Staff Report Item 12

TO: East Bay Community Energy Board of Directors

FROM: Jim Dorrance, Power Resources Manager

SUBJECT: **Power Content Guidelines (Information Item)**

DATE: February 26, 2022

Recommendation

Receive a presentation showing a proposed schedule to reach zero emissions electricity in 2030.

Background and Discussion

Background

At the December 16th, 2020, Board meeting, the Board adopted a clean energy goal by Resolution setting a goal for all electricity within EBCE's portfolio to have zero net emissions by 2030 and this was supported by EBCE's Integrated Resource Plan (IRP) analysis for that year. This ambitious goal set EBCE's zero emission timeline 15 year's ahead of California's (CA) goal of state-wide zero emission electricity by 2045 from Senate Bill 100 (SB100). The purpose of this staff report is to present a schedule with annual goals as percentages for renewable and carbon free electricity purchases for each year to achieve zero emission electricity by 2030. Within this schedule are targets for the renewable content plan-wide and for Bright Choice through 2030.

Path to Zero Emissions 2030

The schedule described in this report illustrates a path to reach zero emission electricity by 2030 with each year's renewable and carbon free percentages as steps to reach that goal. Staff will continue to work to meet or exceed the annual goals of this schedule but understands that there is yearly uncertainty with the generation from EBCE's contracted long-term renewable sources and the dynamic availability of generation from large hydroelectric facilities. Additionally, further analysis of procurement costs and planning will be completed

every 2 years as part of the Integrated Resource Planning process that could require changes to the schedule.

Another part of the proposed guidelines and schedule would remove the use of Pacific Gas and Electric's (PG&E) prior year renewable content forecast as the basis for the annual procurement floor for Bright Choice. This step will de-couple the renewable content of Bright Choice from PG&E renewable content forecasts and establish annual steps that lead to zero emission electricity in 2030. As seen in the schedule in the table, EBCE's renewable content for Bright Choice would continue to increase each year and be at least 5 percent higher than the CA Renewable Portfolio Standard (RPS) annual targets.

The schedule will also result in a year-over-year reduction in emissions for EBCE's entire portfolio. For calculating and reporting emissions from electricity, EBCE used The Climate Registry (TCR) in 2018-2019 and starting in 2020 EBCE started reporting emissions through the Power Source Disclosure Report (PSDR) and on the Power Content Label (PCL), using the associated regulations for calculating and reporting emissions. The PSDR regulations, which EBCE now uses, include reporting emissions associated with power content from any emitting generation source (Unspecified Power, Natural Gas, etc.) and emissions for purchases of Portfolio Content Category 2 (PCC2) RECs when the associated energy is not specific by source. EBCE's emission reporting is also discussed in further detail in later in this report. Both the TCR and PSDR emission factor is included in the schedules for the applicable years.

Schedule for Annual Renewable and Carbon Free Electricity

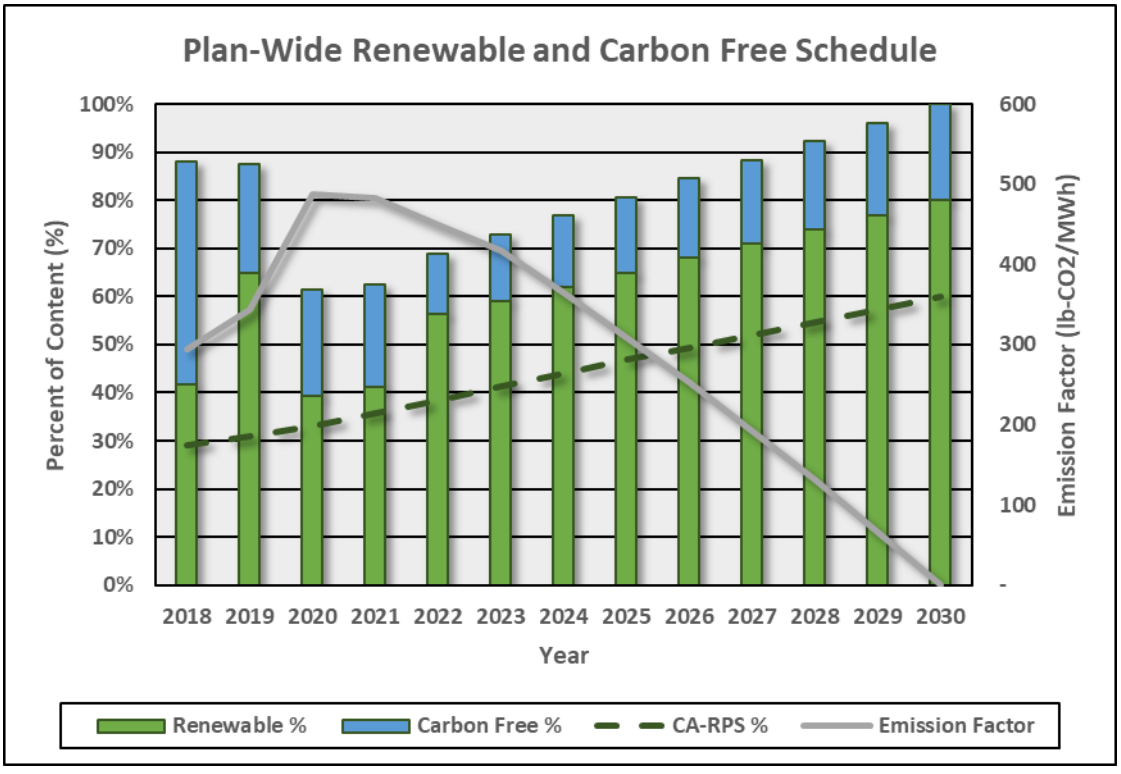
The below table is a schedule for electricity purchases for each year through 2030 for renewable and carbon free electricity as a percent of forecasted total sales for all of EBCE's offered plans combined (Bright Choice and Renewable 100 combined for future years); this would be the total renewable and carbon free electricity purchased for all plans that EBCE provides to customers. Additionally, the below table includes estimates for the emission factor for each year showing an annual reduction in plan-wide emissions with zero emissions in 2030. The table includes annual percentages for both renewable and carbon free where the percent of carbon free includes the renewable electricity as well. Typically, and relating to EBCE purchases, carbon free energy comes from either renewable generation or from large hydroelectric. As discussed above there are annual constraints on the availability of large hydroelectric generation based on weather and availability; and the ability to purchase large hydroelectric in a given year. Because of this there may be situations where a greater amount of the carbon free generation showed in the schedule will come from renewable sources instead of large hydroelectric, increasing the renewable percent for a given year but having the same percentage of carbon free.

Table 1: Schedule, All Plans: Renewable, Carbon Free Percentages by Year and PCL Emissions Factor for All Plans

Year	All Plans				CA-RPS %
	Renewable %	Carbon Free %	TCR*-Emission Factor	PSDR-Emission Factor	Renewable %
2018	42%	88%	82	*n/a*	29%
2019	65%	88%	113	*n/a*	31%
2020	39%	61%	*n/a*	488	33%
2021	41%	63%	*n/a*	483	36%
2022	56%	69%	*n/a*	450	39%
2023	59%	73%	*n/a*	417	41%
2024	62%	77%	*n/a*	364	44%
2025	65%	81%	*n/a*	309	47%
2026	68%	85%	*n/a*	252	49%
2027	71%	88%	*n/a*	193	52%
2028	74%	92%	*n/a*	131	55%
2029	77%	96%	*n/a*	67	57%
2030	80%	100%	*n/a*	-	60%

** The Climate Registry (TCR) was used for emissions calculation and reporting for 2018-2019, beginning in 2020 EBCE no longer used the TCR for emissions reporting and currently only uses the Power Source Disclosure (PSDR) methodology for emissions calculating and reporting as required by the regulations.*

Chart 1: Renewable, Carbon Free Percentages, RPS percent, PCL Emissions Factor for All Plans through 2030



The table and chart above show a schedule for renewable and carbon free content through 2030 for all of EBCE's plans. The totals from 2018 through 2021 contain actual and forecasted sales, and electricity purchases from Bright Choice, Brilliant 100 and Renewable 100 while future years, starting in 2022 contain sales and proposed electricity purchases from Bright

Choice and Renewable 100. Also contained in the above table are estimates for plan wide emission factors in future years using the current PSDR methodology as would be reported on the PCL and showing annual emission reductions. The increase in the renewable percentage from 2021 to 2022 is driven by the customers that are departing the Brilliant 100 plan and increasing the enrolment in Renewable 100 in addition to an annual increase in the renewable percentage of Bright Choice. For comparison purposes the CA RPS annual percentages are included showing that plan wide renewable content would be well over the RPS annual targets.

This schedule shows the path to zero emissions in 2030 for all of EBCE's plans combined. In developing this schedule there are two primary factors influencing the plan wide emissions. The largest source of emission in EBCE's portfolio is power content from emitting generation sources and for Bright Choice this is unspecified power which is the balance of carbon free electricity purchases (which includes renewable) and total sales. Unspecified electricity is not purchased for Bright Choice for content purposes but is reflective of the total sales net of carbon free content. The second factor influencing the plan wide emissions is renewable content from PCC2 RECs for Bright Choice since the PSDR emissions reporting regulations require EBCE to report emissions for these renewable purchases when the source of the energy is not specified which will be discussed further below. Bright Choice, by far the largest plan and currently has the largest impact on plan-wide emissions, since Renewable 100 is always both emissions free and 100 percent renewable. The below schedule is a schedule for renewable, and carbon free content schedule for Bright Choice including historical data.

Table 2: Schedule, Bright Choice: Renewable, Carbon Free Percentages by Year and PCL Emissions Factor for Bright Choice

Year	Bright Choice				CA-RPS %
	Renewable %	Carbon Free %	TCR*-Emission Factor	PSDR-Emission Factor	Renewable %
2018	41%	87%	101	*n/a*	29%
2019	60%	85%	135	*n/a*	31%
2020	40%	54%	*n/a*	580	33%
2021	41%	55%	*n/a*	577	36%
2022	45%	63%	*n/a*	566	39%
2023	49%	66%	*n/a*	521	41%
2024	52%	71%	*n/a*	455	44%
2025	56%	76%	*n/a*	387	47%
2026	60%	81%	*n/a*	315	49%
2027	64%	85%	*n/a*	241	52%
2028	67%	90%	*n/a*	163	55%
2029	71%	95%	*n/a*	83	57%
2030	75%	100%	*n/a*	-	60%

** The Climate Registry (TCR) was used for emissions calculation and reporting for 2018-2019, beginning in 2020 EBCE no longer used the TCR for emissions reporting and currently only uses the Power Source Disclosure (PSDR) methodology for emissions calculating and reporting as required by the regulations.*

The above table shows renewable and carbon free content through 2030 for Bright Choice. The totals for 2018 through 2020 are actual sales and electricity purchases and forecasts for 2021 as we continue to finalize the Bright Choice content from last year. As shown previously in the schedule for all of EBCE's plans combined, the above table has estimates for emission

factors in future years calculated using the PSDR method and the CA RPS percentages for comparison. The above schedule includes annual increases in the renewable and carbon free content resulting in annual reductions in the emission factor for Bright Choice. The schedule has the renewable content Bright Choice being at least 5 percent greater than CA RPS and increasing to 15 percent over the CA RPS by 2030 when Bright Choice will have zero emissions. Not shown in the above table but reflected in the estimates for emission factors is an annual reduction in the purchase of PCC2 RECs for the Bright Choice plan whereby 2030 all of the renewable electricity for Bright Choice would come from PCC1 RECs.

In presenting the above schedule to reach zero emissions electricity in 2030, EBCE would be moving away from using PG&E's renewable content forecast as the basis for the annual procurement floor for Bright Choice moving forward. The below table reviews Bright Choice and plan-wide content compared to PG&E's base product. Included are the actual annual renewable and carbon free electricity as reported on the PCL. In addition to PG&E's renewable electricity, the table shows PG&E's carbon free electricity from both renewable and large hydro sources combined. This is the equivalent for comparison purposes to the carbon free content in EBCE's plans since EBCE does not have nuclear electricity as content from specific sources and only has transient amounts from purchased Asset Controlling Supplier electricity (ACS). Additionally, the carbon free electricity from PG&E's nuclear sources is displayed. The percentages from PG&E is displayed in this manner to create an accurate comparison for the carbon free content from EBCE and PG&E.

Table 3: Comparison of EBCE's Bright Choice, and Plan-Wide Renewable and Carbon Free Content Compared to the content PG&E base plan

Year	All Plans		Bright Choice		PG&E-Base Plan			CA-RPS %
	Renewable %	Carbon Free %	Renewable %	Carbon Free %	Renewable %	Renewable + Lrg. Hydro, %	Nuclear	Renewable %
2018	42%	88%	41%*	87%	39%	52%	34%	29%
2019	65%	88%	60%*	85%	29%	56%	44%	31%
2020	39%	61%	40%*	54%	31%	41%	43%	33%
2021	41%	63%	41%*	55%				36%
2022	56%	69%	45%	63%				39%
2023	59%	73%	49%	66%				41%
2024	62%	77%	52%	71%				44%
2025	65%	81%	56%	76%				47%
2026	68%	85%	60%	81%				49%
2027	71%	88%	64%	85%				52%
2028	74%	92%	67%	90%				55%
2029	77%	96%	71%	95%				57%
2030	80%	100%	75%	100%				60%

** Board Adopted targets for Bright Choice renewable percentage are 38% for 2018-2019, 39.5% for 2020 and 41.2% for 2021*

Emissions

With the adoption of the clean energy goal and zero emission electricity by 2030 we must spend time talking about emissions, emission factors, and how they are quantified. The above discussion primarily uses reported emissions derived from the calculation and reporting that is required by the PSDR for future years, but this is not the only way that EBCE measures emissions from electricity. The emissions as shown in the tables above are forecasts of emission factors which is calculated from the total emissions from the electricity divided by total sales to calculate an emission factor for each year. This factor is reported as pounds of carbon dioxide equivalent per MWh (lb-CO_2^e/MWh) so for every MWh of sold electricity there is corresponding amount for emissions.

The source of the emissions is discussed above but the actual annual emissions or emission factor may change depending on the calculation method that is used, the emission factor in the two tables above uses the PSDR methodology for future years but in the past EBCE used the TCR emissions calculation methodology which is also displayed. The PSDR methodology was first implemented in 2020 and reflects a CA centric approach to looking at renewables and the associated emissions benefit. TCR is a widely accepted emissions reporting protocol that was utilized by public agencies and IOUs alike. For example, PG&E, EBCE (among other CCAs), and the majority of our member cities have utilized the TCR registry. The TCR methodology takes a more goal or regional centric approach to looking at emissions. The most significant difference in the two methodologies is that the PSDR method for calculating emissions includes GHG emissions from PCC2 RECs. PCC2 RECs are created from renewable projects that are located outside of CA and require the seller to import energy into CA for the benefit of the buyer at the same time that the renewable energy from the source is generated. And even though there are emissions attached to PCC2 RECs under the PSDR regulations, these are a CA RPS eligible renewable product. In the PSDR method, the GHG emissions factor reported on each year's PCL includes emissions for the bundled energy of the PCC2 RECs which, regardless of source in our current contract structure, are given an equivalent emissions factor equal to unspecified power. Using PCC2 RECs as renewable content is an accepted practice within the RPS regulations, which require a minimum of 75% of the RPS requirement to be met with PCC1 RECs. EBCE will continue to purchase these products to satisfy our renewable commitment to our customers but will propose annual reductions in the amount of PCC2 RECs purchased to achieve zero emissions electricity by 2030 using the PSDR methodology.

Table 3: All Plan Emissions Factor with Both PSDR and TCR Emission Calculating Methodology

Year	Emission Factor (lb-CO2/MWh)	
	PSDR	TCR
2018	294	82
2019	344	113
2020	488	351
2021	483	332
2022	450	275
2023	417	256
2024	364	219
2025	309	183
2026	252	146
2027	193	110
2028	131	73
2029	67	37
2030	-	-

In addition to the PSDR and TCR methodologies for calculating an annual emission factor, emissions are calculated and reported during the IRP process as well, with this analysis serving as the basis for the presented information at the December 16th, 2020, Board meeting

where the zero emission 2030 clean energy goal was approved. For background, the IRP is a long-term planning proceeding from the California Public Utilities Commission (CPUC) that looks forward 10 years to determine the least-cost resource mix required to meet state emission goals while maintaining system reliability. These are prepared and filed every other year with EBCE currently working on the 2022 report. During this process, the Board will be updated and have the opportunity to provide feedback. For the IRP EBCE is required to submit a resource plan intended to meet or exceed the state-wide emission goals. The associated emissions from this year's IRP process will be presented to the Board during this year's IRP process.

Staff is presenting the schedule within this report to the Board as a proposed path to a zero emission 2030 as was adopted by the Board in 2020. At the same time EBCE will continue to add long-term renewable projects to our portfolio with a focus on projects within our jurisdictions and target annual reductions in plan-wide emissions. The schedule outlined here includes year over increases in renewable electricity for Bright Choice, a continuation of Bright Choice's renewable percentage exceeding the CA RPS and plan wide year over reduction in emissions resulting in zero emission electricity in 2030.

Fiscal Impact

There are no fiscal impacts as this item provides more detail to a previously adopted Board item to get to zero emissions by 2030. The above schedule would include annual increases in renewable and carbon free electricity purchased and will likely result in increased costs for purchased electricity if adopted.

Attachments

A. Presentation

FEBRUARY 26, 2022

Path to Zero Emissions in 2030

EAST BAY COMMUNITY ENERGY

Background

- At the December 2020 Board Meeting, a clean energy goal was adopted, including:
  - Zero Emission Electricity by 2030
  - 15 years ahead of CA state target in 2045
  - Supported by IRP analysis

Path to Zero Emissions in 2030

Present a path to zero emission electricity by 2030 with annual renewable and carbon percentages as steps

- Goals:
  - Zero emission electricity by 2030
  - 15 years ahead of CA state target in 2045
  - Annual reduction in plan-wide emissions
  - Bright Choice renewable content exceeding CA RPS %

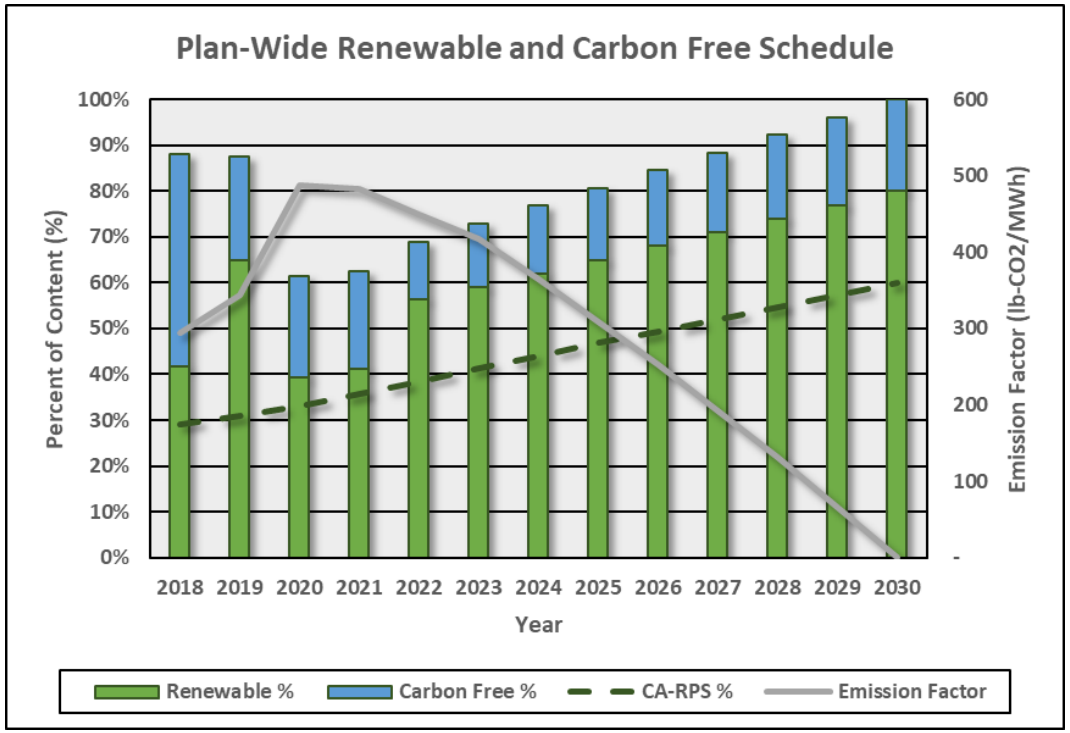
EAST BAY COMMUNITY ENERGY

Path to Zero Emissions in 2030, Informational

- Plan-wide, Bright Choice carbon free and renewable; CA RPS%
- Actual Content through 2020, estimates for 2021, and schedule to 2030

Year	All Plans		Bright Choice		CA-RPS %
	Renewable %	Carbon Free %	Renewable %	Carbon Free %	Renewable %
2018	42%	88%	41%*	87%	29%
2019	65%	88%	60%*	85%	31%
2020	39%	61%	40%*	54%	33%
2021	41%	63%	41%*	55%	36%
2022	56%	69%	45%	63%	39%
2023	59%	73%	49%	66%	41%
2024	62%	77%	52%	71%	44%
2025	65%	81%	56%	76%	47%
2026	68%	85%	60%	81%	49%
2027	71%	88%	64%	85%	52%
2028	74%	92%	67%	90%	55%
2029	77%	96%	71%	95%	57%
2030	80%	100%	75%	100%	60%

** Board Adopted targets for Bright Choice renewable percentage are 38% for 2018-2019, 39.5% for 2020 and 41.2% for 2021*



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Path to Zero Emissions in 2030, Informational

- PG&E Base Plan renewable, renewable + large hydro, and nuclear content
- Currently the Bright Choice procurement content floor is tied to Forecasts for PG&E renewable content

Year	All Plans		Bright Choice		PG&E-Base Plan			CA-RPS %
	Renewable %	Carbon Free %	Renewable %	Carbon Free %	Renewable %	Renewable + Lrg. Hydro, %	Nuclear	Renewable %
2018	42%	88%	41%*	87%	39%	52%	34%	29%
2019	65%	88%	60%*	85%	29%	56%	44%	31%
2020	39%	61%	40%*	54%	31%	41%	43%	33%
2021	41%	63%	41%*	55%				36%
2022	56%	69%	45%	63%				39%
2023	59%	73%	49%	66%				41%
2024	62%	77%	52%	71%				44%
2025	65%	81%	56%	76%				47%
2026	68%	85%	60%	81%				49%
2027	71%	88%	64%	85%				52%
2028	74%	92%	67%	90%				55%
2029	77%	96%	71%	95%				57%
2030	80%	100%	75%	100%				60%

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** Board Adopted targets for Bright Choice renewable percentage are 38% for 2018-2019, 39.5% for 2020 and 41.2% for 2021*

Path to Zero Emissions in 2030, Emissions

- There are multiple methods for calculating emissions
  - Power Source Disclosure Report (AB-1110/PSDR), includes emissions from:
    - Unspecified power content
    - PCC2 Renewable Energy Credits (RECs)
    - Any other specified sources that have emissions: some geothermal, Biomass/Biowaste, natural gas, ACS
  - The Climate Registry (TCR), includes emissions from:
    - All the above **except** PCC2 RECs and Biomass/Biowaste
  - IRP
    - Emissions to be updated during IRP process

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Path to Zero Emissions in 2030, Emissions

- Plan-wide emissions reduction over time down to zero emissions by 2030
- Table shows emissions using PSDR and TCR methods
  - Primary difference is due to the emissions from PCC2 RECs reported through the PSDR

Year	Emission Factor (lb-CO2/MWh)	
	PSDR	TCR
2018	294	82
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2029	67	37
2030	-	-

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Summary

Present a path to zero emission electricity by 2030 with annual renewable and carbon percentages as steps

- Summary:
  - The schedule is presented as informational
  - Illustrates a path to zero emission electricity in 2030
  - Annual increases in renewable and carbon free electricity, lower emissions
  - Bright Choice renewable content greater that CA RPS

EAST BAY COMMUNITY ENERGY

Questions?

Thank You

Jim Dorrance

Power Resources Manager

EAST BAY COMMUNITY ENERGY