1. On July 27, 2021, the California Independent System Operator Corporation (CAISO) submitted, pursuant to section 205 of the Federal Power Act,\(^1\) proposed revisions to its Open Access Transmission Tariff (Tariff) to amend its generator interconnection procedures for queue cluster 14 (Cluster 14). In this order, we accept CAISO’s proposed Tariff revisions, effective September 26, 2021, as requested.

I. **Background**

A. **CAISO Generator Interconnection Process**

2. Between April 1 and April 15 of each year, CAISO opens an interconnection request application window and begins a new two-year interconnection cluster study process to identify the interconnection facilities and network upgrades that are needed to interconnect new generation resources to CAISO’s transmission system, estimate the costs of those upgrades, and allocate those costs among interconnection customers sharing the upgrades.\(^2\) CAISO’s interconnection cluster study consists of Phase I and Phase II interconnection studies,\(^3\) with annual reassessments to account for changes in the

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1. 16 U.S.C. § 824d.

2. CAISO Transmittal at 3, 5 (citing CAISO, CAISO eTariff, app. DD, § 3 Interconnection Requests (14.0.0), § 3.3.1).

3. CAISO defines the Phase I interconnection study as the engineering study conducted to evaluate the impact of the proposed interconnection on the safety and reliability of the CAISO controlled grid and, if applicable, an affected system, and estimate the costs of mitigating these impacts, along with an equitable allocation of those costs to interconnection customers for their generating facilities. CAISO defines the Phase II interconnection study as an engineering and operational study conducted to
interconnection. No later than 30 days following the publication of Phase I and Phase II studies, CAISO, the relevant transmission owner, and the interconnection customer meet to review the results, negotiate, and execute a generator interconnection agreement. In addition, CAISO separately allows fast track and independent study interconnection processes at any time, provided that the proposed resource satisfies CAISO’s tariff requirements for such requests.

3. CAISO explains that under its current Tariff, the interconnection customer’s maximum cost responsibility is the lesser of either the Phase I or Phase II study cost estimate, defined as the sum of the interconnection customer’s full cost of assigned interconnection reliability network upgrades and their allocated costs for all other assigned network upgrades. CAISO states that if upgrade assignments or cost allocations change after completion of the interconnection customer’s study, the interconnection customer cannot inherit new costs exceeding the cost caps provided in its interconnection studies, and the transmission owner would cover any cost exceeding the amount resulting from the study, as well as any non-refundable portion of interconnection financial security (IFS) of withdrawn interconnection customers allocated to the relevant upgrade. According to CAISO, these binding cost caps provide crucial transparency to interconnection customers as they develop their projects, and obviate any need to conduct serial restudies based on changes in upgrade cost responsibility.

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4 CAISO Transmittal at 4 (citing CAISO, CAISO eTariff, app. DD, § 6 Initial Activities & Phase I Study Request for Queue Cluster (17.0.0), § 6.7 and § 8 Phase II Interconnect Study & TP Delivery Allocation Process (13.0.0), § 8.7).

5 Id. at 5 (citing CAISO, CAISO eTariff, app. DD, § 13 Generator Interconnection Agreement (GIA) (4.0.0)).

6 Id. at 3 (see CAISO, CAISO eTariff, app. DD, § 4 Independent Study Process (4.0.0) and § 5 Fast Track Process (3.0.0)).

7 Id. (citing CAISO, CAISO eTariff, app. A, Definitions, Maximum Cost Responsibility (MCR) (0.0.0)).

8 Id. at 4 (citing CAISO, CAISO eTariff, app. DD, § 14 PTOs Interconnection Facilities and Network Upgrades (9.0.0), § 14.2.2).

9 Id.
4. CAISO asserts that because the most common change in the queue is the withdrawal of some interconnection customers after Phase I, Phase II interconnection studies and annual reassessments typically remove no-longer needed upgrades from interconnection customers’ studies and lower remaining interconnection customers’ cost responsibilities. CAISO notes, however, that these cost responsibilities can increase while remaining within the interconnection customers’ cost caps, albeit rarely.  

5. CAISO states that cost estimates provided by interconnection study results are used to establish the IFS posting requirements, which help ensure that only financially viable projects continue in queue. Under CAISO’s current Tariff, interconnection customers post IFS at three queue milestones: 15% of their allocated costs after Phase I study results; 30% after their Phase II study results; and 100% upon the commencement of construction activities. Additionally, interconnection customers are generally eligible for a 50% refund of their posted IFS until the final IFS posting, at which time the IFS becomes fully nonrefundable. According to CAISO, the non-refundable portion of IFS postings offsets any costs that fall to the participating transmission owners that inherit financing costs when some interconnection customers withdraw and other interconnection customers—who cannot receive additional cost allocations because of their cost caps—still need their shared network upgrades. CAISO asserts that if no shared network upgrade costs remain, the non-refundable portion offsets transmission revenue requirements.

B. Cluster 14

6. CAISO states that it received 373 interconnection requests this year in Cluster 14 and emphasizes that it is impossible to follow the interconnection timeline in its current Tariff with this volume of interconnection requests. CAISO notes that even with the 155 interconnection requests it received in cluster 13, it had to issue a market notice to

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10 Id. at 5.

11 Id.

12 Id. (citing CAISO, CAISO eTariff, app. DD, § 11 Interconnection Financial Security (9.0.0)).

13 Id. (citing CAISO eTariff, app. DD, § 11 Interconnection Financial Security (9.0.0), § 11.4.2).

14 Id. at 5-6 (citing CAISO eTariff, app. DD, § 7 Activities in Preparation for Phase II (14.0.0), § 7.6).

15 Id. at 1, 2, 4.
delay publication of Phase I study results.\textsuperscript{16} CAISO asserts that Cluster 14 is not only 141\% larger than cluster 13, but also has an unprecedented combined proposed generating capacity of approximately 150,000 MW, bringing CAISO’s generator interconnection queue to 246,000 MW.\textsuperscript{17} CAISO states that these amounts reflect the strong competition among developers seeking to obtain a power purchase agreement for the 11,500 MW of additional resource procurement authorized by the California Public Utilities Commission,\textsuperscript{18} but contends that such an increase in interconnection requests was unforeseeable and there was little that CAISO could do in advance to better prepare itself to process Cluster 14.\textsuperscript{19} CAISO states that although it could rely on its current Tariff authority to issue market notices to extend study deadlines, doing so would result in an \textit{ad hoc} process lacking transparency and consistency.\textsuperscript{20} CAISO asserts that its transmission planning process, the transmission owners’ wholesale distribution access tariff interconnection processes, and many load-serving entity procurement processes depend in part on the consistency—or at least the predictability—of CAISO’s study timelines.

7. CAISO states that neither it nor the participating transmission owners can increase staffing to mitigate Cluster 14’s impact. CAISO asserts that after clusters 12 and 13, CAISO and the transmission owners hired additional staff and consultants for Cluster 14 with the expectation that Cluster 14 would be somewhat consistent with previous clusters. CAISO adds that developers themselves retained the remaining available consultants to prepare their interconnection requests for Cluster 14, leaving few experts available. CAISO states that the very nature of the cluster study process requires transmission owners to study the cluster together \textit{en masse}, and it is not possible to split up the interconnection requests and outsource their studies such that CAISO could maintain existing interconnection study timelines.\textsuperscript{21}

\textsuperscript{16} Id. at 6.

\textsuperscript{17} Id. at 6-7.

\textsuperscript{18} Id., Attachment D (Board Memorandum) at 2.

\textsuperscript{19} Id. at 14.

\textsuperscript{20} Id. at 7.

\textsuperscript{21} CAISO states that modifying the processes to move more quickly would have a detrimental effect, because these processes build in time to provide for iteration between the interconnection customer, the relevant transmission owner, and CAISO to allow each interconnection customer to refine its project and make it as competitive as possible. CAISO asserts that this back and forth with interconnection customers directly benefits potential off-takers and keeps costs as low as possible for ratepayers. Id. at 7-8.
II. **CAISO’s Proposal**

8. CAISO states that it submits the proposed Tariff revisions as a single, non-severable set. CAISO emphasizes that its proposed Tariff revisions will apply to Cluster 14 only, and notes that it does not propose changes to the independent study or fast track interconnection request processes, which will still be available to developers.\(^{22}\)

A. **Extended Timelines**

9. CAISO proposes to extend the current interconnection study deadlines to accommodate Cluster 14,\(^{23}\) as shown in the table below. CAISO states that these extended deadlines are not designed to give CAISO and the transmission owners “breathing room,” and asserts that meeting the deadlines will still require concerted efforts.\(^{24}\) CAISO explains that these are firm deadlines, but notes that it may publish study results earlier, if possible. CAISO asserts that it is not tenable to postpone study results beyond its proposal, nor delay the next cluster (Cluster 15) beyond 2023. CAISO states that these deadlines are achievable only with the other proposed Tariff revisions described herein.

<table>
<thead>
<tr>
<th>Deadline</th>
<th>Cluster 14 Proposal</th>
<th>Typical Cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I Study Results Published</td>
<td>September 15, 2022</td>
<td>January 11, 2022</td>
</tr>
<tr>
<td>Initial IFS Due</td>
<td>January 13, 2023</td>
<td>April 25, 2022</td>
</tr>
<tr>
<td>Cluster 15 Request Window</td>
<td>April 15, 2023</td>
<td>April 15, 2022</td>
</tr>
<tr>
<td>Phase II Study Results Published</td>
<td>November 24, 2023</td>
<td>November 20, 2022</td>
</tr>
<tr>
<td>Deliverability Results Published</td>
<td>March 23, 2024</td>
<td>March 14, 2023</td>
</tr>
<tr>
<td>Second IFS Due</td>
<td>May 4, 2024</td>
<td>May 19, 2023</td>
</tr>
<tr>
<td>Reassessment</td>
<td>August 20, 2024</td>
<td>August 1, 2023</td>
</tr>
</tbody>
</table>

10. CAISO also proposes to hold interconnection study results meetings within 90 days of study publication instead of the typical 30 days to give CAISO, the transmission owner, and the developer sufficient time to prepare for, attend, and exchange minutes for each interconnection customer’s Phase I and Phase II study results meetings.\(^{25}\) In addition, CAISO proposes to increase the time for interconnection customers to submit

\(^{22}\) *Id.* at 3 n.8, 13.

\(^{23}\) *Id.* at 8-10 (citing CAISO, CAISO eTariff, app. DD, § 16 Cluster 14 Unique Procedures (0.0.0), § 16.1).

\(^{24}\) *Id.* at 8.

\(^{25}\) *Id.* at 9.
feedback on their Phase I results meeting minutes, and for CAISO to issue a revised Phase I study report based on the results meeting.\textsuperscript{26}

11. CAISO states that, with regard to future clusters, CAISO and transmission owners cannot begin studying Cluster 15 in April 2022 due to the volume of Cluster 14. CAISO therefore proposes that it will not open a queue cluster application window in April 2022 unless it issues a market notice stating otherwise, and that the next cluster application window will open in 2023 under CAISO’s normal procedures.\textsuperscript{27} CAISO asserts that this provides transparency to developers so they do not spend time and resources developing interconnection requests for 2022. CAISO notes that its proposed Tariff revisions preserve its ability to issue a market notice permitting new interconnection requests to be submitted in 2022 if there is a high percentage of withdrawals early in the Cluster 14 study process. CAISO also states that it will conduct another interconnection process enhancement stakeholder initiative this fall to address its high volume of interconnection requests via more permanent Tariff revisions for all future clusters.\textsuperscript{28} CAISO notes that the upcoming interconnection process enhancement stakeholder initiative can address modifications to this current proposal as well, if warranted.

B. Phase I Study Assumptions and Methodology

12. CAISO states that Cluster 14 has raised concerns that CAISO’s existing process will not produce realistic and meaningful results in the Phase I study.\textsuperscript{29} According to CAISO, stakeholders are concerned that interconnection customers will not see realistic results until most interconnection customers that will ultimately withdraw from the queue actually do so, which CAISO explains typically occurs after interconnection customers receive initial cost estimates after the Phase I study and before they must make their initial IFS posting. To address this issue, CAISO proposes to exercise the discretion it has under existing Tariff provisions to establish reasonable study scenarios and dispatch assumptions for the steady state (thermal and voltage) analysis, and limit total generation inside the study area to produce meaningful study results. In addition, CAISO proposes a Tariff provision clarifying that the Phase I study for Cluster 14 will not include system-level stability analyses, because CAISO does not expect any system conditions and

\textsuperscript{26} Id.

\textsuperscript{27} Id. at 9-10.

\textsuperscript{28} Id. at 1, 12-13.

\textsuperscript{29} Id. at 10.
generation dispatch to produce system-level stability issues that drive reliability network upgrades.30

13. CAISO clarifies that regardless of these changes to its methodology, the Phase I interconnection studies will still include short circuit/fault duty and steady state analyses, consistent with Order No. 200331 and the CAISO Generator Interconnection and Deliverability Allocation Procedures (GIDAP).32 According to CAISO, the Phase I studies will identify direct interconnection facilities as well as cost and cost allocation for all required reliability network upgrades necessary to interconnect the generating facility.33

C. Cost Caps and Initial Interconnection Financial Security

14. CAISO and transmission owners have expressed concern that the proposed methodology in Phase I could produce anomalous results that lead to a higher (though still rare) rate of cost increases in Phase II, according to CAISO. CAISO therefore proposes that Cluster 14’s Phase I cost estimates be advisory, and only the Phase II study set the maximum cost responsibility above which the transmission owner would bear the costs for financing network upgrades.34 CAISO states that it does not expect this proposal to affect interconnection customers significantly because their costs nearly always decrease between Phase I and Phase II. CAISO notes that although Phase I cost estimates will be advisory, they will still be used to establish interconnection customers’ initial IFS posting requirements. CAISO explains that the nonrefundable portion of IFS postings offsets transmission owners’ financing obligations when interconnection customers withdraw, their shared network upgrades are still needed for other customers, and those customers cannot receive additional cost allocations because of their cost caps.

15. CAISO recognizes that if Phase I cost estimates are advisory, some interconnection customers could face higher costs in Phase II, especially if the Phase II

30 Id.


32 CAISO Transmittal at 10.

33 Id. at 10-11.

34 Id. at 11 (citing CAISO, CAISO eTariff, app. DD, § 16 Cluster 14 Unique Procedures (0.0.0), § 16.2).
study alone sets the cost cap. To address customer risk and balance the impact of the advisory Phase I study, CAISO proposes that interconnection customers whose maximum cost responsibility goes up by 25% or more between Phase I and Phase II studies be eligible for full refund of their initial IFS postings if they withdraw before their second IFS postings are due.\textsuperscript{35} CAISO adds that the interconnection customers would be eligible for the same refund if the Phase II study extends the longest-duration reliability network upgrade by one year or more.\textsuperscript{36} CAISO states that other independent system operators, regional transmission organizations, and transmission providers use these rules today, \textsuperscript{37} and asserts that they are sensible for Cluster 14 given the other changes it proposes. CAISO states that these proposed Tariff revisions reflect the increased risk Cluster 14 faces between Phase I and Phase II, and balance the need for customers, transmission owners, and load-serving entities to have meaningful results with the need for financial protection from unexpected cost increases.\textsuperscript{38}

**D. Request for Waiver**

16. CAISO notes that it has not removed or revised its current Tariff provisions because they still apply to previous clusters, and CAISO intends to work with stakeholders to evaluate more permanent Tariff revisions for all future clusters. Although CAISO states that its proposed Cluster 14 Tariff revisions take precedence over any conflicting general Tariff provision in its GIDAP, CAISO requests waiver of the GIDAP tariff provisions out of an abundance of caution, to the extent the Commission finds such waiver necessary.\textsuperscript{39}

**III. Notice of Filing and Responsive Pleadings**


\textsuperscript{35} \textit{Id}. at 12 (citing CAISO, CAISO eTariff, app. DD, § 16 Cluster 14 Unique Procedures (0.0.0), § 16.2).

\textsuperscript{36} CAISO notes that the intent of this provision is to establish a proxy for the interconnection customer’s commercial operation date, which is established formally in the Phase II study.


\textsuperscript{38} \textit{Id}.

\textsuperscript{39} \textit{Id}. at 14.
Riverside, California, Pacific Gas and Electric Company, Southern California Edison Company, California Department of Water Resources State Water Project, and Northern California Power Agency filed timely motions to intervene. San Diego Gas & Electric Company filed a timely motion to intervene and comments in support of CAISO’s filing. Vistra Parties\textsuperscript{40} filed an out-of-time motion to intervene.

IV. Discussion

A. Procedural Matters

18. Pursuant to Rule 214 of the Commission’s Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2020), the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding.

19. Pursuant to Rule 214(d) of the Commission’s Rules of Practice and Procedure, 18 C.F.R. § 385.214(d), we grant Vistra Parties’ late-filed motion to intervene given their interest in the proceeding, the early stage of the proceeding, and the absence of undue prejudice or delay.

B. Commission Determination

20. We find CAISO’s proposed revisions to its generator interconnection procedures for Cluster 14 to be just and reasonable and therefore accept them, effective September 26, 2021, as requested. CAISO explains why it is not possible to process Cluster 14 under the existing timeframe in its Tariff and proposes revisions that establish a transparent and reasonable approach for addressing the unprecedented challenges raised by Cluster 14.

21. As CAISO explains, Cluster 14 is unprecedented: it consists of 373 interconnection requests (141% more than Cluster 13) and represents proposed generating capacity of approximately 150,000 MW.\textsuperscript{41} CAISO further states that it cannot process Cluster 14 under the existing timelines in its Tariff, nor can it hire sufficient additional staff or consultants to accelerate the study process. Moreover, CAISO explains that its iterative interconnection process helps interconnection customers refine their projects and make them more competitive, ultimately to the benefit of ratepayers, and that any compression in schedule to accommodate Cluster 14’s unprecedented size thus would be detrimental. Accordingly, we agree with CAISO that its proposal to extend the interconnection study deadlines for Cluster 14 is just and reasonable because it will ensure that, under the circumstances, CAISO and the transmission owners have sufficient time to study these interconnection requests. We also agree that the delay of the Cluster 15 application

\textsuperscript{40} The Vistra Parties include Vistra Corp. and Dynegy Marketing and Trade, LLC.

\textsuperscript{41} CAISO Transmittal at 6-7.
window from April 2022 to April 2023 is a necessary component in ensuring that CAISO and transmission owners are not again overwhelmed by an unworkable number of interconnection requests before making substantial progress with Cluster 14. We note that the proposed Tariff revisions grant CAISO the authority to open the Cluster 15 application window early via market notice if, for example, a large number of Cluster 14 applicants withdraw, allowing CAISO to accelerate its Cluster 14 study process. Moreover, we find that extending the deadlines through Tariff revisions—as opposed to issuing market notices pursuant to CAISO’s existing authority under its Tariff—will provide greater certainty to interconnection customers, transmission owners, load-serving entities, and other market participants about the timelines under which CAISO will study Clusters 14 and 15. We further note that CAISO’s proposal was developed in an open stakeholder process and CAISO represents that its stakeholders broadly supported this filing.42

42 Id. at 14.
22. We also accept as just and reasonable CAISO’s proposals to modify the Phase I study assumptions and methodology, treat the Phase I study cost estimates as advisory-only, and allow 100% refund of initial IFS before the second IFS postings are due. These proposals will assist in providing meaningful Phase I study results, as well as financial protection for interconnection customers in cases where maximum cost responsibility increases by 25% or more, or the longest-duration reliability network upgrade extends by one year or more due to CAISO’s proposed modifications in the Phase I study assumptions and methodology. While CAISO will not conduct system-level stability analyses as a part of Phase I studies under its proposed revisions, we find that these revisions are just and reasonable and consistent with Order No. 2003 because the Phase I studies will still include power flow and short circuit analyses. We also find that CAISO’s proposal to allow full refund of the initial IFS when cost estimates increase by 25% or greater is just and reasonable.

23. Finally, CAISO requests waiver of the existing GIDAP Tariff provisions out of an abundance of caution, and states that the Commission may deny this request to the extent the proposed Tariff revisions are sufficient. CAISO’s new proposed Appendix DD, section 16 provides that “[t]he CAISO Tariff and the GIDAP will apply to Queue Cluster 14 with the following exceptions,” and then lays out the revised procedures and timelines applicable to Cluster 14 as discussed above. We find that this language makes clear that all existing Tariff provisions will continue to apply to Cluster 14, except as specifically revised in new Appendix DD, section 16, and all existing Tariff provisions will continue to apply to clusters outside of Cluster 14. As such, we find that waiver is not necessary and dismiss the request.

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43 See Order No. 2003, 104 FERC ¶ 61,103 at P 36 (requiring power flow and short-circuit analyses as part of the Interconnection Feasibility Study).


45 CAISO Transmittal at 14.

46 Id. at 15.

47 CAISO, CAISO eTariff, app. DD, § 16 Cluster 14 Unique Procedures (0.0.0).
The Commission orders:

(A) CAISO’s proposed revisions are hereby accepted, effective September 26, 2021, as requested, as discussed in the body of this order.

(B) CAISO’s request for waiver is hereby dismissed, as discussed in the body of this order.

By the Commission. Commissioner Clements is concurring with a separate statement attached.

(SEAL)

Kimberly D. Bose,
Secretary.
CLEMENTS, Commissioner, concurring:

1. I concur with this order because, given the circumstances, CAISO has fashioned a reasonable proposal to process its Cluster 14 interconnection queue as expeditiously as possible. Nevertheless, it must be acknowledged that the results are far from ideal, with more than a year of delay in CAISO’s interconnection process and no interconnection queue opening in 2022 unless circumstances change. The sheer volume of generation in CAISO’s interconnection queue, 246 GW, suggests the need for consideration of deeper reform to CAISO’s interconnection and transmission planning process.

2. CAISO’s circumstances are not unique. As of May 2021, there were over 755 GW of generator capacity in interconnection queues in the United States.\(^1\) Time spent by projects in the interconnection queue has increased in regions across the country, while the percentage of projects reaching commercial operation has declined.\(^2\) A vast majority of the new supply resources in the interconnection queue are wind and solar, with energy storage resources also making up an increasing percentage.\(^3\) Interconnection queues over-flowing with these resources have been spurred by the tremendous potential for new, clean resources to provide customers with lower cost power, but customers will only be able to access those opportunities if these resources can be efficiently integrated. The quagmire that CAISO faces is yet another compelling example of the need to holistically unwind the thicket of challenges posed by current interconnection queues, to arrive at regional interconnection and planning processes that more efficiently integrate new resources into the grid.

3. A range of potential solutions to these challenges is explored in the Commission’s Advance Notice of Proposed Rulemaking on Building for the Future Through Electric

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\(^2\) Id. at 6, 9.

\(^3\) Id. at 3, 12.
Regional Transmission Planning and Cost Allocation and Generator Interconnection. Given that the challenges CAISO faces in this docket are shared by other regions, that is the appropriate forum to examine solutions. The Commission should press forward without delay.

For these reasons, I respectfully concur.

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Allison Clements
Commissioner

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