



**Valley Clean Energy Special CAC Meeting – July 23, 2020
Via Teleconference**

Item 7 – Overview of committee meeting procedures



Public Comments

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Item 7 – Overview of committee meeting procedures

- Committee meetings run smoothly and efficiently when rules of procedures are followed
- The Brown Act is designed to ensure that meetings are conducted in an open and fair manner
- Quorum: a majority of its members
 - CAC consists of 12 seats = 7 for a quorum
 - Once a quorum is established, action / voting on matters can occur
 - Note: when communicating via e-mail be cognizant of subject matter and “reply to all” as this may constitute the committee taking action if there is a quorum of members in the e-mail chain

Item 7 – Overview of committee meeting procedures

- Public comment is permitted on all agenda items whether or not the items are discussed or acted upon by the Committee
- Agenda items: Staff works with the Chair and Vice Chair on drafting an agenda.
 - Suggestions on future agenda items are always welcomed via e-mail or at a prior month's meeting
 - *Consent* agenda item(s) are usually approved in one motion, but an item can be requested to be removed and placed on the regular agenda by a CAC Member
 - *Regular* agenda item(s) are considered individually

Item 7 – Overview of committee meeting procedures

- Motions

- “Regular” motions – any member may offer a motion and a second. The motion is discussed where a member may voice their views of the motion, including whether they support or oppose. , then voted on to either support, oppose, or abstain.
 - If a Member wishes to suggest amending the motion, the Member who made the original motion and the seconder must agree to the amendment
 - If a motion fails, a member may make a new motion

Item 7 – Overview of committee meeting procedures

- “Substitute motions – if a motion is on the “table” and a member believes a different approach is better (that cannot be handled by an amendment or by waiting to see if the main motion fails), a substitute motion can be made and seconded
 - The substitute motion will be handled first before the main (original) motion
 - The substitute motion will be discussed, with a public comment period followed by a vote
 - If a substitute motion passes, the main motion becomes moot

Item 7 – Overview of committee meeting procedures

- Motion to Withdraw or Reconsider – a motion to withdraw a motion can only be made by the Member who made the motion.
 - Note: a motion to reconsider a vote can only be made by a Member who voted with the majority and must be made at the same meeting as the original motion and vote.
- Voting – action items require a majority of the members present and voting aye to pass or fail.

Questions?



**Valley Clean Energy Special CAC Meeting – July 23, 2020
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Item 8 – IRP Update and Board Recommendations



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Item 8 – IRP Update: Objective – Provide information on IRP and recommended portfolios

- Proposed IRP portfolios
- Action plan
- Staff recommendations

Item 8 – IRP Update: 2020 Integrated Resource Plan Time Line

| Approximate timing | Activity |
|--------------------|--|
| September 20, 2019 | CPUC staff release proposed data and requirements for 2020 filing |
| October 8, 2019 | CPUC release of preliminary RESOLVE Reference System Portfolio |
| November 6, 2019 | CPUC formal release of Reference System Plan |
| November 7, 2019 | CPUC Final IRP Procurement Decision (D.19-11-016) |
| December 9, 2019 | VCE IRP Workshop (Stakeholder meeting) |
| February, 2020 | CPUC Proposed IRP Decision and Reference System Plan (Revised in March) |
| March 26, 2020 | CPUC Final IRP decision for 2019-2020 cycle, including Reference System Plan |
| May, 2020 | CPUC release of final templates, tools, and filing instructions |
| May 28, 2020 | VCE CAC workshop with draft IRP portfolios for review and public input |
| June 30, 2020 | Draft IRP report ready |
| July 9, 2020 | VCE Board receive update on draft IRP report |
| July 23, 2020 | VCE CAC receive update on draft IRP and make recommendation to Board |
| August 13, 2020 | VCE Board receive CAC's recommendation and adopt IRP |
| September 1, 2020 | CPUC IRP filing due |

Item 8 – IRP Update: Portfolio Alternatives Considered

- Selection of portfolios based on current VCE procurement efforts as well as legislative and regulatory requirements
- Two portfolios are considered – the minimum mandated by the CPUC, each calibrated to a specific 2030 carbon emissions target set by the CPUC
- Resources in portfolio selected so as not to exceed VCE’s “fair share” of available resource potential for each technology

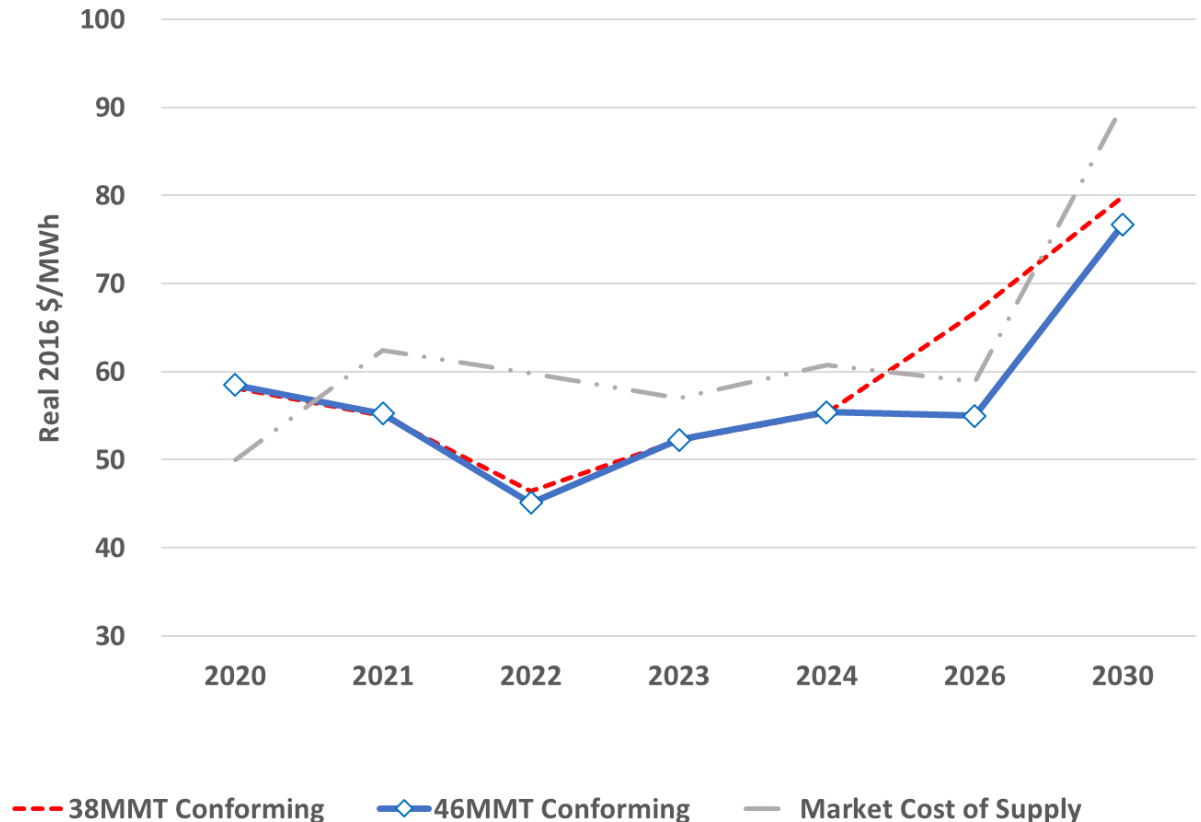
| Portfolio | Key Features |
|---|---|
| Conforming 46MMT Portfolio (CPUC Required and Recommended) | <ul style="list-style-type: none"> • Seeks balanced wind + solar + storage portfolio • Meets CPUC target of 135,000 metric tons of CO2 emissions in 2030 • Delivers 75+% RPS by 2030 and a nearly 85% carbon-free mix by 2030 • Consistent with CPUC’s “Reference System Portfolio” |
| 38 MMT Portfolio (CPUC Required) | <ul style="list-style-type: none"> • Similar to 46MMT Portfolio but tuned to 108,000 tons of CO2 emissions by 2030 by using more wind, solar, battery storage and large scale hydro • Delivers 75+% RPS by 2030 and a nearly 88% carbon-free mix by 2030 • Consistent with the CPUC’s “38MMT Scenario” |

Item 8 – IRP Update: Proposed Portfolios (MW of Rated Capacity)

| | 46MMT (Recommended) | | | | | | | 38 MMT | |
|---|---------------------|------|------|------|------|------|------|-------------------------------|------|
| | 2020 | 2021 | 2022 | 2023 | 2024 | 2026 | 2030 | 2020-2026 | 2030 |
| Contracted Resources (As of July 2020) | | | | | | | | | |
| New Solar PV | | 122 | 122 | 122 | 122 | 122 | 122 | | 122 |
| Small-Scale Hydro | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | | | | |
| Planned Resources | | | | | | | | | |
| New Wind | | | | | | 20 | 41 | Same as 46MMT Portfolio | 50 |
| New Solar PV | | | | | | | | | |
| New Local Solar | | | | 20 | 20 | 20 | 53 | | 53 |
| New 4-hour Li-Ion Battery | | 7 | 7 | 7 | 7 | 15 | 50 | | 80 |
| Small-Scale Hydro | | | | | | 0.7 | 0.7 | | 0.7 |
| Large Scale Hydro | | | | | | 20 | 20 | | 34 |
| BTM Solar | 47 | 60 | 68 | 74 | 80 | 89 | 109 | | 109 |

Item 8 – IRP Update: Portfolio All-in Cost for Electricity (\$/MWh)

- Portfolios identical until after 2026
- 38MMT portfolio more costly due to combination of higher market price trajectory and additional contracted resources to lower GHG emissions
- VCE's resource portfolios expected to have lower costs than a pure short term market portfolio as a result of renewable energy contracting



Item 8 – IRP Update: Proposed Action Plan

2020 -2021

- Complete 2020 RFOs for local capacity and RA
- Conclude RFI for long term storage (with other CCAs)
- Monitor progress of new solar projects to ensure planned CODs are met

2022-2024

- Conduct RFO for renewable energy and storage to come online in the 2025-2027 period
- Monitor RPS performance and adjust short term procurement if needed

2025-2030

- Conduct RFO for renewable energy and storage come online in the 2028-2030 period
- Consider contracting for large-scale hydro resources to ensure carbon targets are met

Item 8 – IRP Update: Recommendations

- Recommend adoption of IRP report and supporting documentation with the Conforming 46MMT selected as Preferred Portfolio
- 38MMT portfolio is mandatory to submit but is not the recommended path
- Recommend to submit only the minimal number of portfolios to avoid additional work on IRP procurement plans and RPS plans
- Wind and biomass/geothermal resources are likely harder to find in the market and takes longer to develop with higher risks of delay compared to solar PV
- Wind resources in 2026-2027 may be challenging to secure due to resource limitations but the proposed capacity is consistent with VCE's share of CAISO-wide load
- The IRP is necessarily uncertain and somewhat hypothetical - actual portfolio will depend on the responses received in future RFOs

Questions?



Valley Clean Energy CAC Meeting – July 23, 2020 Via Teleconference

Item 9 – Discussion: Local Renewable Technologies



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Item 9 – Discussion: Local Renewable Technologies

- **Behind-the-meter (BTM)**



Examples of BTM installations:

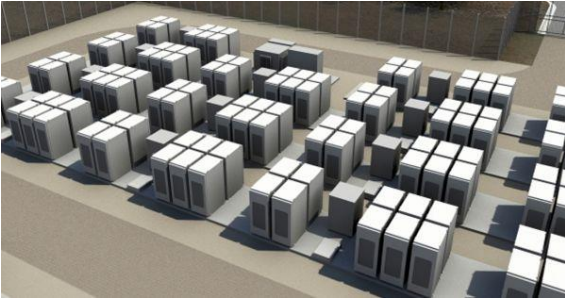
- **Rooftop solar**
- **Battery storage (BESS)**
- **Electric vehicle charging**
- **etc**

Item 9 – Discussion: Local Renewable Technologies – BTM Applications

- **In addition to self-supplying energy, BTM installations may address one or more of the following:**
 - **Demand-charge reduction**
 - **Backup**
 - **Time-of-use energy arbitrage**
- **Many installations utilize LSE programs and/or financial incentives**

Item 9 – Discussion: Local Renewable Technologies

- **Front of-the-meter (FOM) or utility-scale**



Examples of FOM installations:

- **Photovoltaic (PV); also can incorporate BESS**
- **Wind**
- **Geothermal**
- **Biomass**
- **Energy storage**
- **Small hydro**

Item 9 – Discussion: Local Renewable Technologies – FOM technologies

- **Photovoltaic**

- Intermittent resource.
- Fixed systems are angled for optimum production, while single-axis tracking (SAT) systems rotate to follow the sun from east to west. SAT energy output is approximately 25% more than a fixed system.
 - SAT systems increase the value of the energy delivered, as a portion of that additional output is in the late-afternoon hours when load is at its peak
 - SAT price typically > Fixed systems
- Contracts are typically “must-take” \$/MWh

Item 9 – Discussion: Local Renewable Technologies – FOM technologies

- **Photovoltaic with storage (PVS)**
- PV systems can be directly paired with energy storage systems such as batteries to increase dispatchability and dependable capacity to the grid.
- Greater efficiencies are possible with paired systems than with separate PV and storage systems.
- Charging the batteries exclusively with solar energy for the first five years enables them to receive the same Investment Tax Credit (ITC) as solar generation
- Typical systems are priced with an energy component (\$/MWh) + a capacity payment (\$/Kw-mo)

Item 9 – Discussion: Local Renewable Technologies – FOM technologies

- **Wind**

- Like other renewable energy resources, the primary challenge of wind energy is its variable generation, depending on the region.
- The typical profile of certain regions may align nicely with VCE’s load shape which has more value to VCE than a non-coincident shape.
- However, energy storage projects can allow this technology to integrate into the portfolio.
- Production tax credit (PTC) expires at the end of 2020.
- Contracts are typically “must-take” \$/MWh

Item 9 – Discussion: Local Renewable Technologies – FOM technologies

- **Geothermal**
- Geothermal energy provides carbon-free baseload power.
- New geothermal construction is very costly and tends to be more expensive than other renewable alternatives.
- Nearby counties have existing geothermal resources

Item 9 – Discussion: Local Renewable Technologies – FOM technologies

- **Biomass**

- Although biomass facilities utilize a combustion process that emits CO₂, they are widely considered “carbon neutral”.
- Biomass fuels are primarily wood or wood byproducts. However, they can include dried municipal solid wastes, feedlot and dairy manure, crop wastes and sewage digester sludge.
- The majority of biomass electricity is generated today using a steam cycle where the biomass is burned in a boiler to produce steam.
- Most biomass facilities are considered “baseload”.
- Costs are greatly impacted by the transportation cost of the fuel to the facility.

Item 9 – Discussion: Local Renewable Technologies – FOM technologies

- **Energy storage**
- Critical technology to completely achieving a clean energy future.
- Increases the value of renewable resources while improving grid reliability and stability.
- Storage addresses the PV versus demand misalignment by harvesting the solar energy that is produced during midday hours and then dispatching it in the evening during peak customer demand.
- Many types of energy storage that are at different stages of maturity, have different use cases, and significantly different cost projections:
 - Batteries (Lithium-ion, flow, molten salt, lead-acid, zinc-air)
 - Compressed-air energy storage (CAES)
 - Pumped Storage
 - Flywheels
 - Concrete gravitational potential energy storage

Item 9 – Discussion: Local Renewable Technologies – FOM technologies

- **Small hydro**

- Existing resource that has varying production characteristics.
 - Depending on the source the energy output profile can be variable
- Minimal, if any, new facilities being constructed
- Counts towards RPS
- Potential that PG&E and the CPUC reactivate the REMAT program
 - Renewable Market Adjusting Tariff
 - Targets small renewable installations
 - Feed in tariff type program that offered attractive pricing for the resource
 - Depending on tariff incentive, may present challenges for VCE to sign deals for small hydro as it would be more advantageous for the facility to contract through the REMAT program.

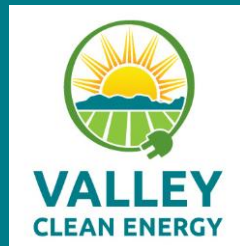
Item 9 – Discussion: Local Renewable Technologies – Questions

QUESTIONS ??????



Valley Clean Energy CAC Meeting – July 23, 2020 Via Teleconference

Item 10 – Update: Resource Procurement Activity



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Item 10 – Update: Resource Procurement Activity - Background

- **April 2020 VCE issued two solicitations**
 - Local renewable RFO (April 20th)
 - Joint solicitation with Redwood Coast Energy Authority (RCEA) for Incremental Resource Adequacy (RA) (April 28th)
- **June 2020 Joint CCA Request for Information (RFI)**
 - VCE joined with 13 other CCAs and issued an RFI on Long-Duration Storage (June 3rd)

Item 10 – Update: Resource Procurement Activity - Background

- **Local renewable RFO**

- VCE Board approval April 9, 2020
- 2019 RPS Plan: “VCE plans to establish an open solicitation for local renewables in the first quarter of 2020 in order to supply up to 25% of its targeted 2030 renewable goal of 80%.”

- **Incremental RA**

- VCE partnered with a similar sized CCA in RCEA

| Procurement year (online by August 1) | 2021 | 2022 | 2023 |
|--|-------------|-------------|-------------|
| Percent of obligation required by year | 50% | 75% | 100% |
| RCEA cumulative obligation (MW) | 5.4 | 8.0 | 10.7 |
| VCE cumulative obligation (MW) | 6.3 | 9.4 | 12.6 |

*Incremental RA RFO was issued to meet the obligations set forth in CPUC D.10-11-016

Item 10 – Update: Resource Procurement Activity – Timeline

| Item | Local RFO | Incremental RA RFO |
|--|----------------|--------------------------------------|
| RFO issuance and Q&A open | April 20, 2020 | April 28, 2020 |
| Deadline to submit Q&A | May 15, 2020 | May 5, 2020 |
| Deadline to submit Notice of Intent to Bid | May 20, 2020 | N/A |
| Deadline to submit RFO Proposals at 5:00pm PT | May 26, 2020 | May 15, 2020 |
| Bidders notified of shortlist status | July 13, 2020 | Week May 25 th |
| Complete Power Purchase Agreement (PPA) negotiations | Sept 30, 2020 | Late May – Mid July |
| Award contracts / Approvals | Q4 2020 | August 27 (RCEA) and August 13 (VCE) |

Item 10 – Update: Resource Procurement Activity – Response Summary

| | Local RFO (5/26/2020) | Incremental RA (5/15/2020) |
|-------------------------|--|---|
| Bidders | 12 | 6 |
| Proposals | 31 | 14 |
| Technology types | PV, PV + Storage (BESS), Geothermal, Hybrid (combination of wind, PV and BESS) | Demand response, rooftop PV +BESS, Stand-alone BESS |
| Counties | Colusa, Lake, Solano, Yolo | N/A |

Item 10 – Update: Resource Procurement Activity – Current Status

- **Staff evaluated Local RFO response and arrived at a short-list in mid-July.**
- **Scored 50% quantitative, 50% qualitative**
- **Qualitative factors weighted**
 - **Region, finance plan & project team experience, existing land use & permitting status, interconnection status, and multi-use land benefits**
- **6 Bidders shortlisted**
 - **4 Yolo, 1 Lake & 1 Solano county**
 - **Commercial Operation Dates (COD) range from 9/21 – 12/23**
 - **Technologies: Photovoltaic+storage, geothermal & hybrid (PV, storage, wind)**
- **Next step: Staff to conduct meetings with each shortlisted bidder**

Item 10 – Update: Resource Procurement Activity – Current Status

• Incremental RA RFO

- Shortlisted four entities; currently negotiating with two entities on final agreements
- **Project #1:** Approx 7 MW of demand response aggregation to meet 2021 obligation
- Counterparty has already installed and registered with the California Independent System Operator (CAISO) the customer meters that make up their offered capacity
- Majority of customers enrolled are residential, but the bulk of the capacity comes from commercial
- Types of loads that are aggregated are smart thermostats, commercial HVAC, energy storage, EV charging, agricultural pumping, municipal water pumping

Item 10 – Update: Resource Procurement Activity – Current Status

• Incremental RA RFO

- **Project #2:** 2.5 MW battery energy storage system (BESS) to meet 2022 obligation
- This BESS will be built in Sutter County and will contribute local benefits to that and neighboring communities through property taxes and a local hiring program at prevailing wages
- 5MW total project size (50% VCE / 50% RCEA)
- 2023 Incremental RA obligation will be met with other long-term PPA projects (local RFO projects and/or Aquamarine PPA)

Item 10 – Update: Resource Procurement Activity – Joint CCA RFI – Background / Next Steps

- **Joint CCAs: CPA, CPSF, EBCE, MCE, MBCP, PCE, Pioneer, RCEA, SJCE, SVCE, SCP, VCE, WCE**
 - **Eligibility:** energy storage technologies that 1) can discharge at full capacity for a period of eight hours or more, 2) are or would be interconnected to the transmission or distribution system within the CAISO territory, and 3) meet the minimum CPUC and CAISO requirements for participation in the state’s RA program
 - **Goals:** 1) Collect information that may inform a subsequent long-duration storage request for offers, 2) Inform the Joint CCAs in their long-term resource planning, including identifying candidate resources for the long-duration storage need identified in the 2019-2020 Reference System Plan
 - **Next step:** Joint CCAs meeting 7/24 to review material

Item 10 – Update: Resource Procurement Activity – Joint CCA RFI – Current Status

QUESTIONS ??????



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Item 12 – Update: Strategic Planning Process



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Item 12 – Update: VCE Strategic Planning Process

- February 2020 – Board adopts Strategic Planning Process for mid-2020 consideration of Draft Plan
- March 2020 - COVID disrupts planning process
- July 2020 – Board directs modified process and scope
- July through Sept. – Draft Plan Development
 - Board Subcommittee – guidance/direction on development of draft plan
 - CAC Task Group – review of draft plan
 - Worksheet and interviews with Board and CAC members
- Goal: Adoption of VCE 3 yr Strategic Plan in October 2020

Item 12 – Update: VCE Strategic Planning Process

| Date | Meeting/Milestone | Purpose |
|----------------------|-------------------|--|
| 7/9/20 - completed | Board | Revised development process and timeline |
| 7/23/20 | CAC | Process update |
| Mid/Late July | Milestone | Complete Strategic Plan Worksheet Analysis |
| Late July/Early Aug. | Milestone | Conduct feedback interviews with Board and CAC members |
| 8/13/20 | Board | Progress update; report on draft plan |
| 8/27/20 | CAC | Progress update; Taskgroup report on draft plan |
| Late August | Milestone | Complete initial draft plan |
| 9/10/20 | Board | Review/provide direction on draft plan |
| 9/24/20 | CAC | Recommendation on draft plan |
| 10/8/20 | Board | Consider adoption of draft plan |