



Staff Report Item 22

TO: Ava Community Energy Authority

FROM: Nick Chaset, Chief Executive Officer

SUBJECT: PG&E Nuclear Allocation Decision (Informational Item)

DATE: April 17, 2024

Recommendation

Staff is seeking Board feedback in consideration of the nuclear GHG-free attributes being offered as a result of extended operations at Diablo Canyon Nuclear Power Plant (DCPP).

Background and Discussion

In 2020, load serving entities (LSEs) within PG&E service territory were offered carbon-free attributes from large hydro and nuclear power proportional to the LSE's load. Ava, then EBCE, brought forth multiple informational and action items to the Board regarding the allocations and in the April 2020 Board meeting, a decision was passed to accept the large hydro allocation and reject the nuclear allocation.

While Ava has received an allocation of carbon free energy from PG&E's portfolio of large hydro resources from 2020 through 2024, there is uncertainty around what structure will be in place for future years and whether a new market price benchmark will be incorporated, or if there will be an allocation to customers with a cost responsibility. Weather variability also plays an important factor in annual availability of large hydro generation.

DCPP was anticipated to shut down in 2024-2025, however on December 14, 2023, the California Public Utilities Commission (CPUC) adopted a final Decision¹ that extended operations at DCPP until October 31, 2029 (Unit 1) and October 31, 2030 (Unit 2) due to insufficient CAISO grid capacity and reliability concerns. The Decision requires PG&E to offer LSEs the ability to use their share of DCPP's GHG-free attributes for their power content label using the existing process for voluntary offering as a model. PG&E is required to file an Advice

¹ D.23-12-036

Letter by June 14, 2024, formalizing the process for the allocation of GHG attributes from extended operations at DCPD to LSEs.

There is no obligation to accept an allocation of nuclear energy, and acceptance or rejection of the nuclear allocation will have no impact on the extension of Diablo Canyon, which has already been approved. All customers pay for, and will continue to pay for, PG&E nuclear generation costs through the Power Charge Indifference Adjustment (PCIA). Whether or not Ava accepts the nuclear allocation, has no impact on PCIA charges as the PCIA is a non-bypassable charge set annually by the CPUC.

The volume of nuclear power to be offered is still being determined and will be made to all LSEs across California, not just those within PG&E territory. Staff estimates that the allocation PG&E offers to Ava may contain ~610,000 MWh of nuclear power. Resource Adequacy is also included across all LSEs as part of the allocation.

Scenarios for Board Consideration:

Scenario 0 – Do not accept nuclear.

Scenario 1 – Ava accepts nuclear allocation up to Ava's load share percentage.

Scenario 2 – Ava accepts nuclear allocation and further reduces our carbon intensity with additional large hydro or nuclear purchases.

Bright Choice Power Content Impacts

Proposed scenarios under which Ava accepts the nuclear allocation are estimated to offset from 50% up to 100% of unspecified emissions in year one.

Fiscal Impact

Fiscal impacts of this item are specific to energy procurement cost savings for the Bright Choice product and are realized beginning in 2028 when nuclear begins to offset large hydro procurement needs. There are no costs associated with acceptance of the allocation.

Attachments

- A. Nuclear Allocation Decision Presentation

Nuclear Allocation Discussion

April 17, 2024



1. Background
2. Baseline Facts
3. Scenarios for Board consideration



Background



General Background

- In 2019, Ava, then EBCE, introduced the concept of PG&E providing some form of carbon-free benefits to customers who paid a Power Charge Indifference Adjustment (PCIA) fee that included the costs of in-state large hydroelectric and nuclear power. Essentially, our customers paid for some portion of carbon-free power, so we/they should have some benefit from that.
- In the following years, load serving entities within PG&E service territory were offered the carbon-free attributes from large hydro and nuclear power proportional to the LSE's load.
- Diablo Canyon was anticipated to shutdown in 2024-2025. However, the plant received a 5-year extension from state and federal authorities.
- PG&E must offer an allocation of nuclear power to California LSEs in the summer/fall of this year.



Ava Background

- Ava brought forth multiple informational and action items to the Board regarding Nuclear allocations in 2019 and 2020.
- In the **April 2020** Board meeting, a decision was passed to accept the large hydro allocation and reject the nuclear allocation.
 - Decision passed with a vote of 10 yes and 5 no; No's were in favor of accepting the nuclear allocation
 - No votes: Hayward, Newark, Pleasanton, Piedmont, Livermore
 - 80+ public comments in opposition to accepting Nuclear
- In the **December 2020** Board meeting, a decision was passed to accept the nuclear allocation to resell the attributes at equal to or >\$0.
 - This decision was in part passed because PG&E is able to disclose a lower GHG emissions level due to high nuclear content. It is able to elect not to disclose its natural gas procurement in favor of carbon-free nuclear.
 - Decision passed with 10 yes and 2 No; No's were in favor of accepting and retaining the nuclear
 - No votes: Hayward, Albany
 - 10+ public comments in opposition to this structure



Regulatory Background

- **On December 14, 2023, the CPUC adopted a final Decision that extended operations at Diablo Canyon Nuclear Power Plant (DCPP) until October 31, 2029 (Unit 1) and October 31, 2030 (Unit 2) due to insufficient CAISO grid capacity and reliability concerns.**
 - The Decision requires PG&E to offer LSEs the ability to use their share of DCP's GHG-free attributes for their power content label using the existing process for voluntary offering as a model.
 - Ava has used estimates of the GHG free attributes in the included scenarios in this ppt as final allocation ratios will not be released until summer 2024.
 - Note: Resource Adequacy is not a voluntary allocation and is included across all LSEs
- **While Ava has received an allocation of carbon free energy from PG&E's portfolio of large hydro resources from 2020 through 2024, there is uncertainty around what structure will be in place for future years and whether a new market price benchmark will be incorporated, or if there will be an allocation to customers with a cost responsibility.**
 - Note that large hydro allocations will likely be reduced going forward as PG&E may have discretion over allocation offerings and large hydro market purchases are increasingly scarce and variable year to year.
- **The current emissions accounting methodology is tracked on an annual basis and the enclosed emissions estimates in this presentation reflect the current rules. Hourly emissions accounting rules are being contemplated for the Power Source Disclosure (PSD) program beginning in 2028. This could meaningfully change Ava's emissions levels.**



Energy Market Background

- **Energy Market Pricing Dynamics**

- Historically PCC1 Renewable Energy Credits (RECs) have generally priced in the \$10 to \$15/MWh range and are currently pricing in the \$70 to \$80/MWh range.
- Historically Large Hydro GHG-free attributes have generally priced in the \$3 to \$6/MWh range and are currently pricing in the \$20 to \$30/MWh range.
- Historically nuclear GHG-free attributes have not been transacted and CCAs have shown varying interest with low interest in procuring it outside of accepting the PG&E allocation. There appears to be increasing interest from CCAs to accept and potentially procure additional nuclear currently.
- The **sharp increase in pricing** is driven by several factors, including limited generating capacity in CAISO, significant increased clean energy demand in California by CCAs and Corporates accelerating beyond SB100, increased clean energy demand outside of California impacting imports, and increased weather variability impacting supply. This weather variability has a particularly pronounced effect on large hydro resources inside and outside of CAISO.
- There continues to be upward pressure on pricing on the horizon and there are indications that there will likely be market demand for nuclear by other load serving entities.
- Pricing implications on the following slides are based on current market conditions and subject to increased volatility.



Additional information on pending nuclear offer

- The pending nuclear offer will be made to all load serving entities across California, not just those within PG&E's service area.
- The offer is limited only to nuclear power – no hydroelectric power is being offered.
- The volume of nuclear power to be offered is still being determined and will be based on load share. The allocation process will be filed by PG&E by June 14, 2024.
- The nuclear power will be offered annually through 2030, always based on load share.
- Staff is seeking board feedback in consideration of these anticipated nuclear GHG-free attributes being offered.
- Note that acceptance or rejection of these nuclear attributes will have no impact on the extension of Diablo Canyon, which has already been approved.



Baseline Facts

- Current 2030 Bright Choice Goal
- EBCE and PG&E 2022 Power Content
- Large Hydro Production in CA
- Production of nuclear power in CA from CAISO



2030 Goal for 100% Clean Bright Choice Service

- The board approved the following Renewable Energy and Carbon Free Procurement schedule in April 2022
 - *Indicates subsequent board approved changes to the procurement schedule

	Bright Choice				CA-RPS %
Year	Renewable %	Carbon Free %	Unspecified %	Estimated PSDR Emission Factor	Renewable %
2018	41%	62%	38%	n/a	29%
2019	60%	87%	13%	n/a	31%
2020	40%	55%	45%	591	33%
2021	42%	60%	40%	564	36%
2022	49%*	72%*	28%*	496	39%
2023	54%*	76%*	24%*	503*	41%
2024	52%	81%*	19%*	403*	44%
2025	56%	76%	24%	387	47%
2026	60%	81%	19%	315	49%
2027	64%	85%	15%	241	52%
2028	67%	90%	10%	163	55%
2029	71%	95%	5%	83	57%
2030	75%	100%	0%	-	60%

Source: Board Item from October 18, 2023



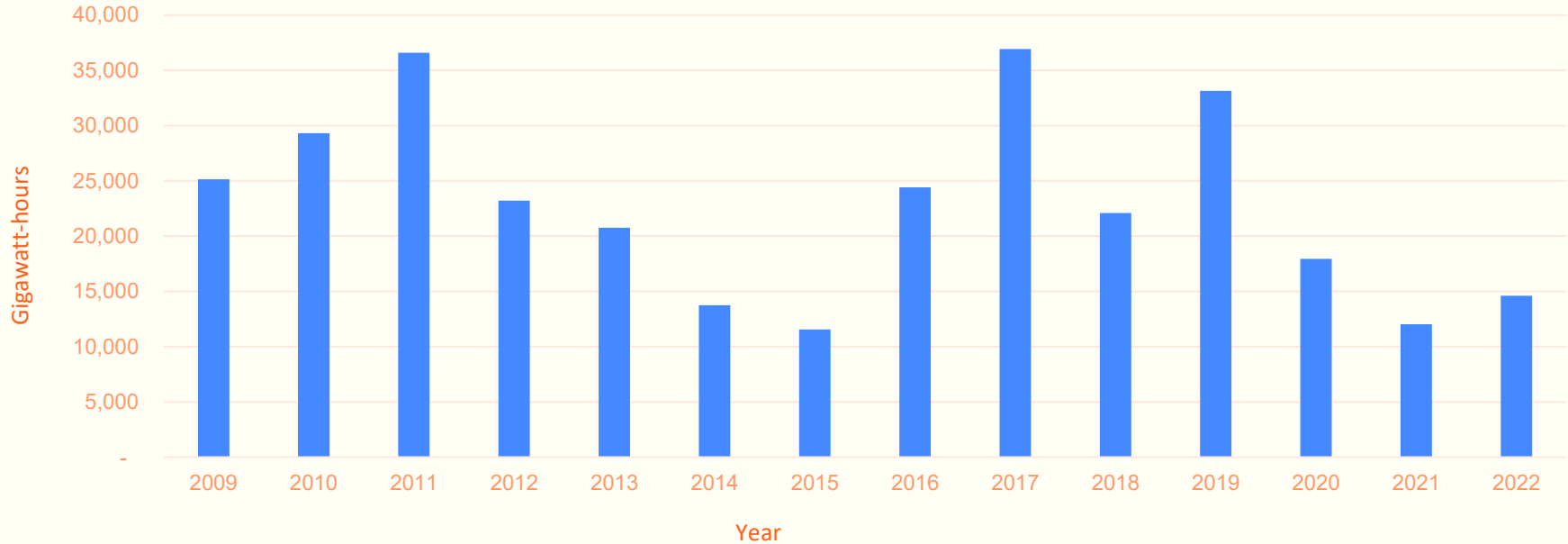
2022 Power Content

(most recent reporting year)

	EBCE – Bright Choice	Attachment Staff Report Item 22A	Attachment Staff Report Item 22A
Eligible Renewables	49.4%	38.3%	35.8%
Biomass & Biowaste	1.5%	4.6%	2.1%
Geothermal	0.8%	0.5%	4.7%
Eligible Hydroelectric	1.4%	1.8%	1.1%
Solar	18.1%	22.0%	17.0%
Wind	27.6%	9.4%	10.8%
Coal	0.0%	0.0%	2.1%
Large Hydroelectric	21.9%	7.6%	9.2%
Natural Gas	0.0%	4.8%	36.4%
Nuclear	0.2%	49.3%	9.2%
Other	0.0%	0.0%	0.1%
Unspecified Power	28.4%	0.0%	7.1%
GHG Intensity (lbs CO₂e/MWh)	496	56	422



Large Hydro Production in California



Source: California Energy Commission "[Total System Electric Generation 2009-2022 with totals_ada.xlsx](#)"



Nuclear Power Production

- Nuclear plants operate at a steady state with small variations for maintenance
- Nuclear power covers about 2,000 MW of baseline load
- Nuclear power production represented by the grey strip in the charts below.

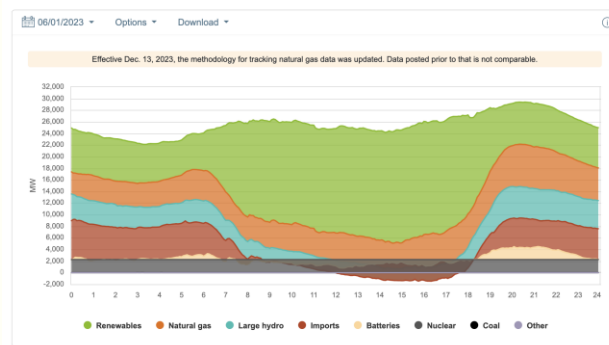
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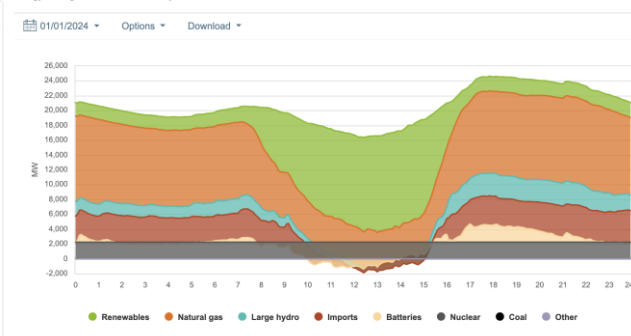
Supply trend

Energy in megawatts broken down by resource in 5-minute increments.



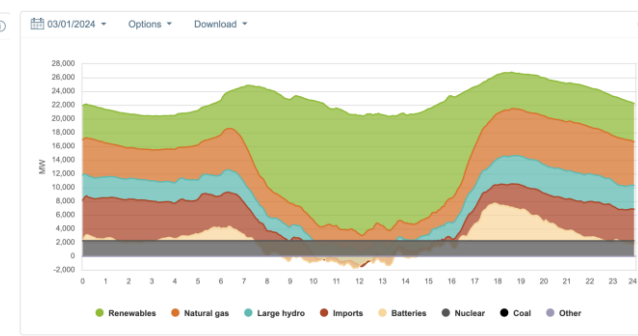
Supply trend

Energy in megawatts broken down by resource in 5-minute increments.



Supply trend

Energy in megawatts broken down by resource in 5-minute increments.



Scenarios for Board Consideration



Scenarios for Board Consideration

Attachment Staff Report Item 22A

Scenario 0 – Do Not Accept Nuclear

- Continue towards 2030 Renewable Energy (RE) and Carbon Free (CF) targets

Scenario 1 – Accept Nuclear

- No change to 2030 RE or CF targets
- Reducing unspecified by 50% in year one

Scenario 2 – Accept Nuclear + Further Reduce Carbon Intensity w/additional large hydro or nuclear

- No change to 2030 RE or CF targets
- Reducing unspecified by 50% in year one
- Buy additional large hydro or nuclear to eliminate unspecified in 2025 (emissions would be from PCC2s only)



Details: Scenario 0 – Do Not Accept Nuclear Allocation

- No financial impact given this is the base case
 - Note that based on energy market volatility and increased demand for renewables staff is evaluating whether an upward rate adjustment of R100 is needed
- Power content follows plan for 2030
- * Indicates board approved procurement changes based on annual budgeting process

	Bright Choice				CA-RPS %
Year	Renewable %	Carbon Free %	Unspecified %	PSDR Emission Factor Estimate	Renewable %
2018	41%	62%	38%	n/a	29%
2019	60%	87%	13%	n/a	31%
2020	40%	55%	45%	591	33%
2021	42%	60%	40%	564	36%
2022	49%*	72%*	28%	496	39%
2023	54%*	76%*	24%*	503*	41%
2024	52%	81%*	19%*	403*	44%
2025	56%	76%	24%	387	47%
2026	60%	81%	19%	315	49%
2027	64%	85%	15%	241	52%
2028	67%	90%	10%	163	55%
2029	71%	95%	5%	83	57%
2030	75%	100%	0%	-	60%



Details: Scenario 1 – Accept Nuclear Allocation

General

- No change to Renewable Energy (RE) or Carbon-Free (CF) targets
- Reducing unspecified by 50% in year one
- Nuclear reduces unspecified first and then offsets hydro needs starting in 2028

Financial

	2025	2026	2027	2028	2029	2030
Potential savings on hydro	-	-	-	\$1,012,292	\$6,501,359	\$12,349,779

Power Content

Bright Choice Power Content (estimated)	2025	2026	2027	2028	2029	2030
Renewable Energy	56%	60%	64%	67%	71%	75%
Large Hydro	20%	21%	21%	22%	18%	15%
Nuclear	12%	11%	11%	11%	11%	10%
Unspecified	12%	8%	4%	0%	0%	0%
GHG Emissions	345	257	178	96	49	0
<i>Reference: Current Plan Unspecified</i>	24%	19%	15%	10%	5%	0%



Details: Scenario 2 – Accept Nuclear Allocation + PCC2

Attachment Staff Report Item 22A

General

- No change to RE or CF targets; Reduce unspecified first, then offsets hydro needs starting in 2028
- Buy additional large hydro or nuclear to eliminate unspecified in 2025 (emissions would be from PCC2s only)

Financial

	2025	2026	2027	2028	2029	2030
Potential savings on hydro	-	-	-	\$1,518,438	\$9,752,039	\$18,524,669
Cost for add'l nuclear (\$10)	\$6,218,546	\$4,021,061	\$2,083,163			
Cost of add'l large hydro (\$30)	\$18,655,637	\$12,063,182	\$6,249,488			

Power Content

Bright Choice Power Content (estimated)	2025	2026	2027	2028	2029	2030
Renewable Energy	56%	60%	64%	67%	71%	75%
Large Hydro	20%	21%	21%	22%	18%	15%
Nuclear	12%	11%	11%	11%	11%	10%
Add'l Hydro or Nuclear	12%	8%	4%	0%	0%	0%
Unspecified	0%	0%	0%	0%	0%	0%
GHG Emissions	230	187	143	96	49	0
<i>Reference: Current Plan Unspecified</i>	<i>24%</i>	<i>19%</i>	<i>15%</i>	<i>10%</i>	<i>5%</i>	<i>0%</i>



Scenario Summary

Scenario	2025 Financial Impact	Unspecified Power Target
Scenario 0 – no nuclear	No incremental cost or savings	24%
Scenario 1 – accept nuclear	No cost, future savings	12%
Scenario 2 – nuclear + PCC2	Cost of \$6M-\$19M	0%



Questions?

