VALLEY CLEAN ENERGY ALLIANCE

Staff Report – Item 11

То:	Board of Directors
From:	Gordon Samuel, Chief Operating Officer
Subject:	Summer Preparedness Outlook
Date:	June 12, 2025

Please find attached a report prepared by The Energy Authority (TEA), VCE's provider of portfolio management, scheduling coordinator, load forecasting, and credit support services.

The report provides an assessment of California's Summer 2025 market conditions.

TEA will be attending the Board's meeting to review highlights of their market conditions assessment.

Attachment: 2025 California Summer Market Conditions Assessment, TEA, June 2025

Valley Clean Energy

2025 California Summer Market Conditions Assessment

Prepared by The Energy Authority (TEA), June 2025

CAISO Grid Conditions Summary

The California Independent System Operator's (CAISO) 2025 Summer Loads and Resources assessment indicates improved grid reliability due to accelerated resource development and capacity margins that exceed demand and reserve requirements.

California is expected to have sufficient capacity for this summer. This is mostly attributed to 5,534 MW of capacity of added solar, battery, and hybrid expected to be operational by June 30, 2025. The forecasted peak load is 46,094 MW, which is minimally less than last year with the peak expected to occur in September at hour ending 18. June through August expect above normal temperatures across the West especially in the Intermountain West. There is also an increased chance of above-normal temperatures through August and September. Previously moved into the state's strategic reliability reserves pool, some gas-fired once-through cooling generators have had their retirements deferred to Dec 31, 2026, and will remain part of the strategic reliability reserve. Both probabilistic assessment and multi-hour stack assessment indicate there are sufficient resources to achieve a reasonable margin above the Planning Reserve Margin (PRM) required to achieve a Loss of Load Expectation of 0.1 (LOLE).

The CAISO's fleet of emergency resource programs, such as the State Power Augmentation Project (SPAP) and the Electricity Supply Strategic Reliability Reserve Program (ESSRRP) remain stable from last year. The ESSRRP combined with available emergency assistance on the interties remains constant, totaling approximately 3,450 MW. These programs generally trigger based on various CAISO emergency notifications and add emergency capacity and reserve resources to support the grid specifically during extreme events, as outlined in CAISO's Emergency Procedure 4420¹. Additionally, demand-side programs administered by the California Energy Commission (CEC) and California Public Utilities Commission (CPUC) like the Demand Side Grid Support Program (DSGS) and the Distributed Electricity Backup Assets (DEBA) program focus on load reduction as a means of ensuring grid reliability. These initiatives collectively contribute to improving grid conditions and enhancing overall system preparedness for the summer of 2025.

While TEA's analysts generally support the CAISO's observations included in its Summer 2025 Assessment, four key areas of uncertainty call for tempered confidence in the CAISO's ability to maintain reliable operations during the summer 2025 season:

- Potential for coincident heat event or wildfires to stress inter-regional deliveries;
- Potential over-confidence in expected level of intertie imports, limited at less than 5,500 MW from June September hours ending 17 23 in the probabilistic analysis, given west-wide

capacity and energy market conditions as well as ongoing challenges with CPUC Import Resource Adequacy (RA) policy;

- Potential for state-of-charge management of storage fleet by individual resources to deliver suboptimal dispatch availability over evening peak hours; and
- Potential for uncertainty in Western Energy Imbalance Market (WEIM) transfers during tight regional or west-wide system conditions to challenge real-time market stability.

CAISO Grid Conditions – Deeper Dive

New Generation

The CAISO expects a total of 5,535 MW of installed capacity to be added to the grid by June 30, 2025 including about 1,600 MW of battery and 350 MW of solar. Of that, 2,163 MW are planned additions expected to reach commercial operation (COD) between April 1, 2025 and June 30, 2025.

Resource Additions	Battery	Wind	Solar	Biofuel	Hybrid	Total Nameplate Capacity
September 1 to December 31, 2024	1,385	219	469		404	2,478
January 1 to April 1, 2025	595	0	299		0	894
April 1 to June 30, 2025 (Expected)	1,654		354	5	150	2,163
Total	3,634	219	1,122	5	554	5,534

(Table 1.2, p. 5 - "Actual and expected additions from September 1, 2024 through June 30, 2025 (MW)")

Particularly of note for 2025 is the battery additions. Battery storage resources can provide ancillary services and load following in both charging and discharging modes. The model treats batteries as such and co-optimizes battery charging and discharging across time intervals to minimize system costs or meet specified objectives (such as minimizing depth verses duration of shortfalls), while adhering to operational constraints.

Deliverability	Full Capacity		Interim Deliverability		Partial Deliverability		Energy Only		Total	
Fuel Type	NDC	NQC	NDC	NQC	NDC	NQC	NDC	NQC	NDC	NQC
Battery	7,062	6,986	2,886	2,811	476	325	84	0	10,507	10,122
Biogas	232	170	0	0	0	0	19	0	251	170
Biomass	421	324	0	0	0	0	5	0	426	324
Distillate	110	110	0	0	0	0	0	0	110	110
Geothermal	1,297	1,155	0	0	162	102	0	0	1,459	1,257
Hybrid	576	396	1,437	969	8	7	0	0	2,021	1,372
Hydro	9,060	6,449	0	0	2	0	17	0	9,079	6,449
Natural Gas	25,885	24,939	417	414	704	624	4	0	27,010	25,977
Nuclear	2,300	2,280	0	0	0	0	0	0	2,300	2,280
Other	273	26	0	0	0	0	0	0	273	26
Solar	12,106	4,808	2,744	1,029	2,568	547	1,986	0	19,405	6,385
Waste Heat	35	24	0	0	0	0	0	0	35	24
Wind	6,059	1,338	230	57	0	0	6	0	6,295	1,394
Total	65,415	49,005	7,714	5,280	3,920	1,605	2,120	0	79,170	55,891

(Table 1.1, p. 2, Technical Appendix - "Existing resources by fuel type and deliverability status (excludes tie-generators)")

Hydro Generation

Weather conditions such as temperature, cloud cover, and precipitation directly affect system operations by influencing hydro output, renewable generation, and load. The forecasts for summer 2025 indicate above normal temperatures across the Western US. The Intermountain West and Pacific Northwest are most likely to be above average with a risk of heat dome conditions. This has a direct effect on the hydro generation in CA and the Pacific Northwest and the availability of surplus power to export into the CAISO. These weather patterns are expected to lead to below normal runoff volumes, and as a result less hydro generation, in eastern Washington, northern Idaho, and portions of the Upper Columbia River Basin. The National Weather Service's 2025 National Hydrologic Assessment states that a series of atmospheric rivers in December through March led to above normal snow conditions and runoff volumes in southern Oregon and Northern California. However, central California and Nevada should expect near to below normal runoff volumes. Overall, an average water year can be expected in California with the potential for somewhat limited imports from the Pacific Northwest.

For analysis purposes, the CAISO is using an average hydro profile based on the 2018 hydro year in its probabilistic study.



Figure 5: Snow Water Equivalent Percent of Median (NRCS) (NWS)

Stack Analysis of Available CAISO Resources

The CAISO's 2025 summer multi-hour stack analysis evaluates the availability of all Resource Adequacy (RA) eligible resources during peak hours across each summer month. It shows that the system maintains a healthy reserve margin above the 22.67% planning threshold needed to meet reliability standards, even during the most stressed periods. The analysis uses realistic assumptions for each

resource type, including historic wind and solar profiles, battery discharge limits, and demand response availability. September emerges as the most critical month due to high demand and reduced solar output, though the system still maintains adequate surplus. Overall, the analysis confirms that resource availability is sufficient to meet hourly peak loads and reserves throughout the summer, assuming normal operating conditions.



(Figure 1.7, p. 11 – "Multi-hour stack analysis for September peak day")

Valley Clean Energy Summer 2025 Readiness

As part of VCE's risk guidelines, a review of their summer-time energy hedges, RA compliance, and resource status is performed. A short summary of VCE's work in ensuring local and statewide grid reliability is described below.

Energy Hedging

VCE utilizes a programmatic approach to hedging that incrementally fills energy deficits through bilateral procurement from market counterparties. The program is designed to ensure VCE is appropriately hedged to levels set in VCE's energy risk management policy for summer periods prior to the onset. This approach means that VCE's exposure to volatile energy prices that may occur during summer heat events is significantly mitigated. Care is taken to ensure load variation is accounted for when determining the appropriate hedge volumes. As of early June 2025, VCE has met all of its targeted procurement of energy hedges for Q3 2025, with more than the minimum 80% and less than the maximum 130% of its expected load contracted for in all months of Q3. VCE's average around the clock hedge percentage in Q3 2025 is 94%. The chart below shows VCE's Peak Q3 energy position:



Note: HLH in the figure refers to heavy load hours, defined as Monday through Saturday, hour ending 0700 through hour ending 2200.

Resource Adequacy

VCE actively monitors its resource adequacy position (RA) and pursues forward procurement of RA-only products or generation resources through Power Purchase Agreements (PPAs) to meet its assigned RA obligations. Like many similarly situated entities, VCE has been historically impacted by delays in the online date of resources that has made RA position management challenging. Further complicating this matter has been the extreme illiquidity in RA markets, which are opaque and require a combination of both formal and informal solicitation approaches to secure this product. However, due to VCE's initiative entering into long term PPAs with a number of renewable developers, the portfolio is well situated for the coming years. VCE is fully compliant and has met its Resource Adequacy Requirements for Summer 2025 and the rest of the calendar year.

New Resources

VCE continues to pursue new clean capacity resources and has approximately 30 MW of new capacity resources in development that it has contracted for. While different types of new resources provide different degrees of carrying capacity on the grid, VCE's goals for resource procurement will provide it with a substantial amount of clean energy in the years to come. This will not only provide support to the power grid, but will also reduce costs to VCE.

Existing Resources

The majority of VCE's existing fleet of resources are expected to provide summer energy and capacity. VCE has long term Power Purchase Agreements in place for approximately 300 MW of solar and storage resources. These contracts put VCE in a very stable position to meet its own RA requirements as well as

sell surplus into the market to offset costs. VCE also contracts for resource adequacy from energy storage and demand response resources that help to ensure grid reliability during critical periods.

Public Safety Power Shutoffs

VCE staff has developed protocols regarding communication with its scheduling coordinator, TEA, as well as with PG&E in anticipation of PSPS events that may impact the region.

Volatile Incoming Pricing Event Response (VIPER)

TEA and VCE staff have developed protocols regarding communication and consideration of additional market activity to reduce VCE's financial exposure in the case of anticipated high price events due to high temperatures and high loads or other events that may lead to high prices in CAISO and the Western markets.