Valley Clean Energy Alliance (VCEA)
Community Advisory Committee (CAC) Meeting
Monday, July 2, 2018
5:30 P.M.
Yolo County Dept. of Community Services, Cache Creek Room, 292 W. Beamer St., Woodland, CA 95695

Meetings are accessible to people with disabilities. Individuals who need special assistance or a disability-related modification or accommodation to participate in this meeting, or who have a disability and wish to request an alternative format for the meeting materials, should contact Alisa Lembke, VCEA Board Clerk/Administrative Analyst, at least two (2) working days before the meeting at (530) 446-2754 or Alisa.Lembke@ValleyCleanEnergy.org.

If you have anything that you wish to be distributed to the Board and included in the official record, please hand it to a member of VCEA staff who will distribute the information to the Board members and other staff.

Committee Members:
Gerry Braun (Chair), Christine Shewmaker (Vice-Chair), Marsha Baird (Secretary), Mark Aulman, Tom Flynn, Yvonne Hunter, Lorenzo Kristov, David Springer

5:30 P.M. CALL TO ORDER

1. **Welcome and Roll Call**
2. **Approval of Agenda**
3. **Public Comment**

This item is reserved for persons wishing to address the Advisory Committee on any VCEA-related matters that are not otherwise on this meeting agenda. Public comments on matters listed on the agenda shall be heard at the time the matter is called. As with all public comment, members of the public who wish to address the Committee are customarily limited to two minutes per speaker, but an extension can be provided at the discretion of the Chair.

4. Brief VCEA Staff and Advisory Task Group Reports

Representatives of VCEA staff and active Task Groups will provide updates on on-going work. Task Group recommendations requiring Committee attention require a regular agenda item. Summaries of written reports received by the Committee in advance of the meeting will receive a time allocation of up to ten minutes. Otherwise, the time allocation will be five minutes, including questions and answers. The Committee may decide to allocate additional time at the end of the regular agenda.

CONSENT AGENDA

5. Approval of Minutes from May 30, 2018 Committee Meeting

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REGULAR AGENDA

6. **Long Range Calendar - Request to reschedule Monday, September 3, 2018 (Labor Day Holiday) CAC meeting (Action)**

7. **Net Energy Metering (NEM) Policy - Outline solution concept and request for CAC recommendation on amending current NEM policy to postpone NEM Customers' enrollment until 2019**

8. **Integrated Resource Plan (IRP) - Review and recommend a final draft IRP to the VCEA Board of Directors for final IRP adoption and submittal to the California Public Utilities Commission by August 1, 2018 (Action)**

9. **CAC Legislative/Regulatory Task Group Summary and Recommendation on Assembly Bill 813 and Senate Bill 100 – Request to review Task Group summary report and make a position recommendation on both bills to the VCEA Board of Directors (Action)**

10. **Advisory Committee Member and Staff Announcements**

Action items and reports from members of the Advisory Committee, including announcements, future agenda items, and reports on meetings and information which would be of interest to the Committee or the public.

The **next CAC meeting** is scheduled for **Monday, July 30, 2018** at 5:30 p.m. at the Davis Senior Center located at 646 "A" Street, Davis, CA 95616.

The next *VCEA Board* meeting is scheduled for Thursday, July 12, 2018 at 5:30 p.m. at Woodland City Council Chambers, located on the 2nd Floor at 300 1st Street, Woodland, CA 95695.

11. **Adjournment (Approximately 7:30 p.m.)**

Public records that relate to any item on the open session agenda for a regular board meeting are available for public inspection. Those records that are distributed less than 72 hours prior to the meeting are available for public inspection at the same time they are distributed to all members, or a majority of the members of the Board. VCEA public records are available for inspection by contacting Board Clerk Alisa Lembke at (530) 446-2750 or Alisa.Lembke@ValleyCleanEnergy.org. Agendas and Board meeting materials can be inspected at VCEA's offices located at 604 2nd Street, Davis, California 95616; those interested in inspecting these materials are asked to call (530) 446-2750 to make arrangements. Documents are also available on the Valley Clean Energy website located at: www.ValleyCleanEnergy.org.

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VALLEY CLEAN ENERGY ALLIANCE
COMMUNITY ADVISORY COMMITTEE

Staff Report Item - 5

TO: VCEA Community Advisory Committee

FROM: Mitch Sears, Interim General Manager

SUBJECT: CAC Minutes of May 30, 2018 Meeting

DATE: July 2, 2018

Recommendation

Receive and approve the minutes from the May 30, 2018 CAC meeting.

MINUTES OF THE VALLEY CLEAN ENERGY ALLIANCE

COMMUNITY ADVISORY COMMITTEE

Wednesday, May 30, 2018

Chairperson Gerry Braun opened the Community Advisory Committee of the Valley Clean Energy Alliance in regular session beginning at 5:36 p.m. in the Davis Senior Center, located at 646 "A" Street, Davis, CA 95616.

Welcome and Roll Call

Committee Members Present: Gerry Braun (Chair), Christine Shewmaker (Vice-Chair), Mark Aulman, Tom Flynn, David Springer, Marsha Baird (Secretary), Yvonne Hunter, and Lorenzo Kristov

Committee Members Absent: None

Approval of Agenda

Y. Hunter moved, seconded by M. Aulman to approve the agenda. Motion passed by the following vote:

AYES: Braun, Shewmaker, Aulman, Flynn, Springer, Baird, Hunter, Kristov
NOES: None
ABSENT: None
ABSTAIN: None

Public Comment

Chairman Braun opened it up for public comment. A person from the public, who is a volunteer for UC Davis Energy Center, and now works as an independent consultant, will be more engaged in VCEA.

Mr. Kristov commented that a future agenda item for the CAC to discuss are those current customers that are participating in 3rd party demand response (home connect). No structure is in place such as this with VCEA, so the transition needs to be discussed to offer this to the customers. This is a deficiency within all CCA's. Ms. Hunter asked if the only way to resolve this issue is through legislation? Mr. Kristov answered by saying that he did not think so, but rather VCE should come up with a similar contract. Ms. Hunter's thought was that possibly CCA could come up with a contract/agreement template.

Chairperson Braun asked for a Staff update. Mr. Sears announced that he has asked SMUD technical, Lean Energy and other CCAs how they have handled 3rd party demand response questions and issues. Currently, Mr. Sears does not know the scope of the number of customers this effect.

Legislative and Regulatory Task Group: Ms. Hunter stated that Shawn Marshall of Lean Energy listed the bills at the last CAC meeting of what bills CCA is following and what Cal CCA's point of view/approach is on those bills. She said that there is a summary available, but it does not give CCAs opinion on each at this point – there were several bills that were "opposed unless amended". So, they wait till all opinions come out. There are other bills moving forward and the Task Group will keep the other members of the CAC apprised of what those are. Chairperson Braun asked if the Task Group have met in person. Ms. Hunter said they have not but have been communicating through e-mails. Ms. Shewmaker informed those present that she has seen copies of letters on the internet from Cal CCA stating their opinions, but we (CAC) can't have them? Mr. Sears commented that Cal CCA is trying to position and organize themselves with an approach with the minute by minute changes in legislation. If there are letters available to the public on the internet, then it is okay to have them.

Mr. Kristov commented that there is a hot item in front of the CPUC regarding regulatory adequacy - Phase 2 will be addressing procurement and hearings on this subject start soon. Mr. Kristov informed those present that Cal CCA has asked him to provide expert testimony at the CPUC hearings. He would like to meet with the Task Group soon, then at the CAC July 2nd meeting he can provide the status of his testimony and how it is going. Mr. Kristov stated that Cal CCA is trying to offer solutions as their strategy. Mr. Sears agrees that Cal CCA is approaching with solutions rather than firm opposition.

Mr. Aulman asked how the revisions to the website were coming along? Ms. Hunter reviewed the VCEA website for completion, accuracy and clarity. Ms. Hunter says that it is a group process and that she has met with VCEA Staff Member Jim Parks on the proposed revisions. Ms. Shewmaker provided her opinion that the VCEA website needs to change as it is not user friendly and some of the information is not accurate. Ms. Hunter would like to see the revisions and updates be combined with the result being captured in a new pamphlet. Mr. Springer asked if the information on the website came from CirclePoint? Ms. Hunter said that it appears that it did. Mr. Sears reassured those present that the information on the VCEA website and postcard mailers is accurate.

There were no further comments from the public.

Approval of April 26, 2018 Committee Meeting Minutes – IRP Workshop

Mr. Aulman moved, seconded by Mr. Springer to approve the April 26, 2018 Committee meeting minutes. Motion passed by the following vote:

AYES: Braun, Shewmaker, Aulman, Flynn, Springer
NOES: None
ABSENT: None
ABSTAIN: Kristov, Hunter, Baird

Million LED Lamp Challenge (Informational)

Professor and Director Michael Siminovitch of the UC Davis California Lighting Technology Center presented information on the Million LED Lamp Challenge. A brief slide presentation was provided which highlighted the program of establishing quality-based standards for lighting inside structures, so one specification that all lighting must meet. It is a statewide alliance of colleges and other Agencies. When the Request for Proposals went out, 20 companies responded. The objectives were to: 1) develop performance specifications, 2) establish a MLC program and 3) have a two-phase implementation approach. They looked at all aspects of a light bulb: color, shadow, strength, length of bulb, etc. As a result, performance specifications were developed and adopted.

Question from Public:

What percentage of California is lighting? Answer: Depends on the building type and operating under – applies to all facilities/homes.

Is there a requirement to list on the bulb information/labeling? Answer: Currently not, but it is forthcoming.

Was the RFP solicitation for the bulb or specifications? Answer: Specifications - one vendor was selected for this round, but each year they will have to go out to RFP.

LED only? Answer: yes, only LED lighting.

How can a CCA help? Via customers? Or? Answer: websites have information and are helpful especially while moving into the customer side. So, yes, CCA's can put it on their website, through a link with quality information.

Ms. Hunter offered to connect Mr. Siminovitch to a few government entities.

Integrated Resource Plan (IRP) Provide Feedback on Draft Integrated Resource Plan

Gary Lawson and Olof Bystrom of SMUD each introduced themselves. Mr. Lawson reminded the Board Members that the IRP is due August 1st. SMUD met with CAC at the end of May and will provide a draft IRP and their recommendation to the CAC's July meeting. He asked that the CAC give thought as to what needs to be answered and/or done for the CAC to make a recommendation to the Board. Mr. Sears reminded those present that this is the third time the CAC has addressed a draft IRP and now things are coming into sharper focus. He stated that tonight the Board will assist the CAC in digging deeper and setting the stage for the CAC to make their recommendation to the Board at their July meeting.

Mr. Bystrom provided a brief recap of the CAC workshop and the last CAC meeting. He provided a few size reference maps. (Slide 3) UC Davis Rooftop Solar at Winery, Brewery and Food Science Laboratory with 756 Kw capacity. Ms. Hunter asked what size would you call this? Mr. Bystrom indicated small megawatt production of 1 megawatt (MW) and up, economies of scale. (Slide 4) City of Woodland Police Department rooftop and parking lot solar with a .45 MW capacity. (Slides 5 and 6) SMUD feed-in-tariff utility scale solar with 10 MW capacity over 128 acres and 18 MW capacity over 160 acres. Per Mr. Lawson, this was completed in 2012. Mr. Sears stated that for comparison, the Cannery is over 100 acres. Ms. Shewmaker asked how many would you need? Mr. Bystrom answered 30. Mr. Kristov asked if more electricity is generated if facing north-south? Mr. Bystrom answered yes. (Slide 7) Antelope Valley Solar Ranch with the capacity of 230 MW spread over 2,100 acres - very large scale (Edison territory, but Cal ISO territory).

Mr. Bystrom reviewed Slide 9 - IRP Resources Portfolio Alternatives and made the following comments on each portfolio:

Base: meets minimum requirements, but the 75% carbon free remains throughout until 2030. Mr. Flynn asked how well does the base meet or line up with the climate action plans adopted by VCEA jurisdictions? Mr. Bystrom explained that all IRP scenarios presented today will meet or exceed the various climate action plan objectives.

Cleaner Base: a little more ambitious in the Renewable Portfolio Standard (RPS) and carbon free, with carbon free being present through 2030. Ms. Shewmaker asked if this was affordable and available? Mr. Bystrom answered yes, that is the assumption.

Cleaner VCEA: Similar to the Cleaner Base scenario with respect to the resource choice, RPS level and carbon free content but using VCEA's load forecast rather than the IEPR. Mr. Kristov asked if the load forecasting was the main difference between this scenario and Cleaner Base? Mr. Bystrom answered yes, this is a non-conforming forecast in terms of CPUC requirements.

Mr. Braun asked what are the benchmarks that must be met? Mr. Bystrom answered that one of them is the greenhouse gas benchmark which is based on VCEA's share of the total expected greenhouse gas emissions in 2030 - 129,000 tons.
Mr. Braun stated that when looking at 2030, where large hydro is not increasing, this appears to be Carbon Free modeling in 2030, which in his opinion is not feasible.

Possibly, the CAC should look at the scenario. Ms. Shewmaker stated that shifting resources is not good. Mr. Flynn commented that it appears that VCEA would be utilizing more hydro in the future than what we use today. Mr. Kristov asked if we would be importing it? Mr. Flynn said yes.

Clean Local:

Mr. Bystrom reviewed Slide 10 - Resource Portfolio Renewables, which shows resource renewables for each of the portfolios (Base, Cleaner Base, Clean Local and Cleaner VCEA). Ms. Hunter asked if the CAC chooses one portfolio or do we do a range? Mr. Bystrom suggested that the Board should choose preferred and alternative portfolios, but at a minimum one portfolio that meets the requirements. Ms. Hunter commented that it is her understanding that VCEA's IRP is not set in stone. Mr. Bystrom stated that is correct and can be adjusted, at a minimum every 2 years. Mr. Lawson also stated that yes at that point time, we will have more information about procurement and costs, to make changes. Mr. Bystrom also stated that VCEA will also have other CCA's IRPs for reference since the IRPs are public documents.

Mr. Flynn asked if local meant small scale? Mr. Bystrom answered, yes – such as parking lots, small ag fields, not behind the meter. One of the main considerations is cost. Mr. Braun asked why "behind the meter" is 0? Mr. Bystrom stated that they start at 0, then in 2022 39 solar MW. Mr. Braun asked exiting behind the meter? Mr. Bystrom answered yes, residential and business already installed. Mr. Braun commented that incremental adjustment could potentially be achieved.

Mr. Kristov asked about geothermal - is that all new construction? Mr. Bystrom answered yes - new capacity for VCEA, but not really whether it is **new** geothermal. He continued to state that wind power in Tehachapi and Solano could be used, but this source is expensive. Mr. Kristov stated that solar is the lowest cost per megawatt - 3 megawatts battery come from CPUC requirements. Mr. Bystrom stated yes - there is a requirement for usage of new battery storage.

Mr. Braun commented about wind: there is an interest by Energy Commission looking at off shore wind, technologies being demonstrated showing that California could have off shore wind power. Thereby, mitigating the cost of wind power on land.

Mr. Bystrom reviewed Slide 11 - Resource Portfolio Generation Mix.

Mr. Bystrom reviewed Slide 13 - Resource Portfolio Capacity at Annual Peak Hour which showed that in 2016 the cost of wholesale energy [electricity, fixed cost (loans), reserve capacity] does not have any transmission or distribution charges because PG&E is required to pay this. The key results are shown in the 2030 Power Cost Breakdown of energy graph on the far right, with being Carbon Free content in 2030.

Mr. Bystrom skipped Slide 14 - Carbon Neutral vs. Carbon Free.

Mr. Bystrom reviewed Slide 15 - Observations & Recommendations. On the left are the observations and to the right shows the recommendations. Ms. Shewmaker asked what do you mean by Carbon neutrality? Mr. Bystrom then referred to Slide 14 - showing hour by hour over a 24-hour period, purchasing in a block, showing the difference between Carbon Neutral and Carbon Free. Mr. Lawson stating that the comparison shows balancing loads with VCEA's needs so, looking at it hour by hour rather than over the course of 24 hours and/or based on your portfolio. Ms. Shewmaker observed that in the long term getting away from using fossil fuels.

Mr. Bystrom continued with his review of costs for renewable energy in Slide 15 - Observations & Recommendations. SMUD's recommendation is leaning towards Cleaner based portfolio, focusing on large scale conventional renewables and be open to local competitive offers. Ms. Shewmaker commented that she is thinking about what it means to be carbon neutral and carbo free - she needs to think about this.

Mr. Braun commented that the environmental effects on where things located are different (such as: local, in the community, ground field sites) and there is a trade off with things elsewhere. All have effects on the environment. Transmission costs and losses on generation expansion - CCAs do not have to worry about this. This does not mean that others who do have to pay attention to this have to pay these costs.

Mr. Flynn asked about the Resource Portfolio on Slide 13, the graph emphasizes function? It appears that it is assuming 36.5 increments for 3 years. Maybe not so ambitious so smooth out the curves. Mr. Bystrom stated that there are many ways to make the curves. Mr. Lawson added that possibly there will be favorable local prices in the procurement process.

Mr. Sears commented that the main slide for the CAC to look at is Slide 15 to fashion a recommendation to the Board.

Integrated Resource Plan (IRP) Prioritization of Action Plan Activities for Years 1-3

Mr. Lawson reminded the CAC that the IRP – Action Plan will be important as it will be VCEA's "deliverable" on how you are going to get to your 2030 goals.

Mr. Braun suggested that the CAC Members go through the listed items understood by the Committee, do an on-line survey for the Committee Members to prioritize, then ask Staff to see if the CAC members are trending in the same direction/consensus.

Mr. Kristov asked what the significance is of the IRP? Mr. Lawson explained that the CPUC wants to know what VCEA's commitment is to achieve your 2030 goals, then the next deliverables will be in the next IRP due in 2 years.

Mr. Lawson reviewed Slides 44-46, which is Staff's prioritization of possible Action Plan Activities. On Slide 47, it lists the logic behind Staff's proposed prioritization.

Mr. Braun asked what does VCEA want to commit to in this "cycle" - can we also do things beyond what is in our Action Plan? Can VCEA look at the IRP that way? Mr. Sears responded with yes, there are basics that need to be in Plan, but "behind the scenes" goals and how to go about accomplishing those goals can certainly be discussed by the CAC and the Board. Mr. Braun suggested that possibly those "outside" goals could be broken down into some business plan years (such as 5, 4, 3) then there are longer term vision goals that do not have to be done by next meeting. To summarize, scoping before resources are being committed or IRP CPUC requirements then outline a VCEA long term process. Mr. Sears suggested that those ideas or approach should be presented to the Board at their June 6th meeting.

Ms. Hunter suggested that the CAC develop long term goals which may include 1st, 2nd or 3rd year actions, but that the CAC should come back to Staff and the Board for suggestions. Ms. Hunter liked the idea of being pre-emptive by looking at a variety of issues, priorities and goals.

Public Comment: A person from the audience suggested that the CAC consider placing in the IRP that the Board will "develop a long-term plan…." or however, they would like to word it.

Mr. Braun supports Staff's recommendation of outlining high operational priority action steps, then identifying the intention to come back to the Board with CAC's long-term goals that will first need to be developed, resolved and planned for, but those goals would not feed into this IPR process. Mr. Sears reiterated that this will set the stage for the next Board meeting whereby the CAC presents a 1-3 year Action Plan and confirms with the Board on whether they agree with the priorities and descriptions suggested.

Recommendation on Suspension of Forward PCC-2 Renewable Procurement

Mr. Lawson reviewed the Staff report with those present asking that the CAC support Staff's recommendation for the Board to adopt a resolution in summary 1) to suspend the current procurement of PCC2 until 2019 pending outcome of the California Energy Commission's effort until we know how it is defined; 2) authorize the General Manager to reactivate PCC2 Renewable procurement should the ruling be favorable as to the treatment of PCC2 power; and, 3) require staff to return for additional authorization in the event that CEC's change in Power Source Disclosure / Power content labeling requirements is not favorable.

Mr. Lawson reviewed the chart on page 59 of the packet showing 2019 carbon footprint and renewable input estimations under current assumptions. He also reviewed the chart on page 60 showing the same estimations but under the proposed report requirements.

Mr. Braun commented that by taking time off from PCC2 procurement, it will give the CAC the opportunity to see how it is generated, in what way, what the environmental impact is, and what are the implications of purchasing PCC2 power. Mr. Sears commented that yes, the VCEA has an environmental and fiduciary duty to look at all aspects of the type of energy procured.

There were no public comments made.

Ms. Hunter moved, seconded by Mr. Flynn to support Staff's recommendation to the Board to suspend the procurement of PCC2 renewables. Motion passed by the following vote:

AYES: Braun, Aulman, Flynn, Springer, Baird, Hunter, Kristov
NOES: None
ABSENT: None
ABSTAIN: Shewmaker

Advisory Committee Member and Staff Announcements

Mr. Sears reminded those present that the VCEA Launch party is this Friday. He stated that the opt out rates was at approximately 2% and or large loads the opting out rate is at about 5.5-6%. He reminded those present that the economic modeling assumed a 10% opt out rate. Mr. Flynn asked if the large was agricultural or residential? Mr. Sears answer with agricultural. Ms. Hunter asked if Staff knew the reason as to why agricultural were opting out. Mr. Sears said that they did not like the automatic opting in. Ms. Hunter asked if Staff can look at the trends as to why they are opting out in the hopes of developing a process to get them back in. Mr. Sears stated that Mr. Parks and Cole were looking into the trends. Mr. Sears continued by stating that there were 28 residential opt ups. Mr. Sears also stated that Mr. Parks was looking at a marketing strategy top address opt outs.

Ms. Hunter announced that Cool Davis hosted a VCEA presentation and there was a good discussion amongst those who attended with the panel of speakers. Ms. Hunter asked Staff if she had heard Davis Councilperson Lucas Frerich correctly when he mentioned that City of Davis is requiring new commercial customers, a hotel she thinks, to opt up. Did she hear this correctly? Mr. Sears answered that she heard correctly, but it was his approach as the Interim General Manager he did not want to mandate customers to opt up but would rather leave this decision up to the customer.

Mr. Lawson announced that this Friday will also be the launch of Indian Valley hydro project.

Ms. Baird asked if VCEA will offer the same PG&E rates. Mr. Lawson stated that VCEA holds all tariffs that PG&E offered.

Mr. Sears thanked Mr. Lawson and the SMUD team for getting Indian Valley hydro, which is not a huge power supplier, but it is local.

Mr. Aulman announced that he would be doing a VCEA presentation on June 6th to the Woodland League of Women Voters. He will need a computer, projector and screen but that Ms. Shewmaker would confirm that they had a screen. He will also need a jump drive (USB port) with the PowerPoint presentation on it. He will be speaking with Jim Parks on the common questions asked.

Next Steps — CAC Members are to go through the listed action plan items and prioritize them, then Staff will look at whether the Members are trending in the same direction/consensus. This information should be presented to the Committee at their July meeting to assist the Committee in making an IRP recommendation to the Board.

Next Meeting — The next CAC meeting is scheduled for Monday, July 2, 2018 at 5:30 p.m. at the Woodland Community & Senior Center located at 2001 East Street, Woodland, CA 95776.

Meeting was adjourned at 8:13 p.m.

Alisa Lembke
Board Clerk/Administrative Analyst

VALLEY CLEAN ENERGY ALLIANCE
COMMUNITY ADVISORY COMMITTEE

Staff Report Item - 6

TO: VCEA Community Advisory Committee

FROM: Mitch Sears, Interim General Manager

SUBJECT: Long Range Calendar

DATE: July 2, 2018

Recommendation

Review and reschedule Monday, September 3, 2018 CAC meeting as September 3rd is a holiday.

It has been suggested that the September meeting be held on Wednesday, August 29th or Thursday, August 30th. Said meeting is to be held in Woodland.

VALLEY CLEAN ENERGY

2018 Meeting Dates and Topics – Board and Community Advisory Committee

MEETING DATE		TOPICS	ACTION
May 10, 2018	**Board** WOODLAND	• Recontracting Master Agreement	• Approve
June 4, 2018	**Advisory Committee** DAVIS	• Integrated Resource Plan	• Informational
June 1, 2018 -- LAUNCH			
June 6, 2018	**Board** DAVIS	• Integrated Resource Plan	• Discussion
July 2, 2018	**Advisory Committee** WOODLAND	• Integrated Resource Plan	• Recommend
July 12, 2018	**Board** WOODLAND	• Integrated Resource Plan	• Approve
July 30, 2018	**Advisory Committee** DAVIS	•	•
August 9, 2018	**Board** DAVIS	•	•
~~September 3, 2018~~ (Holiday) Proposing to meet on (W) 8/29 or (Th) 8/30	**Advisory Committee** WOODLAND	•	•
Sept 13, 2018	**Board** WOODLAND	•	•
October 1, 2018	**Advisory Committee** DAVIS	•	•

October 11, 2018	**Board** DAVIS	•	•
October 29, 2018	**Advisory Committee** WOODLAND	•	•
November 8, 2018	**Board** WOODLAND	•	•
December 3, 2018	**Advisory Committee** DAVIS	•	•
December 13, 2018	Board DAVIS	•	•

VALLEY CLEAN ENERGY ALLIANCE

Staff Report – Item 7

TO: Valley Clean Energy Community Advisory Committee (CAC)

FROM: Mitch Sears, Interim General Manager
Jim Parks, Customer Care Director
Lisa Limcaco, Operations and Finance Director

SUBJECT: Net Energy Metering Policy

DATE: July 2, 2018

RECOMMENDATION

1. Staff is requesting the Community Advisory Committee review proposed recommendations and concept amendments to the existing Net Energy Metering (NEM) policy.
2. Support staff recommendation to postpone enrollment of NEM customers until early 2019 while NEM policy amendments are finalized and associated billing system modifications are completed.

BACKGROUND AND ANALYSIS

The NEM Policy was approved by the VCE Board on February 8, 2018. The policy was developed over a lengthy process that included input from the CAC, the public, SMUD staff and VCE staff. The policy includes incentives designed to increase solar adoption and provide benefits to existing and future NEM customers. Key features of the existing policy include moving from annual billing (PG&E model) to monthly billing (VCE and CCA model), and moving all true-up dates to the month of April. The existing NEM policy closely follows the policies of other CCAs.

A local solar contractor identified an issue where over half of existing NEM customers are likely to pay more during their first year of service with VCE compared to their annual true-up with PG&E. This is due to the consolidated VCE true-up in April. After the first year of payments, customers would be on a cycle that closely mimics their annual cycle with PG&E, but they would not recover the additional payments made during the first year within a reasonable timeframe, even with VCE incentives.

Even though the contractor supports VCE, he has recommended that his NEM customers opt-out of VCE to avoid overpaying during the first year. VCE staff studied the issue and determined the claim has merit and may justify changes to the existing NEM policy.

POLICY DECISION

The immediate recommendation is to postpone accepting NEM customers into VCE service until 2019. This will allow time for the CAC to review proposed policy amendment concepts and to submit recommendations to the VCE Board for approval at a future Board meeting (anticipated to be the August Board meeting). It also allows time for the billing system to be modified should changes be approved.

POLICY AMENDMENT CONCEPTS

Staff reviewed several concepts in collaboration with the Outreach Subcommittee of the CAC and offers the following concepts for consideration (Note: staff is seeking feedback from the CAC at this meeting on these concepts; not a recommendation at this time):

Adopt the true-up schedule used by PG&E for the majority of existing NEM customers

- This will be seamless to customers and they will receive VCE benefits.

Shift some customers to monthly billing

- Shift the roughly 670 existing NEM customers (less than 10% of NEM customers), who consistently owe more than $500/year from an annual payment to monthly payments with an April true-up date. This reduces the fiscal impact to VCE – see Financial Impacts section below.

New NEM Customers

- New customers will be put on annual billing and will be trued-up on the month they become a NEM customer, unless annual true-up exceeds $500. This will be similar to the existing PG&E NEM structure.

FINANCIAL IMPACTS

There are financial impacts from the proposed changes. The cumulative net impacts over a three-year period (when placing >$500 customers on monthly billing and all others on an annual cycle) is $895,000 and represents the costs that VCE would carry for this customer class. In addition, VCE will incur the cost of upgrading the billing engine and possible ongoing administrative costs. SMUD is in the process of estimating these additional costs.

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Table 1 shows the net carrying cost impacts of placing customers on an annual billing cycle under different scenarios: all customers being on an annual billing cycle (Annual); customers owing more than $1000 annually; customers owing more than $750 annually; and customers owing more than $500 annually.

Table 1: Net Impacts of Annual Billing

Net Position: (Thousands of Dollars)						
	# of Customers	**2018**	**2019**	**2020**	**2021**	**Difference**
Board of Directors approval		$ 1,485	$ 9,721	$ 17,300	$ 22,556	
Current adopted NEM Policy		$ 2,071	$ 10,377	$ 17,927	$ 22,261	
Annual (same as PG&E NEM program)		$ 2,126	$ 9,431	$ 16,250	$ 20,622	$ 1,639
>$1000 annually	124	$ 2,126	$ 9,504	$ 16,508	$ 20,882	$ 1,379
>$750 annually	255	$ 2,126	$ 9,585	$ 16,703	$ 21,078	$ 1,183
> $500 annually	667	$ 2,126	$ 9,767	$ 16,988	$ 21,366	$ 895

Note: Revenues are not recorded until true-up.

OUTSTANDING ISSUES

The following issues were identified and need to be considered when developing the final draft policy amendments and recommendations.

- Changes VCE's cash flow.
- Proposed changes will require up-front costs to upgrade the billing and back-office systems. SMUD is working on an estimate.
- Changes may increase ongoing administrative costs for VCE by having to support multiple true-ups per year rather than one time in April.
- Changes will take time, delaying inclusion of NEM customers into VCE. Existing NEM customers would need to stay with PG&E for an undefined period while policies and processes are put in place.
- Timing and cost of outreach to NEM customers.
- Outreach to solar installers.
- Other issues/ideas will arise—keeping it relatively simple may be difficult.

NEXT STEPS

- Present information and seek direction from the Board on postponement of NEM customer enrollment (Board meeting July 12)
- Work with SMUD to get estimate of costs to change billing/back-office systems to support proposed changes
- Get final recommendations from CAC at July 30 meeting
- Present final recommendations to the Board at August 9 meeting
- If Board approves changes, send 2 letters to all NEM customers and contractors notifying them of the proposed changes—one for postponement and one to notify of revised policy
- Proceed with changes to billing/back-office systems
- Implement changes and enroll customers

CONCLUSION

Staff is seeking a recommendation from the CAC to:

- Request the VCE Board to postpone NEM enrollment until 2019
- Review Policy Amendment Concepts
- Make a recommendation to the Board to adopt the amendments in time for the August 9, 2018 board meeting.

VALLEY CLEAN ENERGY ALLIANCE

Staff Report – Agenda Item 8

TO: Valley Clean Energy Alliance Community Advisory Committee (CAC)

FROM: Mitch Sears, Interim General Manager
Olof Bystrom, Sacramento Municipal Utility District (SMUD)

SUBJECT: CPUC Integrated Resource Plan and Required Action Plan (IRP)

DATE: July 2, 2018

RECOMMENDATION

1. Review the draft IRP, including the associated 3 year action plan.

2. Support staff recommendation to approve the draft IRP, including the prioritization of Action Plan items and the recommended IRP Portfolio among the alternatives considered as the Preferred Portfolio.

BACKGROUND

In accordance with state Senate Bill (SB) 350 (2015, DeLeón), as well as modifications to those sections added by SB 338 (2016, Skinner) and Assembly Bill (AB) 759 (2017, Dahle) to implement Public Utilities Code Sections 454.51 and 454.52, the California Public Utilities Commission (CPUC) has enacted rulemakings requiring load servicing entities in the state over which the CPUC exercises regulatory authority to file Integrated Resource Plans by August 1, 2018. The IRP must be approved by the Valley Clean Energy (VCEA) Board prior to submission to the CPUC, including the adoption of a "Preferred Portfolio" to indicate which of the alternative resource scenarios contained in the IRP is preferred by the VCEA Board. The IRP process calls for an update every two years, which means VCEA will have regular opportunities to adjust its plan.

In addition to the development of various possible renewable and clean portfolios, and the required selection of a preferred portfolio, the IRP report must also identify VCEA's action plan for how it intends to achieve the objectives of the Preferred Portfolio.

ANALYSIS AND PREFERRED PORTFOLIO

The IRP report that is attached to this Staff Report provides a detailed analysis of long term resource options for VCEA, including specific resource portfolios of renewable energy such as solar, wind, biomass and geothermal resources. The report analyzes three portfolios:

- A “Base” portfolio that meets statutory requirements with respect to greenhouse gas emissions and the Renewable Portfolio Standard (RPS). This portfolio seeks to minimize costs for new resources without any additional emphasis on local energy or cleaner energy (beyond regulatory requirements). This portfolio can be seen as the minimum that VCEA must achieve in terms of renewable energy and greenhouse gas emissions.
- A “Cleaner Base” portfolio that seeks higher amounts of RPS eligible renewable energy as well as procuring all of VCEA’s market-procured energy from non-GHG sources, resulting in a portfolio that uses 80% RPS eligible renewables by 2030. This portfolio is otherwise similar to the Base portfolio and is the lowest cost portfolio among the three options.
- A “Local” portfolio that emphasizes the use of local solar, biomass and geothermal resources that are sourced from Yolo county and surrounding areas. The portfolio seeks to achieve the same level of clean energy and RPS as the Base portfolio. The cost of this portfolio exceeds the lowest cost portfolio by about 13 %.

  Note: Both the Base and Cleaner Base portfolios assume that VCEA will prioritize procurement from local renewable projects where cost effective.

The three resource portfolios indicate that solar PV energy from large scale solar installations is the lowest cost option for VCEA and that local smaller cost installations come at a premium. This is especially true for biomass and geothermal resources that are considerably more costly than other resources. Thus, a resource portfolio that focuses on local resources is assumed to be somewhat more costly than other options. However, based on our assessment, the difference between a strict adherence to lowest cost principles and a more locally sourced portfolio need not be significant. We also note that there is significant uncertainty regarding the development of costs over the next 12 years that could impact the relative costs of the portfolios assessed as part of this IRP.

A key feature of the IRP is the Action Plan (discussed below) that will include issuing an RFP for long term procurement of renewables. Through this process it is expected that VCEA will gain insight into the detailed cost of both local and non-local renewable resources. VCEA will use this information to subsequently adjust its resource plan.

ACTION PLAN

The 3 year Action Plan outlines the actions VCEA plans to take to achieve the goals and objectives set out in the IRP. The Action Plan can but is not required to include additional actions contemplated by VCEA to achieve its short and long-term vision. The action plan, included as Attachment B, was developed as an outcome of the public IRP workshop held on April 16, 2018. The list was further vetted and prioritized with input from the Community Advisory committee at its May 30, 2018 meeting. Subsequently, the CAC members individually provided proposed priority ranking of the action plan items, which is included as Attachment C.

The attached Action Plan is the proposed final action plan that will also be included in the IRP Report. The action plan reflects the guidance to date from the CAC regarding key actions and their prioritization.

REQUESTED BOARD ACTION

Staff will be making the following recommendations to the Board for their action on July 12, 2018:

That the Board adopt a resolution establishing the following:

- Approving the attached Integrated Resource Plan in substantially the form attached, and adopting the Cleaner Base as its Preferred Portfolio
- Adopting the attached IRP action plan, which is a required element of the IRP.

CONCLUSION

Staff makes the specific aforementioned recommendations for the CAC's consideration.

Attachment A
Proposed Integrated Resource Plan

ATTACHMENT A

Standard LSE Plan

Valley Clean Energy Alliance

2018 INTEGRATED RESOURCE PLAN Draft, June 25, 2018

Contents

Executive Summary

Valley Clean Energy Alliance (VCEA) is a joint-powers authority working to implement a state-authorized Community Choice Energy (CCE) program. Participating VCEA governments include the City of Davis, the City of Woodland and County of Yolo. The purpose of VCEA is to enable the participating jurisdictions to determine the sources, modes of production, and costs of the electricity they procure for the residential, commercial, agricultural, and industrial users in their areas. PG&E continues to deliver the electricity procured by VCEA and perform billing, metering, and other electric distribution utility functions and services. Customers within the participating jurisdictions have the choice not to participate in the VCEA program. VCEA's vision as an organization and as adopted by its Board in 2017 is shown in Figure 1.

Figure 1. VCEA Vision

The near-term vision for VCEA is to provide electricity users with greater choice over the sources and prices of the electricity they use, by:

- Offering basic electricity service with higher renewable electricity content, at a rate competitive with PG&E;
- Developing and offering additional low-carbon or local generation options at modest price premiums;
- Establishing an energy planning framework for developing local energy efficiency programs and local energy resources and infrastructure; and
- Accomplishing the goals enumerated above while accumulating reserve funds for future VCEA energy programs and mitigation of future energy costs and risks.

The long -term vision for VCEA is to continuously improve the electricity choices available to VCEA customers, while expanding local energy-related economic opportunities, by:

- Causing the deployment of new renewable and low carbon energy sources;
- Evaluating and adopting best practices of the electricity service industry for planning and operational management;
- Substantially increasing the renewable electricity content of basic electricity service, with the ultimate goal of achieving zero carbon emissions electricity;
- Developing and managing customized programs for energy efficiency, on-site electricity production and storage;
- Accelerating deployment of local energy resources to increase localized investment, employment, innovation and resilience;
- Working to achieve the climate action goals of participating jurisdictions to shape a sustainable energy future; and
- Saving money for ratepayers on their energy bills.
- Remaining open to the participation of additional jurisdictions.

This report was prepared in accordance with decision D.18-02-018 by the California Public Utilities Commission (Commission) under proceeding R.16-02-007. The report follows the format laid out in Annex A to the Decision. The objective of this report is to provide materials to help the Commission perform its modeling of load and resources in the 2018-2030 period. VCEA views this IRP report as an important but preliminary plan for its resource supply over the 2018-2030 period. Considering that VCEA only started to serve load in June of 2018, VCEA does not yet have any resources under long term contract – instead VCEA relies on market purchases of energy, Resource Adequacy (RA), and Renewable Energy Credits (RECs) in order to serve its electric demand and meet regulatory requirements with respect to resource adequacy and renewable energy. Therefore, a key part of this report is the Action Plan contained in Section 4 of this report. The Action Plan lays out VCEA's near term plans for developing short and long term studies and supply contracts to meet its load while implementing its vision and complying with regulatory requirements.

For the purposes of this report VCEA three resource portfolios, all of which conform to Commission and statutory requirements, and that are consistent with the input assumptions and Reference System Plan identified by the Commission. The first portfolio, entitled Base, provides a continuation of VCEA's current service offering, namely 42% Renewable Portfolio Standard (RPS) eligible renewable energy and an overall portfolio that is supported by carbon free sources for 75% of its annual energy content on an annual basis. Over the course of the 2018-2030 period, the renewable energy content of the portfolio is adjusted to meet statutory and regulatory RPS requirements as well as the Greenhouse gas benchmark values stipulated by the Commission.

The second portfolio, entitled Local, considers a resource path that covers more local and distributed resources. While more costly than the Base Portfolio, the Local portfolio is competitive with the

Commission Reference System Plan RESOLVE model results, which were taken as a proxy for the overall generation costs in California for the 2018-2030 period. The Local is VCEA's Preferred Portfolio. However, we emphasize that the choice of resource path is uncertain and will to a large extent depend on future market and policy developments as well as on the evolving preferences of our customers. We therefore expect to adjust the resource plan as needed over the next several years.

The Third Portfolio, entitled Cleaner Base, considers a lowest cost resource portfolio that has more ambitious renewable energy targets and seeks to achieve 50% RPS-eligible renewable energy content by 2020 and 80% by 2030. In addition, this portfolio

Figure 2 shows a comparison of the estimated generation costs for each of the Portfolios considered in this report in relation to the RESOLVE Reference System Plan results for the same period.

Figure 2. Annual Generation Costs by Resource Portfolio and Year

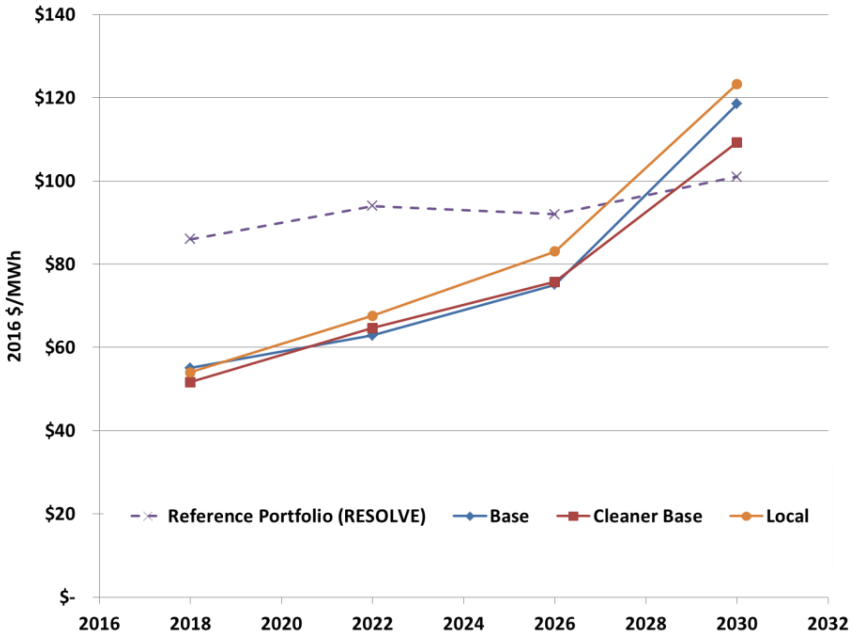


Figure 2 suggests that VCEA's portfolio costs would cross over the ones of the Reference System Plan by the year 2030. However, this result is likely driven largely by a discrepancy in assumptions – VCEA is factoring in a gradual tightening of capacity markets drives up the cost of RA while at the same time the Commission requires that incremental solar capacity is given a near zero ELCC value. In contrast, VCEA understands that the RESOVLVE model results of the Reference System Plan does not factor in any costs for RA and also use a higher ELCC value for incremental solar capacity. Against this background, the difference between the solutions for the year 2030 may not be material.

There are several important limitations and assumptions of VCEA's IRP analysis provided in this report that should be considered:

- The resource portfolios include only the type of renewable energy resources that VCEA expects to contract with over the 2018-2030 period. VCEA does not envision building, owning or entering into long term contracts for fossil-fueled generating sources and instead expects to meet such needs by purchasing electricity in the CAISO and bilateral electricity markets

- The modeling and analysis is based on using assumptions and prices available in the Reference System Plan Results for the RESOLVE model that was developed for the Commission and that were made public on April 23, 2018.[1]
- VCEA considers the analyses and conclusions of this IRP report to be tentative and subject to adjustments as market conditions change and technology and customer preferences evolve.
- VCEA's analysis considers only the generation portion of electric services delivered to VCEA's customers since this is the only part which VCEA is responsible for. It is anticipated that the IRP filing by PG&E will cover the other aspects, such as transmission, distribution, and DSM programs
- ETC ADD MORE CAVEATS

The estimated GHG emissions using Commission's Clean Net Short Tool is shown in Figure 3, below for each of the resource portfolios considered, as well as the Commission GHG benchmark value of 129,000 tons per year for the year 2030.

Table 1. Estimated GHG Emissions in 2030 by Resource Portfolio using the Commission GHG Calculator (metric tons 000)

Commission Mandated Benchmark	Base	Cleaner Base	Local
129	86.0	81.8	87.8

VCEA's IRP analysis is based on a simplified hourly production cost modeling of VCEA's portfolio, where it is assumed that California as a whole follows the resource plan outlined in the Reference System plan and that VCEA can freely buy and sell energy into the CAISO electricity and ancillary service markets at the market prices expected in the Reference System Plan provided by the Commission. VCEA's analysis also uses the same assumptions that the Reference System Plan was based on, including the same assumptions regarding levelized costs for new generating resources and the same renewable energy resource classifications, renewable energy profiles and geographical naming conventions (e.g. "Solano Wind" or "CAISO Solar for CAISO")

VCEA's Action Plan outlines key activities over the next several years for VCEA. Among the more important steps in the action is to conduct a public solicitation for long term renewable energy contracts that will help VCEA to cost-effectively meet it load obligations in a manner that meets regulatory requirements and is consistent with VCEA's vision and strategy. The Action Plan also outlines other key activities over the next 1-3 years, including establishing long term greenhouse gas goals and key performance indicators that will allow VCEA and its constituent members to track progress on key issues such as climate change, programs and energy efficiency. Section 4 of this report describes VCEA's action plan in more detail.

Study Design

The study was designed to inform VCEA, its Board, management, and community on the relative energy supply cost differences between different portfolios that would meet the minimum required to achieve compliance with RPS requirements and the 2030 GHG target established by the Commission for VCEA. Three portfolios were modeled: 1. A conforming portfolio that meets the minimum renewable content

[1] http://cpuc.ca.gov/General.aspx?id=6442457210

and GHG emissions requirement at least cost ("Base"); 2. An alternative Portfolio with a higher percentage of RPS-eligible renewable energy content that is expected to be contracted at the lowest cost without considering the geographical location of resources ("Cleaner Base"); 3. A Portfolio that seeks to meet regulatory and statutory requirements with a higher percentage of local resources compared to the Base and Cleaner Base portfolios (Local). VCEA's vision includes supplying electricity from local energy sources at prices that are competitive with PG&E rates – VCEA therefore looked at these important aspects of its portfolio in separate Portfolios.

The IRP study period required by the Commission covers 2018 through 2030. VCEA began operations in June of 2018 and therefore 2018 is modeled for the June 1 – December 31 period. VCEA's approach is based on utilizing current market data for the front years of the IRP study period (2018-2021), and using available data and assumptions from Commission to the extent possible as a basis for resource portfolio choices in the 2022-2030 period.

Our modeling approach is based on considering VCEA as a "price taker" in the CAISO market wherein it is assumed that VCEA, due to its small peak load and energy demand relative to the rest of the CAISO market, cannot influence prices and therefore can buy and sell power at CAISO spot market prices, as represented by the RESOLVE model results for the 42 MMT Reference System Plan, wherein CO2 allowance prices are implicitly reflected in the CAISO price.

The GHG planning price is not used in the VCEA model runs, because VCEA does not propose to own or otherwise sign long term contracts for fossil-fueled generation. VCEA's only exposure to GHG avoidance costs is from the cost of GHG mitigation implicit in power market pricing for net purchases of load from the CAISO and for sales of renewables into the CAISO market.

a. Objectives

The objective of the IRP is to provide guidance for VCEA's Board, executive management, and the public regarding the relative power supply cost impact of various long term resource options for meeting electric demand in the 2018-2030 period and to ensure that these options are strategically aligned with VCEA's short and long term vision (see Figure 1).

The resource portfolios identified in this IRP illustrate tradeoffs in terms of costs and greenhouse gas emissions between different resource options and levels of ambition in terms of renewable sources and local generating sources used by VCEA to meet its load obligations. Three portfolio scenarios are considered to reflect resource choice alternatives as well as potential outcomes in terms of load using the 2017 IEPR load forecast update for the mid AAEE and mid AAPV cases. The cases and resource portfolio choices are discussed in the assumptions section below.

b. Methodology

Based on the California Energy Commission's (CEC's) IEPR forecasts, annual electric consumption for VCEA in the 2018-2030 period represents less than half a percent of the statewide electric consumption (0.28%). It is therefore expected that VCEA will have little or no opportunity to influence market prices of any of the components of the electric supply for this IRP. In other words, VCEA is a price taker. Under this expectation, VCEA can transact energy, capacity, and resource adequacy and enter into short or long term contracts without impacting the overall market prices for these items. This philosophy is reflected in our methodology. In a further effort to make the IRP consistent with Commission's requirements and assumptions for California as a whole, our methodology for quantifying the costs and greenhouse gas impacts of portfolio alternatives rely exclusively on publicly available data provided by the Commission to

support this IRP process as well as on CEC's updated 2017 IEPR forecast that includes a forecast of energy demand for VCEA.

Three load and resource portfolios are considered in this IRP:

1. Base Portfolio (aka conforming portfolio)
2. Cleaner Base Portfolio (aka Preferred Portfolio)
3. Local Portfolio (to reflect more ambitious local resource choices)

The detailed assumptions for each portfolio as well as the individual resource components of each portfolio are shown in the Modeling Approach Section below.

i. Modeling Tool(s)

VCEA's resource plan is based on a simplified production cost modeling approach that utilizes publicly available data from the various tools provided by the Commission as well as the IEPR load forecast from the CEC. With this data, VCEA developed a spreadsheet model that captures the expected costs of providing electricity to VCEA's customers in the 2018-2030 period under different resource portfolio alternatives. Thus, no formal commercially available production cost model is used, but the analysis is consistent with the data and assumptions of the RESOLVE model, the GHG calculator, and the RPS calculator.

The RESOLVE model provides a simplified representation of the entire WECC system and performs a cost-based simulation and forecast for the 2018-2030 period that selects resources and provides estimates of total and marginal costs as well as emissions and reliability parameters. With this model, only 37 representative days per year are modeled and subsequently aggregated to provide an estimate of full-year impacts. In contrast, the spreadsheet model utilized by VCEA assumes that prices and resources are given. VCEA is treated as a price taker in the CAISO market, wherein VCEA's objective is to minimize costs for meeting its resource needs at given prices for capacity, energy, and new resources. The input assumptions used for this model are drawn from RESOLVE model results and input assumptions as well as from Commission's GHG Calculator tool and CEC's IEPR load forecast. This approach provides a view of VCEA's resource costs and portfolio options in the 2018-2030 period that is consistent with the RESOLVE model.

For the purpose of this IRP and in order to capture the hourly impacts of using the Mid-Mid load forecast from the CEC, VCEA uses the CEC published load shape for the PGE area as an approximation for VCEA's hourly load. While VCEA would consider it preferable to use a load shape that is more reflective of actual conditions in Yolo County, the CEC load shape was used to maintain consistency and to ensure the hourly impacts of AAEE and AAPV under the Mid-Mid Case are incorporated. VCEA's load forecast and load shape, as provided by the CEC, are based on a forecast for all 8760 hours of a normal year. The GHG Calculator is also based on using 8760h per year to calculate the clean net short and the GHG emissions using 8760h per year renewable energy profiles. Therefore, in order to be able to use the hourly RESOLVE marginal costs for CAISO power, these were re-calculated to an 8760 price series, whereby the RESOLVE prices were first compacted into a monthly 24h hourly power price and subsequently extrapolated to create an 8760 price series. This means that with this approach, there are only 24 hourly prices in each month – every first hour of each day has the same price, and so on. While simplified, this approach provides a view of marginal electricity costs in the CAISO market that is consistent with the RESOLVE model results and also captures the impact of carbon prices on the CAISO market price for electricity.

ii. Modeling Approach

The IRP covers the period 2018-2030. However, not every year is modeled. For the first 3.5 years of the forecast, June 1, 2018 through December 31, 2021, our outlook is based on market forecasts and expectations of market prices rather than a production cost model. We feel that this provides a more realistic approach to near term resource costs. We also expect that in the 2018-2021 period, the majority of resources used to meet VCEA's load will be based on short term contracts and market purchases that will cover VCEA's need for energy, capacity and RPS-eligible renewable energy (and/or RECs).

For the period 2022-2030, VCEA relies on the materials available from the Commission as described under Modeling Tools above as well as in the assumptions section of this chapter. As a result, only the years 2022, 2026 and 2030 are analyzed into hourly detail and only for these years are the detailed portfolio choices considered.

Resource Portfolio Alternatives Considered

VCEA considered three alternative resource portfolios provide a range of potential outcomes that will help guide future procurement and illustrate trade-offs in terms of costs, renewable energy contracting and the amount of energy bought in the CAISO market. All resource portfolios are designed to comply with California's 2030 RPS goals as well as with the Commission GHG emissions benchmark of 129,000 tons by 2030.

The three scenarios considered were constructed around shifting three policy parameters that are important to VCEA: The overall carbon footprint of the portfolio, the amount of RPS-eligible renewable energy, and the resource mix, including the amount of energy that is sourced from locally available renewable energy sources. Note that since VCEA currently does not have any resources under ownership or long term contracts, the IRP portfolio alternatives are mainly for illustration of options and potential trade-offs.

As discussed in the Action Plan section of this report, we expect that the actual resource trade-offs and costs will be discovered only following more detailed studies and evaluation of actual offers for long term supply. Table 2 below provides an overview of the Resource Portfolios.

Table 2 Resource Portfolios

Portfolio	Portfolio Aspect	2018	2022	2026	2030
Base	Load Forecast	IEPR			
	Resource Mix	Least cost California resources. Local renewables if cost effective.			
	RPS	42%	42%	45%	50%
	Carbon Free	75%	75%	75%	75%
Cleaner Base	Load Forecast	IEPR			
	Resource Mix	Least cost California resources. Local renewables if cost effective.			
	RPS	42%	60%	70%	80%
	Carbon Free	75%	100%	100%	100%
Local	Load Forecast	IEPR			
	Resource Mix	Expand local wind, biomass, geothermal and solar from 2022.			
	RPS	42%	42%	45%	50%
	Carbon Free	75%	75%	75%	75%

VCEA plans to secure RPS resources from RPS-eligible California resources as well as through PCC1 RECs. Carbon free resources are expected to be purchased under long or short term contracts that do not qualify for RECs but are otherwise carbon free, such as large scale hydro resources from California or the Pacific Northwest. The Carbon Free energy is also not synced with VCEA's load which means that even though VCEA plans to directly or indirectly offset 75%-100% of its electricity consumption with energy from carbon free sources, VCEA will still have a carbon footprint when using the Commission GHG calculator tool. The detailed resource mix under each of these portfolios is shown in separate Excel files that are submitted together with this IRP. It should be noted, that for near term supply, VCEA will rely on available generic non-resource-specific power in the CAISO market for energy and capacity and on RECs to meet RPS requirements.

Modeling Approach Details

For the 2018-2021 period, VCEA models costs and resource portfolio impacts based on expected market conditions, as described by currently available price in bilateral markets for energy and capacity as well as electric power futures from the Intercontinental Exchange (ICE) for NP15. Electric demand is based on CEC's 2017 IEPR Baseline Electric Mid Demand Mid AAEE and AAPV forecast, as published in April 2018[2]. Since CEC does not publish hourly demand profiles for VCEA, we elected to use an hourly demand forecast for the PGE area that reflects the shape for the "Mid-Mid" case. We note that the actual shape for VCEA's service territory is likely different from PG&E's overall shape since the area is smaller and also has a different climate compared to both the Bay Area and the rest of the Central Valley.

For the 2022-2030 period, VCEA relies on data from the GHG calculator and the RESOLVE model's updated results for the 42MMT Reference System Plan, as made available by the Commission in April 2018[3]. The following RESOLVE model results and assumptions were used: hourly CAISO market price forecast (extrapolated to cover 8760 hours per year), levelized costs of new entry of renewable energy capacity and lithium ion batteries, resource potential for new capacity in California. The resource alternatives and costs considered for each portfolio include

Table 3 Resource Options Used

Resource Type	RESOLVE (and GHG Calculator) resource name(s)	2022 Levelized Cost (2016 $/MWh)	Note
Wind	Contracted_NW Wind Northern_California Wind Solano_Wind CAISO_Wind_for_CAISO	79	Used interchangably assuming same cost [4]
Solar	CAISO_Solar_for_CAISO Northern_California_Solar	51	Used interchangably for large scale solar resources not located in Yolo County assuming same cost [4]
Local Solar	Solano_Solar	139	Used to denote local small scale solar resources of less than 1 MW (e.g. parking lot and rooftop PV)
Local Solar	Central_Valley_North_Los_Banos_Solar	56	Used to denote local medium scale solar resources between 1 and 10 MW

[2] https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=17-IEPR-03

[3] http://cpuc.ca.gov/General.aspx?id=6442457210

[4] VCEA does not have long term contracts in place – the exact sourcing of renewable energy will therefore depend on prices, deliverability and proximity to VCEA's service territory

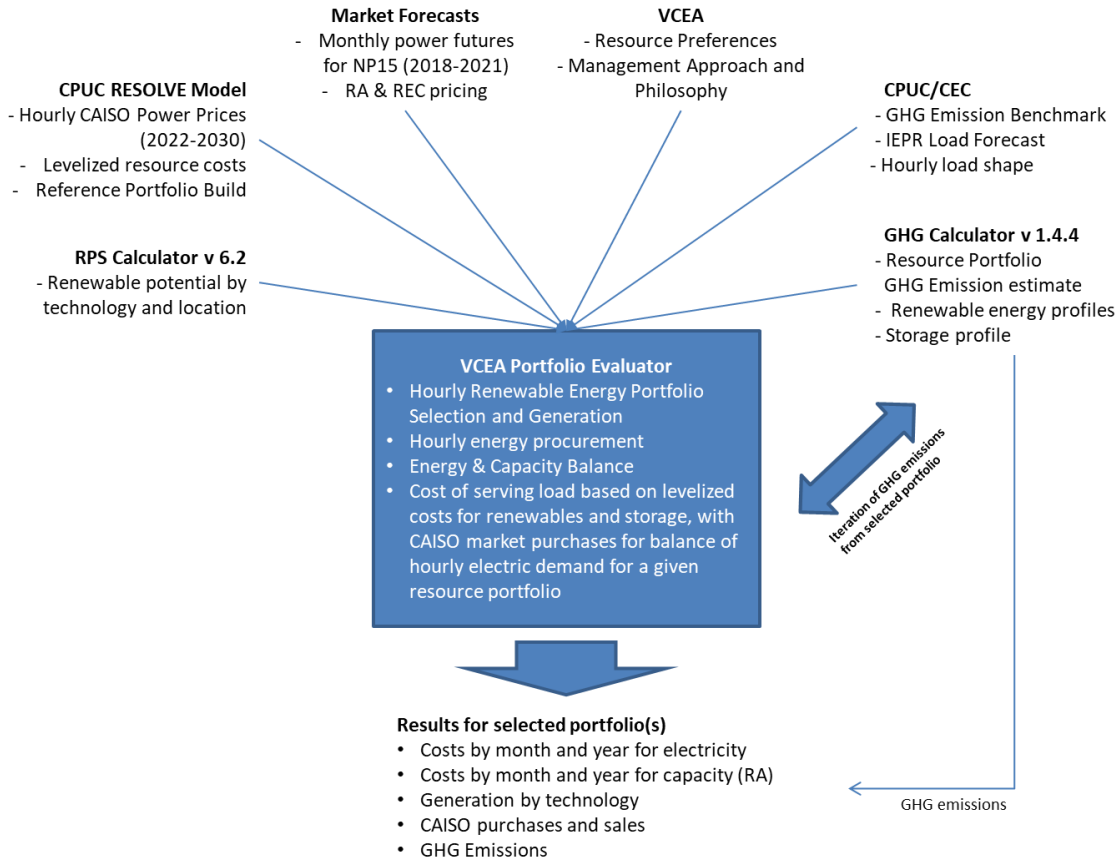
Biomass	Biomass	158	Assumed to be in Yolo cCounty or adjoining County
Geothermal	Geothermal	88	Assumed to be in county adjacent to Yolo
Small Hydro	Small Hydro	163	In Yolo county
Large Hydro	Large Hydro	N/A	Used as proxy for GHG free energy (non source-specific) in GHG Calculator
4h Energy Storage	Battery Storage	$143 /kW-yr	

The spreadsheet model was developed based on existing tools and data from the Commission and uses renewable energy profiles from the GHG Calculator together with the resource selection under each resource portfolio to calculate the amount generated by resources under contract as well as the hourly need for additional energy from the CAISO market. CAISO energy purchases are then assumed to be made at the hourly marginal electricity prices developed by the RESOLVE model for the Reference System Plan.[5]

Figure 3 below provides an overview of the modeling methodology used in this IRP for the 2022-2030 period.

[5] While largely the same as the RESOLVE renewable energy profiles, the GHG calculator provides for full 8760h per year renewable energy profiles that are more useful for VCEA's mode.

Figure 3. Modeling Methodology



iii. Assumptions

Load

The load forecast is based on the "mid Baseline mid AAEE mid AAPV" version of Form 1.1c of the CEC's adopted 2017 IEPR forecast, that was published in February of 2018 (henceforth IEPR forecast).[6] The annual energy demand in this forecast is shown in Table 4, below. No modification was made to this forecast other than fitting the annual energy demand to the hourly demand shape for PG&E that was also made available by CEC under the IEPR docket.[7] This load shape is not specific to VCEA and is likely to underestimate the "peakiness" and annual peak load for VCEA, since Yolo County tends to have very warm summer peak temperatures while at the same time experiencing a significant cool off during the night time in the summer. VCEA expects that these effects and other diurnal and or seasonal effects will be better captured in the next IRP update once VCEA has gained operational experience and has a track record for its hourly load relative to PG&E's. The expected annual energy and peak demand using the IEPR load forecast are shown in Table 4. Energy demand is unchanged across the resource portfolios considered in this IRP report.

[6] https://efiling.energy.ca.gov/GetDocument.aspx?tn=222582

[7] https://efiling.energy.ca.gov/GetDocument.aspx?tn=222554

Table 4. Updated IEPR retail demand forecast and VCEA load forecast. (Annual Energy and Peak Demand) under the updated 2017 IEPR forecast Mid AAEE, Mid AAPV case

	2018	2019	2020	2021	2022	2026	2030
2017 IEPR forecast Mid AAEE, Mid AAPV case	456	762	756	753	752	738	726
Expected annual peak load in IEPR forecast (MW)	148	153	152	153	153	154	155

Expected Power Market Prices and Resource Costs

2018-2021

In the early part of the IRP planning horizon, covering the 2018-2020 period, VCEA expects to rely mainly on short-term contracted resources to meet resource needs. By 2021, VCEA will need to have in place long term renewable supply contracts of terms of at least 10 years in duration for at least 65% of its minimum RPS obligations. Those long term contracts are expected to begin phasing in during 2020. For the short term resource supply, VCEA expects to procure them at current market prices and that these market prices will remain relatively stable in the 2018-2021 period. For this period, our estimates of costs for generation are therefore based on current market conditions for electricity and RA.

For the 2020-2021 period, we use the ICE power forwards for NP15 as a guidance to expected spot market prices. We also expect RA costs to remain stable in the 2018-2020 period and then start to increase as California supply and demand tightens. The latter assumption is supported by forecasts by CAISO and NERC that suggest that California reserve margins will remain above California's 15% planning reserve margin until at least 2024 when the Diablo Canyon nuclear facility retires. Table 5, below shows the expected electricity prices, resource adequacy and REC prices for the 2018-2021 period.

Table 5. Power, RA, REC and Carbon Free Prices 2018-2021

	2018	2019	2020	2021
Wholesale electric power prices ($/MWh)	29.5	29.5	31.9	35.0
Resource Adequacy ($kW-yr)	44.3	44.3	44.3	65.4
PCC1 RECs ($/MWh)	16.0	16.0	16.0	16.0
Carbon Free Price Premium ($/MWh)	2.3	4.0	4.0	4.0

For modeling purposes VCEA does not expect that the long term renewable supply contracts put in place to meet the 2021 requirement that will start delivery of substantial quantities of energy enter into any ownership or long term PPAs that will have a material impact on power supply in the 2018-2020 period.

2022-2030

From 2022 onwards, the IRP relies on results and assumptions from the RESOLVE model as an approximation of expected market conditions, including CAISO power prices, value of additional capacity to meet planning reserve margins and local capacity margins, and the cost of new entry for new capacity with which VCEA is assumed to be able to contract. Table 5 summarizes the annual expected values for power, RA, and the estimated price Premium for Carbon Free key energy.

VCEA's assumption regarding the costs for resource adequacy is based on a combination of market assumptions and costs of new resources reported in the RESOLVE model's input assumptions. We note that the RESOLVE model results does not show any shortage of capacity in the forecast and consequently prices resource adequacy at zero (the shadow price of the reserve margin requirement). In this report, it is

instead assumed that RA will continue to have a non-zero price and that RA prices will rise towards the cost of entry for new capacity by the middle of the next decade following the retirements of Diablo Canyon and California's once-through cooling capacity. Based on the costs of new capacity shown in the input assumptions for the RESOLVE model, battery storage will also become the lowest cost of RA capacity and flexible capacity from the mid 2020's. VCEA therefore bases its RA cost assumptions on the predicted levelized cost for a 4-hour new lithium ion battery following a ramp up of capacity prices that result from a tightening of California reserve margins as noted above.

The IRP portfolios analyzed in this report does not use RECs in the 2022-2030 period, instead, all renewable energy capacity is modeled directly as renewable resources using the templates and naming conventions devised by the Commission. As part of its 2018-2019 resource mix, VCEA procures carbon free energy from non-RPS resources to maintain a 75% carbon-free portfolio. VCEA will likely continue procuring such clean resources in the future and assumes that the price premium for carbon free energy will remain similar to today's levels also during the 2022-2030.

For new or existing renewable energy capacity that VCEA will contract for in the 2018-2030 period, VCEA relies on the RESOLVE model's cost of new capacity entry. As part of the Action Plan described in Section 4 of this report, VCEA expects to conduct a solicitation for new resource in 2018 and in 2019. As part of that process, it is anticipated that more detailed insights will be gained regarding near term costs for new capacity that will eventually replace the RESOLVE model assumptions used in this report. Note that in the 2022-2030 period, VCEA only performs a detailed assessment of resource needs and resource portfolios for the years that were covered in the RESOLVE model, namely 2022, 2026 and 2030.

Table 6. Power, RA, REC and Carbon Free Prices 2022-2030

	2022	2026	2030
Wholesale electric power prices ($/MWh)	36.8	47.9	99.1
Resource Adequacy ($kW-yr)	83.6	116.4	110.2
Carbon Free Price Premium ($/MWh)	4.0	4.0	4.0

VCEA Market Modeling Assumptions

There are several assumptions that may influence the results of the IRP as shown in this study. For example, per the instructions offered in the guidelines to this IRP template provided by the Commission as attachment A to R.16-02-007 COM/LR1/lil/jt2, load serving entities (LSEs) are directed to "*.. assume that other LSEs procure in a manner consistent with the Reference System Plan"* . VCEA is a small LSE that represent only 0.3% of the anticipated CAISO electricity consumption in the 2018-2030 period. It is therefore assumed that VCEA's resource decisions will not impact decisions by other LSEs, market prices for power, capacity, or new renewable energy resource costs during the 2018-2030 period. Thus, if other LSEs perform in accordance with the Reference System Plan, then VCEA will be able to buy and sell power at the prices modeled in RESOLVE (as a price taker) and will be able to enter into long term contracts at the levelized cost levels shown in the RESOLVE model's results for the Reference System plan.

The RESOLVE model Reference System Plan suggests that planning reserve margins in California will exceed 15% for the entire 2022-2030 period. As a result we can expect that sufficient capacity is available for procurement of resource adequacy as well as energy in the 2022-2030 period from the market.

VCEA's resource plan assumes that its resource portfolio will include only RPS-eligible renewable energy resources, and that the balance of its electricity and resource adequacy supply will be procured in CAISO electricity markets or by pursuing other bilateral procurement opportunities. Consistent with VCEA's long term vision of increasingly procuring local resources and contributing to the development of new capacity, VCEA expects its portfolio of resources to be located primarily in northern California. It is also assumed

that any additional capacity needed to meet electric demand in any hour during the 2022-2030 period can be met with RA and energy resources that are available in the CAISO market. Thus, all resource portfolios envision contracting for less than 100 percent of VCEA's total anticipated energy and capacity need.

Planning Reserve Margins, Local RA, and Flexible Resource needs

All resource portfolios in this IRP are based on contracting and procuring energy and capacity to meet the annual energy demand as well as the expected monthly capacity need, including a 15% planning reserve margin to meet resource adequacy needs. It is also assumed that in procuring capacity to meet a 15% reserve margin, the procured capacity will be able to also meet local and flexible ramping needs. As a result, no additional capacity is envisioned to meet this need. This is consistent with the modeling results of RESOLVE for the Reference System Plan, which suggests that sufficient capacity will be available in CAISO and in the North Bay area without additional procurement (by VCEA or other LSEs) of additional new thermal capacity. VCEA expects to perform

Inflation

Unless otherwise indicated, all cost impacts shown in this IRP are in constant 2016 dollars. For the purpose of estimating nominal costs or for converting nominal dollars to real, the IEPR deflator posted on Commission's IRP website was used[8].

Greenhouse Gas Planning Price and Emissions Benchmark

The greenhouse gas planning price is not explicitly used in this IRP since all of the resources identified by VCEA are renewable resources not emitting any greenhouse gas. Instead, we utilize as an estimate of future prices, RESOLVE's hourly CAISO prices for the Reference System Plan, in which the Greenhouse gas planning price should be reflected implicitly and therefore does not need to be considered separately.

This IRP includes three conforming resource plan options, of which VCEA's Board has adopted the Cleaner Base Portfolio as its Preferred Portfolio. All of the resource portfolios show that the expected greenhouse gas emissions are lower than the Greenhouse Gas Emissions Benchmark for VCEA of 129,000 metric tons by 2030. This is a result of focusing mainly on renewable energy and storage as well as the stated policy of VCEA to be at least 75% carbon free – i.e. a portfolio that is 75% free of greenhouse gas emissions, through the use of RPS resources and hydroelectric energy which may or may not be matching the load shape for VCEA. In VCEA's modeling it is assumed that non RPS GHG free energy is procured in blocks that are not matched with VCEA load and therefore does not offset all GHG emissions resulting from the use of Commission's Clean Net Short methodology, Enclosed with this IRP, VCEA also submits the GHG calculator tool showing the estimated 2030 emissions from its 2030 Preferred Portfolio.

Pursuant to the May 25, 2018 ruling by the Commission regarding GHG Benchmarks, VCEA calculated its estimated greenhouse gas emissions for 2030 using the Clean Net Short method by utilizing version 1.4.4 of the GHG Calculator tool (aka Clean Net Short calculator).

3. Study Results

This section shows study results for the three different IRP portfolios that were considered by VCEA. Detailed portfolio selection results are shown in Excel spreadsheets that were filed together with this IRP. However, we emphasize the tentative and hypothetical nature of this IRP. Due to the fact that VCEA just

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8 http://cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/UtilitiesIndustries/Energy/EnergyPrograms/ElectPowerProcurementGeneration/irp/2018/IEPR_dollar_deflator_series_2018-04.xlsx

started its operations in June of 2018 and the fact that VCEA has not yet entered into any long term contracts for new or existing resources, the identified resource portfolios should be understood as preliminary options and broad direction rather than precise results. VCEA expects that its resource and contracts portfolio will evolve significantly in the 2018-2021 period.

a. Portfolio Results

Three resource portfolios were considered by VCEA in this IRP in order to obtain directional insights on future resource investment alternatives that are aligned with VCEA's long term vision for how to serve its customers in the future. Since VCEA does not yet have any resources under contracts spanning beyond 2019, the results shown in this section as well as in the attached spreadsheets that provide details on the portfolio selection, are necessarily approximations that should be viewed as options and guidance on general direction rather than providing specific detailed procurement targets. VCEA expects that in the next 1-3 years, as it conducts additional studies and gains operational experience, it will develop more detailed procurement plans for short and long term contracting of resources. These planned activities are described in Section 4 of this report.

Table 7 below shows a summary of resource portfolio results for each of the three portfolios considered. Except for the portfolio entitled Cleaner VCEA, all resource portfolios shown in Table 7 could be considered Conforming Portfolios, i.e. they meet all Commission and regulatory requirements. VCEA's Board utilized these alternative portfolios in its consideration of future resource policy. The portfolio entitled Cleaner Base was selected as VCEA's Preferred Portfolio and Section 3b provides a detailed overview of this portfolio and how it complies with regulatory and statutory requirements. The detailed resource choices for each portfolio are also shown in the following Excel files that were submitted together with this IRP: INSERT NAMES OF XLS FILES

Table 7. Portfolio results summary (MW Nameplate Capacity)

	Base				CleanerBase				Local			
	2018	**2022**	**2026**	**2030**	**2018**	**2022**	**2026**	**2030**	**2018**	**2022**	**2026**	**2030**
Wind	0	49	33	46	0	51	55	50	0	41	20	30
BTM Solar	0	39	52	65	0	39	52	65	0	39	52	65
Solar	0	69	91.5	91.5	0	120	140	173	0	22	22	22
Local Solar	0	0	0	0	0	0	0	0	0	30	42	44
Geothermal	0	0	0	0	0	0	0	0	0	6	6	6
Biomass	0	0	0	0	0	0	0	0	0	0	5	5
Small Hydro	2	2	2	2	0	0	0	0	2	2	2	2
4 hour Li-Ion Battery Storage	0	0	3	20	0	3	7	20	0	3	3	3
Percent RPS Delivered	42	42	45	50	42	60	70	80	42	42	45	50
Percent Carbon Free	75	75	75	75	75	100	100	100	75	75	75	75

b. Preferred Portfolio

VCEA's Board of Directors at its meeting on July 12, 2018, approved this resource plan, including the Cleaner Base Portfolio which was selected by the Board as its Preferred Portfolio. This portfolio represents an ambitious combination of renewable and carbon free energy that will allow VCEA to reach an 80% RPS level by 2030 and to offset up to 100 percent of its annual electric demand from zero emission sources by 20022 through a combination contracted renewable energy resources, REC purchases and procurement of energy from carbon free resources such as large scale hydro. A summary of the resource choices in this portfolio is shown in Table 7, above. The resulting generation from the Preferred portfolio as well as the estimated annual electric demand is summarized in Table 8, below. Portfolio details for the Preferred Portfolio are also shown in the Excel files TBD and TBD.

Table 8. Summary of annual electric demand and generation by resource group for the Preferred Portfolio Cleaner Base (MWh).

	2018	2022	2026	2030
Retail Electric Demand	456,000	752,000	738,000	726,000
Wholesale Energy Demand (accounting for losses)	488,226	804,926	789,678	776,575
ST Contracted Energy	351,040			
CAISO Energy	(10,154)	54,597	57,954	73,786
Carbon Free Energy[9]	147,340	296,472	221,312	142,081
Wind	-	141,461	153,647	139,579
Solar	-	314,176	363,075	444,342
Storage	-	(1,780)	(6,309)	(23,213)
RPS Delivered (% of Retail load)	42	60	70	80
Percent Carbon Free Supply (of Retail Load)	75	100	100	100
Estimated Portfolio GHG Emissions (MT 000)	N/A	29	49	82

The portfolio generation summarized in Table 8, above, shows the performance of a tentative resource portfolio for VCEA that is consistent with VCEA's long term vision while at the same time meeting Commission and statutory requirements as well as delivering a cost-effective portfolio. The resource choices are based on estimated short term and long term costs for energy, capacity, renewables and carbon-free energy.

VCEA's long term operational goals include maintaining electricity prices that are competitive with PG&E retail prices while at the same time delivering a supply portfolio that is both cleaner and more locally sourced than PG&E's portfolio. Considering these priorities, the long term portfolio mix is likely to be adjusted compared to the above in line with changes in market prices.

The main renewable resource available to VCEA for new development is solar PV. In Yolo County and its surrounding areas, there are very few options for other types of renewable energy such as wind, biomass,

[9] Carbon Free Energy is supply of electricity that is certified to be carbon free but typically not RPS eligible or synced with hourly load for VCEA. Sources likely include in state or out of state large hydro facilities

and geothermal energy. VCEA expects to explore such supply options opportunistically depending on what prices and terms can be obtained from new and/or existing RPS-eligible resources.

Based on the levelized cost estimates that were included in the RESOLVE model, VCEA expects solar PV along with wind to be the lowest cost supply alternative for supply from existing and new sources in the 2018-2030 period. As part of VCEA's action plan that is described in Section 4 of this report, we plan to conduct solicitations for near term and long term renewable energy supply, which we expect result in PPAs for VCEA's future supply, As part of this process, we also expect to develop a deeper understanding of what resources can be developed locally and the estimated costs for such resources. It should therefore be emphasized that the specific resource groups identified in the Excel files submitted with this IRP (Large Hydro, Northern California Solar, etc) are only indicative sources of potential supply that may change depending on availability and price of resources – if VCEA were to have the opportunity to secure lower cost renewable energy supply from other sources, those would most likely be considered and perhaps used for contracting.

In line with many other industry analysts, the RESOLVE model's levelized costs for battery storage also suggests a long term declining trend. Declining costs for battery storage suggest that in the next ten years, batteries are likely to become the most cost-effective means of meeting VCEA's resource adequacy needs, surpassing traditional gas-fired generation in terms of resource costs. Therefore, the Preferred portfolio includes up to 20MW of battery capacity by 2030, far surpassing the statutory mandate of 1 percent of VCEA's demand. If battery storage costs decline faster than anticipated, VCEA may consider increasing its reliance on batteries, and conversely, if battery costs remain at close to 2018-2020 levels, then VCEA is likely to rely more on market purchases for its RA needs.

The estimated Greenhouse gas emissions from the Preferred portfolio are far below the 2030 Greenhouse Gas Emissions Benchmark that was mandated by Commission in its April 3, 2018 ruling on GHG benchmarks, which stipulated a GHG Emissions Benchmark for VCEA of 129,000 tons per year. There are two reasons why VCEA's GHG emissions are expected to be significantly below this benchmark. First, the modeling performed by VCEA suggests that higher RPS levels can be achieved at little or no incremental cost compared to other more carbon intensive portfolios. This result is of course a direct result of the expected market prices for energy and the expected levelized costs for new renewable energy resources - should costs change significantly, VCEA expects to also re-prioritize its portfolio. Second, VCEA already delivers electricity that is 75% carbon free. By increasing its procurement of carbon free energy, VCEA hopes to be able to fully offset its retail energy sales with RPS eligible energy or carbon free resources. Procurement of carbon free (non RPS) resources manifests itself in the GHG Calculator as procuring energy from "Large Hydro" as a proxy for generic carbon free energy. This result is however contingent on a continued low to moderate price premium for carbon free energy. If demand for carbon free energy were to increase significantly, VCEA may need to adjust its portfolio to ensure that costs of serving load remain competitive,

Based on using the GHG Calculator tool, the estimated GHG emissions from VCEA's portfolio increase dramatically even though the RPS content of the portfolio increases. This is a direct result of the clean Net Short methodology used by the GHG Calculator tool: In the 2022-2030 period, the Cleaner VCEA portfolio gradually shifts towards a higher proportion of RPS-eligible resources, almost exclusively solar. At the same time, the use of generic carbon free resources (represented in the tool as Large Hydro) decreases. This means that the clean generation of the portfolio is gradually shifted towards day-time hours where the emission factor is already low or zero and drives increasing procurement of off-peak energy from the CAISO grid, resulting in an overall increase in VCEA's GHG emissions in this period.

Statutory Requirements under PUC 454.52 (a) (1)

Section 454.52 (a) (1) of the Public Utility Code sets out a number of requirements which LSE's must demonstrate that they meet the following requirements in their IRP:

- **Meet GHG emissions reduction targets established by the State Air Resources Board.** VCEA's Preferred Resource Portfolio shows estimated GHG emissions of 82,000 metric tons per year by 2030, which is well below the 129,000 tons per year planning target established for VCEA.
- **Procure at least 50 percent eligible renewable energy resources by December 31, 2030.** All portfolios considered in this IRP will meet the statutory RPS requirements. The Preferred Portfolio will significantly exceed the RPS mandate by getting 80 of its energy supply from RPS-eligible renewable energy by 2030. As noted above, the actual level achieved is subject to continuous evaluation by VCEA and will depend on how market conditions and prices for renewable energy evolve. While VCEA has a strong commitment to a clean local supply of energy, maintaining competitive retail electric prices are also a key consideration in the balancing of priorities for VCEA.
- **Enable each electrical corporation to fulfill its obligation to serve its customers at just and reasonable rates.** Although technically not applicable to VCEA as it is a CCA and not an electrical corporation, VCEA's goal is to keep its rates competitive with PG&E (see Figure 1). As an example, VCEA in 2018 adopted rates that were set to be 2.5 percent below PG&E's for customers' generation portion of the bill.
- **Minimize impacts on ratepayers' bills.** See section 3.b.ii below.
- **Ensure system and local reliability.** Since VCEA is not a distribution utility, most of the obligations 7in this area do not apply. However, VCEA, in its resource plan have incorporated the need for providing system and local RA at 115% of the expected monthly peak load for VCEA. The estimated costs for such capacity are incorporated in the resource costs for all portfolios, including the Preferred Portfolio. Additionally, VCEA will incorporate into its long-term power purchase agreements with intermittent renewable resources the ability to curtail output in the face of negative market prices.
- **Strengthen the diversity, sustainability, and resilience of the bulk transmission and distribution systems, and local communities.** VCEA is not responsible for the transmission and distribution systems and this requirement is therefore not applicable to VCEA.
- **Enhance distribution systems and demand-side energy management.** At this point in its short existence, VCEA has not taken any action regarding demand side energy management. As highlighted in the Action Plan in section 4 below, VCEA plans to conduct studies regarding commencing programs that could include energy efficiency, demand response and other incentives for VCEA customers, once VCEA accrues sufficient financial reserves to start such activities. Until such time that VCEA starts any demand or efficiency programs, all such activities and programs will be the responsibility of PG&E as the distribution utility for VCEA.
- **Minimize localized air pollutants and other greenhouse gas emissions, with early priority on disadvantaged communities identified pursuant to Section 39711 of the Health and Safety Code.** See section 3.b.i below.

i. Local Air Pollutant Minimization

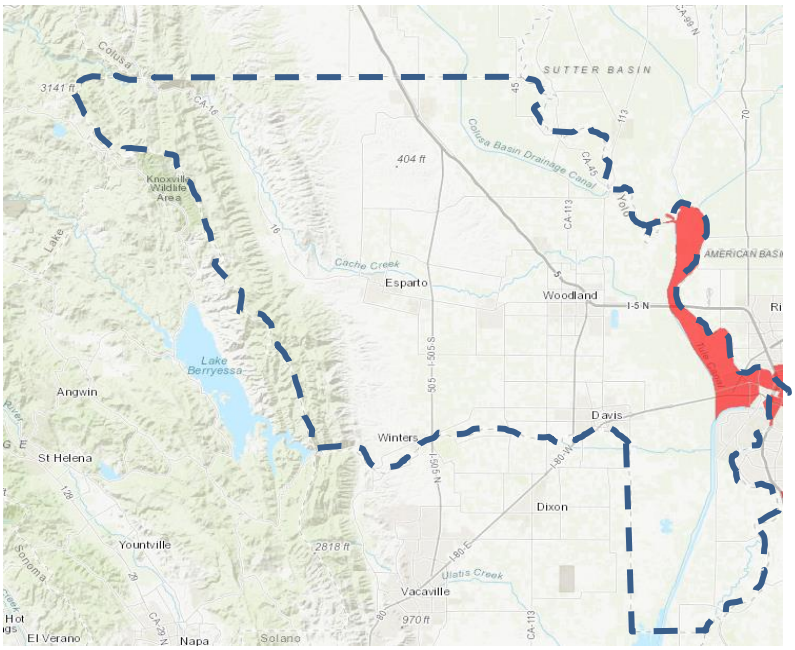
VCEA's Preferred Portfolio includes only renewable energy resources. These will be supplemented by additional market purchases of energy and resource adequacy to ensure a complete supply portfolio. VCEA's contract portfolio is therefore not expected to include any resources that adversely impact local air pollution.

CalEnviroScreen 3.0 shows that within Yolo County there are four census tracts that meet the Commission's criteria of identifying the top 25% of impacted areas. Of these, only one, namely area 101.02 is partially located in VCEA's service territory. The total number of households in this census tract

was 2,408 in 2016[10]. Based on a cross-comparison with VCEA customer addresses in this area, we estimate that less than 100 VCEA customer service accounts are located within this impacted area. According to the CalEnviroscreen 3.0 tool[11], the key reasons for this census tract falling within the top 25% appears to be risks associated with a combination of low income and environmental factors such as groundwater risks, cleanup sites, hazardous waste and air pollution. There are no power plants in this area. It should also be noted that the impacted areas are situated close to major transportation hubs that likely contribute to the rating.

VCEA owns no fossil fuel-fired generation, has no plans to procure energy under long term contract from, or to construct and own, fossil fuel-fired generation. Instead, VCEA will be procuring resources with a focus on renewable and carbon free energy which are not expected to have a significant impact on the census tracts identified by the CalEnviroScreen. To the extent there are any impacts we expect those to be beneficial through an overall focus on cleaner energy.

Figure 4. CalEnviroScreen 3.0 Results for Yolo County



VCEA's rate is designed to provide economic benefits for all rate payers, including disadvantaged communities. As part of the Action Plan described in chapter 4, we also plan to conduct studies to determine suitable programs and incentives that can be launched once VCEA accumulates sufficient financial reserves and cash flow to be able to run programs. Until further notice, PG&E will continue to make its programs for energy efficiency and demand response available to VCEA customers.

ii. Cost and Rate Analysis

VCEA's cost and rate analysis includes only an assessment of generation costs. VCEA recognizes that while areas such as transmission, distribution and programs are very important for the overall energy cost for

[10] 2016 US Census Bureau statistics for census tract 101.02 (https://www.census.gov/data/data-tools.html)
[11] https://oehha.ca.gov/media/downloads/calenviroscreen/document/ces3results.xlsx

VCEA customers , PG&E is responsible for the energy delivery infrastructure and any costs associated with this will likely be covered in PG&E's IRP filing.

Figure 5, shows a comparison of the estimated generation costs for VCEA in each of the years, 2018, 2022, 2026 and 2030 for the Preferred Portfolio as well as the other portfolios considered. The Figure also contrasts the estimated costs for VCEA's generation supply with the expected generation costs reported in the RESOLVE model's Reference System Plan. The results for VCEA's portfolios were derived by using the Commission provided tools, including the GHG Calculator and the RESOLVE modeling results and assumptions, as described in Section 2, above. Table 9 shows these results in Table format.

Figure 5. Estimated annual generation costs by resource portfolio (2016 $/MWh)

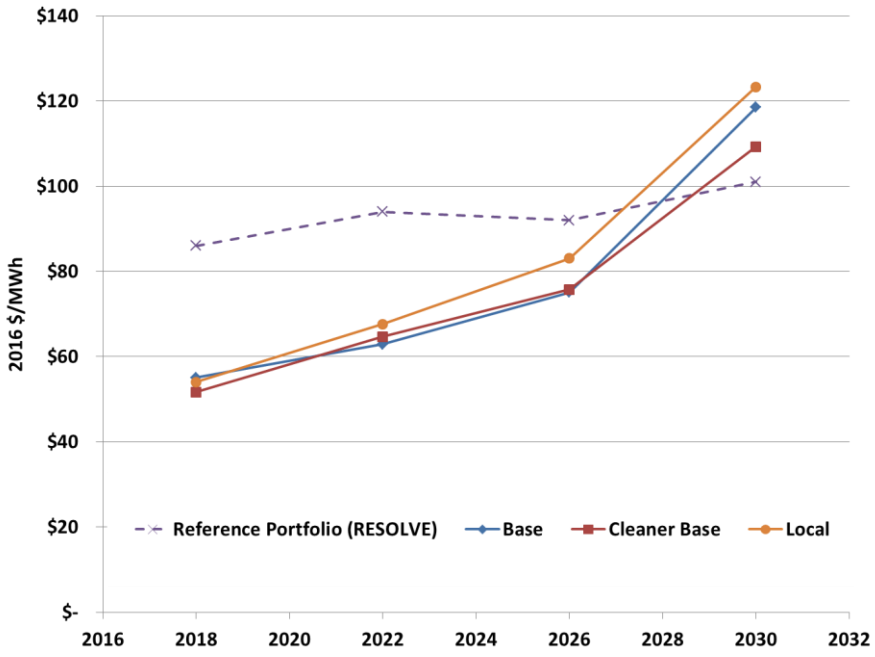


Table 9. Estimated annual generation costs ($/MWh)

Resource Portfolio	2018	2022	2026	2030
Base	$55.08	$62.90	$75.08	$118.49
Cleaner Base	$55.08	$64.65	$75.76	$109.28
Local	$55.08	$67.62	$83.05	$123.33
Reference System Plan (RESOLVE)	$86.00	$94.00	$92.00	$101.00

Table 9 and Figure 5 show that the Preferred Portfolio will remain below the RESOLVE model's estimated generation costs for the Reference System Plan except in the year 2030 when the Preferred portfolio will be slightly above the Reference System Plan's modeled generation costs. The main reason that VCEA's estimated portfolio costs exceed the results of the RESOLVE model, is likely that VCEA's model assumes that new capacity and RA will be procured at costs that are at or close to the levelized fixed cost of new storage whereas the RESOLVE model appears to have a (near) zero value for capacity in 2030. This implies

that if electricity markets get constrained to the point of needing new investments in capacity by 2030, market costs for energy and RA could be substantially higher than those approximated by the RESOLVE curve. Conversely, if the electricity market remains over-supplied with capacity as a result of declining demand and/or investments in capacity that are not motivated by reserve margin needs, the estimated costs for VCEA's portfolio alternative could go down to levels that are at or below the RESOLVE model generation cost benchmark.

VCEA's estimated costs include the estimated levelized costs for resources under contract. It is assumed that all renewable resources, existing or new, can be contracted at the estimated levelized costs for new resources of the RESOLVE model. It is further assumed that VCEA will get access to all attributes of resources that are under contract – energy, RA, RECs, local RA and ramping. VCEA plans to rely on market purchases for all energy and capacity needed beyond the renewable energy and capacity that will be under contract.

For market purchases, it is assumed that in the 2018-2021 period, energy and RA will be available at prices indicated through current RA prices in bilateral (or OTC) markets. Energy is expected to be available at prices corresponding to ICE's power futures prices for NP15. In the 2022-2030 period it is assumed that energy can be procured at the estimated hourly CAISO price reported for RESOLVE's Reference System Plan. It is also assumed that RA can be secured at a capacity corresponding to the lowest capacity cost between the traditional provider of capacity, a Gas-fired combustion turbine and the emerging capacity resource - 4-hour lithium ion batteries. Cost estimates displayed in the RESOLVE model suggests that from 2022 onwards, 4 hour battery storage capacity will be a lower cost alternative than conventional gas fired generation. This expectation is based on the assumption that the RA resource will operate for energy only infrequently and that sufficient resources will be available in the system to meet night time and winter energy demand.

When compared to the RESOLVE model's results, the Preferred portfolio compares favorably in terms of generation costs and by extension also rate impacts over the forecast period. However, the difference in the estimated costs of VCEA's portfolio and the RESOLVE model results implies that other LSEs could find a lower cost solution than the RESOLVE Reference System Plan, mainly due to new renewable resources having lower costs than the marginal cost of CAISO power. This, in turn, makes the RESOLVE model outcome increasingly unlikely as a market outcome and could potentially leave existing assets unable to recover their full costs. VCEA recommends that the Commission looks into this potential outcome to better understand overall results when aggregating individual LSE IRPs.

The generation cost estimates shown in Figure 5 and Table 9 do not include Power Charge Indifference Adjustment (PCIA). The PCIA is an important component of VCEA's generation that will significantly influence VCEA's ability to meet all statutory requirements versus its customers in line with 454.52.(a)(1).

The 2018 Year Ahead CAM List Final Allocation published by the Commission, indicates that there is a total of 1375.36MW of CAM resources available for the month of August[12]t. Using the estimated VCEA load share for 2030 published by the Commission in its 2030 GHG Benchmark ruling, VCEA would benefit from 0.9% of this capacity, or about 12MW, which in turn corresponds to about 5% of VCEA's anticipated RA requirement in the 2018-2030 period[13]. The financial costs or benefits of using CAM resources rather than generally available resources to meet VCEA's RA need in the forecast has not been accounted for in this IRP, but it is anticipated that the difference in cost should be small.

[12] http://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442454905

[13] http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M214/K459/214459514.PDF

b. Deviations from Current Resource Plans

At the time this report was prepared, there were no deviations from any other filed plans, considering that VCEA commenced operations only in June of 2018.

d. Local Needs Analysis

VCEA is not located in a defined Local Capacity Area. Furthermore, the CAISO's 2017-2018 Transmission Plan as well as the most recent local capacity assessment by the CAISO, suggests that the Central Valley where VCEA is located will not have any shortage of local capacity for the 2018-2027 period. However, VCEA will continue to procure its share of Resource Adequacy from defined constrained Local Capacity Areas as required by Resource Adequacy mandates. This may include Resource Adequacy available from renewable projects that VCEA may procure the output of that happen to be located in Local Capacity Areas within the NP-15 zone. VCEA expects that sufficient local capacity and flexible capacity will be available in the market throughout the forecast period.

4. Action Plan

VCEA only started to serve load for its customers on June 1, 2018. With the exception of one small hydro contract, VCEA's Initial operations are entirely based on energy and capacity procurement under short term contracts. VCEA also does not yet administer any programs relating to energy efficiency, demand response, or programs to stimulate electrification. Due to its short operational tenure to date, it is therefore important to perform a number of studies and resource solicitations to firm up VCEA's long term planning, resource choices, and strategy. In particular, key issues such as what resource types to focus on, the importance of a local resource supply and potential trade-offs between resource costs and other portfolio attributes still remain to be completed. The action plan items below highlights the key near term actions to be taken in the next 1-3 years, including activities to be performed in 2018.

a. Proposed Activities

VCEA expects that solar PV and battery storage will likely be key resources in any resource portfolio. However, the extent to which VCEA pursues local solar resources and the level of battery deployment will depend in part on the costs for solar and battery storage in different locations and at different scales. Developing better information on costs for local resources and the criteria under which VCEA wishes to engage contracting counterparties are therefore key actions in this Action Plan.

i. Long Term Renewable Procurement

VCEA will be conducting a long term solicitation in 2018 in which it will be seeking renewable power from RPS-qualifying renewable energy projects, with an expectation that power purchase agreements will be executed in early 2019. In support of this solicitation, VCEA will:

- Develop criteria/information requests to evaluate new renewable sources for projects implementing responsible siting practices (both environmental and land use).
- Develop Criteria for acceptable and preferred renewable technologies and locations.
- Develop criteria for, position on, procuring out-of-state renewable resources.
- Develop definition of "local" for renewable resource procurement.
- Determine whether to include battery or other storage options in solicitation.
- Develop criteria for assessing the portfolio content of local versus non local for short-list selection.
- Do a literature review on the economic impacts/value of locally sited renewable resources that could include values not typically included, such as secondary emissions benefits, job creation, environmental impacts, etc
- Determine whether to accept or give preference renewable project proposals that include integrated battery storage.

As part of the siting criteria established for the solicitation, VCEA will require that bidders identify whether their projects are located in areas with disadvantaged communities. For proposed projects located in disadvantaged communities, as defined in PUC 399.13(a)(7)(A-B), that can demonstrate that their project will provide environmental and economic benefits to that community, additional credit may be given in the selection scoring and ranking.

This long term renewable procurement directly supports achievement of the Preferred Portfolio, and will help make sure VCEA identifies sufficient capacity to meet RPS requirements for long term contracts.

ii. Establish Long Term Renewable and GHG Targets for 2030

VCEA's Preferred Portfolio is presented as a planned target for VCEA to achieve compliance with RPS requirements and the Commission's GHG emissions target and go beyond statutory mandates. One of VCEA's long term goals is to exceed the renewable portfolio content and have lower GHG emissions intensity than PG&E, the legacy utility for Yolo County. VCEA will continue to assess the most cost-effective ways to achieve a cleaner supply portfolio and plan on using the results from resource solicitations to discover the local cost of renewable energy options and storage in Yolo County and surrounding areas. This activity will also involve

- Assess whether VCEA should bifurcate its portfolio to meet the varying sustainability goals of its Members
- Conduct document review of other entities' climate action plans to inform on extent of aggressive goals established by other entities
- Develop policy proposal for tradeoffs between costs, GHG emissions, local renewable content, etc

iii. Key Portfolio Performance Indicators

Develop metrics to track aspects of the portfolio performance relative to a baseline/comparison metrics. These indicators are also intended to facilitate member jurisdiction's work on their own policy such as Climate Action Plans.

iv. Evaluate Impacts of Climate Change on Load Forecast

Evaluate methods for incorporating the impacts of climate change on expected future loads (particularly peak loads).

v. Evaluate impacts of electrification on Load Forecast

Evaluate methods for incorporating electrification initiatives (e.g., all electric buildings, clean local mobility services, ag pumping conversion) on expected future loads (load profiles as well as peak loads).

vi. Evaluate options for assuming responsibility for energy efficiency/demand side programs from PG&E

Evaluate the scope of effort to assume control of energy efficiency and demand side management programs for VCEA and determine what kinds of programs VCEA would implement if pursuing such programs

vii. Evaluate non-battery storage and flexible demand options

Investigate non-battery storage technologies and demand response options

- Identify trends that may impact VCEA's long term demand forecast and/or load shifting opportunities
- Determine program options or investments consistent with market and technology trends and cost of service goals.

b. Barrier Analysis

VCEA does not own any generating assets and does , nor does it have any Long Term power purchase agreements with existing facilities. VCEA expects to enter into long term contracts for renewable energy capacity in 2018 and 2019 to meet its resource needs in line with the Preferred Portfolio identified in this report. It is anticipated that sufficient competitive offers are submitted. If costs are higher or resource offers fewer than anticipated, this could trigger changes in the Preferred Portfolio.

One of the challenges for VCEA as a recently formed JPA is to obtain and manage the financial security required by counterparties to successfully enter into the amount of long term contracts for renewable energy required by SB350 (399.13 (b)). This cost will be factored in the evaluation of proposed projects during the solicitation process.

An ongoing risk for VCEA as well as all parties entering into long term contracts in line with the requirement in PUC Section 399.13 (b) is falling costs of new renewable energy and battery storage. If costs for new resources continue to fall in line with historical trends, there is a risk that VCEA and other CCAs entering into long term contracts will eventually encounter above-market costs in their contracted portfolios that need to be accounted for through the PCIA or similar mechanism by which CCA customers opting out of a CCA program can be subject to PCIA charges in the same manners as IOUs use the PCIA today.

VCEA does not anticipate securing all of its resource needs through long term contracts. In fact, VCEA plans to only contract for renewable energy resources and procure the remaining balancing capacity and energy needed for its load through short term contracts and spot market purchases of energy, RECs, and capacity. This exposes VCEA to market price risks. In line with the results shown in the RESOLVE model as well as recent work by the CAISO for RA, VCEA expects sufficient energy and capacity resources to be available throughout the 2018-2030 period. Natural gas market forecasts also suggest that gas prices (and thereby marginal power prices) are expected to remain low over the foreseeable future, which means electric power prices also should remain low or moderate. Should market conditions tighten, for example through gas price increases or faster than expected tightening of the supply and demand balance in California's power markets, this could result in higher costs for meeting load and therefore also higher rates. VCEA plans to manage this risk by continuously assessing risks and opportunities associated with contracting in line with its risk policy.

c. Proposed Commission Direction

Not Applicable. VCEA is not seeking direction from the Commission at this time

5. Data

In this report, VCEA has considered three resource portfolios. The files with resource templates for new and existing resources are referenced below and were submitted separately using the Commission mandated spreadsheet templates. For the purposes of this IRP, VCEA has not modified the IEPR load forecast or any of the associated load modifiers, including the load shape, which is based on PG&E's hourly load shape.

[3] Available at: http://www.cpuc.ca.gov/irp/filingtemplates/.

[4] Available at: http://www.cpuc.ca.gov/irp/filingtemplates/.

a. Baseline Resource Data Template

To be completed

b. New Resource Data Template

To be completed

c. Other Data Reporting Guidelines

6. Lessons Learned

To be completed

Glossary of Terms

Alternative Portfolio – LSEs are permitted to submit "Alternative Portfolios" developed from scenarios using different assumptions from those used in the Reference System Plan. Any deviations from the Conforming Portfolio must be explained and justified.

Conforming Portfolio – Each LSE must produce a "Conforming Portfolio" that is demonstrated to be consistent with the Reference System Portfolio according to the following criteria: (1) use of either the GHG Planning Prices or the LSE-Specific 2030 GHG Emissions Benchmark, and (2) use of input assumptions matching those used in developing the Reference System Portfolio

Data Template – Data provided by the LSE should be reported in the "Baseline Resource Data Template" and the "New Resource Data Template" provided by the Commission. "Baseline" means existing resources and costs, including resources already contracted but not yet online. "New" means any new (incremental to the baseline) resources and costs associated with a particular LSE portfolio.

Disadvantaged Communities – For the purposes of IRP, and consistent with the results of the California Communities Environmental Health Screening Tool Version 3 (CalEnviroScreen 3.0), "disadvantaged communities" refer to the 25% highest scoring census tracts in the state along with the 22 census tracts that score in the highest 5% of CalEnviroScreen's pollution burden, but which do not have an overall CalEnviroScreen score because of unreliable socioeconomic or health data.

GHG Emissions Benchmark – Each LSE filing a Standard LSE Plan must use either the GHG Emissions Benchmark or GHG Planning Price in developing its Conforming Portfolio. The LSE-specific benchmarks and calculation method are provided in Table B. If the total emissions attributable to the LSE's preferred portfolio exceed its GHG Emissions Benchmark for 2030, the LSE must explain the difference and describe additional measures it would take over the following 1 - 3 years to close the gap, along with the cost of those measures.

GHG Planning Price –The GHG Planning Price is equivalent to the marginal cost of GHG abatement associated with the 42 MMT Scenario for the years 2018 to 2026 (i.e., a curve that slopes upward from ~$15/ton to ~$23/ton), followed by a straight-line increase from ~$23/ton in 2026 to $150/ton in 2030, as shown in Table A. Each LSE must use either the GHG Planning Price or GHG Emissions Benchmark in developing its Conforming Portfolio.

IRP Planning Horizon – The IRP Planning Horizon will typically cover 20 years. However, for the purposes of this IRP 2017-18 cycle, the IRP Planning Horizon will cover only up to the year 2030.

Long term – 10 or more years (unless otherwise specified)

Portfolio – A portfolio is a set of supply and/or demand resources with certain attributes that together serve a particular level of load.

Preferred Portfolio – Among all the portfolios developed by the LSE, the LSE will identify one as the most suitable to its own needs, deemed its "Preferred Portfolio." Any deviations from the Conforming Portfolio must be justified and explained.

Reference System Plan – The Reference System Plan refers to the Commission-approved integrated resource plan that includes an optimal portfolio (Reference System Portfolio) of future resources for

serving load in the CAISO balancing authority area and meeting multiple state goals, including meeting GHG reduction and reliability targets at least cost.

Reference System Portfolio – The Reference System Plan refers to the Commission-approved portfolio that is responsive to statutory requirements per Pub. Util. Code 454.51; it is part of the Reference System Plan.

Scenario – A scenario is a portfolio together with a set of assumptions about future conditions.

Short term – 1 to 3 years (unless otherwise specified)

Standard LSE Plan – A Standard LSE Plan is the type of integrated resource plan that an LSE is required to file if its assigned load forecast is ≥ 700 GWh in any of the first five years of the IRP planning horizon.

Standard LSE Plan Template – Each LSE required to file a Standard LSE Plan must use the Standard LSE Plan Template according to the instructions provided herein.

(End of Attachment A)

Attachment B
Proposed Final Action Plan

1. Long Term Renewable Procurement

In 2018, VCEA will conduct a solicitation and evaluation of proposals for the purchase of energy from existing or new RPS qualifying renewable energy resources with the ultimate goal of executing long term power purchase agreements, and an expectation that resulting power purchase agreements will be executed in 2019.

Additional related actions planned:

- Develop criteria/information requests to evaluate new renewables for projects implementing responsible siting practices (both environmental and land use). Develop associated evaluation criteria.
- Develop criteria for acceptable and preferred renewable technologies and locations (e.g. local vs. remote).
- Develop position on procuring out-of-state resources. Develop criteria defining limits on which states VCEA will procure long term renewables from.
- Develop a position on the definition of "local" for renewable resource procurement.
- Determine whether to include battery or other storage options in solicitation.
- Develop criteria for assessing the portfolio content of local versus non local for short-list selection.
- Do a literature review on the economic impacts/value of locally sited renewable resources.

As part of the siting criteria established for the solicitation, VCEA will require that bidders identify whether their projects are located in areas with disadvantaged communities. For proposed projects located in disadvantaged communities, as defined in PUC 399.13(a)(7)(A-B), that can demonstrate that their project will provide environmental and economic benefits to that community, additional credit may be given in the selection scoring and ranking.

This long term renewable procurement directly supports achievement of the Preferred Portfolio, and will help make sure VCEA identifies sufficient capacity to meet RPS requirements for long term contracts.

2. Establish Renewable and GHG Targets for 2030

VCEA's Preferred Portfolio is presented as a planned target for VCEA to achieve compliance with RPS requirements and the Commission's GHG emissions target and go beyond statutory mandates. One of VCEA's long term goals is to exceed the renewable portfolio content and have lower GHG emissions intensity than PG&E, the legacy utility for Yolo County. VCEA will continue to assess the most cost-effective ways to achieve a cleaner supply portfolio and plan on using the results from resource solicitations to discover the local cost of renewable energy options and storage in Yolo County and surrounding areas. This activity will also involve

Additional related actions planned:

- Assess whether VCEA should bifurcate its portfolio to meet the varying sustainability goals of its Members.
- Conduct document review of other entities' climate action plans to inform on extent of aggressive goals established by other entities.
- Develop policy proposal for tradeoffs between costs, GHG emissions, local renewable content, out-of-state resources, impact to different stakeholder groups and disadvantaged communities, etc.

3. Key Portfolio Performance Indicator

Develop metrics to track aspects of the portfolio performance relative to a baseline/comparison metrics. These indicators are also intended to facilitate member jurisdiction's work on their own policy such as Climate Action Plans and impact on disadvantaged communities.

4. Evaluate impacts of electrification on load forecast

Evaluate methods for incorporating electrification initiatives (e.g., all electric buildings, clean local mobility services, ag pumping conversion) on expected future loads (load profiles as well as peak loads).

5. Evaluate Impacts of Climate Change on Load Forecast

Evaluate methods for incorporating the impacts of climate change on expected future loads (particularly peak loads).

6. Evaluate Options for Assuming Responsibility for Energy Efficiency/Demand Side Programs from PG&E

Evaluate the scope and costs of effort to assume control of energy efficiency and demand side management programs required by CPUC or other regulations, and what kinds of programs VCEA would implement if it assumed control.

7. Evaluate Non-Battery Storage and Demand Response Options

Investigate other demand response program options and non-battery storage technologies and their cost effectiveness.

- Identify trends that may impact VCEA's long term demand forecast and/or load shifting opportunities.
- Determine program options or investments consistent with market and technology trends and cost of service goals.

Attachment C
CAC Members Priority Ranking

CAC IRP Proposed Prioritization of Action Plan Activities				
	Suggested Priority Ranking			
List of Action Plan Activities	***SMUD-GB-LK-MA**	**Tom Flynn (TF)**	**Christine Shewmaker (CR)**	**Suggested Changes/Comments:**
Long Term Procurement	1	1	1	TF: Suggested the following additions/revisions: 3. Develop position on producing out of state resources. Develop criteria defining limits on which states to procure long term renewables from. 4. Develop a definition of "local" renewable resource procurement. 5. Determine whether to continue battery or other storage options in solicitation.
Establish Renewables	2	2	2	TF: Commented that the first sentence "[c]conduct studies to evaluate in more detail the costs and ability of VCEA to achieve greater than 50% RPS by 2030, when carbon neutrality might be able to be **achieved**" stating that "this sentence is confusing and could have different meanings depending on what is intended here. Do we want to know when we can achieve carbon neutrality? It is our hope that this can occur by 2030?" 3. add verbiage to this sentence " develop ... local renewable content, **out-of-state** resources, etc.".
Key Portfolio Performance Indicators	3	3	5	
Evaluate Impacts of Climate Change on Load Forecast	4	4	3	
Evaluate Impacts of Electrification on Load Forecast	-	-	4	
Evaluate Options for Assuming Responsibility for Energy Efficiency/Demand Side Programs from PG&E	5	5	7	TF: Suggested to insert "including cost" after the word "effort", to read as "... scope of effort **including cost** to assume control..."
Evaluate Non-Battery Storage and Demand Response Options	6	6	6	

*** SMUD's original list with comments/suggestions from Gerry Braun, Lorenzo Kristov, and Mark Aulman incorporated.**

7/2/2018

VALLEY CLEAN ENERGY ALLIANCE
COMMUNITY ADVISORY COMMITTEE

Staff Report - Item 9

TO: VCEA Community Advisory Committee

FROM: Mitch Sears, Interim General Manager

SUBJECT: Legislative/Regulatory Task Group Summary and Recommendation on AB813 and SB100

DATE: July 2, 2018

Recommendation

1. Support CalCCA position on AB 813 of support as amended.
2. Support CalCCA position on SB 100 of support.

Background and Analysis

The Community Advisory Committee (CAC) Legislative/Regulatory (Leg./Reg.) Task Group has prepared the attached summary report of Assembly Bill 813 [AB 813 (Holden - Multi-State Regional Transmission System Organization)] and Senate Bill 100 [SB 100 (de Leon - Renewable Portfolio Standard. GHG Emissions)].

AB 813 will form a multi-state regional transmission system organization (RTO), said formation will "regionalize" the California Independent System Operator (CAISO).

SB 100 establishes the 100 Percent Clean Energy Act of 2017 which increases the Renewables Portfolio Standard (RPS) requirement and creates the planning policy to meet the state's retail electricity supply mix by the year 2045.

Leg./Reg. Task Group Recommendations

The Leg./Reg. Task Group prepared a background report outlining its consideration of the two Bills. The report is included as an attachment to this staff report. The Task Group is asking the CAC to review and recommend a "position" for consideration by the VCEA Board at their July 12th meeting.. . The Task Group is recommending the Advisory Committee recommend the following to the Board:

1) take no position on AB 813 (Task Group Vote of 3-0 with one member absent) and
2) support SB 100 [Task Group vote of 2-0-1 (2 in support, none to oppose and one abstention)], consistent with CalCCA's position. The recommendation includes the topics raised in CalCCA's letter that would result in withdrawal of support.

Staff concurs with the Task Group's support recommendation for SB 100.

Staff also concurs with the analysis of the Task Group on AB 813 but reaches a different conclusion on the final recommendation. While the "No Position" recommendation has merit, the following points edge staff's recommendation to support:

- The current version of AB 813 has the potential to reduce reliance on fossil generation (e.g., natural gas and coal) and reduce ratepayer costs.
- As the CalCCA position materials point out, a significant challenge in building local renewable resources is ensuring sufficient value to support the cost of construction, and a significant risk to value is the expected curtailment and negative wholesale prices. A broader and more effective western market through regionalization could lower these risks for local renewable projects.
- Any proposal for regionalization will need to ensure California retains its autonomy to determine its electric power sources.
- The Bill does not decide the matter of regionalization itself, but rather sets out a process for developing and reviewing a proposal.
- The Bill would require that a future proposal for regionalizing the grid would need to be developed in an open, transparent way, and reviewed broadly by the public, the CEC, the CPUC and CARB prior to considering any actual regionalization.

For these reasons, staff is recommending the CAC support the CalCCA support as amended position on AB 813.

Attachment

1. CAC Leg./Reg. Task Group Report

CAC Leg/Reg Task Group Report to CAC
June 23, 2018

1. AB 813 (Holden). Multi-State Regional Transmission System Organization.

Summary of Bill. AB 813 would establish a process for the California Independent System Operator (CAISO) to initiate and/or join a multi-state regional transmission system organization (RTO), starting with replacement of the current California-appointed board of governors by a new fully independent board. The bill would specify certain criteria that must be met before CAISO could initiate or join such an organization. The formation of such an RTO is generally referred to as "regionalization" of the CAISO. In its current form, AB 813 would provide that the California Energy Commission would have the authority to certify (or not) the proposed governance structure.

Summary of Arguments in Support and Opposition.

Supporters. Supporters of AB 813, including CalCCA and some environmental groups, suggest such an RTO would help advance the demand for and growth of renewable energy, as well as the ability of the power system to integrate renewable energy, and thus promote development of renewable energy in California. Supporters also observe that a change in Cal-ISO's governance structure, such as that proposed in AB 813, is necessary in order for such an RTO to be implemented.

Opponents. Opponents of AB 813, including some environmental groups, suggest that an RTO such as that motivating AB 813 would open up California to more fossil-fuel energy sources such as that generated by coal. They also express concerns that by participating in an RTO, California would be subject to the jurisdiction of the FERC (the Federal Energy Regulatory Commission) that could under-cut California's renewable portfolio standard and efforts to reduce greenhouse gas emissions. Some attorneys note that the Supreme Court has ruled that the federal government prevails over state law.

CalCCA's Position. Cal-CCA supports AB 813, as amended, in a May 11, 2018 letter. Cal-CCA notes, in part, that the bill…

> *"in its current form sets out a transparent process for creating and evaluating proposals to regionalize the independent system operator and ensure California can continue its ambitious renewable energy goals. Cal-CCA believes that a well-crafted plan will support the ability of CalCCA members to procure and build local renewable resources by creating a stronger renewable energy market…Regionalization is also likely to further reduce greenhouse gas emissions by exposing coal-fired power plants to competition from cheaper clean sources."*

CalCCA also notes its appreciation for the removal of objectionable provisions "that would have prevented public community choice providers from administering demand response programs."

Comments from CAC-Leg/Reg Task Group. The Leg/Reg Task Group discussed the concept of an RTO and AB 813 twice, including during a conference call June 13, 2018 (with Christine, Lorenzo and Yvonne on the call). Individual members express the following comments during the call.

- SB 813 does not create a multi-state regional transmission system organization (RTO). All it does is permit and provide a process for the ISO to develop a new governance structure to take the place of the current ISO governing board consisting of 5 members appointed by the governor of CA and confirmed by the CA legislature. The new governing board would be "independent" meaning not affiliated with or subject to any state policy authorities or commercial interests in the power sector. The bill requires that the new governance structure shall not be implemented before January 1, 2021.

- The new governing board is viewed by other states as a necessary step for them to allow their jurisdictional electric utilities to participate in a CAISO-led RTO. With the new board in place, individual states could authorize or direct their jurisdictional utilities to join in forming an RTO, but these would be individual state and utility decisions that play out over years, rather than a single event in which the entire western interconnection becomes a single RTO.

- As a consequence of the above points, any effort to create a new multi-state regional transmission system organization pursuant to AB 813 or similar governance change will take at least three to five years before the new RTO begins formal operation with those utilities that decide to become initial members. This fact impacts any potential short-term benefits supporters suggest for increasing renewable energy sources and markets.

- Christine observed that the debate surrounding AB 813 seems to involve two main issues.

  - ✓ Does regionalization help or hurt the advancement of California's renewable energy and greenhouse gas reduction policies?
  - ✓ Does regionalization put California at risk for increased intrusion by FERC?

- It should be noted that the environmental community is split on AB 813 and the concept of regionalization. NRDC and Union of Concerned Scientists support; the Sierra Club and some small grassroots groups (like 350 San Diego) oppose.

- Lorenzo pointed out that California is already regulated by FERC for its electricity transmission and wholesale market activities, and that the western grid is already an interconnected system covering 13 states and parts of Canada and Mexico, while every state has its own policies about greenhouse gas emissions and renewable energy sources. Problems arising from diverse states with diverse policies trying to control the outcomes of a single physically-interconnected electrical system exist today and will continue to exist

with an RTO. (An example is the great difficulty in calculating the carbon content of electricity entering CA over its interconnections with other states.)

- Christine questioned the need for doing this now. Especially given an uncertain Federal environment.

- Lorenzo, Christine and Yvonne all express dismay at the extreme and overblown rhetoric on both sides of AB 813 that obscures rational discussion of the pros and cons of the proposal.

- In a series of email exchanges after the conference call, Lorenzo, Christine and Yvonne exchanged comments about the issue legal challenges related to potential FERC intrusion into state energy issues. Although this topic is not the focus of the Leg/Reg Task Group's recommendation, it may be of interest to the rest of the CAC. An appendix to this write up includes a link to a discussion of a 2016 court case (provided by Christine) and a discussion of the broader topic offered by Lorenzo.

CAC Leg/Reg Task Group Recommendation. No Position. (Vote of 3-0 with one member absent.) If AB 813 is amended that raises new concerns, the Leg/Reg Task Group would review it again. (Note that "No Position" is a formally-recognized position to adopt under legislative conventions, and is not the same thing as simply not taking a position.)

The basis for the Leg/Reg Task Group's different recommendation than that of CalCCA is that any new regional transmission system organization would not be activated until at least three to five years, thus delaying the potential benefits for advancing renewables (again, the bill requires that the new governance structure shall not be implemented before January 1, 2021). Also, because of the rhetoric on both sides of the issue, we are uncomfortable having VCE get involved at this time. We appreciate that CalCCA secured an important amendment to remove an objectionable provision that would have limited the ability of CCAs to administer demand response programs.

2. <u>SB 100 (de Leon). Renewable Portfolio Standard. GHG Emissions.</u>

Summary: Establishes the 100 Percent Clean Energy Act of 2017 which increases the Renewables Portfolio Standard (RPS) requirement from 50% by 2030 to 60%, and creates the policy of planning to meet all of the state's retail electricity supply with a mix of RPS-eligible and zero-carbon resources by December 31, 2045, for a total of 100% clean electricity. (Note: SB 100 only deals with electricity.)SB 100 is now in the Assembly Energy and Utilities Committee with a hearing of July 3.

Supporters include environmental groups, faith based organizations, public health groups and some businesses including renewable energy companies, smaller businesses and a few larger companies whose business plans include sustainability. Opponents include PG&E, SCE, the California Chamber of Commerce, the agricultural community, Western States Petroleum Association and others.

CalCCA Position: CalCCA supports SB 100. In its January 16, 2018 support letter (which is attached), CalCCA listed topics that would cause it to withdraw its support if included in the bill.

CAC Leg/Reg Task Group Recommendation:

- Three members of the Task Group (Christine, Lorenzo and Yvonne) discussed SB 100 during a conference call June 21. (Tom Flynn did not make the call.)

- The Leg/Reg Task Group voted 2-0-1 (2 in support, none to oppose and one abstain) to recommend support of SB 100, consistent with CalCCA's position. The recommendation includes the topics raised in CalCCA's letter that would result in withdrawal of support.

Note: CalCCA's letter is attached.

January 16, 2018

Honorable Kevin De León
President pro Tempore
California State Senate

RE: SB 100 and Community Choice Aggregation

Dear President pro Tempore De León:

Thank you for your leadership in introducing SB 100, which would usher California into an era of 100% carbon free electricity. CalCCA and its individual CCA members believe CCAs play a critical role in the achievement of California's carbon free electricity future. As we begin this new legislative year and continue to partner with the state in combating climate change, **we are pleased to continue supporting the concept of moving to 100% carbon free outlined in SB 100.** Cumulatively, the operating CCAs in this state have an average Renewable Portfolio Standard (RPS) of 50%, well exceeding any other load serving entities within the state.

As SB 100 and any other bills surrounding this agreement are being considered in 2018, **CalCCA offers the following guidance** on topics which would cause CalCCA to withdraw support for SB 100:

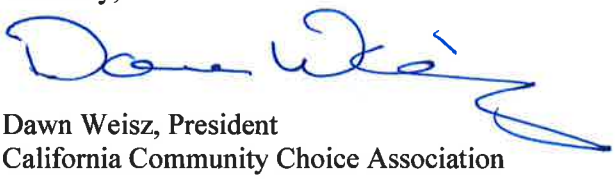
- CCA local governance and the procurement authority of CCA governing boards must not be undermined by any provisions within the bill. Procurement authority could be undermined by, among other things, the imposition of non-bypassable charges, the assignment of new costs through P.U. Code 365.1, or through attempts to alter the coordination framework envisioned in SB 350's Integrated Resource Plan framework. Any attempt to undermine CCAs' local governance by their publicly elected board members will be vigorously opposed by CalCCA.
- Any attempt to create an uneven playing field or unfair cost allocation between CCAs and other load serving entities must not occur. This particularly affects low-income customers in CCA communities, who are offered universal, affordable access to renewable energy products through their CCAs.
- CalCCA opposes amendments that would give the IOUs control of the Distributed Energy Resources (DER) market-- including storage and other innovative technologies. Such proposed amendments shut out competition, are unrelated to the clean energy goals of SB 100, and undermine innovation that will lead to a carbon-free California.
- CalCCA opposes any concept requiring the IOUs to procure more renewable energy resources and pass these costs onto CCA customers. This effectively undermines CCA procurement, which is obligated by statute and is the reason of existence for many CCAs. CalCCA is open to amendments allowing CCAs to meet standards of procurement that apply to all load serving entities.

CCAs offer customers a choice in where their power comes from as an alternative to the IOUs. CCAs stand at the vanguard of offering innovative and affordable energy solutions to our communities. CCAs are also deeply committed to advancing the state's decarbonization goals in partnership with policymakers. CalCCA would be pleased to meet with you to further discuss these important issues.

1125 Tamalpais Ave.
San Rafael, CA 94901
415-464-6189
cal-cca.org

Thank you again for your leadership.

Sincerely,



Dawn Weisz, President
California Community Choice Association

cc: Honorable Members of the California Senate and Assembly

CalCCA
California Community Choice Association

APPENDIX
Discussion of the Relationship between FERC and State Authority (relative to AB 813)

Court Case of Interest

- ✓ *Huges v. Talen Energy Marketing* (text of the Supreme Court Decision)
https://www.supremecourt.gov/opinions/15pdf/14-614_k5fm.pdf

✓ *Hughes v. Talen Energy Marketing.* Analysis in SCOTUSBLOG. (offered by Christine)
http://www.scotusblog.com/2016/04/opinion-analysis-u-s-energy-regulators-authority-grows/

✓ Another resource related about the impact of *Huges v. Talen Energy Marketing* (offered by Lorenzo) more details on the Hughes v Talen case.
https://www.utilitydive.com/news/what-the-hughes-v-talen-supreme-court-decision-means-for-state-power-incen/418046/

Lorenzo's Comments

Some opponents of SB-813 raise the concern that forming a Regional ISO would increase potential for negative interference by the federal energy regulatory commission (FERC) and the federal government in general. Here are some important relevant facts.

First, the US Constitution gives the federal government authority over states in matters of interstate commerce (the "commerce clause" of the constitution). This is sometimes referred to as "federal pre-emption" and has had vast impacts in all sorts of arenas ever since the Constitution was adopted in 1789.

Second, the Federal Power Act (FPA) of 1935 designates wholesale electricity transactions and high-voltage electricity transmission as interstate commerce under the Constitution, and establishes FERC as the regulatory authority to implement the FPA. There have been important updates to the FPA through federal legislation over the years, most recently the Energy Policy Act of 1992 which paved the way for wholesale power markets operated by ISOs, and the Energy Policy Act of 2005 which created a new framework for ensuring power system reliability and security in the wake of a major blackout in 2003. But the underlying FPA framework has not changed substantively. FERC has been the implementing and regulatory authority over the relevant provisions of the 1992 and 2005 acts, and the regulator of all the ISOs in the US.

As a result, the CAISO is already a FERC-jurisdictional entity, and 100% of what it does is specified in its Tariff (book of everything CAISO does spelled out in formal legal language) which, per FERC approval, is incorporated into the FPA and is federal law governing the CAISO. So today if CAISO wants to implement something the state of CA wants, or that other stakeholders want, or to address a problem, CAISO conducts a public stakeholder process over several months, takes a final proposal to its Board of Governors in a public session, and if the Board approves submits a filing to FERC with proposed changes to the CAISO Tariff and arguments for why FERC should adopt the changes. Stakeholders get an opportunity to file written comments on the CAISO filing, and then FERC issues an order. FERC is supposed to assess the proposal as to whether it's consistent with existing federal law and FERC policy, and has to explain all this in its order. FERC's more formal definition of its role and jurisdiction is about

“rates, terms and conditions of wholesale energy markets, wholesale energy transactions and transmission service” to ensure that they are “just and reasonable.”

Forming a Regional ISO will not change any of FERC’s roles in this or the extent of its authority. The one thing SB 813 does change (not involving FERC) is the composition of the CAISO Board of Governors, which as noted is the intermediate decision maker or “filter" between the CAISO management/staff, who develop a proposal through the stakeholder process, and FERC.

Re the Board of Governors, as noted above any changes to the CAISO Tariff that are originated by the CAISO (in contrast to ones that are ordered by FERC) must have approval of the CAISO Board before being filed with FERC. Today’s CAISO board has 5 members appointed by the governor of CA and confirmed by the CA Senate. So there is a concern that a different Board that is not CA-appointed might make different decisions about what the Regional ISO can submit to FERC, and some of those decisions might be less favorable to California. That is a plausible scenario. But the new Board is required to be “independent” which means not to have any financial or political interests with market-participating entities or specific state or local governments in the Regional ISO’s territory. And in the end, FERC still has to rule on whatever is submitted to it, so has essentially the last word (unless the FERC decision is appealed in the courts, which happens sometimes).

The above should NOT be read to say that FERC regulation and authority are not problematic for states - they certainly can be. (And there are many other areas where federal “pre-emption” of state authority is problematic, but it’s not black and white.) But the question with regard to SB 813 is whether forming a Regional ISO, compared to the CAISO governance as it today, expands FERC’s authority or expands the ability of the federal government to over-rule or under-mine CA policy objectives. Personally I don’t see much merit to this argument against SB 813, but in the current federal political climate who knows? One relevant FERC story: The Dept. of Energy twice directed FERC to implement subsidy schemes for coal and nuclear power plants (last December and again in a different frame last month). Both times the FERC voted 5-0 to say NO to DOE, mainly related to their mission to protect competitive wholesale markets (4 of the 5 current commissioners were appointed by the post-Obama administration). In fact two states - New York and New Jersey - have passed subsidy schemes for their nuclear power plants, and FERC does not seem to be challenging them in any way so far.

By the way, Texas, Hawaii and Alaska are not subject to FERC regulation because they do not engage in interstate commerce for electricity. That’s probably obvious for HI and AK. In the case of Texas, it’s because they don’t do import and export transactions with other states; they’re essentially an electrical “island” for most of the state. Now that kind of thing is simply impossible for CA because we rely on imports for over 20% of our electricity supply annually.

Relative to Hughes v Talen (the court case Christine shared above) I don’t see how going from CAISO to Regional ISO changes anything about how FERC would deal with this kind of issue.