VALLEY CLEAN ENERGY ALLIANCE
COMMUNITY ADVISORY COMMITTEE

Staff Report – Item 7

TO: Community Advisory Committee

FROM: Gordon Samuel, Assistant General Manager & Director of Power Services

SUBJECT: Discuss Modifying VCE's Existing 80% Renewable by 2030 Policy

DATE: June 22, 2023

Recommendations

1. Receive presentation and provide feedback on VCE's power portfolio content goals.
2. Discuss VCE's current policy of 80% renewable by 2030 of which 25% is generated from local renewable resources and consider modifying this goal.
3. Increase the current 80% renewable policy by 2030 to 100% renewable by 2030 and substitute the 25% renewable local component goal with a goal of 25% of future storage amounts to be from local installations.

Background

In 2018 the Board adopted a policy for VCE's power content to target 80% renewables by 2030. The policy also set a goal that 25% of this amount should be from local resources. At the time this was a very ambitious goal, and some may still consider this to be a stretch or at least a sufficient target. Others may believe this policy does not go far enough. Since this policy was adopted, VCE has entered into several long-term power purchase agreements (PPAs) and has been working towards fulfilling these goals.

Guiding Documents – Carbon Neutral Study and 2022 Integrated Resource Plan

In the second half of 2021 and early 2022, staff completed a 100% carbon neutral by 2030 study (CNx2030) which considered not only being carbon neutral but also 100% renewable (100% Carbon Free Portfolio Study (Final). In 2022, VCE submitted its integrated resource plan (IRP) to the California Public Utilities Commission (CPUC) (Integrated Resource Plan (IRP) filed 11/1/2022). This IRP also studied various portfolios from 2023-2035 with the primary focus to be at or below a specific emissions target in an effort to reduce greenhouse gases (GHG) at the lowest cost. As a result of VCE's procurement and study efforts, a reasonable roadmap is beginning to emerge which presents an opportunity to revisit the current power content policy adopted in 2018.

During the November 17, 2022 Community Advisory Committee (CAC) meeting, the Committee voted unanimously to recommend that the Board modify the existing policy. The CAC recommended that the Board approve a new policy which is 100% renewable by 2030 with 25% of the content sourced from local resources. A key point expressed by several CAC members who spoke in support of increasing the

goal believed that it provides a reasonable target for VCE to aspire towards. Unfortunately, in November 2022, Staff did not have the supporting analysis of the advantages/disadvantages associated with the CAC proposed modification of the current portfolio policy – specifically the 25% local component.

Therefore, staff engaged the portfolio modeling services of First Principles Advisory (FPA), the firm that performed the 2022 IRP modeling. FPA's familiarity with the VCE portfolio was a logical reason to have them conduct this additional modeling. At the February 2023 Board meeting, the Board approved a contract for the additional modeling to be performed by FPA with a commitment from staff to bring the results and recommendation to the CAC in June and the Board in July 2023.

VCE Current Renewable Portfolio

VCE's has signed seven renewable PPAs consisting of photovoltaic (PV), hybrid (PV + storage) and geothermal. These PPAs account for approximately 680 annual GWHs or approximately 70% of retail load (2030).

Table 1 – VCE's Executed Long-Term Renewable PPAs

Long Term PPAs	Actual or Expected COD	Capacity*
Resurgence Solar I	7/7/2023	90 MW PV, 75 MW BESS (250,000 MWhs)
Aquamarine Solar	9/22/2021	50 MW PV (130,000 MWhs)
Putah Creek Energy Farm	10/15/2022	3 MW PV, 3 MW BESS (7,600 MWhs)
Gibson Solar	6/1/2025	13 MW PV, 13 MW BESS (50,000 MWhs)
Willy 9 Chap 2**	12/31/2023	72 MW PV, 36 MW BESS (210,000 MWhs)
Ormat Geothermal	Varies by project, but as early as 2025	4.63 MW (35,380 MWhs)
Fish Lake Geothermal	June 2024	0.42 MW (3,460 MWhs)
* All BESS are 4-hour duration, except the Gibson Solar project is a 5-hour battery system. Approx annual MWhs shown. ** Formerly Willow Springs Solar 3. Name changed at the request of the CAISO.		

Analysis

Staff, working with FPA, identified seven scenarios to model. Four assuming a future natural gas price curve that would be considering a P50 curve and three at a higher price P95 curve. For the purposes of this report, staff elected to focus on the results associated with the P50 analysis. Note: if natural gas

prices are more in-line with the P95 assumption this does have a material cost impact on the portfolio depending on the type of renewable resources selected.

Table 2 – Four Scenarios Modeled Based on P50 NG Curve

Scenario	NG Price	2030 RPS Target	Local RPS Target
1.a	P50	80%	25%
1.b	P50	100%	25%
1.c	P50	100%	-
1.d	P50	80%	-

Scenario 1.a can be considered the base case or business as usual (BAU). This scenario is the current VCE policy. Scenario 1.b increases the renewable percentage to 100% by 2030 as well as maintaining the 25% local renewable component. Scenario 1.c increases the renewable percentage to 100% but only considers the two existing local PPAs that VCE has executed (Putah Creek and Gibson). Finally, Scenario 1.d maintains the current 80% renewable by 2030 and only considers the two existing local PPAs that VCE has executed (Putah Creek and Gibson). The purpose of identifying these four scenarios was to establish a range of cost outcomes.

The portfolios from each of the scenarios are slightly different but the primary choice of eligible renewable technologies does not vary (note: the modeling does allow for the selection of other technologies such as biomass, off-shore wind, etc but only selects resources that are the best fit for the portfolio). Table 3 identifies the incremental capacity additions (additions above what VCE has already contracted) for each scenario.

Table 3 – Cumulative Incremental Capacity Additions

Cumulative MWs - Incremental Needs (2030 / 2035)								
	1a - 80% RPS, 25% Local		1b - 100% RPS, 25% Local		1c - 100% RPS, 8% Local[3]		1d - 80% RPS, 8% Local[3]	
	2030	2035	2030	2035	2030	2035	2030	2035
Wind[1]	20	75	20	50	100	155	90	145
Geothermal	25	35	25	35	40	50	40	50
Storage[2]	34	89	37	70	55	115	50	107
Local hybrid (PV+S)	45	65	60	84	-	-	-	-
Total								
1) Wind is on-shore. Off-shore wind is not economical in this planning horizon								
2) Storage in this table includes duration from 4 hr to 12 hr								
3) "Local" in these scenarios assumes only Putah Creek and Gibson project (approx 8%)								

As shown the local hybrid renewable resources are assumed to be PV + storage as that is the most realistic resource available in Yolo County as the county does not have significant geothermal or wind resources and the local biomass resources have proven to be quite costly. Unfortunately, PV land usage is significant which can have impacts on prime agricultural land which presents policy trade-offs and can be difficult to permit. The amount of new capacity would be between 65 MW and 84 MW. Although this amount is technically feasible, based on direct experience staff observes that it will be difficult to permit locally, the costs will be at a premium compared to installation in other regions of the State, and it installs a technology that VCE otherwise would not select as the portfolio would benefit from additional diversification.

The below table identifies the net present value (NPV) cost trade-offs between each scenario. All scenarios are measured off Scenario 1.a (BAU scenario). Scenario 1.b is $23.5 million more than the BAU case, similarly Scenario 1.c is $33.4 million cheaper than the BAU case (or nearly $57 million cheaper than Scenario 1.c). Scenario 1.d is the lowest cost of all cases. An important point to highlight is the incremental cost to go from 80% (1.d) to 100% (1.c) renewable is not unreasonable and staff believes this is something the Board should consider. It is clear from the model runs that portfolio costs are amplified when factoring in additional local resources.

Table 4 – Scenario Cost Comparisons

Scenario	NG Price	2030 RPS Target	Local RPS Target	2024-2035 NPV (2022 $M)	Delta (2022 $M)
1.a	P50	80%	25%	619.6	0
1.b	P50	100%	25%	643.1	23.5
1.c	P50	100%	-	586.1	-33.4
1.d	P50	80%	-	575.7	-43.9

Goals / Policies of other Load Serving Entities (LSEs) in California – Including CCAs

Although each LSE's situation is different, it is important to understand what other LSE's have committed to. Numerous LSEs do have "aspirational" goals of achieving 100% renewable and clean power by 2030. Many LSEs intentionally include the term "clean" in their policy as this allows some flexibility to meet some of the content with resources such as large hydro or nuclear (both are defined as GHG-free or clean but neither qualify as renewable per the CPUC definition). For reference, Attachment 1 identifies the policies of many LSEs in California.

Strategic Plan

VCE's current Strategic Plan contains the following goal: "Manage power supply resources to consistently exceed California's Renewable Portfolio Standard (RPS) while working toward a resource portfolio that is 100% carbon neutral by 2030." Exceeding the goal by modifying to 100% renewable is acceptable. In addition, aspects of the strategic plan are currently being reviewed so any new policies can be incorporated into the latest version.

Conclusion

Staff is seeking CAC feedback on modifying the existing power portfolio policy. Considerations:

1) With the current portfolio trajectory staff believes achieving 100% renewable is a reasonable goal for the Board to consider.
2) Staff also believes the 25% local component should be revisited for two reasons:
    a. The primary local renewable resource is solar (PV). From the modeling, additional solar is not a resource VCE needs as VCE needs to diversify to other renewable technologies to achieve a balanced renewable portfolio.
    b. The cost to achieve the 25% local requirement should be considered as this decision is discussed. It is substantially more costly to VCE's customers to meet this component of the goal by 2030 and beyond.
3) Stand-alone storage resources, which enable the installation of intermittent renewable resources, is a resource that could be considered for Yolo County.
    a. Permitting stand-alone storage is likely to prove to be more stream-lined as the footprint of the underlying disturbed land is much smaller than solar.
    b. VCE, as well as the grid, need storage.

Attachment

1. California LSE's renewable goals

Attachment 1

Renewable Energy Goals of CCAs and other electric utilities in California (as of May 2023)

LSE Name	Goal Summary
IOUs	
PG&E	net-zero energy system by 2040
SCE	RPS
SDG&E	RPS
Regional/Municipal Districts	
IID (Imperial Irrigation District)	RPS
LDWP	80%/90% RPS by 2030, 100% carbon-free by 2035
SMUD	zero carbon emission power supply by 2030
CCAs	
Apple Valley Choice Energy	RPS
Central Coast Community Energy	100% clean and renewable energy by 2030
City of Palmdale	RPS
City of Pomona	RPS
City of Santa Barbara	75% renewable / 100% carbon-free by 2030 (default rate)
Clean Energy Alliance	100% renewable by 2035
Clean Power Alliance	RPS
CleanPowerSF	100% renewable electricity by 2025, and 100% renewable energy (0% fossil fuels) by 2040
Desert Community Energy	RPS plus 100% carbon-free product as default for customers in Palm Springs
East Bay Community Energy	100% net-zero carbon annually by 2030, 100% clean energy on a net annual basis by 2030, exceed state RPS by 20% per year
King City Community Power	RPS
Lancaster Choice Energy	RPS
Marin Clean Energy	60% minimum renewable, default rate at 98.3% renewable as of 2021 (including large hydro)
Orange County Power Authority	RPS
Peninsula Clean Energy	100% renewable by 2025, including hourly matching (i.e., time-coincident basis)
Pico Rivera Innovative Municipal Energy	50% renewables (default rate)
Pioneer Community Energy	RPS

Rancho Mirage Energy Authority	RPS
Redwood Coast Energy Authority	100% clean and renewable by 2025, plus 100% local renewable energy by 2030 (local resources located within the Humboldt Local Capacity Area)
San Diego Community Power	75% in 2027, 85% in 2030, and 100% in 2035 renewable; 15% new storage in Member Agencies' territories by 2035; 600MW of new utility scale projects within San Diego and Imperial Counties by 2035
San Jacinto Power	RPS
San Jose Clean Energy	100% carbon neutral and renewable (annual basis) by 2030, with 0% fossil fuel by 2050
Silicon Valley Clean Energy Authority	50% - 52% renewable currently, 60% - 62% renewable in 2030; 100% of energy needs with carbon-free electricity on annual basis, longer-term goal of carbon-free on 24x7 basis
Sonoma Clean Power	Board policy of 50% renewable by 2020; Internal goal of 100% hourly marginal emissions mitigation by 2026 and 80% Winter Night Reliability by 2030
Valley Clean Energy Alliance.	80% renewable by 2030