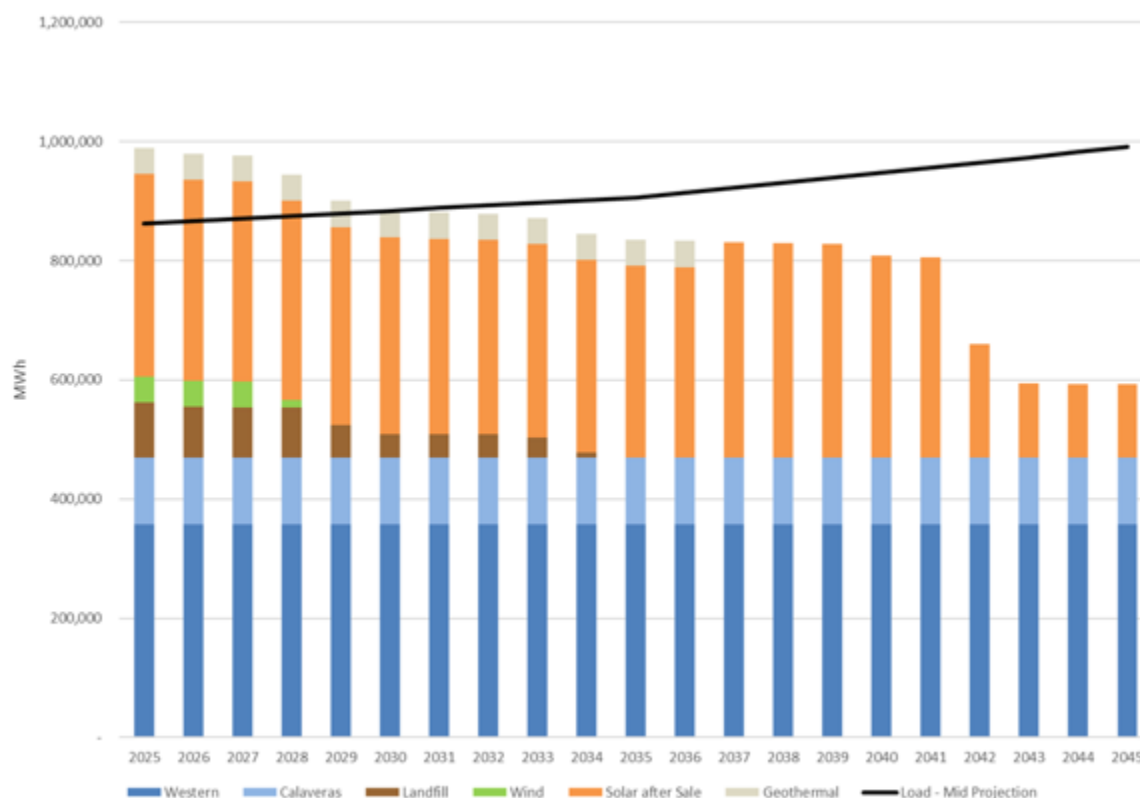
In general, businesses in the renewable industry lack extensive financial and operational track records, and because of the capital-intensive nature of these projects, they tend to be highly leveraged as well. In contrast to most of the City's renewable energy suppliers, Geysers Power Company, LLC (the wholly-owned subsidiary of Calpine that controls its geothermal assets) is an investment-grade company (BBB/stable credit rating), as determined by KBRA, a nationally recognized statistical rating organization (NRSRO), approved by the Securities and Exchange Commission (SEC). While Calpine has a higher projected default rate than the City's other (non-renewable) electric and gas suppliers, Calpine does have an excellent track record of operating a large portfolio of geothermal projects in the Geysers area over many years. And the output for this project will come from a collection of Calpine's resources in this area, so even if there are problems with one or two resources there is very little risk that the City will not receive the contracted volumes of output. To further mitigate this risk, in the event of a credit downgrade event, Calpine will provide collateral (in the form of cash or a letter of credit), in the amount of \$2.5 million for the first two years of the contract and \$5.0 million for the remainder of the contract, which would protect the City and the other PPA offtakers in a scenario where the facilities are unable to produce the contracted output and the market price of the replacement renewable power is higher than the price of the Calpine PPA. 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.

Palo Alto's Energy Portfolio with Calpine Geo

Under the City's Energy Risk Management Procedures, staff regularly develops procurement plans for the prompt 36-month period to mitigate the City's market price exposure. Given the supply portfolio's heavy concentration of hydroelectric and solar resources, these procurement plans typically result in staff buying market energy in the fall/winter months and selling surplus energy during the spring/summer months. Furthermore, within any given day, the supply portfolio is routinely short during off-peak (nighttime) and long during on-peak (daytime) periods. This PPA would reduce the need for market purchases and increase the opportunity for market sales in the spring and summer months, depending on the level of output from the City's hydroelectric resources.

The existing supply portfolio⁹ is projected to have an overall surplus position from 2025 through 2028 even without entering an agreement for the geothermal project, as shown in Figure 2 below. The load forecast shown in Figure 2 is based on the mid-range scenario presented at the December UAC meeting, which includes modest load growth from data centers, electric vehicles, and building electrification. The hydro generation estimates are based on long term historical averages, which have been significantly higher than actual generation in the last few years during the drought. However, as noted in the December UAC meeting discussion, there is significant uncertainty around both the load and hydro generation projections shown here. Staff recently learned about commercial development plans that could result in significantly greater data center load within the next few years; 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 few 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.

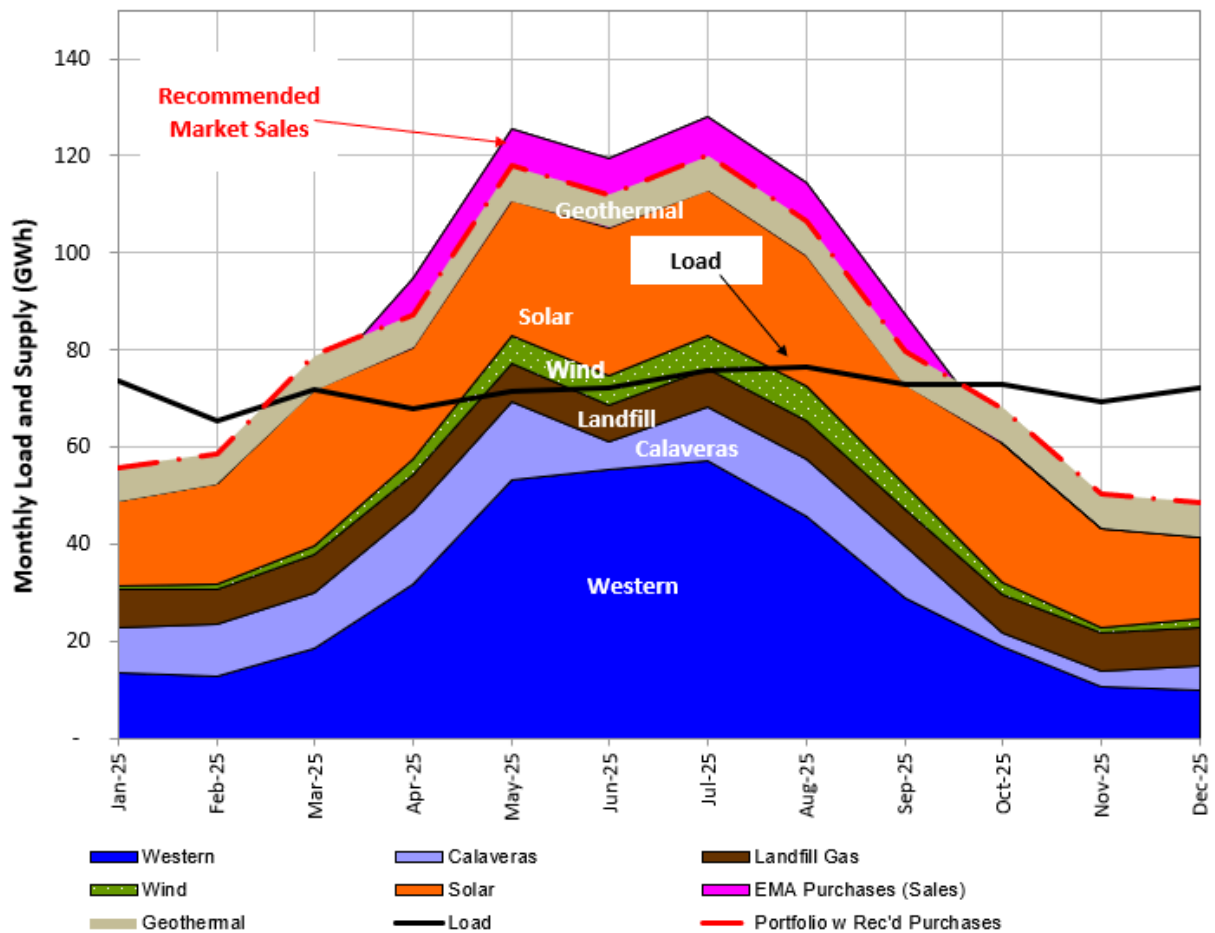
Figure 2: Projected Annual Load-Resource Balance, 2025-2045



⁹ All six of the City's solar PPA extend to 2040 or later, while the landfill gas PPAs 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.

While the supply portfolio, on average, has an overall surplus position in any given year, the portfolio is short during the 1st and 4th quarters of the calendar year given the seasonal generation from hydro and solar. Additionally, the portfolio is generally short during the non-solar (off-peak) hours. Monthly and daily load resource balance charts are shown in Attachments B and C. The geothermal project is a baseload power plant that produces electricity evenly across the day and year. Given the portfolio is currently projected to have surplus positions during the first few years of the geothermal PPA as shown above, staff is currently monitoring the City's actual load levels closely and evaluating whether to sell solar energy during the 2nd and 3rd quarters (an amount equal to the total purchase amount from the Calpine project) to hedge being overly long on energy, while also improving the daily load-resource balance. Figure 3 below shows a monthly load-resource balance for the City's portfolio with both the Calpine purchase and solar energy sales included. This would balance the portfolio supply and demand more evenly across the seasons within any given year. While the City's risk management policies don't prescribe a specific load-resource balance level, staff tries to minimize the portfolio's overall exposure to the market in either direction to mitigate large supply cost fluctuations from market pricing volatility.

Figure 3: Monthly Load-Resource Balance with Geothermal Energy Purchase and Q2/Q3 Solar Energy Sale Included



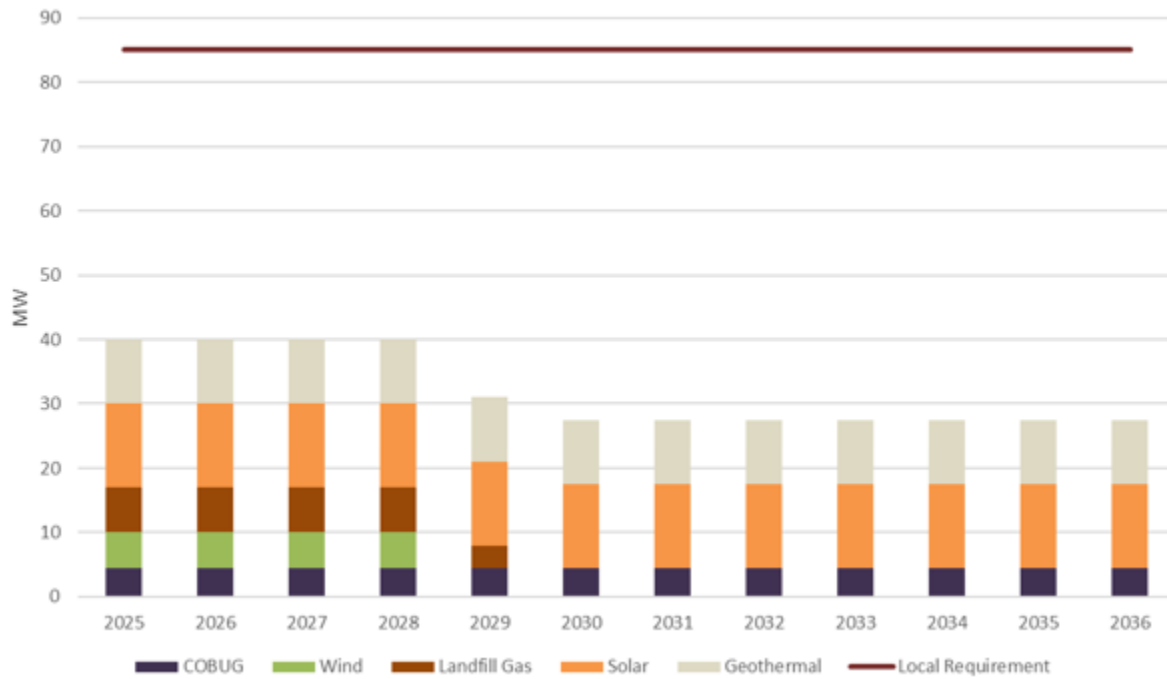
Palo Alto's Resource Adequacy Portfolio with Calpine Geo

Resource adequacy (RA) is another market that the City is required to participate in as a load serving entity in the California Independent System Operator (CAISO) balancing authority. The CAISO RA requirements dictate required levels of generating capacity the City must own or procure to meet local, system, and flexible resource requirements on an annual and monthly basis. Currently, staff manages the City's RA requirements by utilizing its own resources, participating in NCPA's Capacity Pool Program, and through bilateral transactions with other market participants.

The geothermal plant would qualify as local RA for the City, and it would also count towards the City's system RA requirements. As Figures 4 and 5 below indicate, the City has local RA deficits of approximately 50-80 MW per month, but surpluses of system RA that average approximately

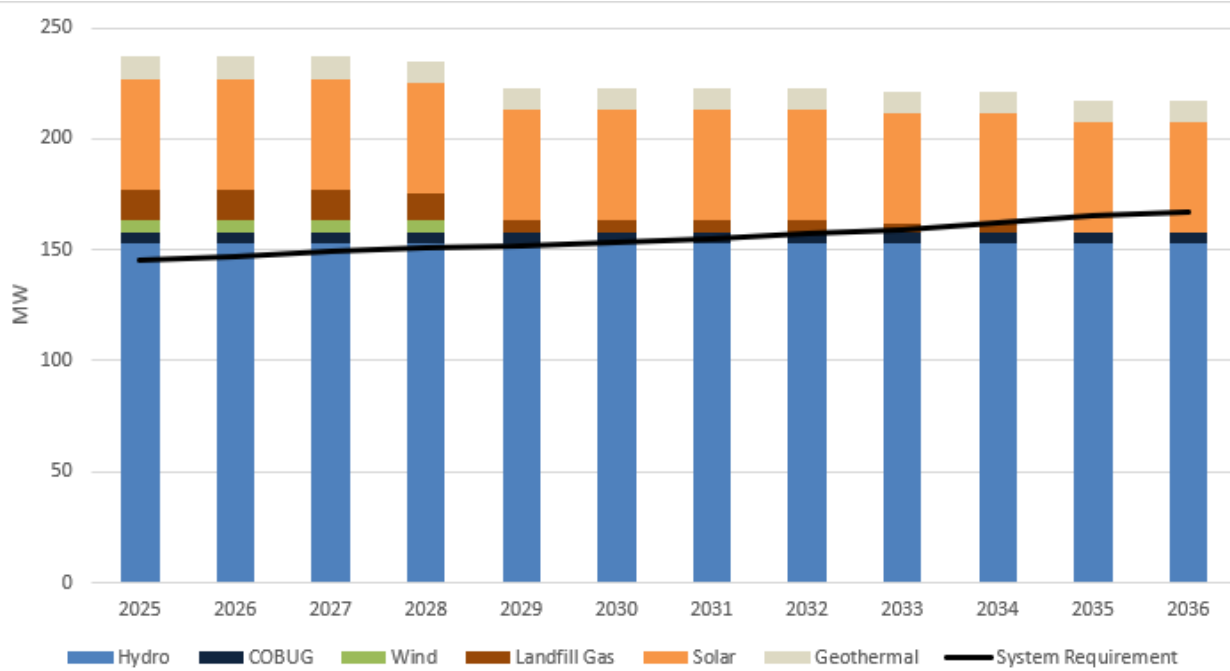
80 MW. This PPA would reduce the city's Local RA deficit by 10 MW and would increase the System RA surplus by an equivalent amount.¹⁰

Figure 4: Annual Average Local RA Balance Forecast, 2025-2036



¹⁰ While the City would retain the geothermal capacity in its own portfolio to help satisfy its local RA requirements, the addition of this contract would free up capacity from other resources (which do not qualify as local RA) that the City could sell to generate additional revenue and reduce its system RA surplus positions.

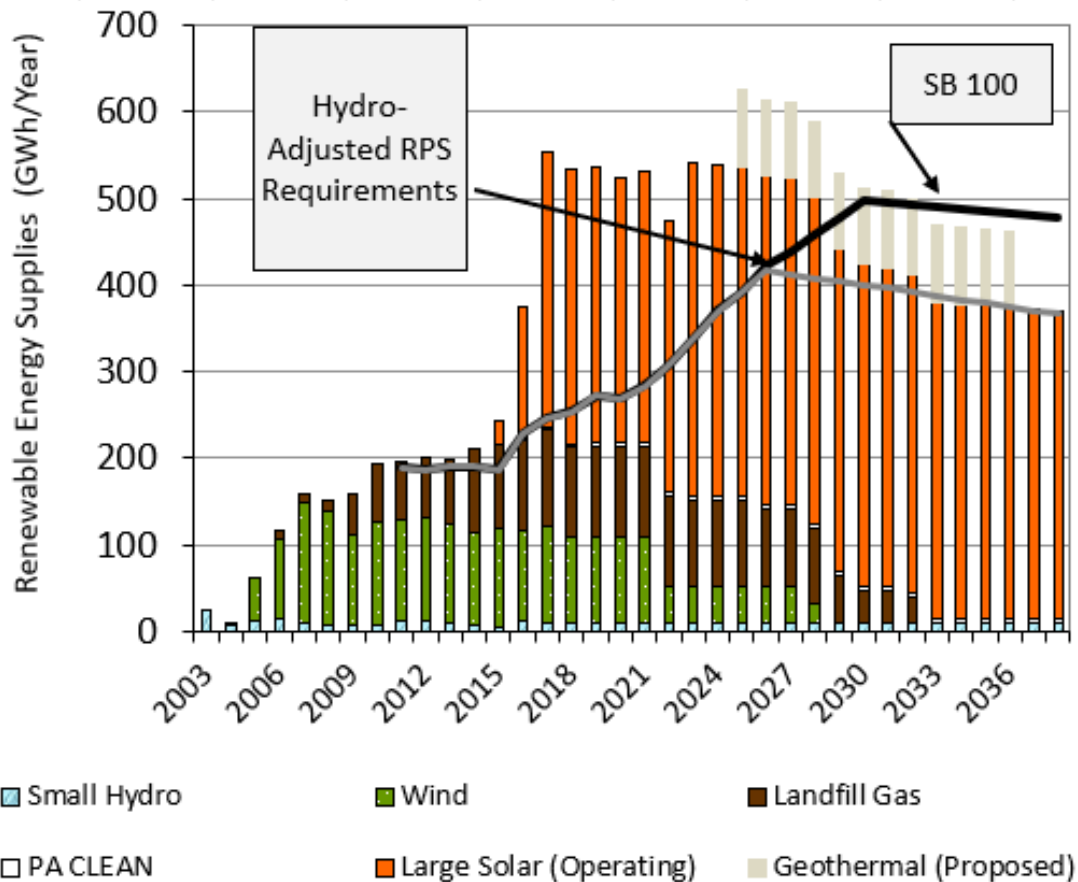
Figure 5: Annual Average System RA Balance Forecast, 2025-2036



Palo Alto's RPS Portfolio with Calpine Geo

The PPA will also increase the City's share of power being generated by renewable resources, as required by the state's RPS regulations. The City is already on track to meet state RPS targets without the geothermal PPA, so this is not a driving factor for this deal, but it would further increase the amount of Bucket 1 RECs the City is able to swap for lower-cost Bucket 3 RECs through its REC Exchange Program. In addition, increasing the City's RPS level provides further flexibility in the future if the City pursues a smaller share of the Western Base Resource contract.

Figure 6: Palo Alto's Existing RPS Supplies and RPS Requirement Levels, with the Calpine Project



Next Steps

The NPCA Commission approved Purchase Agreements Between Geysers Power Company, LLC and Northern California Power Agency, and the Third Phase Agreement for Purchase Agreements with Geysers Power Company, LLC at its December 1, 2022 meeting. Since then, NPCA, with input from attorneys representing participating members, completed PPA negotiations with Calpine. Santa Clara has executed the Third Phase Agreement with NPCA, and as the initial project participant has been allocated the full PPA output. Once Palo Alto and other participating members obtain their governing board approvals and execute the Third Phase Agreement as well, Santa Clara will assign shares of the PPA's energy, RECs and RA capacity to participating members, adding those members to the Third Phase Agreement between NPCA and Santa Clara. Santa Clara has asked all participating members to execute the Third Phase Agreement by April 2023. If the UAC recommends approval, staff will present the Third Phase Agreement to the Finance Committee and then to the City Council for approval.

Resource Impact

If Council approves the execution of this Third Phase Agreement with NPCA, the City will purchase up to 87,600 MWh/year for a total not-to-exceed amount of \$6.93 million/year during

the 12-year contract term (2025-2036). Funding for the purchase of the renewable energy will be included in the Electric Utility Fund budget beginning in FY 2025.

Policy Impact

Approval of the proposed Third Phase Agreement 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.

Environmental Review

The UAC's recommendation to approve the Third Phase Agreement does not meet the definition of a project under the California Environmental Quality Act (CEQA), pursuant to Public Resources Code Section 21065.

Attachments:

- Attachment A: NCPA Third Phase Agreement
- Attachment B: Monthly Load-Resource Balance for 2021 with the Calpine Geothermal Included
- Attachment C: Daily Load-Resource Balance for 2021 with the Calpine Geothermal Included
- Attachment D: Presentation

**THIRD PHASE AGREEMENT
FOR
PURCHASE AGREEMENTS
WITH
GEYSERS POWER COMPANY, LLC**

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This THIRD PHASE AGREEMENT ("this Agreement") is dated as of December 22, 2022 by and among the Northern California Power Agency, a joint powers agency of the State of California ("NCPA"), and the signatories to this Agreement other than NCPA ("Participants"). NCPA and the Participants are referred to herein individually as a "Party" and collectively as the "Parties".

RECITALS

A. NCPA has heretofore been duly established as a public agency pursuant to the Joint Exercise of Powers Act of the Government Code of the State of California and, among other things, is authorized to acquire, construct, finance, and operate buildings, works, facilities, and improvements for the generation and transmission of electric capacity and energy for resale.

B. Each of the Participants is a signatory to the Joint Powers Agreement which created NCPA and therefore is a Member.

C. Each of the Participants to this Agreement have executed the Amended and Restated Facilities Agreement, dated October 1, 2014, which establishes the framework under which Project Agreements are created for the development, design, financing, construction, and operation of specific NCPA Projects.

D. The Participants desire NCPA to enter into the following two agreements with Geysers Power Company, LLC ("Seller") for the benefit of the Participants'

customers: (1) Western Systems Power Pool Agreement Confirmation between Northern California Power Agency and Geysers Power Company, LLC, to purchase electric capacity (individually, "RA Agreement"); and (2) Western Systems Power Pool Agreement Confirmation between Geysers Power Company, LLC and Northern California Power Agency, to purchase renewable energy (individually, "RPS Agreement"). The RA Agreement and the RPS Agreement are collectively referred herein as the Purchase Agreements, attached hereto as Exhibit B.

E. Each Participant is authorized by its Constitutive Documents to obtain electric capacity and energy for its present or future requirements, through contracts with NCPA or otherwise.

F. To enable NCPA to enter into the Purchase Agreements on behalf of the Participants, pursuant to the terms and conditions of the Amended and Restated Facilities Agreement, NCPA and the Participants wish to enter into this Agreement to provide all means necessary for NCPA to fulfill obligations incurred on behalf of NCPA and the Participants pursuant to the Purchase Agreements, and to enable and obligate the Participants to take delivery of and pay for such electric capacity and energy and to pay NCPA for all costs it incurs for undertaking the foregoing activities.

G. Upon full execution of this Agreement, NCPA will enter into the Purchase Agreements on behalf of the Participants, and such Purchase Agreements shall be deemed a NCPA Project by the Commission.

H. Each of the Parties intends to observe the provisions of this Agreement in good faith and shall cooperate with all other Parties in order to achieve the full benefits of joint action.

I. The Parties desire to equitably allocate costs of NCPA's provision of services under this Agreement among the Participants.

J. The Participants further desire, insofar as possible, to insulate other Members who are not Participants, from risks inherent in the services and transactions undertaken on behalf of the Participants pursuant to this Agreement.

NOW, THEREFORE, the Parties agree as follows:

Section 1. Definitions.

1.1 Definitions. Whenever used in this Agreement (including the Recitals hereto), the following terms shall have the following respective meanings, provided, capitalized terms used in this Agreement (including the Recitals hereto) that are not defined in Section 1 of this Agreement shall have the meaning indicated in Section 1 of the Power Management and Administrative Services Agreement, dated October 1, 2014:

1.1.1 "Administrative Services Costs" means that portion of the NCPA administrative, general and occupancy costs and expenses, including those costs and expenses associated with the operations, direction and supervision of the general affairs and activities of NCPA, general management, treasury operations, accounting, budgeting, payroll, human resources, information technology, facilities management,

salaries and wages (including retirement benefits) of employees, facility operation and maintenance costs, taxes and payments in lieu of taxes (if any), insurance premiums, fees for legal, engineering, financial and other services, power management services, general settlement and billing services and general risk management costs, that are charged directly or apportioned to the provision of services under this Agreement. Administrative Services Costs as separately defined herein and used in the context of this Agreement is different and distinct from the term Administrative Services Costs as defined in Section 1 of the Power Management and Administrative Services Agreement.

1.1.2 "Agreement" means this Third Phase Agreement, including all Exhibits attached hereto.

1.1.3 "All Resources Bill" has the meaning set forth in the Power Management and Administrative Services Agreement.

1.1.4 "CAISO" means the California Independent System Operator Corporation, or its functional successor.

1.1.5 "CAISO Tariff" means the duly authorized tariff, rules, protocols and other requirements of the CAISO, as amended from time to time.

1.1.6 "Commission" has the meaning set forth in the Power Management and Administrative Services Agreement.

1.1.7 “Constitutive Documents” means, with respect to NCPA, the Joint Powers Agreement and any resolutions or bylaws adopted thereunder with respect to the governance of NCPA, and with respect to each Participant, the California Government Code and other statutory provisions applicable to such Participant, any applicable agreements, charters, contracts, or other documents concerning the formation, operation or decision making of such Participant, including, if applicable, its city charter, and any codes, ordinances, bylaws, and resolutions adopted by such Participant’s governing body.

1.1.8 “Defaulting Participant” has the meaning set forth in Section 7.2.

1.1.9 “Electric System” has the meaning set forth in the Power Management and Administrative Services Agreement.

1.1.10 “Event of Default” has the meaning set forth in Section 7.2.

1.1.11 “General Operating Reserve” means the NCPA General Operating Reserve created through resolution of the Commission, as the same may be amended from time to time.

1.1.12 “NCPA” has the meaning set forth in the Recitals hereto.

1.1.13 “Participant” has the meaning set forth in the Recitals of this Agreement.

1.1.14 “Power Management and Administrative Services Agreement” means the NCPA Power Management and Administrative Services Agreement, dated

as of October 1, 2014 between NCPA and the Members who are signatories to that agreement by which NCPA provides Power Management and Administrative Services.

1.1.15 “Products” means collectively the RA Product and the Renewable Product.

1.1.16 “Purchase Agreements” have the meaning set forth in Recital D of this Agreement. Upon final execution of the Purchase Agreements, the Purchase Agreements shall be deemed a NCPA Project in accordance with the Amended and Restated Facilities Agreement, and therefore be referred to herein as the “Project”.

1.1.17 “Project Costs” means all costs charged to and paid by NCPA pursuant to the Purchase Agreements.

1.1.18 “Project Participation Percentage” has the meaning set forth in the Power Management and Administrative Services Agreement, and are set forth in Exhibit A of this Agreement.

1.1.19 “Party” or “Parties” has the meaning set forth in the preamble hereto; provided that “Third Parties” are entities that are not Party to this Agreement.

1.1.20 “RA Product” means the resource adequacy capacity products described in Article 3 of the RA Agreement.

1.1.21 “Renewable Product” means renewable energy product and associated attributes which are defined as “Product” in the RPS Agreement.

1.1.22 “Revenue” means , with respect to each Participant, all income, rents, rates, fees, charges, and other moneys derived by the Participant from the ownership or operation of its Electric System, including, without limiting the generality of the foregoing: (a) all income, rents, rates, fees, charges or other moneys derived from the sale, furnishing and supplying of electric capacity and energy and other services, facilities, and commodities sold, furnished, or supplied through the facilities of its Electric System; (b) the earnings on and income derived from the investment of such income, rents, rates, fees, charges or other moneys to the extent that the use of such earnings and income is limited by or pursuant to law to its Electric System; (c) the proceeds derived by the Participant directly or indirectly from the sale, lease or other disposition of all or a part of the Electric System; and (d) the proceeds derived by Participant directly or indirectly from the consignment and sale of freely allocated greenhouse gas compliance instruments into periodic auctions administered by the State of California under the California Cap-and-Trade Program, provided that such proceeds are a permitted use of auction proceeds, but the term Revenues shall not include (i) customers' deposits or any other deposits subject to refund until such deposits have become the property of the Participant or (ii) contributions from customers for the payment of costs of construction of facilities to serve them.

1.1.23 “Scheduling Protocols” means the applicable provisions of the Amended and Restated Scheduling Coordination Program Agreement, and any other

contractual or other arrangements between NCPA and the Participants concerning the scheduling, delivery and metering of the Purchase Agreements.

1.1.24 “Security Deposit” means the account established by NCPA and funded by the Participants in accordance with Section 5, the funds of which are available for use by NCPA in accordance with the terms and conditions hereof.

1.1.25 “Seller” means Geysers Power Company, LLC, as set forth in Recital D of this Agreement, or as otherwise set forth in the Purchase Agreements.

1.1.26 “Term” has the meaning set forth in Section 10.

1.1.27 “Third Party” means an entity (including a Member) that is not Party to this Agreement.

1.2 Rules of Interpretation. As used in this Agreement (including the Recitals hereto), unless in any such case the context requires otherwise: The terms “herein,” “hereto,” “herewith” and “hereof” are references to this Agreement taken as a whole and not to any particular provision; the term “include,” “includes” or “including” shall mean “including, for example and without limitation;” and references to a “Section,” “subsection,” “clause,” “Appendix”, “Schedule”, or “Exhibit” shall mean a Section, subsection, clause, Appendix, Schedule or Exhibit of this Agreement, as the case may be. All references to a given agreement, instrument, tariff or other document, or law, regulation or ordinance shall be a reference to that agreement, instrument, tariff or other document, or law, regulation or ordinance as such now exists and as may be amended

from time to time, or its successor. A reference to a “person” includes any individual, partnership, firm, company, corporation, joint venture, trust, association, organization or other entity, in each case whether or not having a separate legal personality and includes its successors and permitted assigns. A reference to a “day” shall mean a Calendar Day unless otherwise specified. The singular shall include the plural and the masculine shall include the feminine, and *vice versa*.

Section 2. Purpose. The purpose of this Agreement is to: (i) set forth the terms and conditions under which NCPA shall enter into the Purchase Agreements on behalf of the Participants, (ii) authorize NCPA, acting on behalf of the Participants, to engage in all activities related to that basic purpose, and (iii) specify the rights and obligations of NCPA and the Participants with respect to the Purchase Agreements.

Section 3. Sale and Purchase of Products. By executing this Agreement, each Participant acknowledges and agrees to be bound by the terms and conditions of the Agreement, and that the Agreement is written as a “take-or-pay” agreement. Any Products delivered to NCPA under the Purchase Agreements shall be delivered to each Participant in proportion to such Participant’s Project Participation Percentage as set forth in Exhibit A, and each Participant shall accept and pay for its respective percentage of such Products. To the extent a Participant is unable to accept such deliveries in full, NCPA shall dispose of such surplus in its sole discretion, in such a manner to attempt to maximize Participant value and that Participant shall reimburse to NCPA any costs

incurred by NCPA in doing so. Notwithstanding the above, NCPA may allocate Products procured through the Purchase Agreements among the Participants in such percentages as NCPA may, in its reasonable discretion, determine are necessary, desirable, or appropriate, in order to accommodate Participant transfer rights pursuant to Section 9.

3.1 Scheduling. Products delivered from Seller shall be scheduled for and to the Participants in accordance with Scheduling Protocols, and the terms and conditions of the Purchase Agreements.

Section 4. Billing and Payments

4.1 Participant Payment Obligations. Each Participant agrees to pay to NCPA each month its respective portion of the Project Costs, Administrative Services Costs, scheduling coordination costs, and all other costs for services provided in accordance with this Agreement and the Amended and Restated Facilities Agreement. In addition to the aforementioned monthly payment obligations, each Participant is obligated to fund: (i) any and all required Security Deposits calculated in accordance with Section 5, and (ii) any working capital requirements for the Project maintained by NCPA as determined, collected and set forth in the Annual Budget.

4.2 Invoices. NCPA will issue an invoice to each Participant for its share of Project Costs, Administrative Services Costs, scheduling coordination costs, and all other costs for services provided in accordance with this Agreement and the Amended and Restated Facilities Agreement. Such invoice may be either the All Resources Bill or

separate special invoice, as determined by NCPA. At NCPA's discretion, invoices may be issued to Participants using electronic media or physical distribution.

4.3 Payment of Invoices. All invoices delivered by NCPA (including the All Resources Bill) are due and payable thirty (30) Calendar Days after the date thereof; provided, however, that any amount due on a day other than a Business Day may be paid on the following Business Day.

4.4 Late Payments. Any amount due and not paid by a Participant in accordance with Section 4.3 shall be considered late and bear interest computed on a daily basis until paid at the lesser of (i) the per annum prime rate (or reference rate) of the Bank of America NT&SA then in effect, plus two percent (2%) or (ii) the maximum rate permitted by law.

4.5 Billing Disputes. A Participant may dispute the accuracy of any invoice issued by NCPA under this Agreement by submitting a written dispute to NCPA, within thirty (30) Calendar Days after the date of such invoice; nonetheless the Participant shall pay the full amount billed when due. If a Participant does not timely question or dispute the accuracy of any invoice in writing, then the invoice shall be deemed to be correct. Upon review of a submitted dispute, if an invoice is determined by NCPA to be incorrect, then NCPA shall issue a corrected invoice and refund any amounts that may be due to the Participant. If NCPA and the Participant fail to agree on the accuracy of an invoice within thirty (30) Calendar Days after the Participant has disputed it, then the General Manager shall promptly submit the dispute to the Commission for resolution. If the Commission

and the Participant fail to agree on the accuracy of a disputed invoice within sixty (60) Calendar Days after its submission to the Commission, then the dispute may then be resolved under the mediation and arbitration procedures set forth in Section 12 of this Agreement; provided, however, that prior to resorting to either mediation or arbitration proceedings, the full amount of the disputed invoice must be paid by the Participant.

4.6 Billing/Settlement Data and Examination of Books and Records.

4.6.1 Settlement Data. NCPA shall make billing and settlement data available to the Participants in the All Resources Bill, or other invoice, or upon request. NCPA may also, at its sole discretion, make billing and settlement support information available to Participants using electronic media (e.g. electronic data portal). Procedures and formats for the provision of such electronic data submission may be established by the Commission from time to time. Without limiting the generality of the foregoing, NCPA may, in its reasonable discretion, require the Participants to execute a non-disclosure agreement prior to providing access to the NCPA electronic data portal.

4.6.2 Examination of Books and Records. Any Participant to this Agreement shall have the right to examine the books and records created and maintained by NCPA pursuant to this Agreement at any reasonable, mutually agreed upon time.

Section 5. Security Deposit Administration

5.1 Security Deposit Requirements. Each Participant agrees that any funds deposited at NCPA to satisfy Participant's Security Deposit requirements pursuant to this Agreement shall be irrevocably committed and held by NCPA in the General Operating Reserve, and that such funds may be used by NCPA in accordance with Section 5.1.3. Each Participant's Security Deposit will be accounted separately from and in addition to any other security accounts or deposits maintained pursuant to any other agreement between NCPA and the Participant, or any other such security account or deposits required of Members. In connection with fulfilling the Security Deposit requirements of this Agreement, Participant may elect to use its uncommitted funds held in the General Operating Reserve to satisfy in whole or in part its Security Deposit required under Section 5. If Participant chooses to satisfy in whole or in part its security requirements using its uncommitted funds held in the General Operating Reserve, then Participant is required to execute and deliver to NCPA an Irrevocable Letter of Direction, directing NCPA to utilize Participant's uncommitted General Operating Reserve funds for such purposes, and the designated funds will thereafter be irrevocably committed and held by NCPA to satisfy the requirements of this Agreement.

5.1.1 Initial Amounts. No later than November 1, 2024, each Participant shall ensure that sufficient Security Deposit funds have been deposited with and are held by NCPA in an amount equal to the highest three (3) months of estimated Project

Costs for the initial term from January 2025 through December 2026, as estimated by NCPA.¹ No later than November 1, 2026, each Participant shall adjust the Security Deposit to an amount equal to the highest three (3) months of estimated Project Costs for the period January 2027 through December 2036, as estimated by NCPA.² Such Security Deposit requirement may be satisfied by Participant in whole or part either in cash, through irrevocable commitment of its uncommitted funds held in the General Operating Reserve in accordance with Section 5.1, or through a clean, irrevocable letter of credit satisfactory to NCPA's General Manager.

5.1.2 Subsequent Deposits. Periodically, and at least quarterly, NCPA shall review and revise its estimate of Project Costs for which Participant shall be obligated to pay under this Agreement. Following such review, NCPA shall determine whether each Participant has a sufficient Security Deposit balance at NCPA. To the extent that any Participant's Security Deposit balance is greater than one hundred and ten percent (110%) of the amount required herein, NCPA shall credit such amount as soon as practicable to the Participant's next following All Resources Bill, or by separate special invoice. To the extent that any Participant's Security Deposit balance is less than ninety percent (90%) of the amount required herein, NCPA shall add such amount

¹ The Security Deposit fund requirement for the initial term is structured to avoid a Downgrade Event to Buyer as such terms are defined in RPS Agreement.

² The Security Deposit fund requirement is increased in November of 2026 to reflect the increased contract quantity beginning on January 1, 2027, and is structured to avoid a Downgrade Event to Buyer as such terms are defined in RPS Agreement.

as soon as practicable to such Participant's next All Resources Bill, or as necessary, to a special invoice to be paid by Participant upon receipt. Credits or additions shall not be made to Participants who satisfy these Security Deposit requirements in whole through the use of a letter of credit; provided, that the amount of the letter of credit shall be adjusted, as required from time to time, in a like manner to assure an amount not to exceed the highest three (3) months of estimated Project Costs is available to NCPA, as determined by NCPA.

5.1.3 Use of Security Deposit Funds. NCPA may use any and all Security Deposit funds held by NCPA (or utilize a letter of credit provided in lieu thereof) to pay any costs it incurs hereunder, including making payments to Seller, without regard to any individual Participant's Security Deposit balance or proportionate share of Project Costs, and irrespective of whether NCPA has issued an All Resources Bill or special invoice for such costs to the Participants or whether a Participant has made timely payments of All Resources Bills or special invoices. Should Participant have satisfied its Security Deposit requirements in whole or part through a letter of credit, NCPA may draw on such letter of credit to satisfy Participant's obligations hereunder at NCPA's sole discretion. Notwithstanding the foregoing, if any Participant fails to pay any costs incurred by NCPA pursuant to this Agreement, NCPA shall first use that non-paying Participant's Security Deposit and

shall not use any other Participants' Security Deposit until such non-paying Participant's Security Deposit has been exhausted.

5.1.4 Accounting. If Security Deposit funds or a letter of credit are used by NCPA to pay any costs it incurs hereunder as described in Section 5.1.3, then NCPA will maintain a detailed accounting of each Participant's shares of funds withdrawn, and upon the collection of all or a part of such withdrawn funds, NCPA will credit back to each non-defaulting Participant the funds collected in proportion to such non-defaulting Participant's share of funds initially withdrawn.

5.1.5 Emergency Additions. In the event that funds are withdrawn pursuant to Section 5.1.3, or if the Security Deposit held by NCPA is otherwise insufficient to allow for NCPA to pay any invoice, demand, request for further assurances by Seller, or claims, NCPA shall notify all Participants of the deficiency. In conjunction with such notice, NCPA shall send a special or emergency assessment invoice to the Participant or Participants that caused or are otherwise responsible for the deficiency. Each Participant of such an invoice shall pay to NCPA such assessment when and if assessed by NCPA within two (2) Business Days of the invoice date of the assessment, or shall consent to and direct NCPA to draw on any existing letter of credit Participant has established for such purposes. In the event that the Participant or Participants that caused or are otherwise responsible for the deficiency cannot, does not or will not pay to NCPA the special or emergency assessment within two (2)

Business Days after the invoice date, NCPA shall immediately submit a special or emergency invoice to all remaining Participants, and such remaining Participants shall pay to NCPA such assessment within two (2) Business Days after the invoice date of the assessment, or shall consent to and direct NCPA to draw on any existing letter of credit that Participant has established for such purposes.

5.1.6 Security Deposit Interest. NCPA shall maintain a detailed accounting of each Participant's Security Deposits, and withdrawals of such funds, held by NCPA. Security Deposits held by NCPA shall be invested by NCPA in accordance with the General Operating Reserve policies and investment policies adopted by the NCPA Commission. Interest earned on the Security Deposit funds shall be proportionately credited to the Participants in accordance with their weighted average balances held therein. Any Security Deposit losses caused by early termination of investments shall be allocated among the Participants in accordance with the General Operating Reserve provisions and guidelines approved by the Commission, as the same may be amended from time to time; provided, however, to the extent that either the General Operating Reserve provisions and guidelines do not apply or the Security Deposit is not adequate to cover the losses, then such losses shall be allocated among the Participants in accordance with their proportionate Security Deposit balances.

5.1.7 Return of Funds. Upon termination or a permitted withdrawal of a Participant in accordance with this Agreement, the affected Participant may apply to NCPA for the return of their share of Security Deposit funds ninety (90) days after the effective date of such termination or withdrawal. However, NCPA shall, in its sole but reasonable discretion, as determined by the NCPA General Manager, estimate the then outstanding liabilities of the Participant, including any estimated contingent liabilities and shall retain all such funds, if any, until all such liabilities have been fully paid or otherwise satisfied in full. After all such liabilities have been satisfied in full, as determined by NCPA's General Manager, any remaining balance of the Participant's share of the Security Deposit will be refunded to the Participant within sixty (60) days thereafter.

Section 6. Cooperation and Further Assurances. Each of the Parties agree to provide such information, execute and deliver any instruments and documents and to take such other actions as may be necessary or reasonably requested by any other Party which are consistent with the provisions of this Agreement and which do not involve the assumption of obligations other than those provided for in this Agreement, in order to give full effect to this Agreement and to carry out the intent of this Agreement. The Parties agree to cooperate and act in good faith in connection with obtaining any credit support required in order to satisfy the requirements of this Agreement.

Section 7. Participant Covenants and Defaults

7.1 Each Participant covenants and agrees: (i) to make payments to NCPA, from its Electric System Revenues, of its obligations under this Agreement as an operating expense of its Electric System; (ii) to fix the rates and charges for services provided by its Electric System, so that it will at all times have sufficient Revenues to meet the obligations of this Agreement, including the payment obligations; (iii) to make all such payments due NCPA under this Agreement whether or not there is an interruption in, interference with, or reduction or suspension of services provided under this Agreement, such payments not being subject to any reduction, whether by offset or otherwise, and regardless of whether any reasonable dispute exists; and (iv) to operate its Electric System, and the business in connection therewith, in accordance with Good Utility Practices.

7.2 Events of Default. An Event of Default under this Agreement shall exist upon the occurrence of any one or more of the following by a Participant (the “Defaulting Participant”):

(i) the failure of any Participant to make any payment in full to NCPA when due;

(ii) the failure of a Participant to perform any covenant or obligation of this Agreement where such failure is not cured within thirty (30) Calendar Days following receipt of a notice from NCPA demanding cure; provided, that this subsection shall not apply to any failure to make payments specified by subsection 7.2 (i));

(iii) if any representation or warranty of a Participant material to the services provided hereunder shall prove to have been incorrect in any material respect when made and the Participant does not cure the facts underlying such incorrect representation or warranty so that the representation or warranty becomes true and correct within thirty (30) Calendar Days after the date of receipt of notice from NCPA demanding cure; or

(iv) if a Participant is in default or in breach of any of its covenants or obligations under any other agreement with NCPA and such default or breach is not cured within the time periods specified in such agreement.

7.3 Uncontrollable Forces. A Party shall not be considered to be in default in respect of any obligation hereunder if prevented from fulfilling such obligation by reason of Uncontrollable Forces; provided, that in order to be relieved of an Event of Default due to Uncontrollable Forces, a Party affected by an Uncontrollable Force shall:

(i) first provide oral notice to the General Manager using telephone communication within two (2) Business Days after the onset of the Uncontrollable Force, and provide subsequent written notice to the General Manager and all other Parties within ten (10) Business Days after the onset of the Uncontrollable Force, describing its nature and extent, the obligations which the Party is unable to fulfill, the anticipated duration of the Uncontrollable Force, and the actions which the Party will undertake so as to remove such disability and be able to fulfill its obligations hereunder; and

(ii) use due diligence to place itself in a position to fulfill its obligations hereunder and if unable to fulfill any obligation by reason of an Uncontrollable Force such Party shall exercise due diligence to remove such disability with reasonable dispatch; provided, that nothing in this subsection shall require a Party to settle or compromise a labor dispute.

7.4 Cure of an Event of Default. An Event of Default shall be deemed cured only if such default shall be remedied or cured within the time periods specified in Section 7.2 above, as may be applicable, provided, however, upon request of the Defaulting Participant the Commission may waive the default at its sole discretion, where such waiver shall not be unreasonably withheld.

7.5 Remedies in the Event of Uncured Default. Upon the occurrence of an Event of Default which is not cured within the time limits specified in Section 7.2, without limiting other rights or remedies available under this Agreement, at law or in equity, and without constituting or resulting in a waiver, release or estoppel of any right, action or cause of action NCPA may have against the Defaulting Participant, NCPA may take any or all of the following actions:

(i) suspend the provision of services under this Agreement to such Defaulting Participant; or

(ii) demand that the Defaulting Participant provide further assurances to guarantee the correction of the default, including the collection of a surcharge or increase

in electric rates, or such other actions as may be necessary to produce necessary Revenues to correct the default.

7.6 Effect of Suspension.

7.6.1 Generally. The suspension of this Agreement will not terminate, waive, or otherwise discharge any ongoing or undischarged liabilities, credits or obligations arising from this Agreement until such liabilities, credits or obligations are satisfied in full.

7.6.2 Suspension. If performance of all or any portion of this Agreement is suspended by NCPA with respect to a Participant in accordance with subsection 7.5(i), then such Participant shall pay any and all costs incurred by NCPA as a result of such suspension including reasonable attorney's fees, the fees and expenses of other experts, including auditors and accountants, or other reasonable and necessary costs associated with such suspension and any portion of the Project Costs, scheduling and dispatch costs, and Administrative Services Costs that were not recovered from such Participant as a result of such suspension.

Section 8. Administration of Agreement

8.1 Commission. The Commission is responsible for the administration of this Agreement. Each Participant shall be represented by its Commissioner or their designated alternate Commissioner ("Alternate") pursuant to the Joint Powers Agreement. Each

Commissioner shall have authority to act for the Participant represented with respect to matters pertaining to this Agreement.

8.2 Forum. Whenever any action anticipated by this Agreement is required to be jointly taken by the Participants, such action shall be taken at regular or special meetings of the NCPA Commission.

8.3 Quorum. For purposes of acting upon matters that relate to administration of this Agreement, a quorum of the Participants shall consist of those Commissioners, or their designated Alternate, representing a numerical majority of the Participants.

8.4 Voting. Each Participant shall have the right to cast one vote with respect to matters pertaining to this Agreement. A unanimous vote of all Participants shall be required for action regarding: (i) any transfer of rights to a Third Party as described in Section 9 of this Agreement; and (ii) for matters related to any of the following actions as provided for in the Purchase Agreements: (a) exercising any early termination provisions as set forth in the Purchase Agreements, and (b) exercising any assignment rights as set forth in the Purchase Agreements. For all other matters pertaining to this Agreement, a majority vote of the Participants shall be required for action.

Section 9. Transfer of Rights by Participants

9.1 A Participant has the right to make transfers, sales, assignments and exchanges (collectively “transfers(s)”) of any portion of its Project Participation Percentage and rights thereto, subject to the approval provisions in Section 8.4 of this Agreement,

provided that the transferee satisfies all applicable criterion in the Purchase Agreements.

If a Participant desires to transfer a portion or its entire share of the Project for a specific time interval, or permanently, then NCPA will, if requested by such Participant, use its best efforts to transfer that portion of the Participant's share of the Project.

9.2 Unless otherwise set forth in this Agreement, before a Participant may transfer an excess Project share pursuant to Section 9.1 to any person or entity other than a Participant, it shall give all other Participants the right to purchase the share on the same terms and conditions. Before a Participant may transfer an excess Project share pursuant to section 9.1 to any person or entity other than a Member, it shall give all Members the right to purchase the share on the same terms and conditions. Such right shall be exercised within thirty (30) days of receipt of notice of said right.

No transfer shall relieve a Participant of any of its obligations under this Agreement except to the extent that NCPA receives payment of these obligations from a transferee.

9.3 The provisions of this Section 9 do not apply to the Exhibit A, unless expressly set forth therein.

Section 10. Term and Termination. This Agreement shall become effective when it has been duly executed by all Participants, and delivered to and executed by NCPA (the "Effective Date"). NCPA shall notify all Participants in writing of the Effective Date. The Term of this Agreement shall be coterminous with the Purchase Agreements, and shall

commence on the Effective Date, and shall continue through the term of the Purchase Agreements.

Section 11. Withdrawal of Participants. No Participant may withdraw from this Agreement except as otherwise provided for herein.

Section 12. Settlement of Disputes and Arbitration. The Parties agree to make best efforts to settle all disputes among themselves connected with this Agreement as a matter of normal business under this Agreement. The procedures set forth in Section 10 of the Power Management and Administrative Services Agreement shall apply to all disputes that cannot be settled by the Participants themselves; provided, that the provisions of Section 4.5 shall first apply to all disputes involving invoices prepared by NCPA.

Section 13. Miscellaneous

13.1 **Confidentiality.** The Parties will keep confidential all confidential or trade secret information made available to them in connection with this Agreement, to the extent possible, consistent with applicable laws, including the California Public Records Act. Confidential or trade secret information shall be marked or expressly identified as such.

If a Party (“Receiving Party”) receives a request from a Third Party for access to, or inspection, disclosure or copying of, any other Party’s (the “Supplying Party”) confidential data or information, which the Receiving Party has possession of (“Disclosure Request”), then the Receiving Party shall provide notice and a copy of the Disclosure Request to the Supplying Party within three (3) Business Days after receipt of the Disclosure Request.

Within three (3) Business Days after receipt of such notice, the Supplying Party shall provide notice to the Receiving Party either:

(i) that the Supplying Party believes there are reasonable legal grounds for denying or objecting to the Disclosure Request, and the Supplying Party requests the Receiving Party to deny or object to the Disclosure Request with respect to identified confidential information. In such case, the Receiving Party shall deny the Disclosure Request and the Supplying Party shall defend the denial of the Disclosure Request at its sole cost, and it shall indemnify the Receiving Party for all costs associated with denying or objecting to the Disclosure Request. Such indemnification by the Supplying Party of the Receiving Party shall include all of the Receiving Party's costs reasonably incurred with respect to denial of or objection to the Disclosure Request, including but not limited to costs, penalties, and the Receiving Party's attorney's fees; or

(ii) that the Receiving Party may grant the Disclosure Request without any liability by the Receiving Party to the Supplying Party.

13.2 Indemnification and Hold Harmless. Subject to the provisions of Section 13.4, each Participant agrees to indemnify, defend and hold harmless NCPA and its Members, including their respective governing boards, officials, officers, agents, and employees, from and against any and all claims, suits, losses, costs, damages, expenses and liability of any kind or nature, including reasonable attorneys' fees and the costs of litigation, including experts, to the extent caused by any acts, omissions, breach of

contract, negligence (active or passive), gross negligence, recklessness, or willful misconduct of that Participant, its governing officials, officers, employees, subcontractors or agents, to the maximum extent permitted by law.

13.3 Several Liabilities. No Participant shall, in the first instance, be liable under this Agreement for the obligations of any other Participant or for the obligations of NCPA incurred on behalf of other Participants. Each Participant shall be solely responsible and liable for performance of its obligations under this Agreement, except as otherwise provided for herein. The obligation of each Participant under this Agreement is, in the first instance, a several obligation and not a joint obligation with those of the other Participants.

Notwithstanding the foregoing, the Participants acknowledge that any debts or obligations incurred by NCPA under this Agreement on behalf of any of them shall be borne solely by such Participants in proportion to their respective Project Participation Percentages, and not by non-Participant Members of NCPA, pursuant to Article IV, Section 3(b) of the Joint Powers Agreement.

In the event that a Participant should fail to pay its share of the debts or obligations incurred by NCPA as required by this Agreement, the remaining Participants shall, in proportion to their Project Participation Percentages, pay such unpaid amounts and shall be reimbursed by the Participant failing to make such payments.

13.4 No Consequential Damages. FOR ANY BREACH OF ANY PROVISION OF THIS AGREEMENT FOR WHICH AN EXPRESS REMEDY OR MEASURE OF DAMAGES IS PROVIDED IN THIS AGREEMENT, THE LIABILITY OF THE DEFAULTING PARTY SHALL BE LIMITED AS SET FORTH IN SUCH PROVISION, AND ALL OTHER DAMAGES OR REMEDIES ARE HEREBY WAIVED. IF NO REMEDY OR MEASURE OF DAMAGE IS EXPRESSLY PROVIDED, THE LIABILITY OF THE DEFAULTING PARTY SHALL BE LIMITED TO ACTUAL DAMAGES ONLY AND ALL OTHER DAMAGES AND REMEDIES ARE HEREBY WAIVED. IN NO EVENT SHALL NCPA OR ANY PARTICIPANT OR THEIR RESPECTIVE SUCCESSORS, ASSIGNS, REPRESENTATIVES, DIRECTORS, OFFICERS, AGENTS, OR EMPLOYEES BE LIABLE FOR ANY LOST PROFITS, CONSEQUENTIAL, SPECIAL, EXEMPLARY, INDIRECT, PUNITIVE, OR INCIDENTAL LOSSES OR DAMAGES, INCLUDING LOSS OF USE, LOSS OF GOODWILL, LOST REVENUES, LOSS OF PROFIT OR LOSS OF CONTRACTS EVEN IF SUCH PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND NCPA AND EACH PARTICIPANT EACH HEREBY WAIVES SUCH CLAIMS AND RELEASES EACH OTHER AND EACH OF SUCH PERSONS FROM ANY SUCH LIABILITY.

The Parties acknowledge that California Civil Code section 1542 provides that: "A general release does not extend to claims which the creditor does not know or suspect to exist in his or her favor at the time of executing the release, which if known by him or her must

have materially affected his or her settlement with the debtor.” The Parties waive the provisions of section 1542, or other similar provisions of law, and intend that the waiver and release provided by this Section of this Agreement shall be fully enforceable despite its reference to future or unknown claims.

13.5 Waiver. No waiver of the performance by a Party of any obligation under this Agreement with respect to any default or any other matter arising in connection with this Agreement shall be effective unless given by the Commission or the governing body of a Participant, as applicable. Any such waiver by the Commission in any particular instance shall not be deemed a waiver with respect to any subsequent performance, default or matter.

13.6 Amendments. Except where this Agreement specifically provides otherwise, this Agreement may be amended only by written instrument executed by the Parties with the same formality as this Agreement.

13.7 Assignment of Agreement.

13.7.1 Binding Upon Successors. This Agreement shall inure to the benefit of and shall be binding upon the respective successors and assignees of the Parties to this Agreement.

13.7.2 No Assignment. Neither this Agreement, nor any interest herein, shall be transferred or assigned by a Party hereto except with the consent in writing of the other Parties hereto, which consent shall not be unreasonably withheld.

13.8 Severability. In the event that any of the terms, covenants or conditions of this Agreement or the application of any such term, covenant or condition, shall be held invalid as to any person or circumstance by any court having jurisdiction, all other terms, covenants or conditions of this Agreement and their application shall not be affected thereby, but shall remain in force and effect unless the court holds that such provisions are not severable from all other provisions of this Agreement.

13.9 Governing Law. This Agreement shall be interpreted, governed by, and construed under the laws of the State of California.

13.10 Headings. All indices, titles, subject headings, section titles and similar items are provided for the purpose of convenience and are not intended to be inclusive, definitive, or affect the meaning of the contents of this Agreement or the scope thereof.

13.11 Notices. Any notice, demand or request required or authorized by this Agreement to be given to any Party shall be in writing, and shall either be personally delivered to a Participant's Commissioner or Alternate, and to the General Manager, or shall be transmitted to the Participant and the General Manager at the addresses shown on the signature pages hereof. The designation of such addresses may be changed at any time by written notice given to the General Manager who shall thereupon give written notice of such change to each Participant. All such notices shall be deemed delivered when personally delivered, two (2) Business Days after deposit in the United States mail

first class postage prepaid, or on the first Business Day following delivery through electronic communication.

13.12 Warranty of Authority. Each Party represents and warrants that it has been duly authorized by all requisite approval and action to execute and deliver this Agreement and that this Agreement is a binding, legal, and valid agreement enforceable in accordance with its terms. Upon execution of this Agreement, each Participant shall deliver to NCPA a resolution of the governing body of such Participant evidencing approval of and authority to enter into this Agreement.

13.13 Counterparts. This Agreement may be executed in any number of counterparts, and each executed counterpart shall have the same force and effect as an original instrument and as if all the signatories to all of the counterparts had signed the same instrument. Any signature page of this Agreement may be detached from any counterpart of this Agreement without impairing the legal effect of any signatures thereon, and may be attached to another counterpart of this Agreement identical in form hereto but having attached to it one or more signature pages.

13.14 Venue. In the event that a Party brings any action under this Agreement, the Parties agree that trial of such action shall be vested exclusively in the state courts of California in the County of Placer or in the United States District Court for the Eastern District of California.

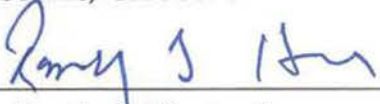
13.15 Attorneys' Fees. If a Party to this Agreement brings any action, including an action for declaratory relief, to enforce or interpret the provisions of this Agreement, then each Party shall bear its own fees and costs, including attorneys' fees, associated with the action.

13.16 Counsel Representation. Pursuant to the provisions of California Civil Code Section 1717 (a), each of the Parties were represented by counsel in the negotiation and execution of this Agreement and no one Party is the author of this Agreement or any of its subparts. Those terms of this Agreement which dictate the responsibility for bearing any attorney's fees incurred in arbitration, litigation or settlement in a manner inconsistent with the provisions of Section 13.2 were intentionally so drafted by the Parties, and any ambiguities in this Agreement shall not be interpreted for or against a Party by reason of that Party being the author of the provision.

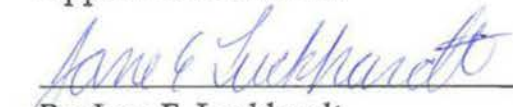
13.17 No Third Party Beneficiaries. Nothing contained in this Agreement is intended by the Parties, nor shall any provision of this Agreement be deemed or construed by the Parties, by any third person or any Third Parties, to be for the benefit of any Third Party, nor shall any Third Party have any right to enforce any provision of this Agreement or be entitled to damages for any breach by the Parties of any of the provisions of this Agreement.

IN WITNESS WHEREOF, NCPA and each Participant have, by the signature of its duly authorized representative shown below, executed and delivered a counterpart of this Agreement.


NORTHERN CALIFORNIA
POWER AGENCY
651 Commerce Drive
Roseville, CA 95678


By: Randy S. Howard
Title: General Manager
Date: 12/23/22

Approved as to form:


By: Jane E. Luckhardt
Its: General Counsel
Date: Dec 23, 2022


Attestation (if applicable):


By: TRISHA ZIMMER
Its: ASST. SECRETARY OF COMMISSION
Date: 12-23-2022

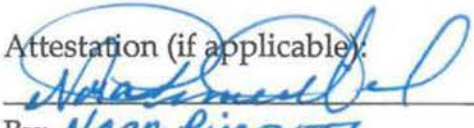
CITY OF SANTA CLARA
1500 Warburton Avenue
Santa Clara, CA 95050


By: Manuel Pineda
Title: Assistant City Manager
Date: Dec 22, 2022

Approved as to form:


By: Daniel Ballin
Its: City Attorney
Date: Dec 22, 2022

Attestation (if applicable):


By: NORA PIMENTEL
Its: ASST. CITY CLERK
Date: 12-22-2022

CITY OF ALAMEDA
2000 Grand Street
Alameda, CA 94501

CITY OF BIGGS
465 C Street
Biggs, CA 95917

By: _____
Title: _____
Date: _____

By: _____
Title: _____
Date: _____

Approved as to form:

Approved as to form:

By: _____
Its: City Attorney
Date: _____

By: _____
Its: City Attorney
Date: _____

Attestation (if applicable)

Attestation (if applicable)

By: _____
Its: _____
Date: _____

By: _____
Its: _____
Date: _____

CITY OF GRIDLEY
685 Kentucky Street
Gridley, CA 95948

CITY OF LODI
221 W. Pine Street
Lodi, CA 95240

By: _____
Title: _____
Date: _____

By: _____
Title: _____
Date: _____

Approved as to form:

Approved as to form:

By: _____
Its: City Attorney
Date: _____

By: _____
Its: City Attorney
Date: _____

Attestation (if applicable)

Attestation (if applicable)

By: _____
Its: _____
Date: _____

By: _____
Its: _____
Date: _____

CITY OF LOMPOC
100 Civic Center Plaza
Lompoc, CA 93436

CITY OF PALO ALTO
160 Palo Alto Avenue
Palo Alto, CA 94301

By: _____
Title: _____
Date: _____

By: _____
Title: _____
Date: _____

Approved as to form:

Approved as to form:

By: _____
Its: City Attorney
Date: _____

By: _____
Its: City Attorney
Date: _____

Attestation (if applicable)

Attestation (if applicable)

By: _____
Its: _____
Date: _____

By: _____
Its: _____
Date: _____

CITY OF OAKLAND, acting
by and through its
Board of Port Commissioners
530 Water Street
Oakland, CA 94607

By: _____
Title: _____
Date: _____

Approved as to form:

By: _____
Its: City Attorney
Date: _____

Attestation (if applicable)

By: _____
Its: _____
Date: _____

EXHIBIT A

PROJECT PARTICIPATION PERCENTAGES

On the Effective Date of the Agreement the initial Participant (“Initial Participant”) who is signatory to this Agreement, and its respective initial Project Participation Percentage share of the Project is set forth in Table 1 of this Exhibit A (“Initial Project Participation Percentage”). The process set forth below is not subject to the requirements of Section 9 of this Agreement, except as set forth below.

Table 1
Initial Project Participation Percentages

Member	Project	Project	Project
	Participation	Participation	Participation
	Percentages	MW	MW
		(2025 - 2026)	(2027 - 2037)
City of Santa Clara	100.0%	50.00	100.00
Total:	100.0%	50.00	100.00

Thereafter, a Member who is not a Participant may exercise a right to accept a transfer of a portion of the Initial Project Participation Percentage of the Initial Participant in an amount no greater than the amount set forth in Table 2 of this Exhibit A, no later than April 30, 2023 (the “Transfer Completion Deadline”), unless the Initial Participant otherwise agrees in writing to extend the Transfer Completion Deadline. The right to transfer described in this Exhibit A shall be exercised in writing (1) addressed to NCPA and the Initial Participant, and (2) by a Member’s execution of this Agreement by the Transfer Completion Deadline. For purposes of this Exhibit A only, that Member who becomes a Participant shall be referred to as a “Table 2 Participant.” Notwithstanding the foregoing,

the Transfer Completion Deadline applies only to the intended assumption of the Project Participation Percentage described in Table 2 of this Exhibit A, and shall not limit or reduce a Participant's rights set forth in Section 9 of this Agreement. Upon written notice and execution of this Agreement, the Table 2 Participant will assume all rights and obligations set forth in this Agreement for the portion of the Project Participation Percentage share of the Project as set forth in Table 2 of this Exhibit A. If any Members exercise their right to accept a transfer of a share of the Project Participation Percentage, the Parties shall add to this Exhibit A by preparing a Table 3 to reflect the Final Project Participation Percentage shares of the Project. NCPA shall prepare Table 3 after the Transfer Completion Deadline to reflect the Final Project Participation Percentages of each Participant, and such Table 3 will be added to this Exhibit A as an amendment to this Agreement once adopted by the Commission. In the event an intended Table 2 Participant does not become a Table 2 Participant by the Transfer Completion Deadline, the Initial Participant shall retain the Project Participation Percentage of the intended Table 2 Participant as described in Table 2 of this Exhibit A, and such will be reflected in Table 3.

Table 2			
Draft Final Project Participation Percentages			
Member	Project Participation Percentages	Project Participation	Project Participation
		MW (2025 - 2026)	MW (2027 - 2037)
City of Alameda	5.0%	2.50	5.00
City of Biggs	0.4%	0.20	0.40
City of Gridley	0.6%	0.30	0.60
City of Lodi	10.0%	5.00	10.00
City of Lompoc	1.7%	0.85	1.70
City of Palo Alto	10.0%	5.00	10.00
Port of Oakland	2.3%	1.15	2.30
City of Santa Clara	70.0%	35.00	70.00
Total:	100.0%	50.00	100.00

EXHIBIT B
Purchase Agreements

Western Systems Power Pool Agreement Confirmation between Northern California Power Agency and Geysers Power Company, LLC , to purchase electric capacity attached to this Exhibit B.

Western Systems Power Pool Agreement Confirmation between Geysers Power Company, LLC and Northern California Power Agency, to purchase renewable energy attached to this Exhibit B.

Monthly On-Peak and Off-Peak Load-Resource Balances for CY 2021

Figure A-1: Monthly On-Peak Load-Resource Balance for CY 2021, with Potential Calpine Geothermal Output Included

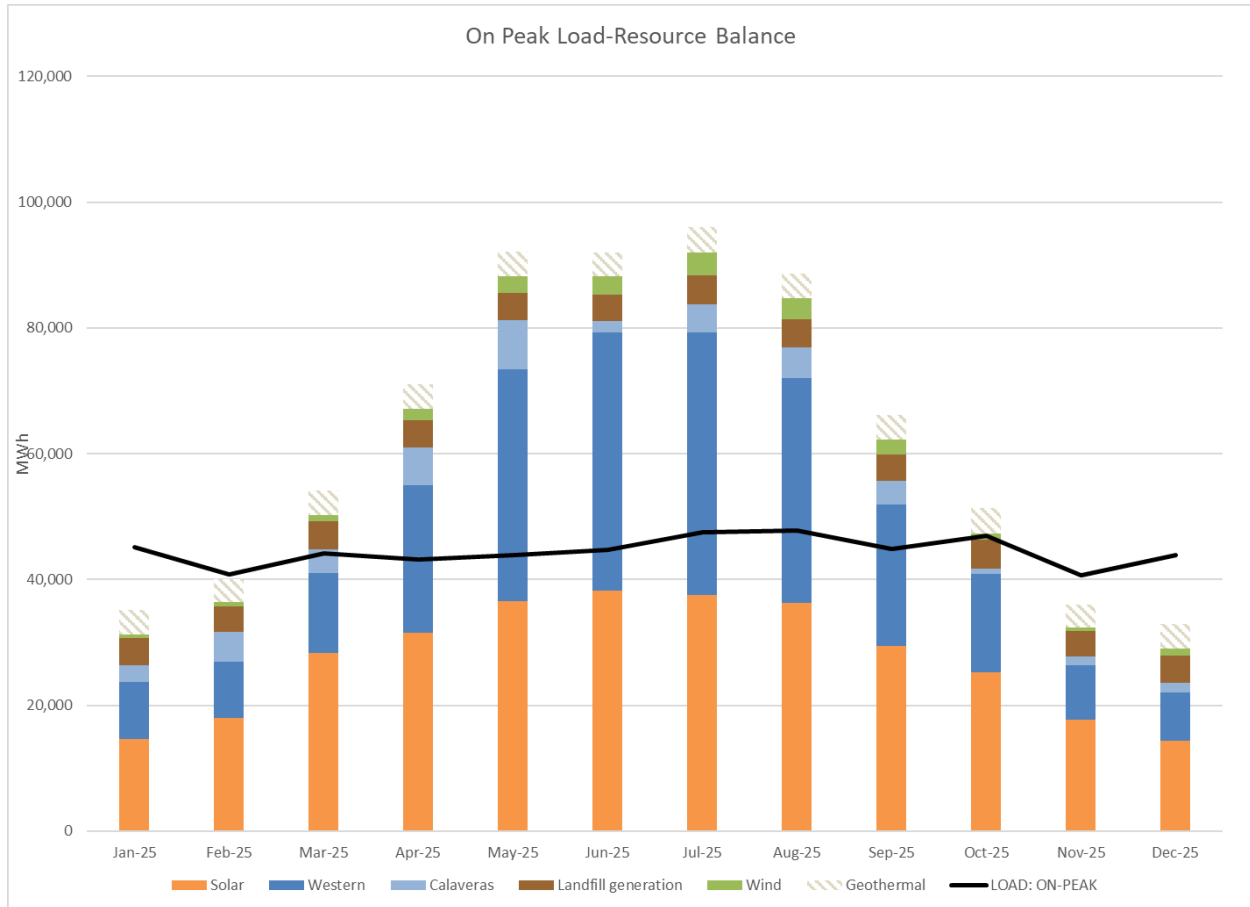
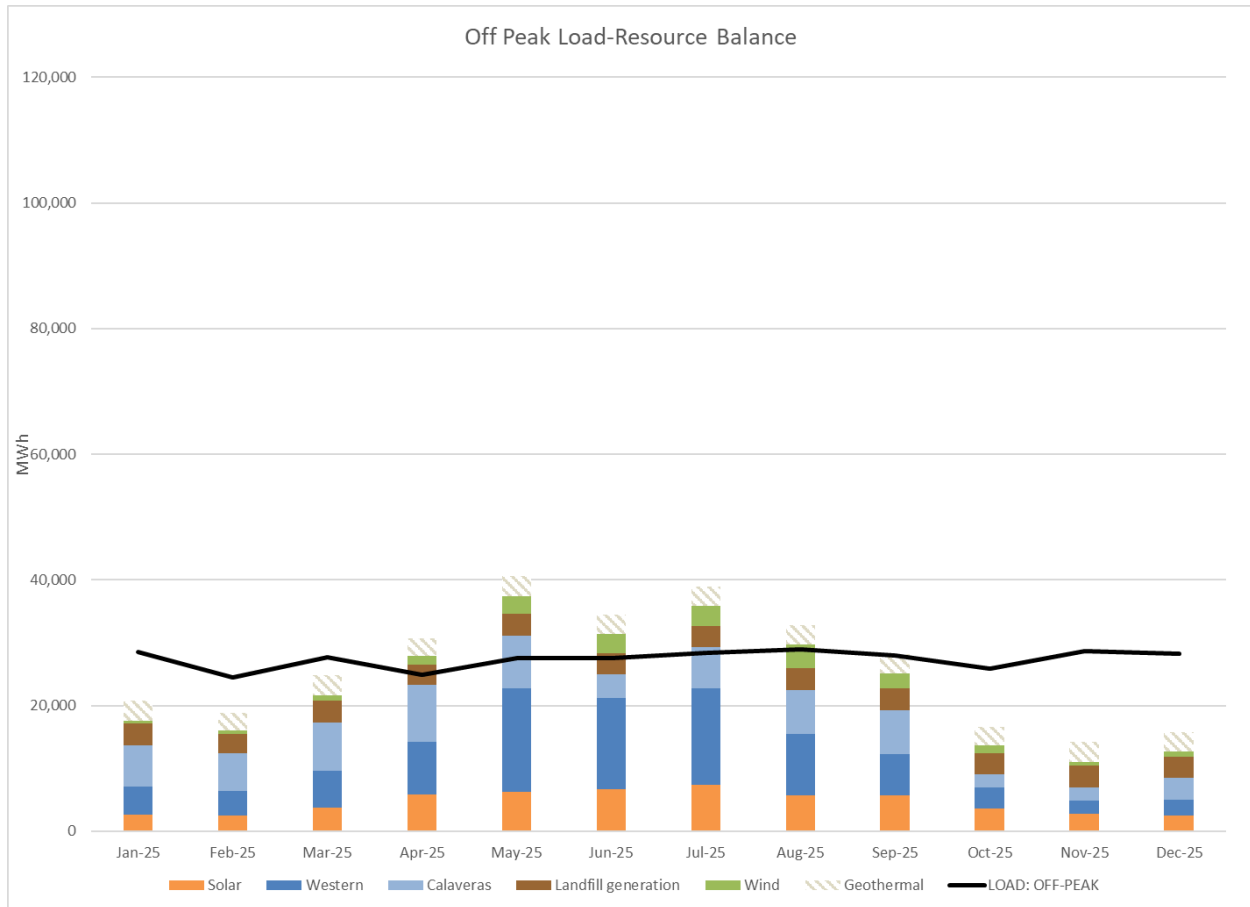


Figure A-2: Monthly Off-Peak Load-Resource Balance for CY 2021, with Potential Calpine Geothermal Output Included



Daily Load-Resource Balances for CY 2021 (January, April, July, and October)

Figure B-1: Average Hourly Load-Resource Balance for January 2021, with Potential Calpine Geothermal Output Included

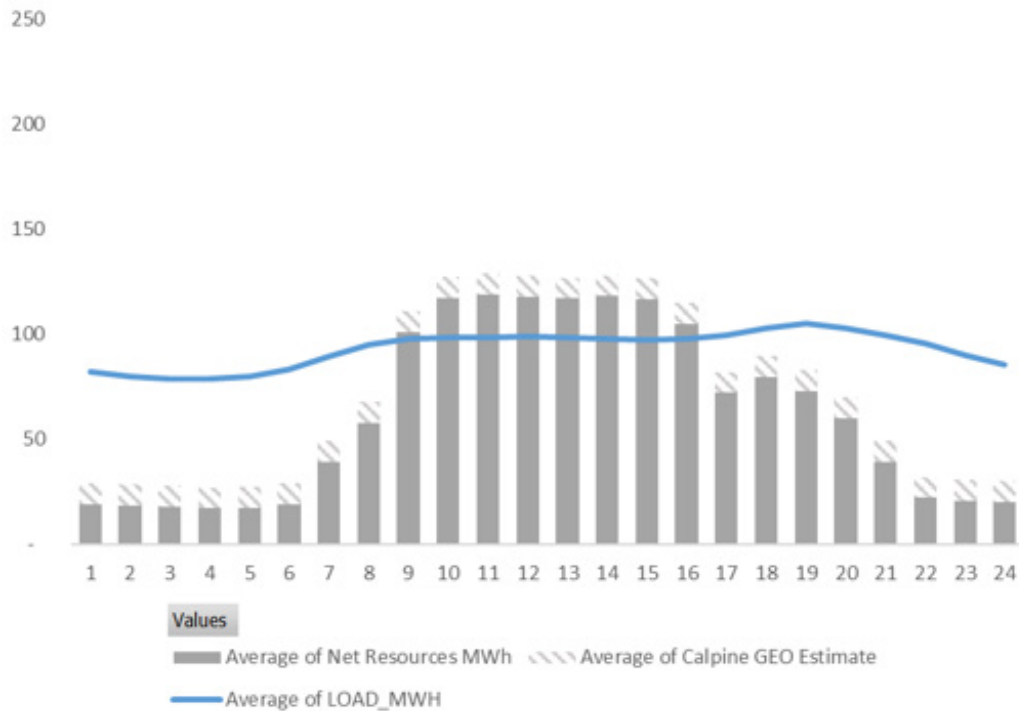


Figure B-2: Average Hourly Load-Resource Balance for April 2021, with Potential Calpine Geothermal Output Included

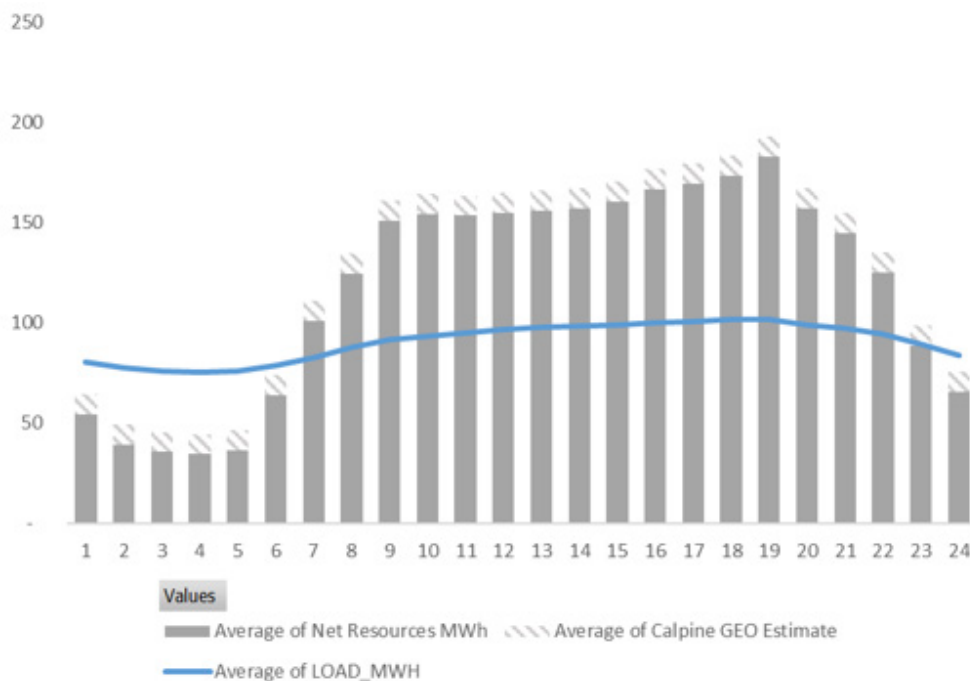


Figure B-3: Average Hourly Load-Resource Balance for July 2021, with Potential Calpine Geothermal Output Included

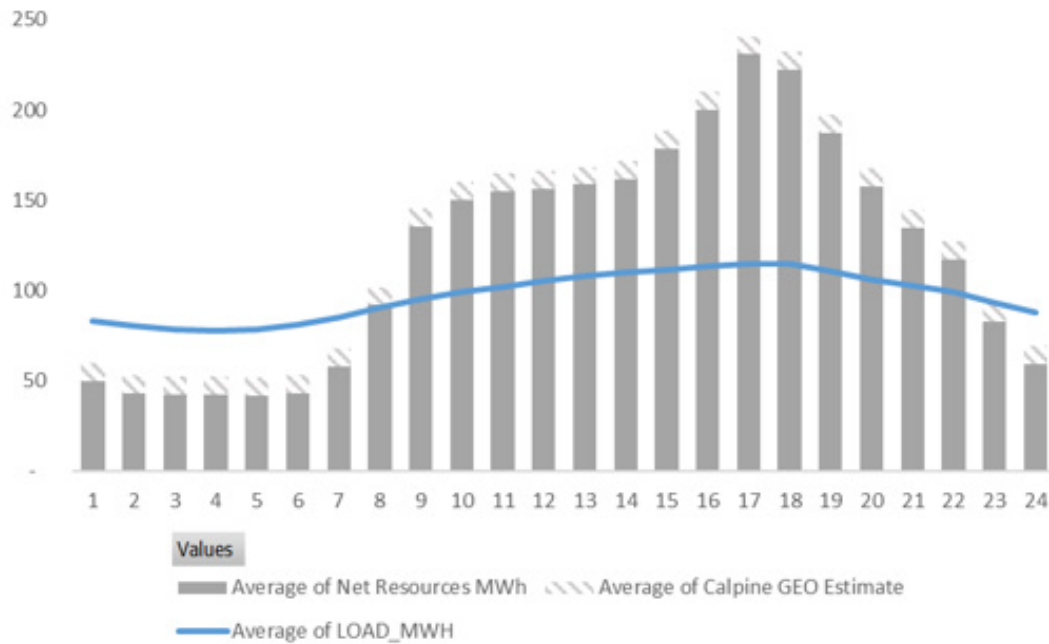
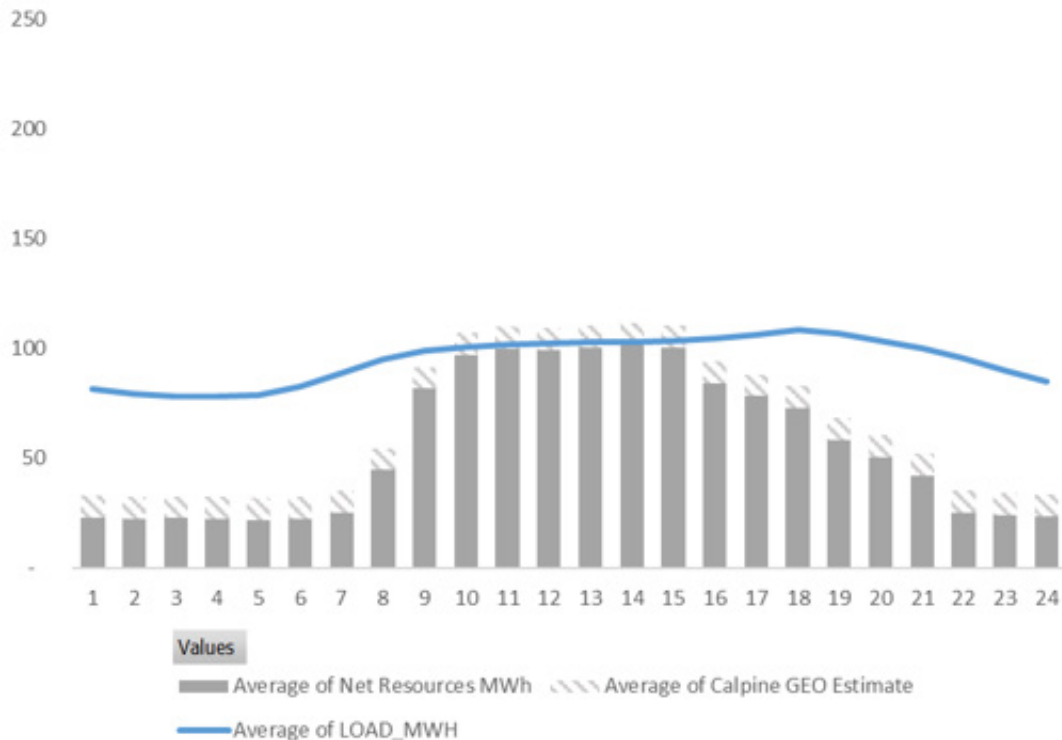


Figure B-4: Average Hourly Load-Resource Balance for October 2021, with Potential Calpine Geothermal Output Included



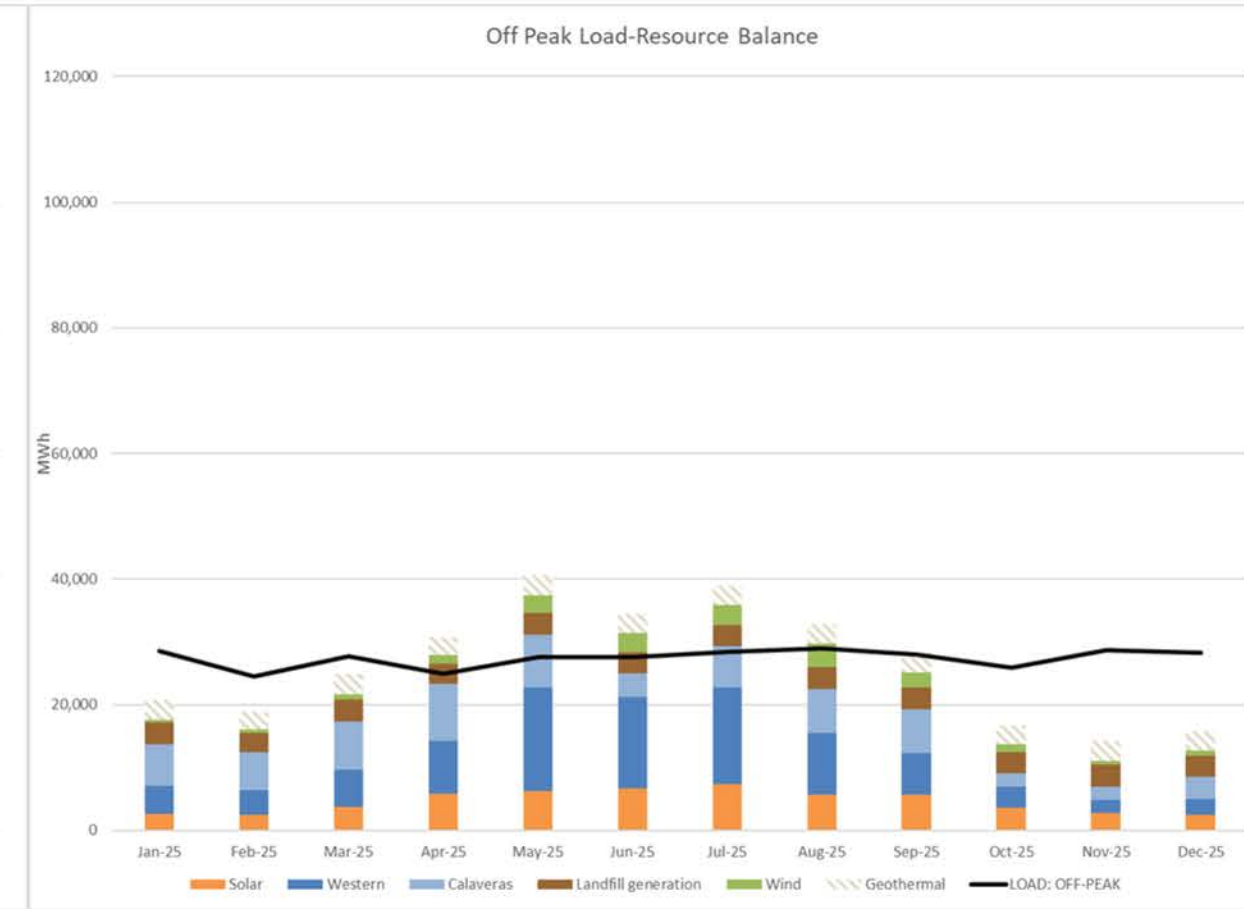
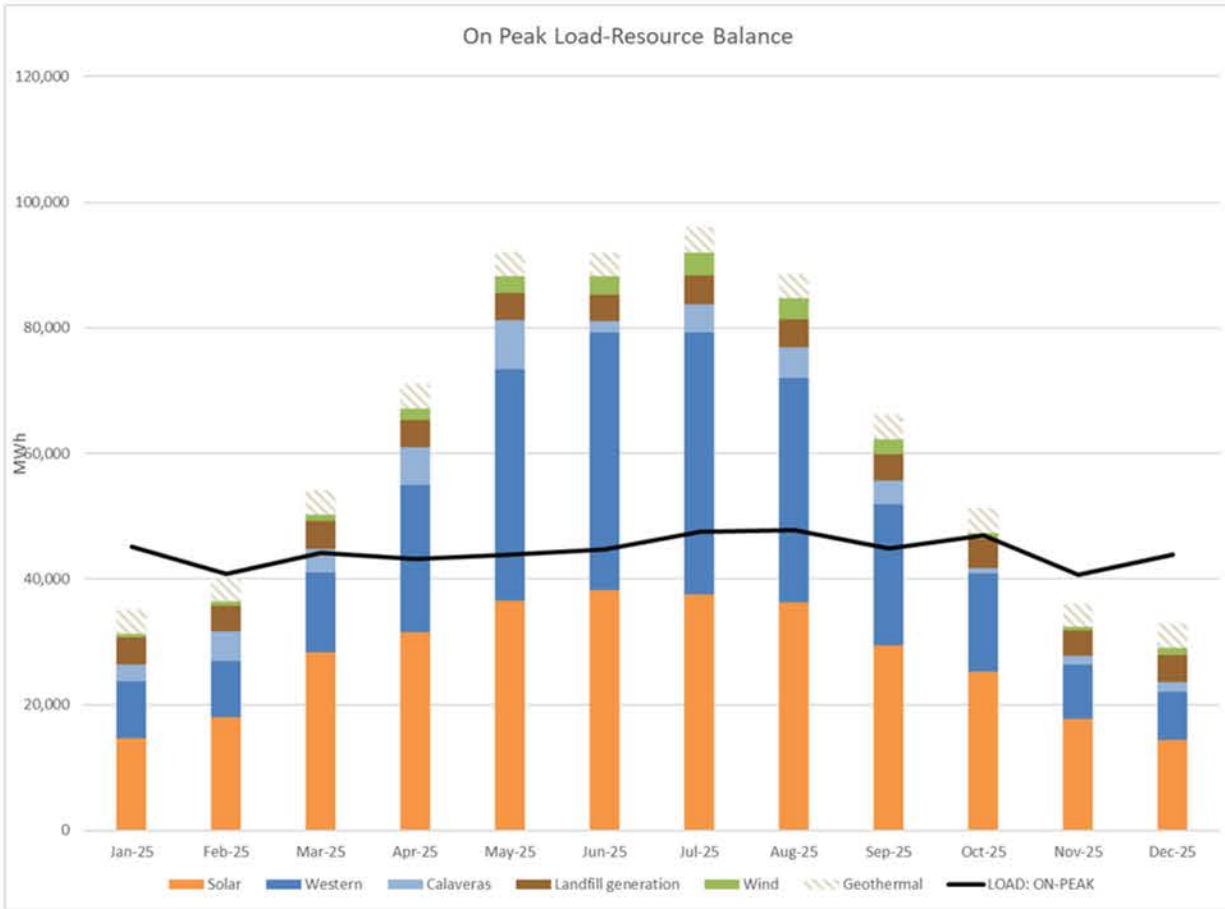


**Calpine Geothermal Contract
Utilities Advisory Commission
February 2023**

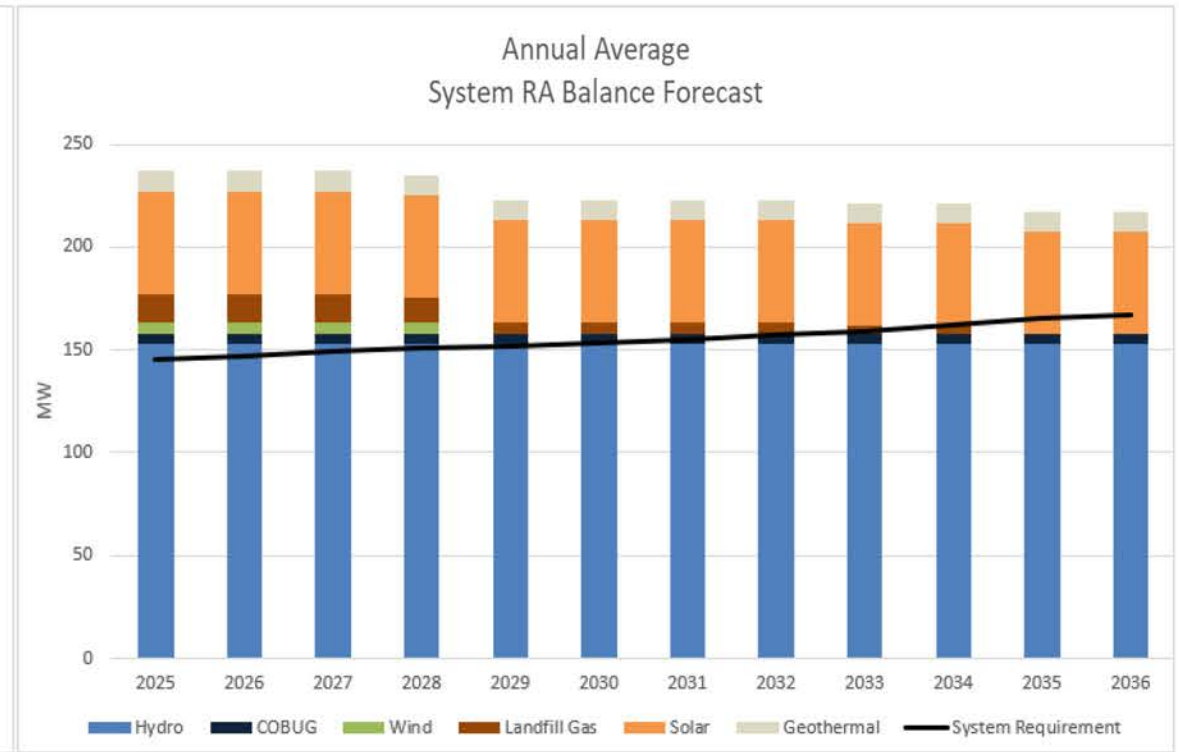
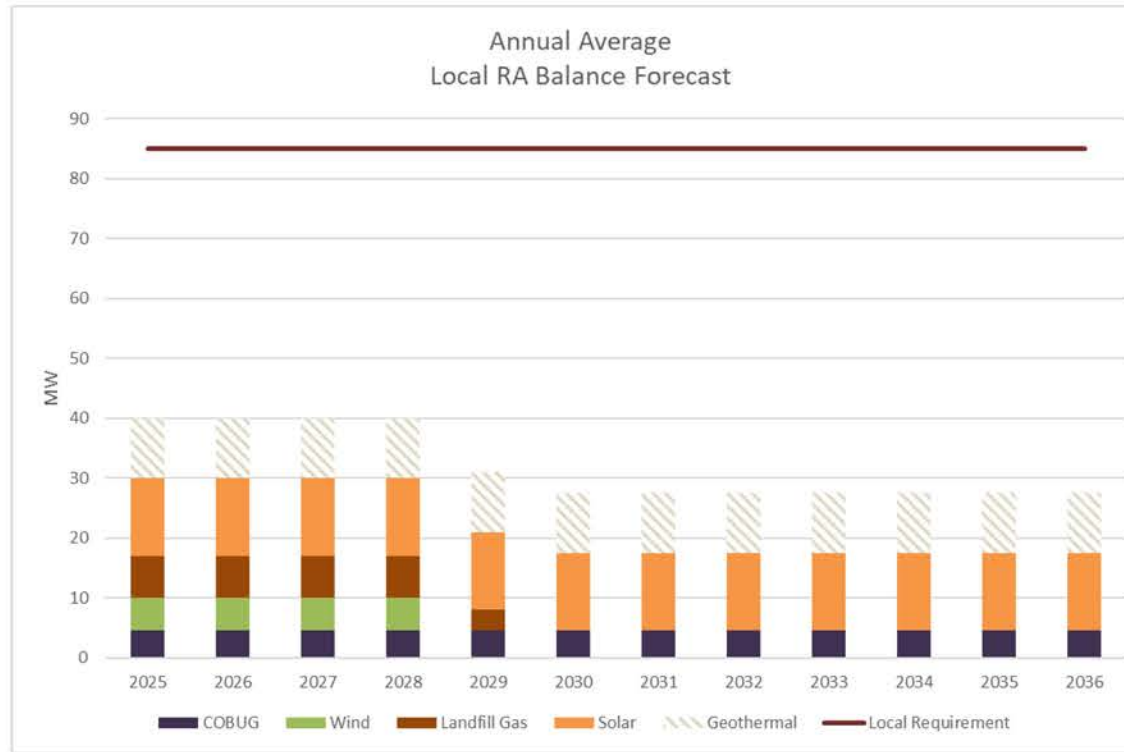
Discussion Outline

1. Overview of the current electric supply portfolio
2. Palo Alto electric load projections through 2045
3. Projection of California energy market dynamics through 2045
4. Calpine geothermal deal characteristics and economics
 - 5-10 MW purchase over 12 years starting in 2025 @ \$79/MWh
5. Preliminary IRP analysis findings

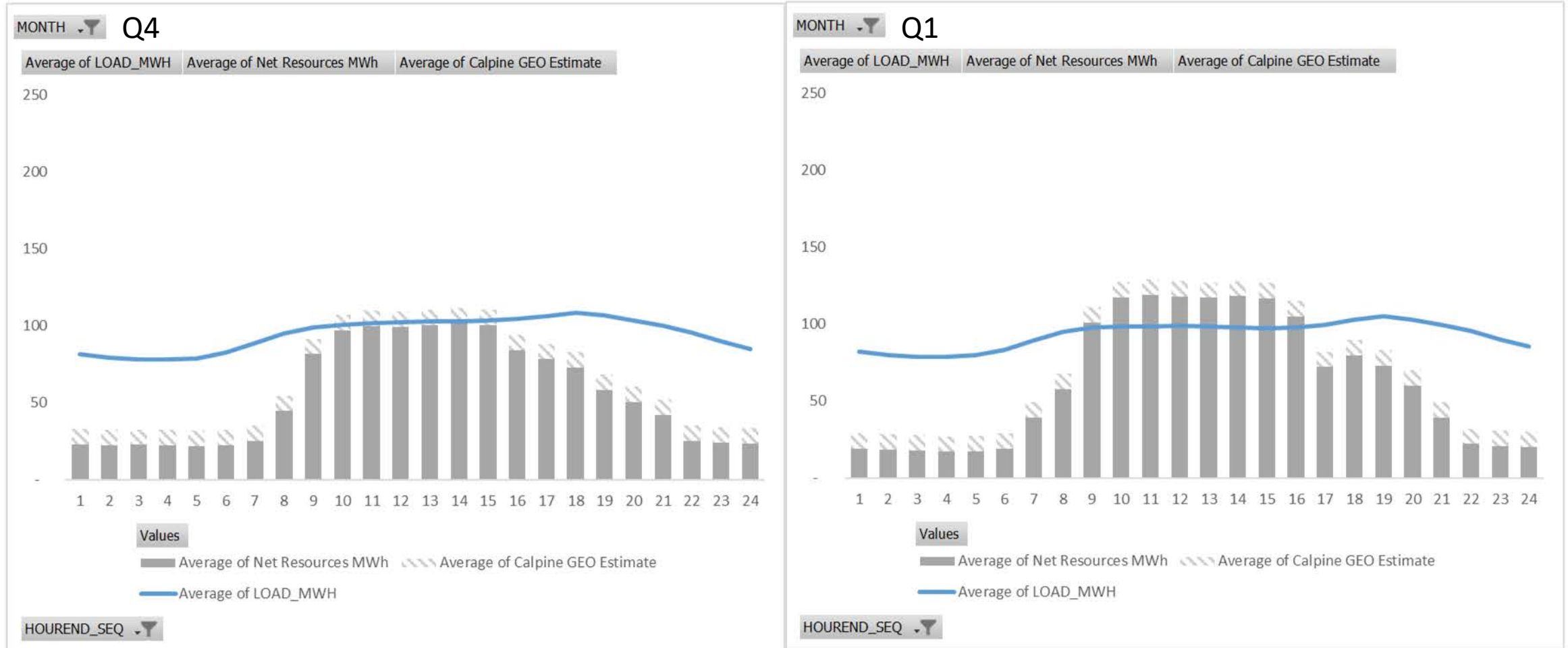
Monthly On Peak and Off Peak Energy Balance



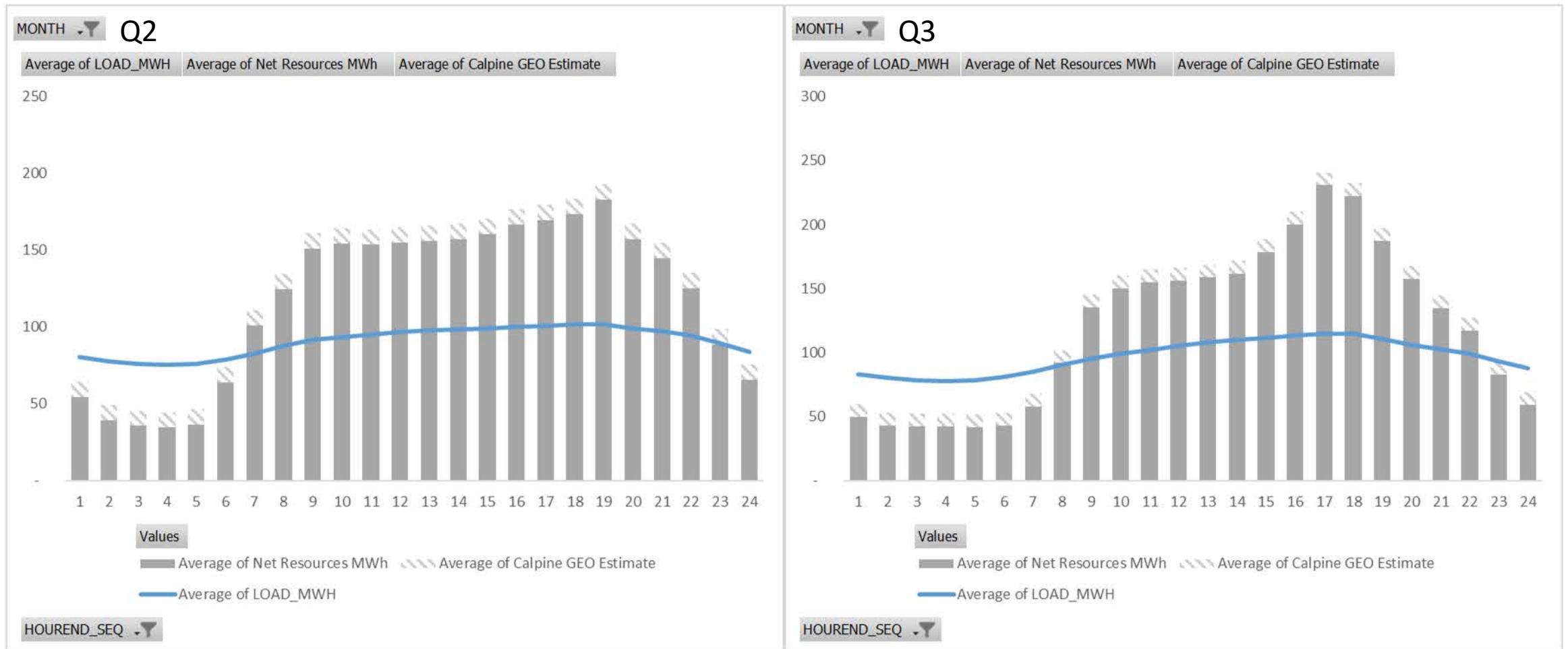
Average Local and System Capacity Balances



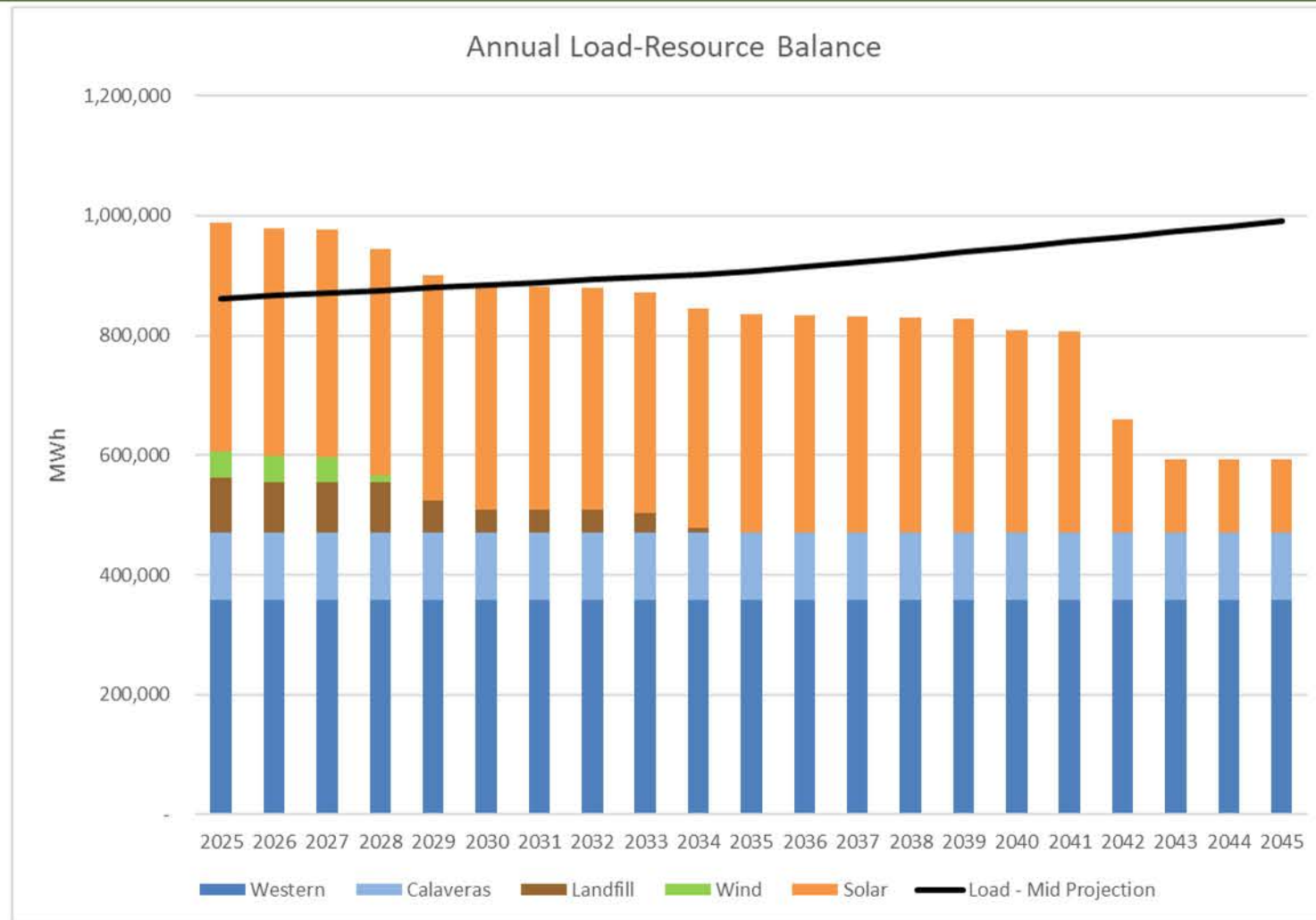
Average Seasonal 24-Hour Balance – Q4/Q1 Winter



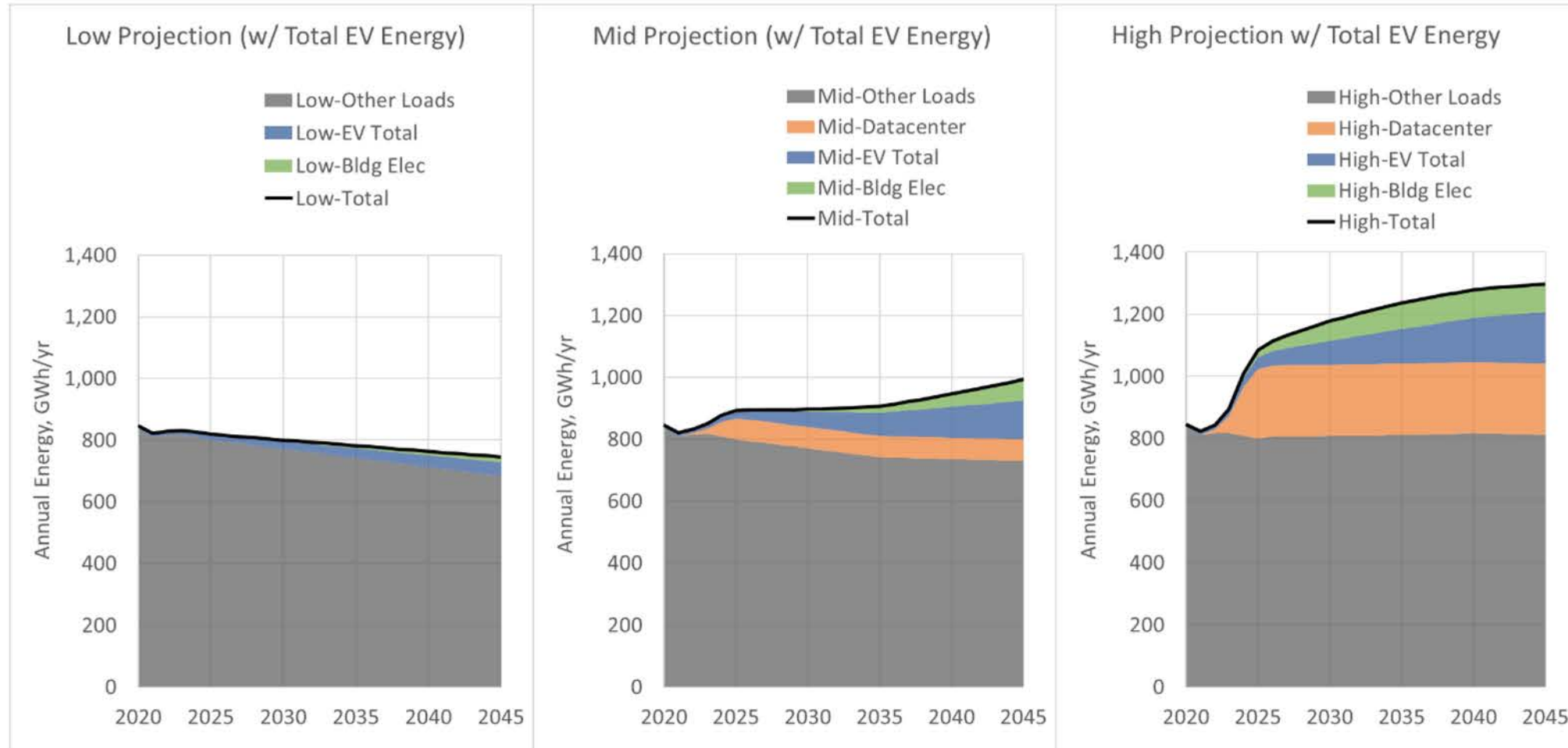
Average Seasonal 24-Hour Balance – Q2/Q3 Summer



Annual Load-Resource Balance through 2045

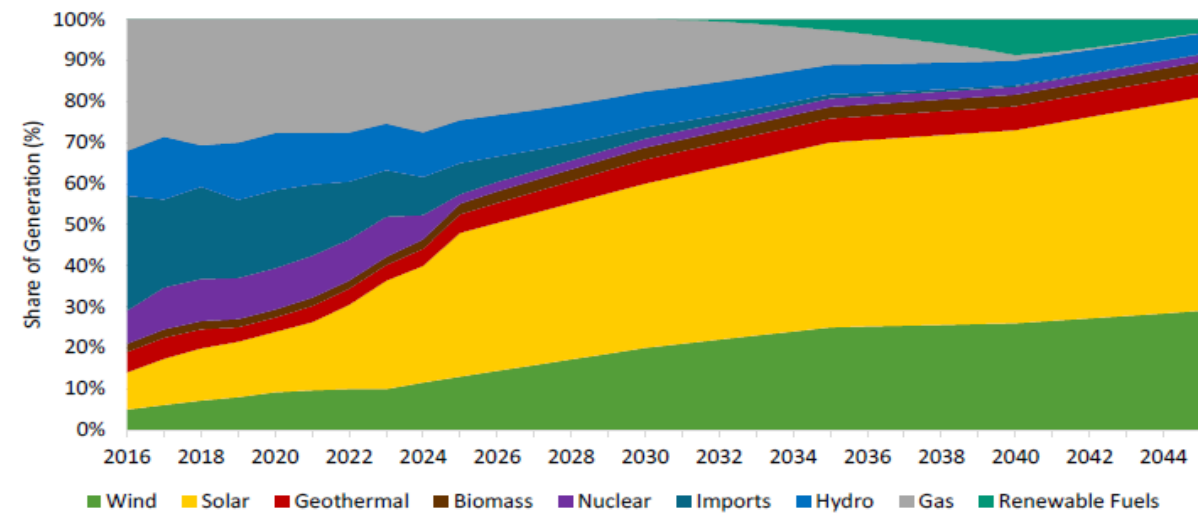
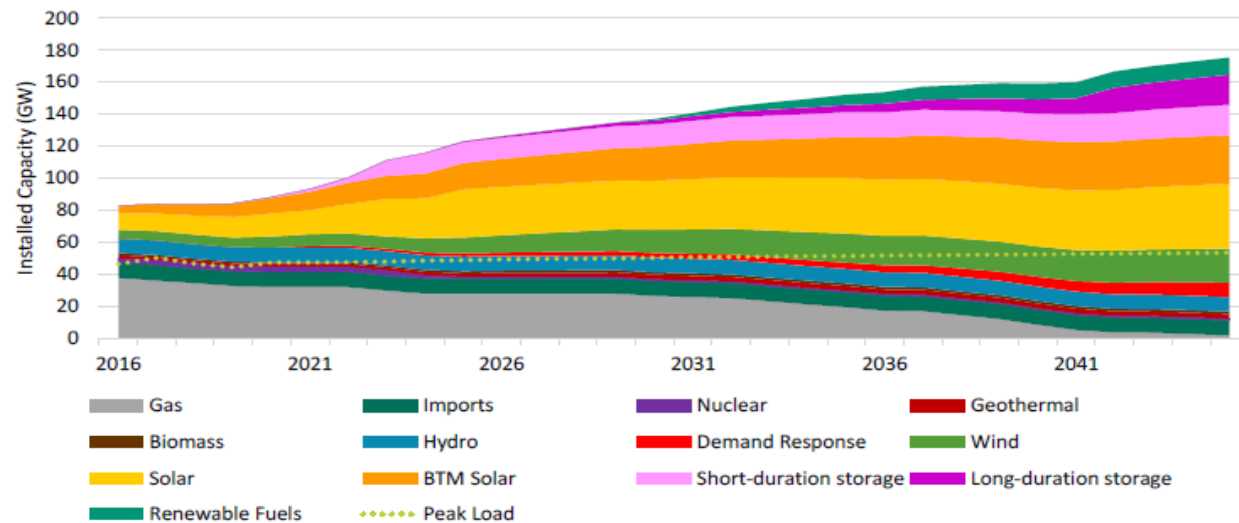


Palo Alto Electric Load Projections Through 2045

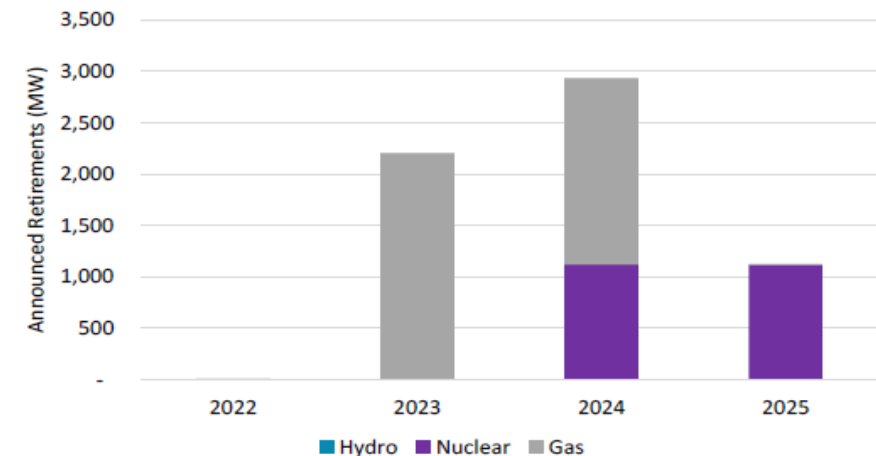


Projection of California Energy Market Dynamics through 2045

CAISO is gaining large quantities of intermittent resources while losing baseload and flexible capacity



- Capacity equal to ~20% of peak load may be retiring over the next 10 years
 - ~6 GW of announced retirements (lower right) **Before Diablo Canyon Extension**
 - ~25 GW of potential economic and legislative retirements
- Low-cost renewables combined with stakeholder pressure and corporate demand will result in even higher renewable penetration than required by policy
- Storage deployments are outpaced by the continued addition of intermittent resources and thermal retirements

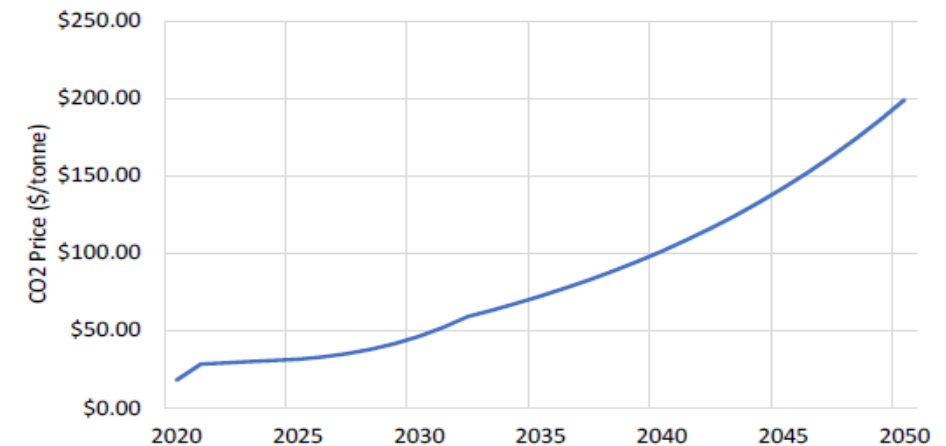
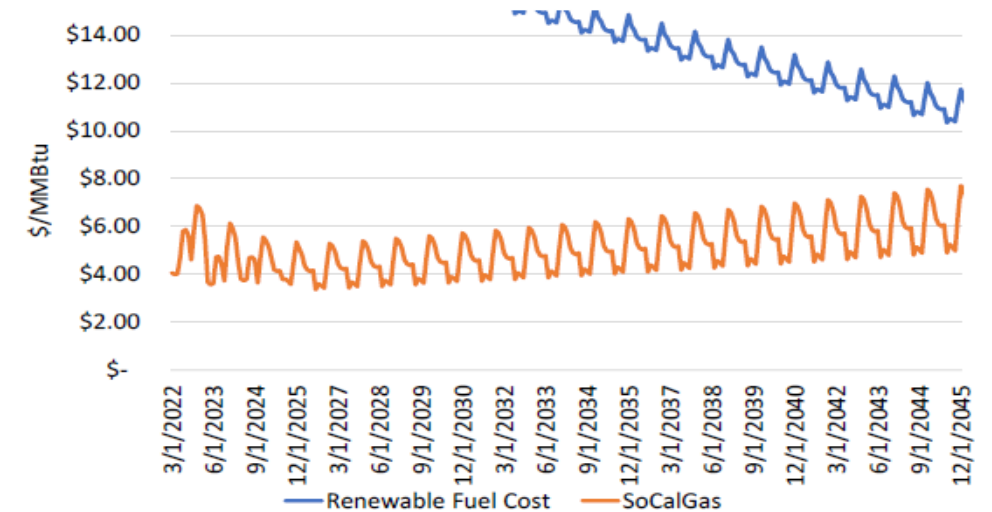
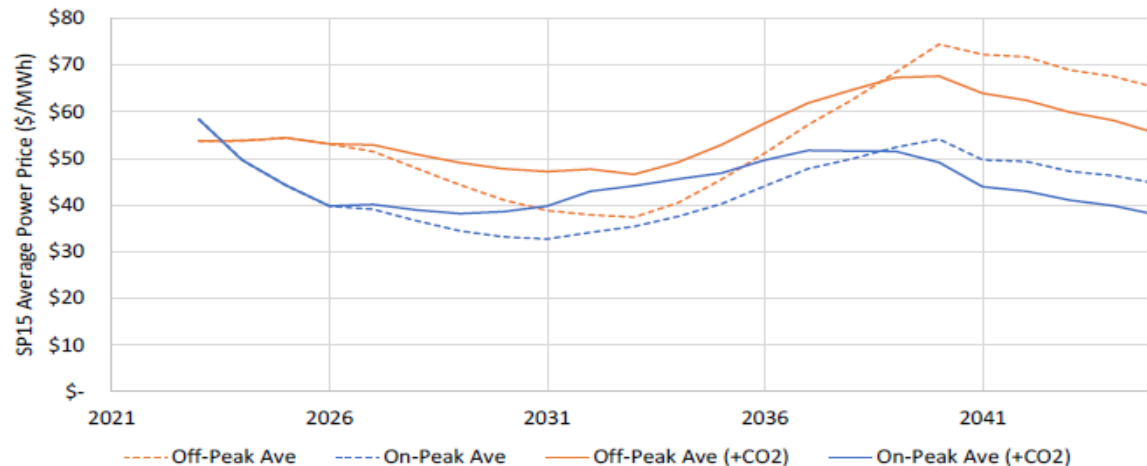


Before Diablo Canyon Extension

Projection of California Energy Market Dynamics through 2045

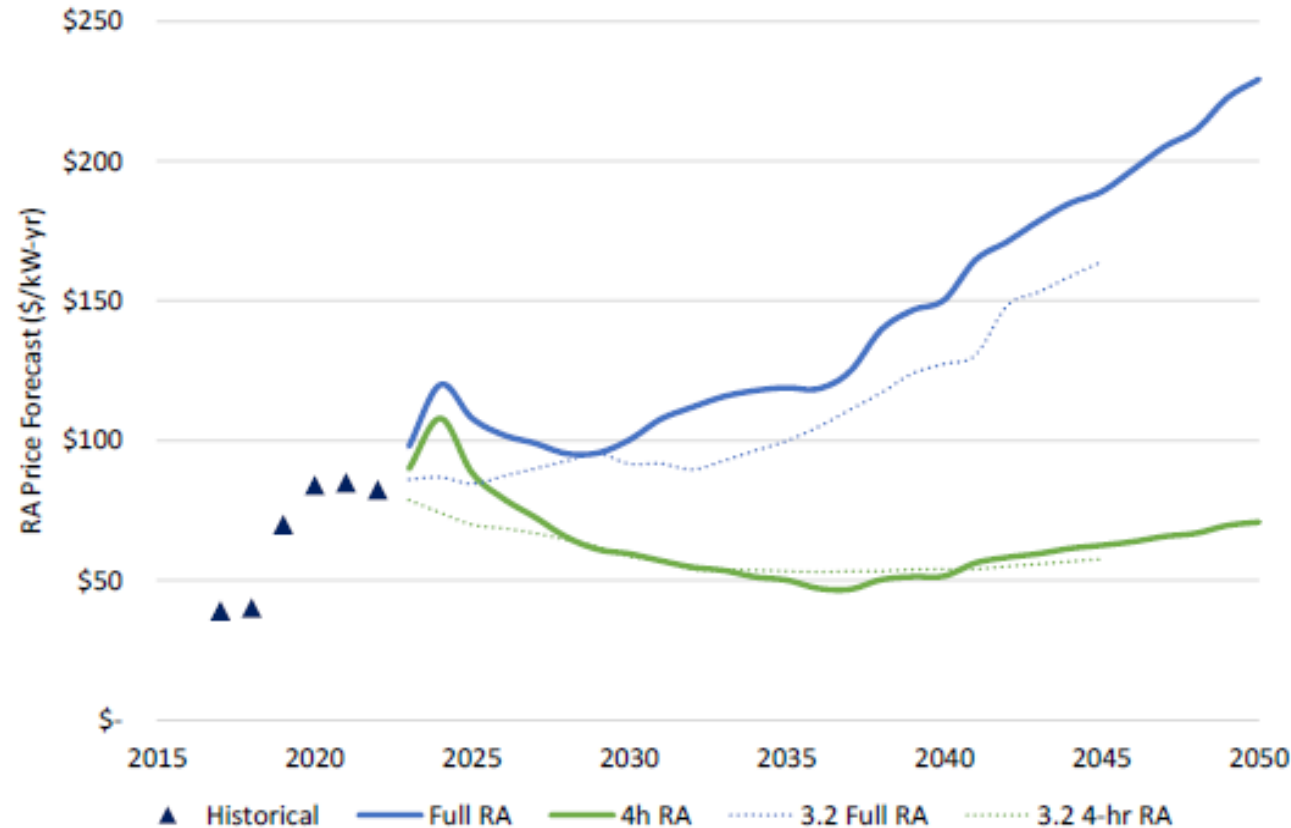
On-Peak is the New Off-Peak

- **On-peak and off-peak power prices are inverting with increasing solar deployment**
 - Power prices are now converging in 2023, several years earlier than previously expected, with solar depressing prices during on-peak hours and curtailment leading to frequent zero/negative on-peak prices
 - Off-peak **renewable** generation is expensive and limited, while off-peak **non-renewable** generation variable cost rises with carbon and gas prices
- **Carbon price forecast has been raised, with recent prices above the price floor and increasing activism toward raising the floor.**
 - High carbon prices and renewable fuels in the mid-2030s will drive marginal power prices up before declining again with declining costs



Projection of California Energy Market Dynamics through 2045

Resource Adequacy Price Forecast



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Calpine Geothermal Deal Characteristics and Economics

- Power Purchase Agreement between Calpine and NCPA for 100 MW of Geothermal
 - Project starts at 50 MW in 2025 and increases to 100 MW in 2027
 - Palo Alto share 5 then 10 MW and 43,800 then 87,600 MWh/year
- 12-year term, January 2025 – December 2036
- PPA price of \$79/MWh (annual cost to Palo Alto: \$6.9M)
- Around-the-clock market energy prices: \$62-85/MWh for CY25-CY31 over the past month
- Bucket 1 REC Prices: \$14-20/MWh
- Local RA Value: \$8-13/kW-mo or \$8-11/MWh
- Total Benefits: \$84-116/MWh
- Net Value: \$5 to \$37/MWh

IRP - Preliminary Findings

1. Portfolio fit for a baseload (Geo) resource
 - Given the possibility of new baseload (data center) customer loads, a geothermal resource would be a good fit.
 - More closely aligning the City's loads and resources will reduce portfolio cost uncertainty.
2. As forward market prices inch up, the \$79/MWh Geo price looks increasingly attractive, especially given the projections that on-peak prices will drop below off-peak prices.

Next Steps – Geothermal Transaction

1. City of Santa Clara already has Council approval to take the full contract volume
 - Initially Santa Clara will be the 100% off-taker, until other members get their council approvals
 - When other members get approvals, Santa Clara will assign them a share
2. NCPA staff has completed contract negotiations with Calpine – December 2022
3. UAC/Finance/Council approval – February to April 2023
4. Contract starts January 2025 (ends 2036)



CITY OF
**PALO
ALTO**

Micah Babbitt

Resource Planner

micah.babbitt@cityofpaloalto.org

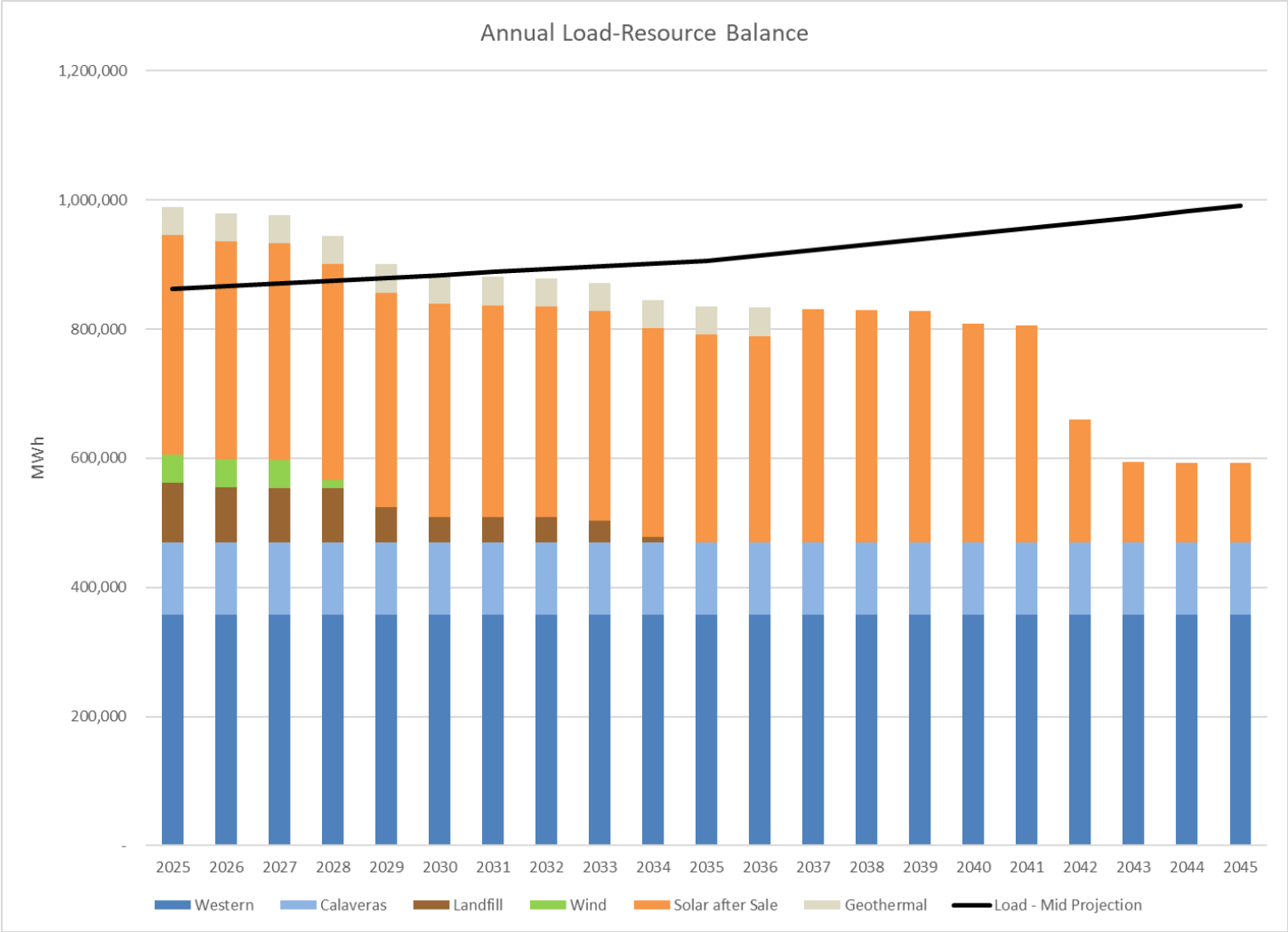
(650) 329-2680

Issuing RFP to Rebalance portfolio via seasonal Buy-Sell transactions; plus Geo purchase

Seeking Transaction of Following Products (to balance out 5-10MW Geo purchase)

1. Sell 5-10 MW of Geo output during Q2/Q3 period
2. Sell 20 to 40 MW of Solar PV output during Q2/Q3 period

Annual Load-Resource Balance through 2045 (with 10MW Geo + PV Sale)



*** Load projections include ~70,000 MWh of data center load expected to arrive in 2024-25**

Summer Load-Resource Balance after (Geo + PV Sale)

