GHG-Free Data Analysis and Staff Proposal

Purpose

Decision (D.)21-05-030 declined to adopt an allocation process for GHG-Free, non-RPS-eligible resources ("GHG-Free resources") but stated that the Commission would "consider as a next step in this phase of this proceeding whether GHG-Free resources are under-valued in the PCIA methodology, and whether to adopt a GHG-Free adder or an allocation mechanism."[1] This white paper provides an Energy Division staff analysis of the incremental value of GHG-Free resources based on confidential LSE sales data[2] and presents a staff proposal to address GHG-Free, non-RPS-eligible resources in the PCIA, in response to the August 4, 2022 ruling by ALJ Stephanie Wang.[3]

Background

In Phase 1 of Rulemaking (R.)17-06-026, several parties argued that GHG-Free resources have market premiums and offered possible benchmark values to address those premiums in PCIA. These generally ranged from $2/MWh to $6/MWh, but some initial proposals were as high as $25.11/MWh.[4] The Commission concluded that the recommended benchmarks did not represent reliable market values and declined to adopt them,[5] instead noting that any premium would be captured in the annual true-up of energy prices.[6] However, the Commission acknowledged that it might be appropriate to reconsider a GHG-Free market price benchmark "[i]f market changes demonstrate a consistent heightened value for GHG-free resources in the coming years."[7]

In Phase 2 of R.17-06-026, the Working Group 3 co-chairs proposed an annual allocation of energy from GHG-Free resources in the IOUs' portfolios, based on the forecasted, vintaged, annual load shares of PCIA-eligible load serving entities (LSE). LSEs could select all-or-nothing allocations from separate pools of nuclear and non-nuclear resources, and any unaccepted allocations would be redistributed among those LSEs that did accept allocations. LSEs could claim their allocations as GHG-Free energy on their Power Content Labels (PCL) under the California Energy Commission's (CEC) Power Source Disclosure Program (PSDP). LSEs would also be able to trade or sell their allocations.[8] The co-chairs did not recommend a Market Offer as part of the allocation process, arguing that GHG-Free energy "is not a compliance product and does not have a market benchmark 'adder' value."[9] Finally, the co-chairs noted their support for interim allocations of GHG-Free energy in the PG&E and SCE service territories – which PG&E had already requested and SCE was about to request – until the Commission implemented the co-chairs' permanent allocation proposal.[10]

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[1] D.21-05-030 at 53.
[2] Data collected in a data request issued on June 17, 2022 to all LSEs.
[3] Available at https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M496/K416/496416299.PDF.
[4] D.18-10-019 at 151.
[5] Ibid., at 151.
[6] Ibid., at 150.
[7] Ibid., at 152.
[8] "Final Report of Working Group 3 Co-Chairs: Southern California Edison Company (U-338E), California Community Choice Association, and Commercial Energy," at 30-32, available at https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M335/K710/335710541.PDF.
[9] Ibid., at 32.
[10] Ibid., at 60.

Resolution E-5046 (May 7, 2020) adopted an interim allocation of energy from GHG-Free resources to PCIA-eligible LSEs in PG&E's service territory, based on individual LSEs' shares of forecasted load in the service territory, and separated into buckets of nuclear and non-nuclear energy. The resolution approved allocations in 2020, which enabled PCIA-eligible LSEs to report the GHG-Free energy on their PCLs for that year. Resolution E-5095 (August 28, 2020) adopted a similar interim, annual allocation to PCIA-eligible LSEs in SCE's service territory, through 2022. Resolution E-5111 (December 17, 2020) enabled PG&E to offer another annual allocation in 2021, with the option to do so in 2022 and 2023, as well.

In D.21-05-030, the Commission considered the Working Group 3 co-chairs' proposals to allocate GHG-Free resources, Renewable Portfolio Standard (RPS) resources, and Resource Adequacy (RA) resources in the IOUs' portfolios. The Commission assessed the proposal for each resource category based on four criteria: (1) whether it would reduce excess or uneconomic resources in the IOUs' portfolios, with "excess resources" meaning "resources that are not necessary to meet bundled customers' needs and compliance requirements;" (2) whether it was voluntary and/or market-based; (3) whether it was consistent with Commission decisions and with applicable law and state compliance programs; and (4) whether it was designed to minimize the risk of unintended consequences.[11] The Commission ultimately adopted a Voluntary Allocation and Market Offer (VAMO) process for RPS resources but declined to do so for RA resources or for GHG-Free resources. In the case of GHG-Free resources, the Commission noted that the record was insufficient to support either adoption or rejection of the proposal but concluded that "[w]e will consider as a next step in this phase of this proceeding whether GHG-Free resources are undervalued in the PCIA methodology, and whether to adopt a GHG-Free adder or an allocation mechanism."[12] The Commission also extended the term of SCE's interim allocations through 2023, as it had allowed PG&E to do through Resolution E-5111.[13]

An August 4, 2022 ruling by ALJ Stephanie Wang noted that a subsequent ruling in August or September 2022 would request party feedback on a staff proposal regarding GHG-Free resources. Prior to that ruling, Energy Division staff issued a data request to collect information on GHG-Free resources in LSEs' 2021 and 2022 portfolios. The remaining sections of this document describe the data request, analyze its results, and present a staff proposal for addressing GHG-Free resources in the PCIA.

Data Request Overview

On June 17, 2022, Energy Division staff issued a data request to LSEs requesting information on recent transactions for GHG-Free resources. Energy Division's data request asked respondent LSEs to provide information on purchases (not sales) of GHG-free resources that met the following criteria:

(1) Are from non-RPS-eligible "GHG-Free" resources located either within or outside of the CAISO Balancing Authority Area;
(2) Would meet the definition of a "Specified Purchase" in the Power Source Disclosure Program, as outlined in Title 20, Section 1391 of the California Code of Regulations;
(3) Were executed between 12/1/2019 and 12/31/2021;
(4) Are, were, or will be used to serve the load of a CPUC-jurisdictional LSE; and

[11] D.21-05-030, at 14.
[12] Ibid., at 53.
[13] Ibid., at 54.

(5) Are not allocations pursuant to Resolutions E-5046, E-5095, and E-5111.

Energy Division requested resource names, technology types, resource locations, transaction prices, whether underlying contracts also included RA capacity, and annual output in 2021 and 2022, as well as several other data points. Aside from the criteria above, the request contained much of the same wording as the semi-annual RPS-PCIA data request, including the fact that it did not ask respondents to explicitly back out RA value or energy value from the transaction prices they reported.

The purpose of tying responses to "Specified Purchases" in the Power Source Disclosure Program was to ensure that the transactions are traceable to unique generation sources. Energy Division limited the execution date range so as to limit the reporting burden and ensure that the transactions captured would be comparable to those used in other recent PCIA Market Price Benchmark (MPB) calculations. Energy Division excluded interim GHG-Free allocations under the Resolutions noted above because, as the Commission similarly concluded with regard to the RPS MPB,[14] it is not necessarily appropriate to include allocations in an MPB calculation. Finally, the purpose of limiting responses to purchases was to avoid duplicate entries for cases in which respondent LSEs were on both sides of a transaction.

In issuing the request, Energy Division intended to answer the following questions:

- How many GHG-Free market transactions exist?
- Do respondent LSEs' actions provide an indication of the incremental value of GHG-Free resources?
- Are there resources that respondent LSEs consider to be "GHG-Free," aside from large hydro and nuclear?
- What is the overlap between GHG-Free resources and RA resources? In other words, how complicated would it be to remove RA value for a GHG-Free RA resource to arrive at incremental GHG-Free value?

Based on conversations with PG&E, Energy Division sent an e-mail to IOUs on July 11, 2022 with the following clarifications:

- Energy Division only intended to capture transactions with a price, which meant utility-owned generation would generally be excluded, and
- Although the data request only asked for purchases, IOUs should also report sales of any resources to non-LSE counterparties (i.e., to any counterparties not included in the data request) to ensure that those transactions are captured.

Energy Division received responses from all 38 active LSEs that received the data request.

Analysis

Of the 38 LSEs that responded to the request, 19 indicated that they did not have any relevant transactions to report. The remaining 19 respondents reported a total of 233 unique transactions with execution dates between 12/1/2019 and 12/31/2021. Table 1 below summarizes the technology types, locations, and contract lengths of these 233 transactions.

[14] D.21-07-008 at 19.

TABLE 1: SUMMARY INFORMATION FOR ALL REPORTED TRANSACTIONS

Category	Metric	# Transactions
Technology	Large Hydro	210
	Nuclear	3
	Other	20
Location	In CAISO	84
	Out of CAISO	145
	Multiple	4
Length	<1 Year	134
	1 Year	81
	2-5 Years	17
	>5 Years	1
Includes RA	Yes	16
	No	217

The vast majority of reported transactions are from large hydro resources, have terms of one year or less, and do not also contain RA value. A clear majority of transactions are also located outside of the CAISO Balancing Authority Area (that is, they are imports to CAISO). Transactions with "other" resource types were generally mixes of hydro and nuclear, mixes of hydro and wind, or portions of the entire portfolio of Asset Controlling Suppliers (ACS).

Table 1 implies that the primary source of information regarding the incremental value of GHG-Free resources is out-of-CAISO hydro. It also indicates that were the Commission to develop MPBs for GHG-Free resources, there may not be substantial overlap between the datasets for consecutive years, since many transactions have terms of one year or less. This means that all else equal, PCIA rates may be more exposed to some additional fluctuations in prices between years. Finally, most transactions would not need RA value to be backed out, but some still would.

Staff also analyzed the subset of reported transactions that could have been included in a 2021 Final MPB and a 2022 Forecast MPB for GHG-Free resources, according to the parameters adopted in D.22-01-023. Table 2 below analyzes the "2021 Final MPB" transactions, which delivered in 2021 and were executed between 12/1/2019 and 8/31/2021. Table 3 below analyzes the "2022 Forecast MPB" transactions, which deliver in 2022 and were executed between 9/1/2020 and 8/31/2021. Respondents were asked to forecast 2022 deliveries through the end of the year, as applicable.

TABLE 2: SUMMARY INFORMATION FOR "2021 FINAL MPB" TRANSACTIONS

# Transactions	Total 2021 MWh	Median $/MWh	Weighted Average $/MWh
87	5,020,452	$4.25	$3.82

Respondents reported 92 transactions that delivered in 2021 and were executed between 12/1/2019 and 8/31/2021. Of these, staff removed 5 from the analysis because they either had no reported price

or had a price that clearly included RA value. Because the initial data request did not ask respondents to explicitly remove RA and energy value from their reported transaction prices, staff reached out to respondents after the due date to confirm whether they had only reported the actual (or estimated) incremental value of GHG-Free resources. Respondents confirmed that this was the case in nearly all instances, including some instances where they had marked the transaction as including RA but had nevertheless removed RA value from the price they reported. As a result, staff was able to include nearly all applicable transactions in the analysis in Table 1.

Recognizing that the execution date range for the transactions is shifted one month from the data range used to produce recent 2021 Final MPBs, the weighted average value for the 2021 GHG transactions is nevertheless lower than 2021 Final RA and RPS MPBs.[15] Ninety-five percent of the energy delivered from these transactions came from hydro resources, 77% came from outside the CAISO area, and 81% came from transactions with terms of one year or less (not shown in Table 2).

TABLE 3: SUMMARY INFORMATION FOR "2022 FORECAST MPB" TRANSACTIONS

# Transactions	Total 2022 MWh	Median $/MWh	Weighted Average $/MWh
12	2,098,350	$5.13	$4.88

Respondents reported 15 transactions that are delivering in 2022 and were executed between 9/1/2020 and 8/31/2021. Of these, staff removed 3 from the analysis because they either had no reported price or clearly had a price that included RA value. As with the 2021 analysis, staff confirmed that respondents had reported actual (or estimated) incremental GHG-Free value in nearly all instances.

The weighted average value is lower than the 2022 Final RA and RPS MPBs. In addition, the number of reported transactions is quite low. One hundred percent of the energy from these transactions came from out-of-CAISO hydro resources, and 46% came from transactions with terms of one year or less (not shown in Table 3).

As noted previously, D.21-05-030 stated that the Commission would continue to study "whether GHG-Free resources are undervalued in the PCIA methodology, and whether to adopt a GHG-Free adder or an allocation mechanism."[16] One question is whether the criterion in D.18-10-019 that the market demonstrate "a consistent heightened value for GHG-free resources"[17] has now been met. The data collected by Energy Division suggest that there is currently a premium for GHG-Free resources, which respondents were able to identify and which is perhaps associated with the usefulness of those resources in PCL counting or in meeting individual LSEs' GHG reduction goals more broadly. It is unclear whether this premium will be "consistent" over time. However, given the state's Senate Bill 100 goals and the development of a long-term, compliance-oriented reliability and GHG reduction procurement program in the Integrated Resource Plan (IRP) proceeding,[18] it is reasonable to expect that the

[15] See the CPUC PCIA webpage: https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-power-procurement/power-charge-indifference-adjustment.
[16] D.21-05-030 at 53.
[17] D.18-10-019 at 152.
[18] See the Staff Options Paper distributed by a Ruling of ALJ Fitch on September 8, 2022, available at https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M496/K684/496684997.PDF.

incremental value of GHG-Free resources will remain steady or increase in the coming years. A GHG-Free MPB may now be warranted.

GHG-Free Energy MPB Vs. Allocation

A central question is whether an MPB or a (permanent) allocation of GHG-Free, non-RPS-eligible resources in the IOUs' portfolios is the better approach. In D.21-05-030, the Commission reviewed the Working Group 3 co-chairs' proposal based on the following portfolio optimization review criteria:

1. Solutions should reduce excess and/or uneconomic resources in IOUs' PCIA portfolios. "Excess resources" are defined as resources that are not necessary to meet bundled customers' needs and compliance requirements.
2. Solutions should be voluntary and/or market-based [i.e., no LSE should be required to take these resources].
3. Solutions should be consistent with Commission decisions, applicable law and state compliance programs.
4. Solutions should be tailored to minimize the risk of unintended consequences.[19]

As outlined in the WG3 co-chairs' proposal from earlier in this proceeding, the co-chairs proposed an allocation specifically because they agreed that GHG-Free resources have additional value but that they could not quantify that value at the time. The analysis above demonstrates that LSEs are contracting for GHG-Free resources (both inside and outside of CAISO) that they show on their PCLs, that a market for these resources exists independently of interim allocations that LSEs may now be receiving, that LSEs can identify an incremental value for these resources, and that calculating a MPB could be relatively straightforward. Because it is now possible to calculate an MPB and thus to ensure that PCIA-eligible LSEs do not pay for the GHG-Free benefits of PCIA-eligible resources that the IOUs retain, staff does not believe there is a reason to continue interim allocations past 2023 or to adopt permanent allocations of these resources from the IOUs' portfolios. An allocation process is significantly more complicated than an MPB process in that it requires transactions between IOUs and non-IOU LSEs, possibly some form of IOU solicitation, and a method of addressing load migration, whereas an MPB can be implemented in the ERRA Forecast proceedings with comparatively less effort.

Considering the first criterion that the Commission used to assess the Working Group 3 proposals, it is also unclear whether there is an "excess" of GHG-Free resources in the IOUs' portfolios, or whether there will be at any point in the near future. Even if there were "excess" in the future, after implementation of an IRP compliance program that incorporates GHG-Free resources, it may be premature to adopt a permanent allocation now, before it is possible to define and identify such an excess.

Energy Division staff finds that GHG-Free resources are undervalued in the PCIA and proposes adopting an MPB instead of a permanent allocation. Staff anticipates that an MPB would be simpler to implement, particularly while the Commission is also considering the new IRP compliance program. As with other benchmarks, a GHG-Free MPB would simply remove the incremental market value of GHG-Free resources from the PCIA calculation, thus ensuring that CCA and ESP customers do not pay for benefits that they do not receive. The fact that an interim allocation process is in place through 2023

[19] D.21-05-030 at 14.

does not mean that the Commission must adopt a permanent allocation: as noted in D.21-05-030, "the Commission explicitly approved the proposed approach as an 'interim solution' without prejudice for its decision in this proceeding."[20]

Further, an MPB approach is aligned with existing Commission decisions and state compliance programs and will mitigate the risk of unintended consequences. As the Commission described in D.21-05-030, the WG3 co-chair proposal's approach to PCL accounting for GHG-Free and GHG-emitting resources would require IOUs' PCLs to show GHG-emitting resources of departed load unless the California Energy Commission changes PCL reporting requirements.[21] In other words, if the Commission adopted the co-chair proposal but the CEC did not revise its PCL rules, then the IOUs would have to show the GHG-emitting resources on their own PCLs. The MPB approach relieves the need to reassess PCL rules solely for the purpose of addressing allocations of PCIA-eligible, GHG-Free resources.

Staff Proposal

MPB Calculation Schedule

In accordance with D.22-01-023, Energy Division would publish the relevant forecast and true-up (final) GHG-Free MPBs on October 1 of each year, or on the next business day if October 1 is a weekend or a federal or state holiday. Energy Division would use the execution date and delivery date parameters adopted for RPS resources in D.19-10-001, as described in Table 3 below. The GHG-Free MPBs would be expressed in terms of dollars per megawatt-hour ($/MWh).

TABLE 3: GHG-FREE MPB CALCULATION PARAMETERS

Benchmark	Data Inputs
Forecast MPB	Transactions from Sep. of year n-2 to Aug. of year n-1, with delivery in year n.
True-Up (Final) MPB	Transactions from Dec. of year n-2 to Aug. of year n, with delivery in year n.

Data Collection

Under staff's proposal, Energy Division would issue a "GHG-Free Resource Supplemental Data Request" as an addendum to each of the semiannual RPS-PCIA Data Requests. These supplemental GHG-Free data requests would be due at the same time as their respective RPS-PCIA requests and would request the information necessary to develop GHG-Free MPBs. A draft supplemental GHG-Free data request template is provided as an appendix to this staff proposal, for party comment. (This template is very similar to the template that Energy Division used for the June 17, 2022 GHG-Free Resource Data Request, which in turn is based on the RPS-PCIA Semiannual Data Request.)

Transactions to Include

As indicated in the draft supplemental GHG-Free data request in the appendix, staff proposes to include transactions for in-CAISO and out-of-CAISO large hydro and nuclear resources. Staff also proposes to include combined resources (e.g., hydro and nuclear, hydro and wind, asset controlling supplier agreements, etc.) to the extent that respondents can identify the percentage of output from those

[20] Ibid., at 50.
[21] Ibid., at 49-51.

transactions that is associated with GHG-Free, non-RPS-eligible resources. Energy Division would generally request that respondents only report purchase transactions, but Energy Division would request that any LSE respondent that owns GHG-Free resources also report sales to non-LSE counterparties (i.e., to any counterparty that is not a respondent to the data request). Energy Division anticipates that this setup would ensure that all relevant transactions are captured, without risking double-counting transactions for which both counterparties are respondents. Finally, Energy Division would request that all reported purchase volumes be net of any subsequent sales.

Calculation Procedure

For each combined resource, Energy Division would apply the reported percentage of GHG-Free resources to the associated annual output to arrive at an adjusted annual output. Energy Division would use the adjusted annual output for combined resources – and the total output of large hydro and nuclear resources – to calculate the MPB. Staff would request that respondents only report the incremental GHG-Free value of their transactions, without including any energy or RA value.

ERRA Forecast Requirements

The IOUs would be required to add a new line item to the PCIA workpapers in their ERRA Forecast Applications to identify the output and incremental value of GHG-Free resources. The IOUs would use the relevant forecast and true-up GHG-Free MPBs to calculate the value of GHG-Free resources, as they do with RPS and RA resources.

Sunset for Interim Allocations and Status of Diablo Canyon

The interim allocation process approved in Resolutions E-5046 and E-5095 (and extended through 2023 by Resolution E-5111 and D.21-05-030, respectively) will expire on December 31, 2023, at the latest.

Staff also notes that Governor Newsom signed Senate Bill 846 on September 2, 2022.[22] Senate Bill 846 provides a pathway to extend the life of the Diablo Canyon nuclear power plant past its current retirement deadlines of 2024 for Unit 1 and 2025 for Unit 2. The law also provides that operational costs for Diablo Canyon beyond its current retirement dates would be recovered from customers of all load serving entities subject to the Commission's jurisdiction, on a nonbypassable basis (see Section 9, implementing Public Utilities Code Section 712.8(i)). This means that regardless of whether Diablo Canyon retires by 2025, it will no longer be PCIA-eligible at that time, and this staff proposal would no longer apply to its cost recovery.

Implementation Timeline

Data collection for GHG-Free MPBs would begin along with the second RPS-PCIA Semiannual Data request in 2023. Staff would calculate a 2024 Forecast GHG-Free MPB in time for the 2023 October Update but would not calculate a 2023 True-Up GHG-Free MPB, since the interim allocations would still be in place in 2023. The first True-Up GHG-Free MPB would be the 2024 True-Up MPB, which staff would calculate alongside the 2025 Forecast GHG-Free MPB, in time for the 2024 October Update.

[22] Available at https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202120220SB846.

Questions for Parties

1. Given the analysis in this staff proposal, do you agree that a GHG-Free MPB is preferable to an allocation, moving forward? Please support your reasoning, focusing on the implications for fairness / cost shifting, complexity, and transparency.
    a. If you prefer an allocation, please describe your proposal for allocations in detail, and indicate how each element of your proposed approach would match or differ from the WG3 co-chair proposal.

The following questions are about staff's GHG-Free MPB proposal specifically. Please answer these questions "as is," setting aside your response to Question 1 above.

2. Do you agree with staff's finding that GHG-Free resources have a measurable value that is incremental to energy value? If not, please explain why not.
3. Assuming staff correctly identified the incremental value of GHG-Free resources, is the value high enough to justify the time and resources needed to calculate a GHG-Free MPB each year, as opposed to simply relying on the PCIA true-up process for energy value?
    a. Do you expect that the value of GHG-Free resources will increase in the near future due to new regulatory requirements or other factors?
4. Do you support staff's proposal for how to calculate a GHG-Free MPB? If not, which aspects would you change, and how? Please be specific.
5. Are there GHG-Free resource types aside from hydro and nuclear that should be considered in a GHG-Free MPB? Which resource types should be excluded, particularly in cases where LSEs purchase portions of an entire asset controlling supplier's portfolio?
6. Is there a commercially available index that could inform the calculation of a GHG-Free adder, in lieu of the staff proposal? If so, what is the cost of this index?
7. Based on your experience and the analysis above, do you expect that respondents will be able to report incremental GHG-Free value (net of energy value and RA value) without the Commission needing to develop a method for calculating and extracting energy and/or RA value? In other words, are most GHG-Free transactions structured so that the incremental value is easily identifiable?
    a. If not, please describe how respondents would identify and remove energy and/or RA value. Please provide as much detail as possible.
8. What modifications, if any, should be made to the draft data request template in the appendix?
    a. Is staff's proposal that respondents report all purchases, plus any sales to non-LSEs, sufficient to capture the majority of relevant transactions without double-counting both sides of a transaction?