



City of Palo Alto

Office of the City Auditor
Power Purchase Agreement
Assessment

November 4, 2021

Executive Summary

Purpose of the Audit

The purpose of the audit was to gain an understanding of the City's process for evaluating and entering into power purchase agreements (PPA), evaluate the effectiveness of internal controls and the management of agreements and validate the accuracy of and compliance of billing.

Report Highlights

Finding	Page #	Description of Finding
There is no formal documentation of staff review of vendor compliance with PPAs	15	Palo Alto's PPA procurement process identified that while energy delivery is closely monitored, other PPA terms are informally monitored through meetings and status updates. There is no formal process that documents vendor compliance with PPAs. Vendor compliance or performance issues may not be documented appropriately, resulting in delayed or inadequate communication throughout the City about PPA non-compliance.
There is no formal review or approvals of changes to front office models.	16	Review of front office models identified that changes made to the front office model do not require approvals. Figures are vetted periodically by senior management as the figures are often reported to City Council and other senior stakeholders. If changes are not reviewed and approved by a second user/reviewer, there is an increased likelihood of inaccurate reporting.
CPAU staff does not audit NCPA's validation of vendors' invoices, contract rates and payments	17	The City of Palo Alto Utilities (CPAU) delegates its PPA settlements processes to Northern California Power Agency (NCPA), but does not have a process in place to validate NCPA settlement processes that include the verification of invoice calculations, contract rates, and matching All Resources Bill (ARB) amounts on behalf of the City.

Key Recommendations to the City Manager:

- The City should work towards documenting vendor performance monitoring via a formal procedure by which vendors are periodically assessed for PPA compliance and general performance.
- The front office model file should be altered to allow for a second reviewer and approver to document a second review and approval of any changes.
- The City should implement a formalized process that would allow CPAU to validate vendor invoices and rate calculations completed by NCPA. This process should be incorporated before payment, allowing the CPAU to validate rates to contractual requirements and confirm accuracy before payment.

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Introduction

Objective

The purpose of the audit was to gain an understanding of the City's process for evaluating and entering into power purchase agreements (PPA), evaluate the effectiveness of internal controls in the management of agreements and validate the accuracy of and compliance of billing.

Background

The City of Palo Alto Utilities (CPAU) offers its residents and businesses a suite of utility services, including electricity, natural gas, water, sanitary sewer, and commercial fiber optics. The CPAU's mission statement is to "provide safe, reliable, environmentally sustainable and cost-effective services." To continue to provide reliable and affordable services, specifically power, CPAU has entered into multiple PPAs. These agreements support the City's power needs. However, disruption in power supply and unmitigated risk can result in the CPAU's inability to meet its customer's needs and impact the reliability of its services.

In 2013 the City of Palo Alto set out on a mission to cut carbon emissions 80% below their 1990 levels by 2030. In order to achieve their goal, the City shifted away from buying market energy, which contains fossil energy sources and entered into PPAs for energy produced from renewable sources like wind, solar and biogas. The City currently has fifteen (15) large scale PPAs in place where they purchase power generated from a renewable or carbon neutral source. The City also started a CLEAN Program for community members/organizations to install solar panels and sell the energy back to the City.

The fifteen (15) large scale PPA contracts are made up of five (5) biogas contracts (natural gas produced from landfills), six (6) solar contracts, two (2) wind contracts, and two (2) hydroelectric contracts. For more information on each contract such as term length, rate, generation type, annual production, annual spend, and Palo Alto's percentage share please see Appendix B.

To ensure CPAU continues to meet its mission, power needs and mitigate risks, the Office of the City Auditor (OCA) conducted an assessment that would focus on current PPA management processes. This decision was in conjunction with a broader, Citywide audit plan detailing the potential risks facing each department. The purpose of the assessment was to identify and prioritize risks to develop the annual audit plan.

During the FY2021 risk assessment, the OCA identified a risk related to the contract management of purchased power. With the CPAU entering into multiple agreements representing a significant expenditure for the City, it is important to monitor PPAs to ensure both parties comply with contractual requirements, meet state and local regulations, and are financially sound, ensuring reasonable and adequately billed costs.

In order to properly assess the CPAU's PPA management process, the OCA reviewed three (3) operational areas of PPAs that included procurement and contracting, contract management, and invoicing/payments. For additional details, please review the [Detailed Testing & Analysis](#) section.

Scope

The scope of this engagement includes the City's active PPAs and related processes.

Compliance Statement

This audit activity was conducted in accordance with the Annual Audit Plan.

The audit activity was not performed in compliance with the generally accepted government auditing standards (GAGAS). The audit activity was not performed in compliance with GAGAS for one primary reason:

- The City of Palo Alto Office of the City Auditor has not undergone an External Peer Review in the required 3 year cycle as required by Standards.
 - o Note – the Office of the City Auditor will undergo a peer review at the conclusion of FY22.

We planned and performed the activity to obtain sufficient, appropriate evidence to provide a reasonable basis for our recommendations based on our objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit the objectives.

Organizational Strengths

During this audit activity, we observed certain strengths of the City. Key strengths include the following:

- The City Attorney's Office is thoroughly involved in the drafting and finalization of the PPA agreements, as well as with the Commercial Operation Deadline (COD) process to ensure that all legal requirements are met prior to and during project start up.
- The CPAU is highly knowledgeable and experts in their field. Individuals that engaged with the OCA displayed a thorough understanding of processes and practices associated with their roles. In addition to developing and managing key processes, they exhibited expertise and knowledge of the power industry, current trends, and best practices.
- The City has a energy risk management structure that includes policies, guidelines, and procedures first developed in the wake of the City's issues with Enron. A component of the energy risk management structure is the City's Utilities Risk Oversight and Control Committee, a cross-departmental body comprised of staff from Utilities, ASD, Public Works, the City Manager's Office, and the City Attorney's Office that meets regularly to oversee the City's risk management program.
- The City employs a structured Front Office / Back Office / Middle Office structure for all of its energy transactions intended to ensure that the different aspects of the transaction process are carried out by independent parts of the organization, and that there are internal controls and oversight in place.
- The City has been actively procuring renewable power for roughly 20 years, and over that time City staff (Utilities, ASD, and the Attorney's Office) has developed expertise with the PPA solicitation, negotiation, and management process.

The team at CPAU was very proactive and involved in the engagement that allowed for clear communication and support for audit team. CPAU was always available to provide additional support and hands on explanations on the billing/invoice processes.

The Office of the City Auditor greatly appreciates the support of the CPAU in conducting this audit activity.

Thank you!

Detailed Testing & Analysis

Methodology & Approach

The objective is to assess the current PPA processes, evaluate the effectiveness of current controls and validate billings.

To evaluate controls and billing accuracy, audit testing was conducted on a sample of active PPAs. Testing areas were identified based on results of the risk assessment documented within the Risk and Controls Matrix (RCM). Additional information regarding the testing approach and methodology can be found in the [Audit Testing](#) section.

In addition, a contract analysis was conducted that reviewed all the current agreements against best practices and other peer contracts. Additional information regarding the contract analysis can be found in the [Contract Analysis and Review](#) section.

In order to properly evaluate PPAs and CPAUs operational areas that covered procurement and contracting, contract management, and invoicing/billing, the specific approach included the steps noted below.

Audit Planning

- Conduct research and gather information to understand the current environment
- Assess audit risk
- Develop an audit planning memo and program
- Conduct kick-off meeting with key stakeholders

Control Review and Testing

- Gather information to understand the environment under review
- Conduct interviews with key process owners and management
- Assess risks and identify controls in place
- Quantify and analyze PPA spend by contract
- Perform testing of key controls around energy procurement/contracting, contract management, and invoice processing
- Benchmark active PPA terms and conditions against other Baker Tilly client PPAs and industry best practices

Reporting

- Develop findings and recommendations based on supporting evidence
- Validate documented findings
- Develop and validate a draft audit report
- Finalize report with management responses
- Review and finalize report with the City Council and/or appropriate Council Committee

Audit Testing

Introduction

In order to achieve the objectives of the engagement, the OCA developed an audit testing approach and methodology that would test the design and operational effectiveness of controls and identify control gaps and unmitigated risks around PPA procurement and contracting, contract management, and invoicing/billing.

Approach & Methodology

In order to evaluate CPAU's control environment, the OCA developed a Risk and Controls Matrix (RCM) based on documentation and stakeholder interviews. The RCM was developed to document known risk, and mitigation practices based on CPAU's information and identify opportunities and improvement areas. The RCM was developed with the emphasis on the three focus areas that include procurement, contract management, and billing/invoices. The matrix documents 33 risks that cover each of the focused operational areas. In addition, the RCM was used to facilitate the risk assessment and note the risks for the current PPA processes, identify control gaps, and determine key risk and control areas for audit testing. The detailed RCM can be found in [Appendix A](#).

The OCA evaluated the RCM and, based on an understanding of the current state, key risks were identified for testing. In addition to prioritizing high risks, gaps were identified and noted for further observation during testing. As a result of the RCM, ten (10) work papers were created to test controls in CPAU's current PPA management processes. Below is a description of each of the work papers that were developed for testing.

T1- Invoices

Work paper T1 tested various controls associated with risks related to invoicing. The work paper evaluated the potential risk of duplicate payments, overpayment, incorrect charge amounts, unapproved payments, and applications for Renewable Energy Credits (REC). In order to test the controls, the work paper verified the following items:

- Generation data is tracked, and REC quantities are reconciled to generation totals from invoices.
- Invoiced rates correspond to approved rates
- The payment amount matches the invoice amount demonstrating payment accuracy
- Payments can be traced to and match entries in the GL
- There are no duplicate payments.
- Payment amounts are traceable to approved All Resources Bills (ARB)

T2- Payment Packages

Work paper T2 tested the risk and control associated with the processing of the ARB. The ARB was identified as the detailed bill package that includes details utilized to develop the Payment Claim Voucher (PCV) which is utilized for the approval and processing of payments. In order to test the controls, each approved package was reviewed for documented approval, and amounts were reconciled to ensure they matched.

T3- PPA Contract Assurance

Work paper T3 reviewed contracts to ensure they contained contracts assurance language related to energy provisions and contract performance.

T4- Purchasing

Work paper T4 tested controls associated with the procurement of PPAs. The work papers evaluated the potential risk of outdated vendor evaluation criteria and weights, selection of vendors without proper evaluation, and unsatisfied Commercial Operations Deadline (COD). In order to test the controls, the work paper verified the following items:

- A completed Commercial Operation Deadline (COD) was approved as part of the PPA procurement process by requesting a complete COD and reviewing the documents provided.
- A Resource Integration Checklist was used as part of the procurement process by requesting the checklist and reviewing the provided documents.
- The RFP was evaluated based on assigned weights and shortlist by requesting documentary support and evaluating the documents provided in response.

T5- Annual Reporting

Work paper T5 addressed the CPAU's annual reporting requirements. The work paper examined the potential risk of non-compliance to State RPS requirements and environmental impacts/changes. In order to test the controls, the work paper verified the following items:

- RPS requirements are addressed within the report.
- Report review and approval is documented.
- Vendor compliance is addressed within the report.

T6- Front Office Models

Work paper T6 evaluated front office models to validate if they are current, updated, and relevant. Front office models are developed for new contracts and extend out to the full length of the contract. Models include costs and are updated to track and manage budgets and needs. In order to test the controls, the work paper reviewed models to ensure they were updated and changes were approved. In addition, the model amounts were compared to the invoice amounts for reasonableness.

T7- Staff Reports

Work paper T7 evaluated staff reports to determine if the appropriate approvals were obtained for entering into a new or updated contract with a vendor. Reports were validated to ensure resolutions were included with approval from the Utility Risk Oversight and Coordinating Committee, Utilities Advisory Committee, City Council Finance Committee, and City Council.

T8- Vendor Evaluation

The purpose of work paper T8 is to determine if vendor reliability and/or viability has been evaluated. The work paper addressed the potential risk of financially unstable vendors, unreliable vendors, and maintaining high-risk vendors. In order to validate vendors, the work paper reviewed evaluation documentation.

T9- Other Reports

Work paper T9 validated the Integrated Resource Plan, annual RPS, and Carbon Neutral Plan status report. The work paper ensured that the Utilities Director approved the report and provided to the City Council.

T10- Billing and Adjustments

Work paper T10 evaluated controls related to the billing and adjustments. The risks addressed in the work paper include inaccurate adjustments, unapproved payments, inaccurate ARB amounts, and invoice amounts that do not match. In order to test the controls, the work paper verified the following items:

- The ARB estimated amount and approved PCV amount match.
- Adjustment amounts are appropriate and accurately applied to the estimated amount.
- The amount from the summary report matches the recalculated amount based on the application of adjustments.
- If the payment amount matches the ARB amount demonstrating payment accuracy.
- If payment amounts are traceable to approved All Resources Bills.

Sampling Methodology

CPAU provided a list of all active PPAs managed by the City. Understanding the generation type, dollar amount, and perceived risk/complexity, five (5) of twenty-one (21) contracts were judgmentally selected for the assessment. The contracts selected include Shiloh, San Joaquin, Elevation Solar, Calaveras, and Western. Refer to [Appendix B](#) for a summary of the active PPAs.

Based on the contract selection, a list of the volumes and settlement months was provided to conduct transactional sample selection for invoicing and payment testing. The OCA focused testing on transactions covering the period 01/01/2020 to 12/31/2020, and selected three (3) transactions from each contract. The selected samples can be found in [Appendix D](#).

Contract Analysis & Review

Introduction As part of this audit, an overall contract analysis was performed to review the PPAs entered into by CPAU and ensure they are in alignment with industry standards. The PPAs were reviewed for standard contract language and structure compared to others in the industry.

PPA Overview

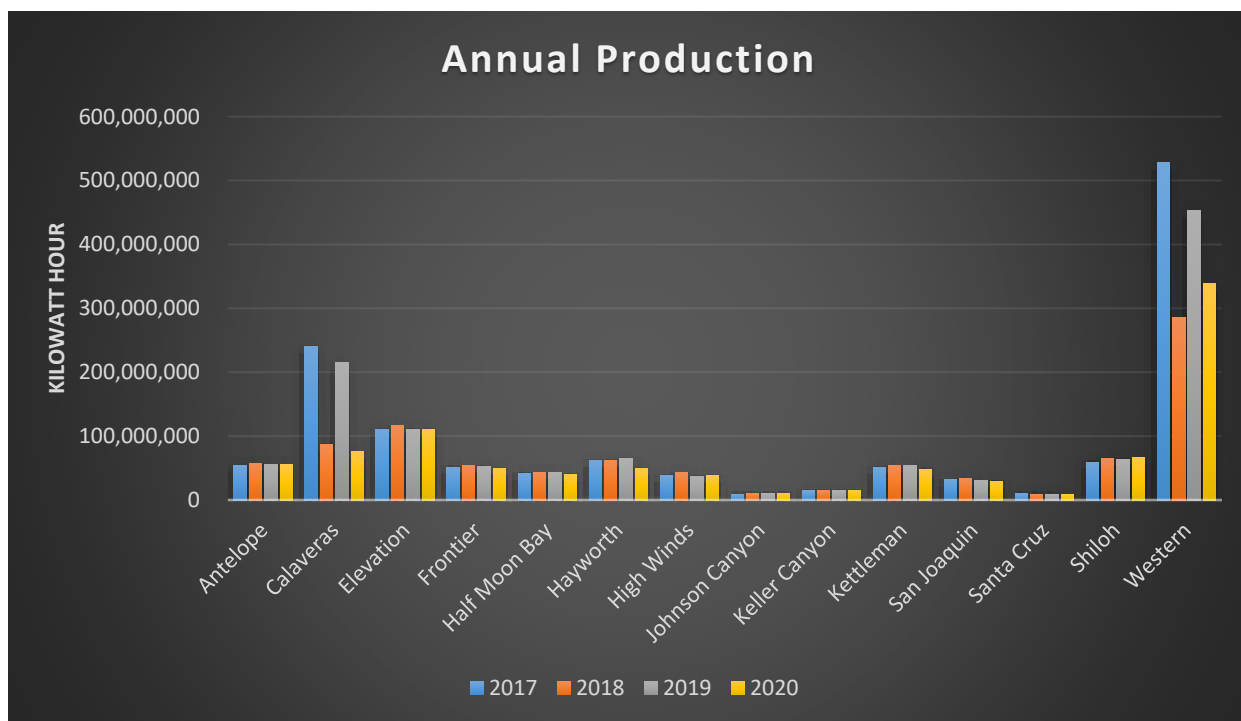
The PPA contracts entered into by CPAU are all physical PPAs. A physical PPA is where the customer (Palo Alto) and the developer agree on a set price per kWh or MWh, and the customer purchases the energy for use in the same power grid. CPAU's physical PPAs are set up in two different ways: 1) CPAU is an off-taker 2) CPAU acts as a joint owner. Fourteen of CPAU's contracts are those in which they act as an off-taker. The developer or seller develops the facility, maintains, operates, and provides the City with an agreed-upon percentage of the energy produced. The City then pays for the energy supplied at the agreed-upon rate. This structure has several benefits, including locking in a fixed rate over the contract's life, performance guarantees, only pay for energy provided, dependable budgeting, etc.

The Calaveras PPA is set up where the City and other project participants act as owners instead of simply being off-takers. This contract dates back to 1982 and is a "Third Phase" agreement between Northern California Power Agency (NCPA) member parties for the construction operation and financing of the North Fork Stanislaus River Hydroelectric Development Project. Since some NCPA members act as owners, it was set up as a take-or-pay agreement described below.

Section 6.3.3 of the City's Facilities Agreement with NCPA states, "Third Phase Agreements shall be written as "take-or-pay" ("hell-or-high-water") agreements to the greatest extent possible, so as to insulate NCPA and all Members who are not Project Participants from liability arising from the NCPA Project. Third Phase Agreements shall obligate Project Participants to treat all Project Costs as operation and maintenance expenses of their respective Electric Systems, and shall pledge the Project Participant's obligation to raise electric rates and/or increase Revenues upon demand of NCPA so as to pay such Project Costs."

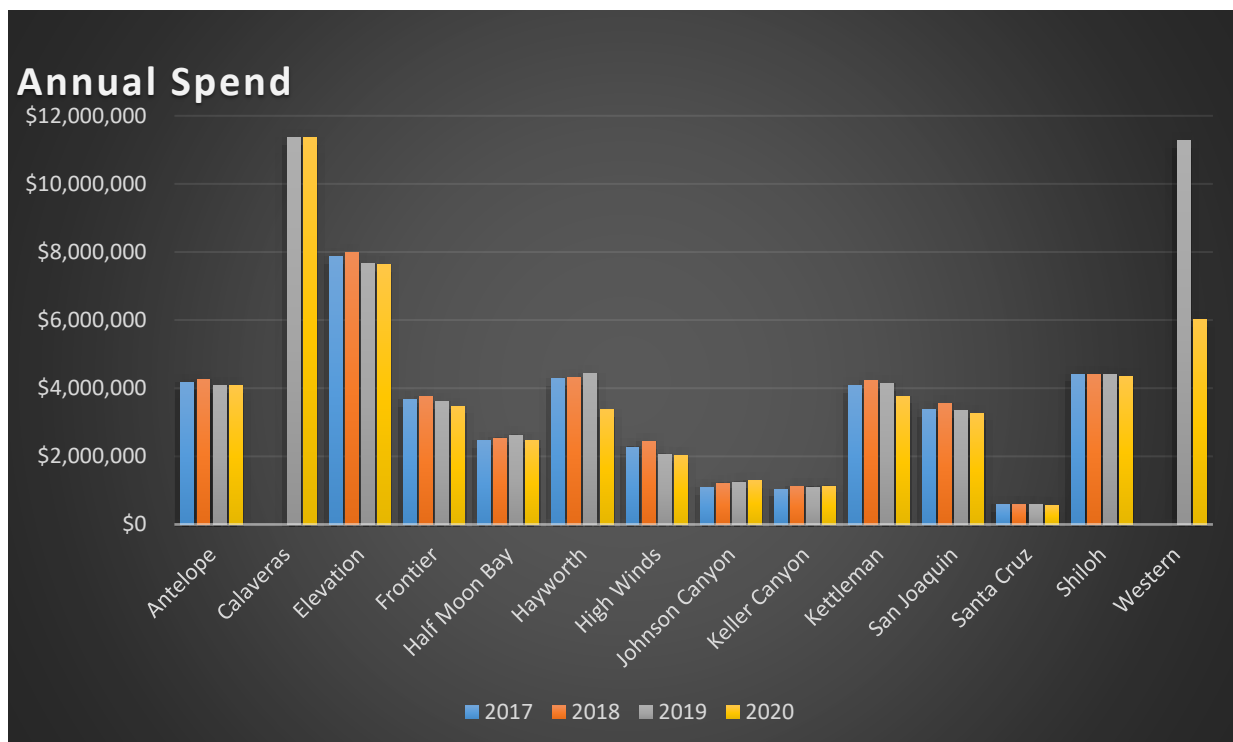
This development provided roughly 8% of the power CPAU used in 2020 and 18% in 2019. Since the Project Participants are acting as owners, there is a different risk environment. The take or pay structure adds the risk of incurring project costs but not receiving energy, which is similar to the risk incurred by any utility that owns a generating resource. In addition, since party members are responsible for the project's operational costs, there is the risk of physical damage, maintenance costs, and unexpected issues.

Both PPA structures used by CPAU have their own risks. Each agreement needs to align with the community's overall goals, risk tolerance, and available resources. All of these contracts align with the City's goals of reducing carbon emissions and promoting clean energy. Information on the annual spend and production is shown in the graphs below. Both graphs show the historical time frame of 2017-2020 and the information was taken from files provided by CPAU. Additionally, a summarized list the PPAs and related details can be found in [Appendix B](#).



Graph 1 – Annual kWh supplied by each contract from 2017-2020.

This information was pulled from the "Supplier Invoices and REC Tracking" document provided by CPAU.



Graph 2 – Annual spending associated with each contract from 2017-2020.

This information was taken from the "Supplier Invoices and REC Tracking" document provided by CPAU. The annual cost information for Calaveras and Western (WAPA) was not included in the "Supplier Invoices and REC Tracking" document and was therefore taken from the "PPA Invoice Payments 1-19 to 4-21" file provided. This document did not include the annual spend for 2017 or 2018, so there are no values on the graph for Calaveras or Western for that time frame.

Approach & Analysis

Our benchmarking approach focused on the terms and conditions within each contract to ensure the City is not leaving itself open to unnecessary risks. Some of the significant risks associated with PPA contracts relate to development, price, liquidity, volume, profile, and balancing. Our research of industry standards led us to the following list of risk-reducing clauses typically included in a PPA contract to reduce the previously mentioned risks.

- Development Guarantees
- Performance/Production Guarantees
- Force Majeure Clause
- Audit Clause
- Insurance Clause
- Operation and Maintenance

During our analysis, it was determined that the agreements entered into by the City contain many of the risk mitigation clauses found in other contracts around the industry. The contracts lay out development guarantees and repercussions for the developer if specific project goals/deadlines are unmet. Performance/Production Guarantees are established within each contract and are nuanced toward the specific energy or project type. The contracts contain force majeure language and lay out the events if necessary. Insurance clauses are in place to ensure the production facility contains a large policy to cover major physical damages that would affect the production. The City's contracts put the operations and maintenance responsibilities on the seller, except for Calaveras.

It is important for a community to vet the other partner on the agreement along with these standard contract clauses. Having a financially sound and experienced production partner helps ensure that the partner can remedy an issue with little risk of bankruptcy if any unforeseen problems occur. The City does this by putting restrictions on who a project can be transferred to, who can lend money for the project, and through questioning during the RFP process. Overall, the contracts appear to contain similar clauses used across the industry.

Audit Results

Finding #1 - No formal documentation of staff review of vendor compliance with PPAs

The OCA's review of the Palo Alto PPA procurement process identified that vendors are informally monitored through meetings and status updates. For Western, the project's performance is monitored via weekly email updates from the supplier (Western Area Power Administration) and via monthly meetings with NCPA. Calaveras operations and performance are also discussed with NCPA staff and other member agencies at the monthly meeting. For the City's solar, wind, and landfill gas PPAs, the performance of these resources is monitored on a quarterly basis, when staff compare each resource's actual output to its projected level.

However, there is no formal process that documents vendor compliance with PPAs. Although documenting PPA compliance can be difficult given the nuances and complexity of PPAs, documented PPA compliance reviews should be performed periodically. Otherwise, vendor compliance or performance issues may not be documented appropriately, resulting in delayed or inadequate communication throughout the City which poses a greater risk of maintaining a relationship with the vendor for a longer than ideal period of time.

We recommend the City implement a formal vendor performance monitoring procedure by which vendors are periodically assessed for PPA compliance and general performance.

Detailed reviews of specific PPAs, vendors, or issues should be conducted on a as needed basis. Each PPA should be reviewed in detail once every five years.

Finding #2 - No formal review or approvals of changes to front office models.

The OCA's review of front office models identified that changes made to the front office model do not require approvals. There is version control on the document used to track front office models, and few people are allowed to change the document. Also, the figures are vetted periodically by senior management as the figures are often reported to City Council and other senior stakeholders.

However, if changes are not reviewed and approved by a second user/reviewer, there is an increased likelihood of inaccurate reporting.

Changes to front office models that significantly affect planning should be reviewed and approved, and the review and approval should be documented. We recommend the front office model file be altered to allow for a second reviewer and approver to document a second review and approval of any changes.

Finding #3 – No CPAU audit of NCPA's validation of vendors' invoices, contract rates and payments

The OCA identified during process interviews that CPAU does not have a process in place to validate NCPA settlement processes that include the verification of invoice calculations, contract rates, and matching ARB amounts on behalf of the City.

NCPA owns processes that include rate calculation and proper invoicing, but the City does not conduct a periodic check to monitor NCPA's processes for accuracy. Without proper rate review processes, payments for amounts charged at incorrect rates could be processed, and inaccurate financial reporting may occur.

We recommend a formalized process that would allow CPAU to validate vendor invoices and rate calculations completed by NCPA. This process should be incorporated before payment, allowing the CPAU to validate rates to contractual requirements and confirm accuracy before payment

Appendices

Appendix A: Risk and Control Matrix

Below is the RCM that was developed and utilized to identify gaps and developing testing criteria.

Risk Ref.	Process	Sub-Process	Risk	Risk Description	Control #	Control Description
1	RFP	Needs Assessment	Over purchase of renewable energy	An inaccurate needs assessment can result in the overstatement or understatement of needs resulting in either an over-commitment or under-commitment outlined in contracts. This can result in the City being placed in the position to fill gaps.	C1	Development of the Integrated Resources Plan (every 5 years) and/or the annual RPS and Carbon Neutral Plan status report to the City Council and approval from the Utilities Director.
2	RFP	Needs Assessment	Inadequate budget	An inaccurate needs assessment can result in the overstatement or understatement of budget needs.	C1	Development of the Integrated Resources Plan (every 5 years) and/or the annual RPS and Carbon Neutral Plan status report to the City Council and approval from the Utilities Director.
3	RFP	RFP Development	Weak/Inaccurate RFP	An RFP is issued that is not adequately vetted and developed with the review and validation of specifications the City needs to be achieved.	C2	Content is developed with coordination with the City Attorney that drafts the pro forma PPA to send with the RFP.
4	RFP	RFP Development	Unapproved RFP	An Unapproved RFP is distributed without validation of legal and performance specifications.	C2	Content is developed with coordination with the City Attorney that drafts the pro forma PPA to send with the RFP.
5	RFP	Vendor Management	Unreliable Vendor	The city is partly dependent on unreliable energy providers.	Gap	There is not currently a process by which PPA vendors are periodically vetted for reliability
6	RFP	Vendor Management	Fraudulent vendor	High risk vendors are maintained in the RFP distribution list and receive opportunities to bid on City projects.	Gap	There is not currently a process to document review of PPA vendor reliability or compliance with relevant laws and PPA terms.
7	RFP	Evaluation	Improper evaluation of vendors	Outdated vendor evaluation criteria and weights are used leading to the selection of an unqualified vendor.	C3	Evaluation criteria and weights are developed/decided based on each RFP.
8	RFP	Evaluation	Unqualified vendor selection	Vendor selected from outdated criteria or not properly evaluated.	C4	Proposals are ranked based on criteria by the RFP evaluation team that results in a short list.
9	RFP	Evaluation	Financially unqualified vendor	Vendor financial and credit clearance not completed and financially unviable vendor is chosen to provide services.	C5	Energy Risk Manager completes financial/credit evaluation.

Risk Ref.	Process	Sub-Process	Risk	Risk Description	Control #	Control Description
10	RFP	Selection	Unapproved PPA executed	Vendor PPA executed without proper review and approval(s).	C6	Staff report and resolution seeking approval of PPA(s) from the Utilities Risk Oversight and Coordinating Committee (UROCC), Utilities Advisory Committee, City Council Finance Committee, and City Council. City Council approval is required for PPA execution.
11	Contract Management	Forecasting	Inaccurate forecasting	Inaccurate forecasting of generation supplies, requirements and costs leading to inadequate budgeting and other related planning.	C7	Front office models are developed for new contracts that extend out to contract length and include associated costs. Models are updated based on any changes.
12	Contract Management	Forecasting	Inaccurate forecasting	Inaccurate and unapproved updates to the front office models.	Gap	Changes made to the front office model do not require approvals.
13	Contract Management	Consents	Unapproved consents	Unapproved vendor financing consents are signed adding unapproved City liabilities.	C8	Standard consent form developed by City is utilized with a legal redline process.
14	Contract Management	Contractual Guarantees	Non-compliance to contractual development timelines	Projects are delayed due to non-compliance with contractual development timelines.	C9	Quarterly/monthly project development reports are provided by the developers/suppliers. The Senior Resource Planner validates if they are meeting contractual deadlines and criteria.
15	Contract Management	Contractual Guarantees	Unsatisfied Commercial Operations Deadline (COD) criteria	Commercial Operations Deadline criteria are not met prior to Commercial Operations commencement.	C10	Senior Resource Planner works with the City Attorney's Office to ensure checklist is met.
16	Contract Management	Contractual Generation Guarantees	Vendor non-compliance with generation requirements	Vendors do not meet generation requirements.	C11	The Senior Resource Planner reviews generation data to ensure contractual requirements are met. Performance assurances are placed in contracts.
17	Contract Management	REC-Renewable Energy Credit	Generation totals do not match REC quantities	Invoice totals do not match REC quantities transferred by suppliers.	C12	Generation data is tracked from supplier invoices. REC quantities are reconciled to generation totals from invoices.

Risk Ref.	Process	Sub-Process	Risk	Risk Description	Control #	Control Description
18	Contract Management	RPS	Non-compliance to RPS requirements	RPS requirements are not met annually.	C13	Annual report provided to CA Energy Commission. The Resource Planner tracks the requirements and compiles the report. The report is reviewed by the Senior Resource Planner and NCPA.
19	Contract Management	RPS Reporting	Non-compliance to RPS reporting requirements	Annual reporting requirements are not met.	C13	Annual report provided to CA Energy Commission. The Resource Planner tracks the requirements and compiles the report. The report is reviewed by the Senior Resource Planner and NCPA.
20	Contract Management	General	Unacceptable environmental impacts/changes in law and regulations	Suppliers are unable to meet legal and/or environmental requirements.	C14	The City Attorney's Office is responsible for incorporating environmental laws into new and amended PPA's. The CPAU monitors compliance and brings compliance issues to the City Attorney's Office for assistance.
21	Contract Management	General	Enforceability of contracts	Weak legal constraints do not allow for feasible contract enforcement.	C15	Use and application of appropriate legal clause and constraints to support City objectives.
22	Contract Management	General	Price volatility	Adverse market price fluctuations leading to unforeseen increased energy costs.	C16	Fixed price contracts address market fluctuation risks.
23	Contract Management	General	Production volume	Sufficient volume is not produced and needs to be procured at additional unforeseen costs to the City.	C17	Forecasting and estimates for potential needs.
24	Contract Management	General	Balancing market changes	Market price changes from execution to agreement close changing cost expectations from those originally procured.	C16	Fixed price contracts address market fluctuation risks.
25	Invoicing	All Resources Bill (ARB)	Inaccurate ARB	The All Resources Bill (ARB) is not accurate leading to inaccurate billings and payments.	C17	The Resource Planner validates the ARB through review and development of the Payment Claim Voucher.
26	Invoicing	All Resources Bill (ARB)	Totals do not match invoices	Vendor invoices do not match the relevant ARB(s) causing an inadequate audit trail of services provided versus related payments.	C18	The Business Analyst conducts review to ensure totals match invoices from the G/L entries.
27	Invoicing	All Resources Bill (ARB)	Inaccurate rates are charged	Rates that are not in accordance with the contract rates are charged and paid.	Gap	NCPA reviews contract rates upon invoice payment, but CPAU staff does not audit NCPA's review.

Risk Ref.	Process	Sub-Process	Risk	Risk Description	Control #	Control Description
28	Invoicing	All Resources Bill (ARB)	Duplicate payments	Duplicate payments are made	Gap	NCPA checks for duplicate payments, but CPAU staff does not audit NCPA's review.
29	Invoicing	All Resources Bill (ARB)	Overpayments	Vendor overpayment.	Gap	NCPA checks for overpayments to vendors, but CPAU staff does not audit NCPA's review.
30	Invoicing	Verification of Charges	Unapproved payments	Unapproved payments are made.	C19	Payment packages are sent to management for review and approval before processing.
31	General	General	Severe weather event	The potential risk of severe weather events causing disruption in service and meeting contractual obligations.	C20	There are related contract assurances in place in most modern PPAs.
32	Solar	General	Equipment delivery delays	Delay in completion of project.	C21	There are financial penalties and assurances language in most modern PPAs.
33	Solar	General	Completion delay / No completion	Project startup delays in development resulting in the City not obtaining the power needed based on projected timeline.	C21	There are financial penalties and assurances language in most modern PPAs.

Appendix B: Contract Listing

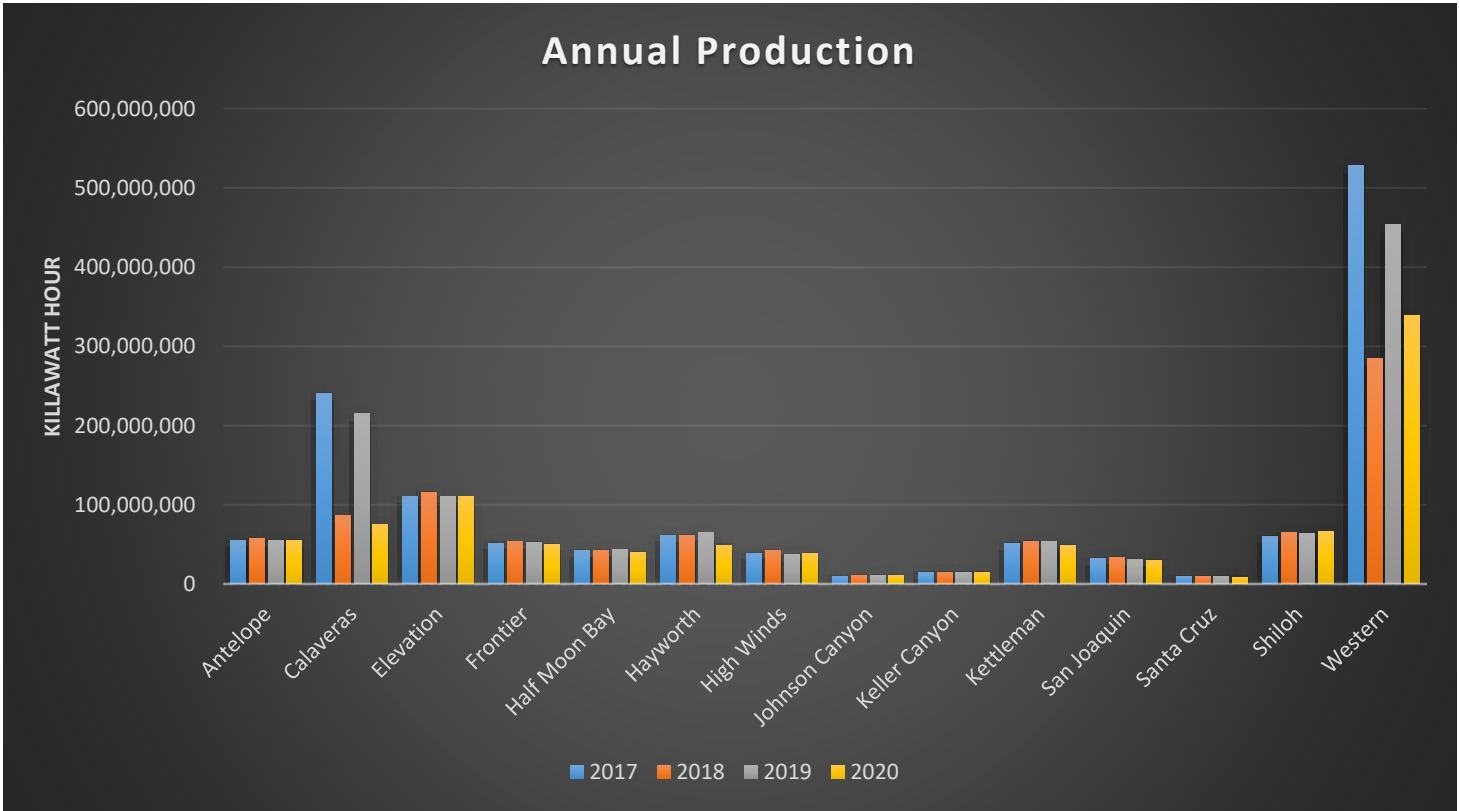
Below is summary content of the current PPAs in place with the City.

Contract Number	Agreement Name	Execution Date	Commercial Operation Date	Contract Length	Generation Type	Contract Rate	Palo Alto's Percentage Share	Overall Category
C04-075	Santa Cruz	11/9/2004	2/2/2006	20th Anniversary of COD	Gas	\$51/MWh 1.5% annual escalation	50%	RPS
C04-076	High Winds	11/9/2004	12/1/2004	23 and a half years (July 1, 2028)	Wind	\$57.60/MWh	12.35%	RPS
C05-003	Ox Mountain (Half Moon)	1/19/2005	4/1/2009	20 years after COD	Gas	\$52/MWh 1.5% annual escalation	50%	RPS
C05-068	Keller Canyon	8/8/2005	8/1/2009	20 years after COD	Gas	\$59/MWh	50%	RPS
C05-110	Shiloh	10/11/2005	6/1/2006	15 years after initial delivery date	Wind	\$62.95/MWh	16.66%	RPS
C10-027	San Joaquin	5/3/2010	4/20/2014	20 years after COD	Gas	\$91.33/MWh 1.5% annual escalation also contains increases for emission controls	100%	RPS
C12A-087	EE Kettleman Land	6/27/2014	8/11/2015	25th anniversary of COD option for 5 year extension	Solar	\$77.00/MWh	100%	RPS
C13A-061	Frontier Solar	7/10/2013	6/7/2016	30 years after COD	Solar	\$69.00/MWh	100%	RPS
C13A-062	Western Antelope	7/10/2013	12/31/2016	25th anniversary of COD option for 5 year extension	Solar	\$68.77/MWh	100%	RPS
C13A-063	Elevation Solar	7/10/2013	12/31/2016	25th anniversary of COD option for 5 year extension	Solar	\$68.77/MWh	100%	RPS
C14A-028	Hayworth	6/14/2014	12/22/2015	27th anniversary of the COD extension options	Solar	\$68.72/MWh yrs 1-13 \$68.22/MWh yrs 14-27	100%	RPS

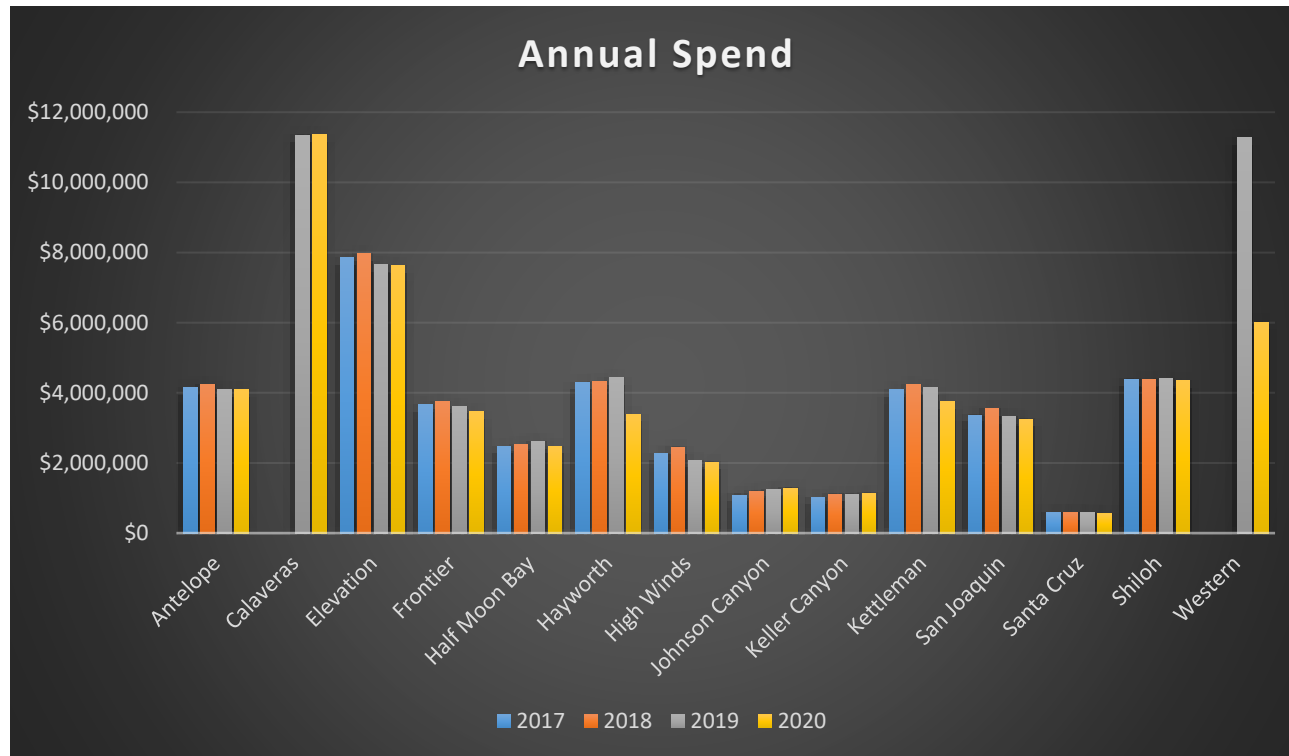
Contract Number	Agreement Name	Execution Date	Commercial Operation Date	Contract Length	Generation Type	Contract Rate	Palo Alto's Percentage Share	Overall Category
						increases for extension terms		
SF81-003	Calaveras	7/21/1982	N/A	Until Bonds mature or are redeemed	Hydro	Varies depending on annual budget put together by NCPA	22.92%	Carbon Neutral/RPS
N/A	Johnson Canyon	10/19/2009	5/12/2013	20 years after COD	Gas	\$109/MWh 1.5% annual escalation	100%	RPS
N/A	Western	10/26/2000	N/A	20 years (initial service date is 1/1/2005)	Hydro	Fluctuates based on market rate	12.31%	Carbon Neutral (WAPA)
N/A	Rosamond Solar	5/28/2019	Not operational	25th anniversary of COD	Solar	\$34.02/MWh	100%	RPS

Appendix C: Contract Analysis Graphs

Below are graphs developed from the contract analysis.



Note: The graph shown above represents the annual kWh supplied by each contract from 2017-2020. This information was pulled from the "Supplier Invoices and REC Tracking" document provided by CPAU.



Note: The graph above represents the annual spending associated with each contract from 2017-2020. This information was taken from the "Supplier Invoices and REC Tracking" document provided by CPAU. The annual cost information for Calaveras and Western (WAPA) was not included in the "Supplier Invoices and REC Tracking" document and was therefore taken from the "PPA Invoice Payments 1-19 to 4-21" file provided. This document did not include the annual spend for 2017 or 2018, so there are no values on the graph for Calaveras or Western for that time frame.

Appendix D: Agreement List and Samples

Below are tables outlining the current agreements by power source and the sample selected for testing.

Table 1 – Power Purchase Agreements

Type	Name/Location	Contract Date	Amount
Hydroelectric	Western Area Power Administration	1/1/2004 – 12/31/2024	Take or Pay-Hst. \$10 million/year
	Calaveras	7/2/1982- Bonds Mature	Varies
Wind	High Winds	12/1/2004 – 6/30/2028	Up to \$78.4 million
	Shiloh I	6/1/2006 – 12/31/2021	Up to \$75 million
Landfill Gas	Santa Cruz	2/2/2006 – 2/1/2026	Up to \$13.9 million
	Ox Mountain	4/1/2009 – 3/31/2029	Up to \$61.8 million
	Keller Canyon	8/1/2009 – 7/31/2029	Up to \$21.7 million
	Johnson Canyon	5/14/2013 – 5/13/2033	Up to \$30 million
	San Joaquin	4/24/2014 – 4/23/2034	Up to \$122.4 million
Solar (Large Scale)	EE Kettleman Land	8/17/2015 – 8/16/2040	Up to \$116 million
	Hayworth Solar	12/22/2015 – 12/21/2042	Up to \$130 million
	Frontier Solar	7/20/2016 – 7/19/2046	Up to \$99 million
	Elevation Solar C	12/2/2016 – 12/1/2041	Up to \$226 million
	Western Antelope Blue Sky Ranch B	12/2/2016 – 12/1/2041	Up to \$125 million
	Rosamond Solar	1/1/2023 – 12/31/2047	Up to \$101 million
Solar (CLEAN Feed-in Tariff)	Unitarian Universalist Church of Palo Alto (UUCPA)	7/3/2018 – 7/2/2043	Up to \$20 million
	275 Cambridge Parking Garage	3/19/2018 – 3/18/2043	
	445 Bryant Parking Garage	7/19/2017 – 7/18/2042	
	475 Cambridge Parking Garage	3/19/2018 – 3/18/2043	
	520 Webster Parking Garage	8/2/2017 – 8/1/2042	
	Solar Star Palo Alto I (HP Headquarters)	8/23/2019 – 5/31/2033	

Table 2 – Selected Sample

Contract Number	Partner	Date	Generation (MWh)	Charges
SF81-003	Calaveras	2020-03-01	4,182.616	\$965,391
SF81-003	Calaveras	2020-07-01	5,524.528	\$964,159
SF81-003	Calaveras	2020-10-01	4,299.668	\$924,196
C13A-063	Elevation Solar	2020-03-01	7,578.482	\$521,172
C13A-063	Elevation Solar	2020-09-01	8,958.425	\$616,071
C13A-063	Elevation Solar	2020-12-01	5,538.420	\$380,911
C10-027	San Joaquin	2020-01-01	2,558.688	\$279,337
C10-027	San Joaquin	2020-04-01	2,629.826	\$287,103
C10-027	San Joaquin	2020-09-01	2,314.246	\$256,441
C05-110	Shiloh	2020-04-01	5,040.000	\$364,147
C05-110	Shiloh	2020-08-01	10,176.000	\$652,675
C05-110	Shiloh	2020-11-01	2,163.000	\$158,961
NA	Western	2020-04-01	42,830.887	\$1,348,036
NA	Western	2020-07-01	48,779.731	\$999,732
NA	Western	2020-10-01	14,536.857	\$573,955

Appendix E: Management Response

Recommendation	Responsible Department(s)	Agree, Partially Agree, or Do Not Agree and Target Date and Corrective Action Plan
Finding 1: There is no formal documentation of staff review of vendor compliance with PPAs		
<p>The OCA recommends that the City implement a formal vendor performance monitoring procedure by which vendors are periodically assessed for PPA compliance and general performance.</p> <p>Detailed reviews of specific PPAs, vendors, or issues should be conducted on a as needed basis. Each PPA should be reviewed in detail once every five years.</p>	Resource Management Division	<p>Concurrence: Agree</p> <p>Extensive risk management practices are in place for PPA management. The Utilities Risk Oversight Coordinating Committee. (UROCC), which includes City Manager, Utilities, Attorney's Office, and Public Works representation, establishes risk management practices for entering into and managing PPAs. An ASD risk manager has a role in monitoring risk. The City's Attorney's Office and Utilities staff have built up extensive experience with PPA terms, which has been recognized by vendors and other agencies. CPAU along with experienced NCPA partner staff monitor its vendors' compliance with PPA energy delivery terms daily (the most important item to monitor). Other periodic reviews include: CPAU Front Office staff also review monthly performance reports from the vendor of its landfill gas projects. CPAU Back Office staff also produce monthly reports tracking the output of renewables projects relative to staff's expectations. And CPAU Front Office staff actively participate in quarterly stakeholder meetings held by WAPA for Western customers. CPAU staff agrees that it would be worthwhile to more formally document these ongoing reviews of vendor compliance with PPA terms periodically.</p> <p>Target Date: December 31, 2021</p> <p>Action Plan: CPAU staff intends to develop a checklist all vendor PPA obligations. The renewable energy contract managers will use this checklist to document compliance reviews. The contract managers will also review this list and discuss any non-compliance issues with the Electric Front Office team (which includes utility management) on at least a quarterly basis and share reports with the UROCC.</p>

Recommendation	Responsible Department(s)	Agree, Partially Agree, or Do Not Agree and Target Date and Corrective Action Plan
Finding 2: There is no formal review or approvals of changes to front office models		
<p>Changes to front office models that significantly affect planning should be reviewed and approved, and the review and approval should be documented. We recommend the front office model file be altered to allow for a second reviewer and approver to document a second review and approval of any changes.</p>	<p>Resource Management Division</p>	<p>Concurrence: Agree</p> <p>CPAU staff agree that, while the likelihood is very low, there is a slight possibility that errors made in updating the Front Office models could lead to planning/budgeting errors that could impact electric rates. Although CPAU staff would note that such errors would most likely be caught long before they have an impact on the budget or rates. The Electric Front Office team currently sends out a "Monthly Electric Front Office Report" to over a dozen individuals across multiple City departments that details the supply cost impacts of any significant changes to the Front Office models. And the annual electric supply budget, after being developed by the Electric Front Office team, is reviewed by Back Office staff, ASD staff, and management before being considered for adoption by the City Council.</p> <p>Target Date: August 31, 2021</p> <p>Action Plan: In the future, whenever a Resource Planner makes a change to any of the supply contracts in the electric Front Office models that has a materially significant impact (at least \$1M over the prompt 36-month period, approximately 0.2% to 0.3% of total utility costs), a Senior Resource Planner must review and complete a documented approval of the change before it is accepted.</p>

Recommendation	Responsible Department(s)	Agree, Partially Agree, or Do Not Agree and Target Date and Corrective Action Plan
Finding 3: CPAU staff does not audit NCPA's validation of vendors' invoices, contract rates and payments		
<p>The OCA recommends a formalized process that would allow CPAU to validate vendor invoices and rate calculations completed by NCPA. This process should be incorporated before payment, allowing the CPAU to validate rates to contractual requirements and confirm accuracy before payment.</p>	<p>Resource Management Division</p>	<p>Concurrence: Agree</p> <p>Target Date: Completed*</p> <p>Action Plan: Invoice/contract rates are now being checked internally prior to monthly payment approval and these checks are being documented. Staff will also perform a documented annual audit on a sample of PPA invoices received during the year to verify the accuracy of NCPA's billing.</p> <p>*The OCA will perform procedures to verify that this is complete.</p>