VALLEY CLEAN ENERGY ALLIANCE

Staff Report – Item 7

TO: Community Advisory Committee (CAC)

FROM: Edward Burnham, Director of Finance and Operations

SUBJECT: Review of forecasting related to VCE's total power costs and revenue model.

DATE: May 26, 2022

RECOMMENDATION
Receive the second of two informational reports on financial and load forecasting.

OVERVIEW
In April, Staff presented a report on how VCE forecasts the total amount of electricity VCE customers will use each year (Load). This report/presentation is the second of two reports and focuses on VCE's forecasting related to the total power costs and revenue model used in evaluating and setting customer rates.

As part of VCE's recently concluded rate setting process for 2022, the CAC requested information on how VCE forecasts its total power costs and revenues to recover those costs, including building reserves and program funds. The forecasted costs and revenues are the primary factors that inform VCE's decisions around rate setting, procurement, programs, and related policies. VCE currently depends on three separate modeling tools in its rate setting decision making process.

As noted in previous reports/presentations to the CAC and Board, forecasting can be imprecise and is dependent on the modeling tools and inputs to minimize variation from actual outcomes (i.e. market power costs, load demand, etc.). VCE's challenge (and any business), is to take practical steps to minimize the error band around the forecast. This report will outline power costs, revenues, and budgeting components and summarize the associated risks and improvements VCE has taken to improve forecasting accuracy.

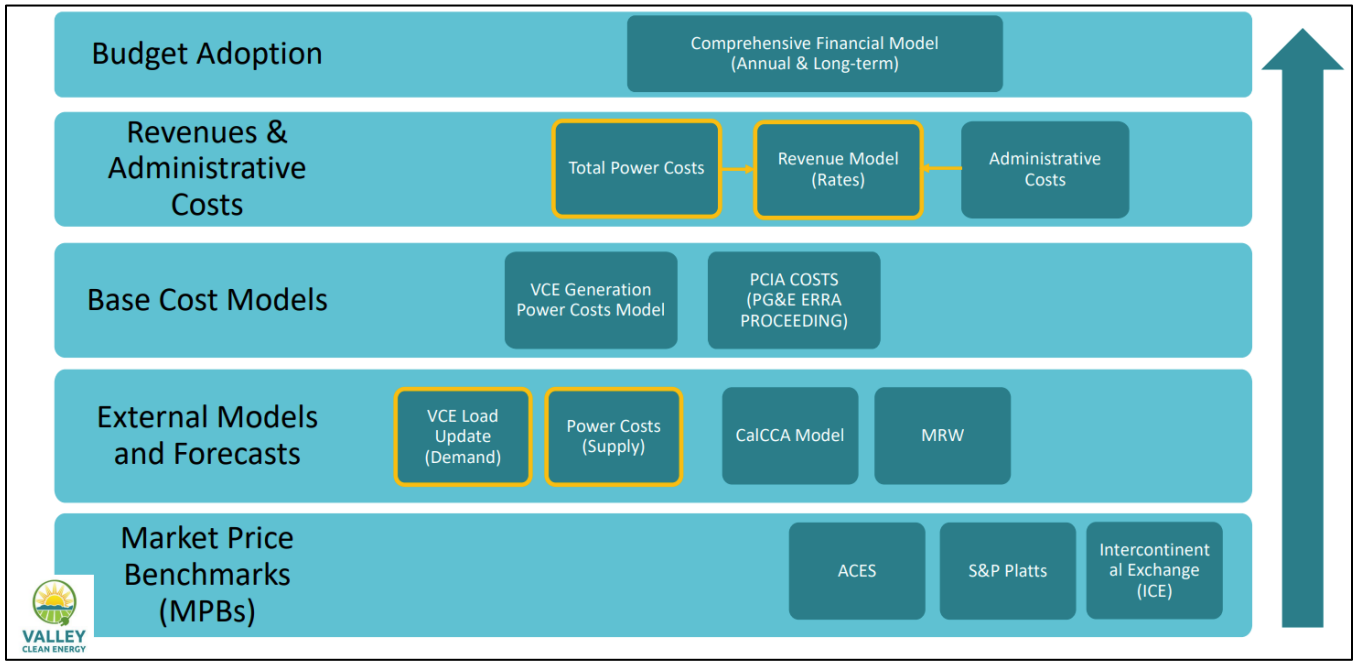
BACKGROUND
As expressed by several CAC members during the 2022 rate setting process, CAC members are interested in how these forecasts are developed and if improvements can be made to reduce the level of uncertainty experienced by VCE during the 2022 rate setting process. While extraordinary circumstances and factors in 2020/2021 largely drove the level of uncertainty experienced by VCE and other CCAs (i.e. Covid, power market volatility, drought, regulatory factors – PCIA), it is important to examine VCE's forecasting tools to assess their performance during this time period.

As Staff noted during the 2022 rate setting process, VCE forecasts (financial and load) have performed well since launch, and all forecast tools available to VCE and other load serving entities (LSE's), were challenged by the set of stressors presented in the 2020/21 staff reports. Staff believes it bears repeating that all forecasts are wrong, specifically in the energy sector, which are influenced by factors outside the organization's control. Volatility is inherent in the energy sector, and VCE employs risk management best practices through its Enterprise Risk Management policy developed in conjunction with SMUD to reduce and mitigate risk. One example is building and maintaining substantial reserves to ride through periods of volatility such as 2020/21. A central business question is and will continue to be how to achieve an acceptable bandwidth of error in the suite of forecasting tools and deciding how important it might be to improve the forecast tool(s) when they significantly underperform.

DISCUSSION & ANALYSIS

The sections below outline the approach VCE takes to produce the power cost and revenue forecasts that serve as inputs to VCE's overall budgeting model. The following figure showing VCE's forecasting framework was presented at the March 24th CAC meeting to provide an overview of the levels and tools employed by VCE to produce the various forecasts that inform staff reccomentations and Board decisions. This report focuses on Total Power Costs, the Revenue Model, and the Comprehensive Financial Model.

Figure 1 – VCE Forecasting Framework



Power cost is comprised of two components: (1) the amount of electricity procured to serve VCE customers (Load) and (2) the total price of the electricity. Revenue is derived from the amount of Load multiplied by the customer rate that is set by the Board (currently set to match PG&E rates). Forecasts for each of these elements are incorporated into VCE's Comprehensive Financial Model which is used to set VCE's annual budget and perform financial planning.

Each of these forcasting elements, their use and overall performance since launch are summarized

below.

Power Costs

VCE power costs account for approximately 90% of VCE's total costs. As noted, Power Cost is comprised of two components: (1) the amount of electricity procured to serve VCE customers (Load) and (2) the total price of the electricity. Forecasts of Load and price allow VCE to forecast power costs.

Load Forecast

The annual electricity demand forecast (Load Update) is performed each Spring in conjunction with SMUD. In April, Staff presented the process VCE uses to produce the load forcast (April 28, 2022, CAC Item 10 found here). Since launch, this annual Load Update forecast has been within 5% of actual measured load which is considered a solid performance and within industry expectations. While there can and has been significant variability within a particular customer segment (e.g. Agriculture in 2021 due to drought conditions), VCE's overall load forecasts have provided a reliable basis for entering into long-term power purchase agreements (PPAs), hedging strategies to manage its power costs, and budget planning/adoption.

Power costs are broken into the following risk categories:

- Annual Load - The overall performance of VCE's load update to actuals has remained within an acceptable accuracy of 5% annually.
- Energy Costs - The main driver of power cost overages, when compared to budget, was driven by the timing of the annual budget process and the completion of energy hedging.
- Resource Adequacy - The increasing CPUC mandated requirements for new resource adequacy and decommissioning various existing projects impacted market prices.

VCE Power Costs and associated risks are sumarized in Table 1 below.

Table 1 – Power Cost Risks

Risk	Description	2021 Risk	2022 Risk
Load Forecast	VCE's Annual forecast informs energy, resource adequacy (RA), renewable portfolio standard position, and multiple regulatory filings.		
Energy Costs	The risk of extreme fluctuations associated with commodity prices, including energy prices, resource adequacy, and other energy portfolio components, remains.		
Resource Adequacy	Risk of additional regulatory requirements increasing complexity and cost of operations		

Note: Green – low risk; yellow - moderate risk; orange – moderate/high risk; red – high risk

VCE has taken the following actions to reduce risks related to energy costs.

- Power purchase agreements (PPA) – VCE executed ten fixed-price PPA's in the last three years for approximately 238 MW of Renewables and 80% of the energy costs fulfilling VCE's renwable portfolio and a significant portion of its resource adequacy compliance requirements by 2024. These PPA actions have reduced all three risk categories identified above through increased certainty and market competitive energy and resource adequacy pricing.
- 2020-2022 Power content policy adjustments – Board action was taken during the transition to long-term power purchase agreements to reduce cost impacts from volatility outside of VCE control. Please see Board Item 15 on May 13, 2021. This action has temporarily reduced the risk of energy costs.
- Financial Calendar (Fiscal to Calendar year-end) - The Board adopted a calendar year budget on November 10, 2021 (Item 12), to reduce the risks associated with forward market prices affecting budget performance. VCE budgets adopted before 2022 were more reliant on the accuracy of forward market prices with a greater degree of volatility. This action has reduced the risks associated with energy costs and RA by conducting load forecasting and budget adoption in different times of the year.

Overall, since launch, VCE power cost forecasting on average has been within 4% of actual power costs.

Revenue Model

Similar to forecasting VCE power costs, VCE's primary tool used to forecast revenues is the annual electricity demand forecast (Load Update). VCE's customer rates are charged based on the rate of their class and load usage, as displayed in Figure 2 below. Overall, since launch, VCE's actual revenue has been within 3% (above) of the revenue forecast. Note: year-to-year forecast of revenues v. actuals shows higher variability but viewed over the first four years of operation, forecasts are considered within a reasonable range for budget planning/adoption purposes.

Figure 2 Basic Revenue Formula

When considering that the VCE load forecast has been relatively accurate as described in the pervious section, most of the revenue risks are not associated with the amount of electricity VCE procures to serve customer load. Revenues can be broken into the following risk categories:

- Power Cost Forecast – The power cost forecast described above is the central pillar for informing Staff recommendations and Board decisions. This forecast allows VCE to understand and make adjustments to revenues as described below regarding cost-based customer rates.
- Customer Rates
    - Matching Rate Policy (PG&E Based) - Since VCE's launch, customers have been offered two rate options: (1) Standard Green default and (2) 100% renewable UltraGreen that have remained within -2.5 to +5% of PG&E's generation rates compared to VCE's default

product. Before VCE's current rate policy, VCE relied on reserves to stabilize customer rates to match PG&E. VCE's rate adjustments were contingent on PG&E's annual rate setting process (ERRA) and other regulatory filings as approved by the CPUC.

- Cost-based Rate Policy – The Board adopted a cost-based customer rate policy on November 10, 2021. As described in Board Item 15, VCE sets rates for customer options to cover costs, including reserves and programming.

- Customer Retention – as forecasted at launch, VCE continues to serve approximately 90% of eligible customers in its service territory (comparable with other CCA communities). This customer retention rate has been stable since launch.

VCE Revenues and associated risks are sumarized in Table 2 below.

Table 2 – Revenues Risks

Risk	Description	2021 Risk	2022 Risk
Power Cost Forecast	VCE's Power Cost Forecast accuracy is essential to VCE's ability to adjust customer rates to recover costs, maintain reserves, and allow for timely rate changes.		
Customer Rates	Risk of rate design for cost of service (non-time of use (TOU), PCIA, demand charges, varying generation rates) has been reduced. VCE will continue to develop rate option(s) support risk reductions.		
Customer Retention	VCE's launch in 2018 and the addition of Winters, have the most risk of customer opt outs. Risk of higher than expected opt-out level could increased with rising rates.		

Note: Green – low risk; yellow - moderate risk; orange – moderate/high risk; red – high risk

VCE has taken the following actions to reduce risks related to revenues forecasts.

- Power Cost Forecasts – VCE has worked with SMUD to upgrade the power cost model components that incorporate the load update and forward market costs.
- Customer Rate options - VCE is evaluating customer rate options, as described in CAC companion Item 8 on this agenda, to ensure customer retention as a priority.

Budgeting Model

The budgeting model incorporates the outputs from the models described above for load, power, and revenue. The model allows VCE to compare various scenarios for the current year with an outlook on future years. The budget model allows adjustments for the following major factors to stress test financial risks:

- Administrative Costs – The budget model includes all non-power costs to evaluate the ability for rate adjustments to meet the total costs required. These costs include salaries, programs, consultants, and reserve targets.

- PCIA – PCIA is adjusted for each year based on various external inputs from the CalCCA/NextGen PCIA model and to evaluate the reliability of historical forecasts. PCIA effectively reduced the net revenue received by VCE and the timing of revenue recovery for reserves.
- Revenue adjustments – Rate scenarios are adjusted for forecasted years to meet policy standards and budgeted targets. Rate adjustments have a minimum of 90 days before being received.

The budget model does allow for additional administrative adjustments that are not as significant as the ones described above. The budgeting model can be broken into the following risk categories:

- VCE Power Cost Forecast – As described above.
- Revenues and Rates – As described above.
- Power Charge Indifference Adjustment (PCIA) - Volatile Power Charge Indifference Adjustment (PCIA) (+46% for 2021 and -57% for 2022) has required VCE to draw on reserves to stabilize customer rates and maintain rate policies and customer retention. Please see the attched supplemental ERRA proceeding for more detailed information.

The most significant risk isolated in the budget model is the impact of PCIA. PCIA directly impacts revenues, rate stabilization, and reserves.

VCE has taken the following actions to reduce risks related to budgeting forecasts.

- Power Cost Contingency – VCE adopted the 2022 budget with a contingency of approximately 2% to allow for seasonal cost and timing fluctuations that occur in the energy sector.
- PCIA Forecasting - The CalCCA modeling task group was formed in 2021 to reinforce efforts focused on bundled rate forecasting by developing a modeling tool as part of the collaborative effort. The modeling tool also assists with running various scenarios by changing various cost components such as market price benchmarks. Although several providers, such as the S&P, publish market price benchmarks, we have not identified one that is significantly more reliable than the others. Additionally, the change in the financial calendar described above incorporates a forecast with more reliable PCIA adjustments as described in the Supplemental ERRA Proceeding Summary.
- Collections Policy – VCE adopted a collections policy to align with the CCA community and industry standards. This policy will assist in VCE's ability to maintain healthy receivables turnover.

When considering that VCE is emerging from it’s start-up phase with few fixed price long-term contracts and the uncertainty of the last two years associated with the pandemic, Staff believes the budget model has been relatively accurate. Overall, for the three fiscal years from 2018 to 2020 the budget model forecasts were within 9% of actual financial performance. As reported to the CAC and Board throughout 2021, increased power market volatility and particularly PCIA increases lead the 2021 fiscal year forecast to be approximately 20% off.

To better address these variances in the budget model caused by power market and PCIA volatility, VCE continuously engages with CalCCA, other CCAs, and various partners to increase forecasting reliability. These partners include industry experts from SMUD, ACES, Don Dame, Keys and Fox, MRW & Associates, and NewGen Strategies and Solutions (NewGen). These partners offer the most current and compressive available information in the decision-making process. The information provided is tested for impacts on short-term and long-term outlooks as part of VCE's rate and budget adoption process. VCE will continue to examine the budget model and recalibrate based on new information and emerging market trends. It is important to note that as its long-term fixed price contracts come on-line over the next three years, VCE's exposure to energy market volatility will decrease significantly and budget forecasting accuracy is anticipated to also improve.

CONCLUSION

Staff continues to work with our consultants (e.g., SMUD) and partners (e.g., CalCCA) to assess and interpret the output of the various financial modeling tools to identify potential significant risk factors and recommend corrective actions when necessary. The exercise of assessing the overall performance of VCE's forecasting tools is part of the ongoing effort to achieve VCE's strategic plan goals of financial stability for the organization and the customers and communities it serves.

Supplemental ERRA Proceeding Summary

ERRA Forecasting (PG&E's Bundled Rate setting)

The annual ERRA forecast proceedings establish the amount of the Power Charge Indifference Adjustment (PCIA) and other non-bypassable charges for the following year. Typically the ERRA proceeding at the CPUC begins in the summer months and builds toward adopting IOU rates by the year-end for adjustment implemented the next year. Several filings and related hearings include updates for interested parties on the forecasted generation rates for bundled customers and PCIA. The non-bypassable charges include the generation changes and PCIA Under collection Balancing Account (PUBA) adjustments. Generation charges include fuel and purchased power costs associated with serving bundled customers that investor-owned utilities may recover in rates.

A significant cost component of the ERRA proceeding is the PCIA component. California's investor-owned utilities (IOUs) use the PCIA to recover unavoidable above-market costs associated with their power portfolios. PG&E's Indifference Amount is the difference in the target year between the cost of the PG&E's supply portfolio and the market value of the portfolio, as displayed below. In 2018, the CPUC decided to place a 0.5 cents/kWh CAP to minimize the PCIA annual increases. In 2021, the CPUC decision removed the cap and trigger for PCIA rate increases and authorized a new voluntary allocation, market offer, and request for information processes for RPS contracts subject to the PCIA, and approved a process for increasing transparency. Overall, the impact of the PCIA on ratepayers has risen by hundreds of millions of dollars in recent years and continues to be a significant concern.

Power Charge Indifference Adjustment (Formula)

The combination of all items in the ERRA proceedings establishes the final total PG&E bundled rate, which VCE reviews when setting competitive rates.

ERRA Forecasting Analysis

As mentioned above, VCE draws upon CalCCA and partners' to forecast the expected results of the ERRA proceeding. As examined in previous staff reports during the 2022 rate setting process, VCE has seen high volatility over the last two years in the energy sector and overall economy, primarily driven by the uncertainty during the COVID-19 Pandemic and recovery. In addition, the increases in resource adequacy and power market costs have made forecasting PG&E's bundled rates more challenging in recent years. VCE has taken the ERRA proceedings described above into account with other factors to align the VCE rate setting and budget process for more stabilization.

Similarly, when considering the ERRA proceeding timeline displayed below, the rate-setting process is misaligned with the seasonality of energy demand. The preliminary filings from May to June are based on prices before the peak season and limited actuals. The more reliable ERRA filings and updated forecasts from the analysts will result from the updated filings from PG&E in October and November. These filings also include the CPUC's Energy Division Market Price Benchmark to recover costs related to PG&E's generation rates for the following year.

ERRA Proceeding Timeline (Example)