MOTION FOR LEAVE TO ANSWER AND ANSWER OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

The California Independent System Operator Corporation (CAISO) hereby submits this motion to answer and answer to comments pursuant to Rules 212 and 213 of the Commission’s Rules of Practice and Procedure. The Black Start Agreement between Marsh Landing and the CAISO will facilitate the deployment of black start service from the Marsh Landing Generating Station (MLGS) to address a significant reliability need in the San Francisco Bay Area.

I. Introduction and Background

The CAISO and Marsh Landing have spent considerable time and resources over the past two years developing the design of the project to provide black start service from MLGS and negotiating the Black Start Agreement that is the subject of this

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Pacific Gas and Electric Company (PG&E) and the California Public Utilities Commission (CPUC) both filed interventions in this proceeding. PG&E submitted comments supporting acceptance of the Black Start Agreement. The CPUC filed a protest.
proceeding, in order to fulfill a critical reliability need in the greater San Francisco Bay Area. In addition, Marsh Landing has amended its California Energy Commission permit, which will allow it to install equipment and provide black start service from MLGS. Marsh Landing has also negotiated an engineering procurement and construction (EPC) contract and other contracts with its vendors to design, deploy, and maintain that equipment. Over the last several months, the CAISO and Marsh Landing have provided a significant amount of information supporting these efforts to the CPUC to provide the CPUC with an opportunity to ask questions and understand the reliability need, the project design and the commercial terms of the Black Start Agreement. Following the provision of this data, both CAISO and Marsh Landing have engaged in multiple rounds of discussions with the CPUC, in order to answer the CPUC’s questions.

Notwithstanding this effort, the CPUC filed a protest to Black Start Agreement requesting that the Commission set this matter for evidentiary hearings. Referring to a separate black start agreement the CAISO executed with Russell City Energy Company LLC in 2019, the CPUC’s protest asserts the Marsh Landing Black Start Agreement reflects the CAISO’s intent on creating a template or precedent for contracts that it executes for reliability services.2 The CPUC is wrong. The Russell City Black Start Agreement and the Marsh Landing Black Start Agreement arise from the same request for proposals to address the reliability need in the San Francisco Bay Area. Although the agreements share similar performance terms, the Marsh Landing Black Start Agreement...
Agreement reflects a less expensive solution than the Russell City Black Start Agreement to help address the reliability need in the San Francisco Bay Area.\(^3\)

The CAISO emphasizes that a prolonged evidentiary proceeding before the Commission will result in significant delays to the project and potentially a decision by Marsh Landing not to pursue the project. Such a proceeding may significantly delay the current schedule to deploy the black start service at MLGS in the spring of 2021 and will jeopardize the commitments Marsh Landing has secured from its EPC contractor. This outcome is not in the best of interest of ratepayers. As a black start resource, MLGS would offer an alternative path to restarting the 230 kV transmission system in the San Francisco Bay Area and will greatly help enhance electric service restoration times in the event of a widespread system outage. The CAISO respectfully requests that the Commission review the Black Start Agreement based on the supporting information submitted in Marsh Landing’s filing and issue an order accepting the agreement in light of the reliability need on the Bulk Electric System.

In its protest, the CPUC states that it “recognizes the importance of enhancing black start capability in the San Francisco Bay Area and agrees that system redundancy is warranted.”\(^4\) However, the CPUC has done nothing through its own regulatory processes to address this critical reliability need, leaving the citizens in the San Francisco Bay Area exposed to a prolonged period without electric service if there is a need to rely on black start service. The economic loss from a prolonged electricity

\(^3\) As always, the CAISO is willing to work with the CPUC and all stakeholders to address the terms and conditions of future Black Start Agreements if there is a need to secure additional black start service on the CAISO’s system.

\(^4\) CPUC Protest at 41 and fn 118: “The CPUC supports system redundancy for providing this critical reliability function, i.e., to ensure that the San Francisco Bay Area’s restoration time is as short as possible following an outage.”
outage in the San Francisco Bay Area would be catastrophic.\textsuperscript{5}

Instead of taking concrete steps to address this issue, the CPUC filed its protest questioning the use of a battery electric storage system to support black start capability at MLGS and whether Marsh Landing has appropriately sized its battery electric storage system. The CPUC’s protest also opposes specific ratemaking elements of Marsh Landing’s filing as well as contract extension terms set forth in the Black Start Agreement. The CAISO responds to the CPUC’s arguments below.

II. Marsh Landing has designed its battery electric storage system to support the provision of needed black start capability from MLGS

The Black Start Agreement will facilitate installing a battery electric storage to support the plant loads at MLGS necessary to provide black start service. In its protest, the CPUC questions both the technology choice and whether the battery electric storage system is appropriately sized to support black start service from MLGS.

a. Battery electric storage systems provide technology necessary to support black start service and other essential reliability services

The CPUC’s protest states Marsh Landing “has not included an explanation for why PG&E’s ratepayers should invest in an unproven option for providing black start service, or the cost of the most critical component of the Project, \textit{i.e.}, the battery.”\textsuperscript{6} The CPUC argues Marsh Landing has failed to demonstrate the operational reliability of the

\textsuperscript{5} See, \textit{e.g.}, Prepared Testimony of Michael Wara, Director, Climate and Energy Policy Program, Woods Institute for the Environment, Stanford University, before the United States Senate Committee on Energy and Natural Resources. Mr. Wara estimates PG&E’s Public Safety Power Shutoff events in 2019 cost customers more than $10 billion. https://www.energy.senate.gov/public/index.cfm/files/serve?File_id=93BBC3A5-E6FA-4053-A1A0-532A9714BFC4

\textsuperscript{6} CPUC Protest at 5.
project. The CPUC states it has identified only two black start resources that use battery electric storage systems with a gas turbine. The CPUC’s protest omits reference to other information that supports using battery technology coupled with conventional resources to provide black start service, as well as a recent black start project involving a battery electric storage system at a simple-cycle unit at Entergy’s Perryville Power Station in Louisiana. The CPUC’s protest also fails to acknowledge that battery electric storage systems are currently providing essential reliability services in California. For example, Southern California Edison has installed battery-gas hybrid systems with gas turbines that have the capability to offer primary frequency response to the electricity grid.

It is startling that the CPUC, a regulatory agency that has championed and authorized a significant investment in battery electric storage system to meet ramping needs and other essential grid needs, is questioning the use of a battery electric storage system.

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7 CPUC Protest at 33-36.

8 See, e.g., National Renewable Energy Laboratory and United States Agency for International Development publication Grid-Scale Battery Storage Frequently Asked Questions (https://www.nrel.gov/docs/fy19osti/74426.pdf) at 3:

When starting up, large generators need an external source of electricity to perform key functions before they can begin generating electricity for the grid. During normal system conditions, this external electricity can be provided by the grid. After a system failure, however, the grid can no longer provide this power, and generators must be started through an on-site source of electricity, such as a diesel generator, a process known as black start. An on-site BESS can also provide this service, avoiding fuel costs and emissions from conventional black-start generators.

9 See Power Magazine article dated March 5, 2020, GE Achieves Battery-Enabled Blackstart of Heavy Duty Gas Turbine: https://www.powermag.com/ge-achieves-battery-enabled-blackstart-of-heavy-duty-gas-turbine/

system to facilitate the provision of black start service in this proceeding.\textsuperscript{11} The CPUC raised no such concern in the California Energy Commission proceedings in which Marsh Landing amended its permit to install a battery electric storage system at MLGS.\textsuperscript{12} These proceedings included an assessment of whether the project would enhance MLGS’s operational reliability.\textsuperscript{13} Nor did the CPUC raise such a concern in the proceeding before the Commission last year concerning a proposal to install a battery electric storage system at the Russell City Energy Center in Hayward, California to facilitate the provision of black start service.\textsuperscript{14}

\begin{itemize}
\item[b.] The CPUC’s concerns regarding the sizing of the battery electric storage system at MLGS have no merit
\end{itemize}

The CPUC’s protest refers to a study conducted by ISO-New England (ISO-NE) to assess compensation of existing black start resources and whether ISO-NE’s rate structure provides adequate incentives for other generators to add black start capabilities to their plants.\textsuperscript{15} The ISO-NE’s report compares a battery electric storage system to diesel applications for black start to assess the costs of utilizing battery

\begin{footnotes}
\item[13] See CEC Staff Analysis of Petition to Amend to Add Black Start Capability dated February 8, 2019 in Docket 08-AFC-03C at 4. \url{https://efiling.energy.ca.gov/GetDocument.aspx?tn=226487&DocumentContentId=57264}
\end{footnotes}
storage. The study assessed a 15.5 MW/8.5 MWh battery as a comparison to a 2 MW diesel generator to support black start capability at a 155 MW gas turbine.

The CPUC leverages this report to question whether the proposed battery electric storage system at MLGS is appropriately sized. However, the ISO-NE study makes assumptions about loads and plant operational states that do not apply to the MLGS, including the need for a much larger battery and inverter system to source the maximum power output compared to a diesel generator because of the inherent short term current limitations of battery and inverter systems to source peak in-rush currents. In addition, the ISO-NE report is based on the premise that the black start battery electric storage system would need to provide plant auxiliary power for longer than an hour.\textsuperscript{16} Furthermore, the CPUC erroneously compares the capacity of the black start generating unit to the size of battery electric storage system needed to start a generating unit in assessing the feasibility of the battery electric storage system. It is not the maximum capacity of the generating unit but the auxiliary plant loads the battery electric storage system must support and start-up requirements of the generating unit that matter.

The concerns expressed in the CPUC’s protest do not reflect the design for the provision of black start at MLGS. Marsh Landing’s EPC contractor—Siemens—has designed the battery specifications based on critical loads at MLGS necessary to provide black start as well as its assessment of requirements to start the black start generating units at MLGS. The CAISO reviewed the design and sizing of the battery to ensure it met the black start service requirements of the CAISO’s tariff and request for

\textsuperscript{16} See ISO-NE Report at 5-3.
proposals. The battery sizing reflects measures to address in-rush current with the use of soft starters, which slowly raise the voltage and do not require as much current from the battery and inverter system to start the black start generating units. The operational requirements of the battery electric storage system will not require the battery to support the plant auxiliary loads in a standby mode for longer than an hour duration.\textsuperscript{17} The auxiliary plant loads will be served by the black start generating unit once it has started and reached minimum load while the battery system shall supply these loads during the startup cycle.

III. The CPUC’s protest fails to acknowledge Marsh Landing’s commercial risks associated with deploying black start at MLGS

In its protest, the CPUC argues that Marsh Landing cannot justify its proposed capital structure of 100 percent equity and its requested return on equity of 9 percent.\textsuperscript{18} The CPUC recommends the Commission impose a hypothetical capital structure with an imputed cost of debt to lower the overall return Marsh Landing will have an opportunity to earn under the Black Start Agreement. The CPUC asserts that, under the Black Start Agreement, Marsh Landing is assured complete cost recovery in a five-year term. The CPUC’s protest, however fails to acknowledge many of the commercial risks that Marsh Landing will face under the Black Start Agreement.

The deployment of Black Start at MLGS will necessarily create commercial risks for Marsh Landing. These risks will include both development and operational risks.

\textsuperscript{17} See Section 5.1 of Marsh Landing Black Start Agreement and definition of Deemed Black Start Event. During a Deemed Black Start Event, Marsh Landing shall start the Black Start Generating Unit and begin Full Speed No Load Operation if it has not received instructions from the CAISO or PG&E within one hour.

\textsuperscript{18} CPUC Protest at 13-25.
Marsh Landing is going to invest capital into the project and will not receive any payment under the Black Start Agreement until it passes a black start performance test. Marsh Landing will absorb the risk of expending this capital until it passes a performance test. Although Marsh Landing’s EPC contractor may face some of this risk under the parties’ agreement through performance guarantees, the capital investment Marsh Landing is making outside of that contract falls solely on Marsh Landing. Indeed, Marsh Landing has already expended considerable resources and money on a number of activities, including among others amending its CEC permit, designing the battery electric storage system, and negotiating an EPC contract.

The CPUC argues that the Black Start Agreement itself mitigates the risk to Marsh Landing of PG&E repudiating the underlying power purchase agreement for the output from the MLGS by virtue of PG&E’s status as a debtor in possession under Chapter 11 of the United States Bankruptcy Code. If this were to occur and Marsh Landing made a decision to retire the MLGS, the Black Start Agreement provides for payment of remaining unamortized amounts of its capital expenditure, including a calculated return.

Notwithstanding the CPUC’s point, Marsh Landing still faces risks associated with PG&E’s status as a debtor in possession under Chapter 11 of the United States Bankruptcy Code. These risks may be low probability risks, but they are extremely high impact. First, Marsh Landing remains in default to its lenders for the MLGS as a result of PG&E’s status. Any investment at MLGS such as the battery energy storage system would be at risk if Marsh Landing’s lenders decided to exercise their rights under their lending agreements to take ownership of the MLGS. Second, if PG&E defaults on
payments to market participants and the CAISO under its current or a future bankruptcy, Marsh Landing would lose its payment stream under the Black Start Agreement. Under the CAISO tariff and Black Start Agreement, the black start capability costs would be allocated directly to PG&E and then paid to Marsh Landing after PG&E remits payment.\textsuperscript{19}

Once the Marsh Landing deploys the battery electric storage system at MLGS, it will face operational risks. These risks include compliance and enforcement risk as a registered entity under the North American Electric Reliability Corporation functional model. They also involve operational risks associated with maintaining the safety of both plant operations and personnel. Finally, these risks include ensuring Marsh Landing maintains MLGS to provide black start service under the terms of the Black Start Agreement. This obligation places performance requirements on not only the incremental capital investment Marsh Landing is making to provide black start service from MLGS, but also incremental performance requirements on MLGS’ existing units and associated plant infrastructure. Marsh Landing’s requested return, however, only applies to the battery electric storage system it proposes to install at MLGS. The Commission should weigh these risks as it assesses the overall return Marsh Landing is likely to earn under the Black Start Agreement.

IV. The CPUC’s proposal to modify Marsh Landing’s depreciation schedule would create greater commercial risk for Marsh Landing and could create inequitable outcomes for transmission ratepayers

In its protest, the CPUC opposes Marsh Landing’s proposal to utilize a straight line depreciation schedule during the Black Start Agreement term for the cost of the

\textsuperscript{19} CAISO tariff section 11.4.2; section 3.1 of the Marsh Landing Black Start Agreement.
capital investment to provide black start service from MLGS.\textsuperscript{20} The CPUC’s proposal, however, would create greater commercial risk for Marsh Landing and could create inequitable outcomes for PG&E’s ratepayers.

In short, the CPUC urges the Commission to adopt a depreciation schedule in which Marsh Landing depreciates the cost of the battery itself over a five-year term and depreciates the cost of the rest of the BESS components over a ten-year term. The CPUC asserts that this would treat the non-battery portion of Marsh Landing’s capital investment similar to the term of a typical 10-year power purchase agreement in California.\textsuperscript{21} The CPUC, however, provides no assurance that it will approve an amendment to Marsh Landing’s existing power purchase agreement or authorize a new power purchase agreement for the capacity from MLGS that will extend beyond the initial term of the Black Start Agreement. The terms and conditions of the Black Start Agreement contemplate allowing Marsh Landing to recover its unamortized costs under a scenario where its current PPA expires and it cannot obtain a replacement contract.\textsuperscript{22} The parties negotiated this provision to apply to the initial five-year term of the Black Start Agreement. The CPUC’s protest assumes this contract provision would continue to apply in any subsequent term, but this is not necessarily the case. The CAISO and Marsh Landing have agreed to negotiate mutually-acceptable modifications to the Black Start Agreement for any extension of the initial term.\textsuperscript{23} Without a commitment for

\begin{itemize}
\item \textsuperscript{20} CPUC Protest at 26-29.
\item \textsuperscript{21} \textit{Id.} at 27.
\item \textsuperscript{22} Sections 2.6(b) and (d) of Marsh Landing Black Start Agreement.
\item \textsuperscript{23} Section 2.2 of Marsh Landing Black Start Agreement.
\end{itemize}
MLGS’ capacity during an extended term of the agreement, Marsh Landing would face increased commercial risk under the CPUC’s proposed depreciation schedule.

The CPUC recently adopted a decision in its integrated resource planning proceeding requiring its jurisdictional load serving entities to submit integrated resource plans to reflect two scenarios to reduce greenhouse gas emissions in the electric sector by 2030: a 46 million metric ton (MMT) greenhouse gas emissions reduction scenario for the electric sector by 2030 and a 38 MMT greenhouse gas emissions reduction scenario. The CPUC’s second scenario anticipates the retirement of over 2,000 MW of natural gas fired capacity by 2030 beyond existing planned retirements of natural gas-fired capacity. The adoption of this CPUC decision underscores the commercial risk to Marsh Landing that the Commission must consider in weighing the CPUC’s argument is this proceeding. It is not reasonable for the CPUC to ask Marsh Landing to defer recovery of its capital investment beyond the initial term of the Black Start Agreement and at the same time instructing its load serving entities to examine portfolios that phase out the use of some natural gas fired resources. Under such a circumstance, Marsh Landing could find itself in a position where it cannot recover the costs of its capital investment.

The CAISO continues to believe a straight-line depreciation schedule of the capital investment over the five-year term of the Black Start Agreement remains a commercially reasonable approach. This depreciation schedule recognizes that the battery electric storage system, including non-battery plant, is an integrated set of components. Under terms established by the CAISO’s request for proposals to provide

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black start capability, the CAISO established such a term to balance the risk associated with making a capital investment at a power plant with the objective of spreading the costs of such an investment over a period of time. Marsh Landing proposed and designed a project for a five-year term and has agreed to support the reliability need in the San Francisco Bay Area for this period of time. The various components of the battery electric storage system do not serve a use apart from supporting the provision of black start service for the term of the Black Start Agreement. To the extent Marsh Landing’s capital investment will facilitate providing black start capability after the initial term of the Black Start Agreement, ratepayers will receive the benefit of that value during any subsequent contract term.

The CPUC asserts its proposal to extend the depreciation schedule for the non-battery portion of Marsh Landing’s capital investment would help ensure that ratepayers receive the full value of the investment for which they are paying. The CPUC also argues this depreciation approach would provide for intergenerational equity by spreading the cost of the project over a longer period and a larger group of individual ratepayers. The CPUC recognizes that this change would require that the CAISO make a “lump sum” payment to Marsh Landing consisting of the unamortized and undepreciated balance of the battery electric storage system net investment to compensate Marsh Landing for undepreciated assets in the event the CAISO did not extend the Black Start Agreement after the initial term. Such a lump sum payment would allocate a significant payment to Marsh Landing at the end of the initial term and place a disproportionate share of the capital investment costs on ratepayers in that year.
V. The CPUC’s protest overstates Marsh Landing’s ability to exercise market power to negotiate a contract extension

In its protest, the CPUC raises concerns with the Black Start Agreement’s provision regarding extending the Black Start Agreement for a subsequent term. The CPUC argues that the CAISO’s right to extend the contract is illusory because Marsh Landing can reject the CAISO’s request. The CPUC asserts that Marsh Landing will be able to exercise complete market power over the CAISO, and by extension, PG&E’s ratepayers, at the end of the initial five-year term. The CPUC also argues that the contract provision forfeits its rights under the tariff to designate the resource as a Reliability Must-Run (RMR) resource if it requires the resource for black start service.

The CPUC’s protest overstates the import of this contract provision, which establishes a process for the parties to explore extending the Black Start Agreement before the initial term ends. Given that the battery Marsh Landing proposes to install will operate with a charge sufficient to support black start capability at the MLGS for only a five year-term, some additional investment will be necessary at that time if there remains a need to extend the Black Start Agreement. The contract provision anticipates the CAISO and Marsh Landing will discuss the need for ongoing black start service and what additional investment is necessary to support that service. Marsh Landing would need to seek recovery of any additional costs pursuant to a filing before the Commission under Section 205 of the Federal Power Act. Further, because Marsh Landing does not have market-based rate authority to provide black start service, any

25 CPUC Protest at 29-33, citing Section 2.2 of the Marsh Landing Black Start Agreement.
contract would be based on cost-of-service rates. It is difficult to see how Marsh Landing could unduly exert market power in these circumstances.

The CPUC’s assertion that the parties’ contract extension provision would forfeit rights the CAISO has under its tariff to designate generating units at MLGS as RMR units is incorrect. Nothing in the Black Start Agreement intrudes on the CAISO’s tariff authority to designate a unit as an RMR unit. Section 41.2 of the CAISO tariff set forth the CAISO’s unilateral right to make an RMR designation based on its technical analyses and studies:

The CAISO will, subject to any existing power purchase contracts, have the right at any time based upon CAISO Controlled Grid technical analyses and studies to designate a Generating Unit or other resource as a Reliability Must-Run Resource. The CAISO will also have the right at any time based upon CAISO Controlled Grid technical analyses and studies to designate a resource for Reliability Must-Run service that is needed to provide Ancillary Services or other reliability services. A resource so designated shall then be obligated to provide the CAISO with its proposed rates for Reliability Must-Run service for negotiation with the CAISO. A pro forma Reliability Must-Run Contract applicable to resources that receive RMR designations is attached as Appendix G. Such rates shall be authorized by FERC.

If the CAISO’s technical analyses and studies reflected a reliability need that only MLGS could address it would have authority to issue an RMR designation. The terms of the Black Start Agreement do not create any inconsistency with the CAISO’s RMR authority set forth in the CAISO tariff. If Marsh Landing elected not to extend the term of the Black Start Agreement, the CAISO would have authority to designate MLGS as an RMR unit to provide black start service to meet a reliability need. If Marsh Landing would be obligated to provide the CAISO with its proposed rates and such rates would

26 The CAISO pro forma RMR Agreement is for a one year period. The CAISO pro forma RMR Agreement provides for RMR unit owners to make necessary capital expenditures and recover those costs over a period of time assuming the RMR Agreement is extended on a year by year basis for that period.
be subject to Commission review and approval. As a result, the CPUC overstates the ability of Marsh Landing to exercise market power over the CAISO and transmission ratepayers.

VI. The record of the proceeding is sufficient for the Commission to accept the Black Start Agreement

In its protest, the CPUC requests that the Commission set this matter for evidentiary hearings and asserts additional record materials are necessary. Among other materials, the CPUC insists the CAISO should file the report of its consultant with the Commission. The CAISO engaged its consultant to help review supporting documentation for Marsh Landing’s project and development costs to install a battery electric storage system and related equipment and to assess the costs of equipment and labor required to install black start service under the agreement. The CAISO’s consultant reviewed various capital and operational cost components, including the costs set forth in Marsh Landing’s engineering procurement and construction contract. The consultant attempted to verify the costs for each capital and operational cost category by using supporting documents such as contracts or statements of work as well as a bottom-up estimate of the costs using its best judgement. This review helped inform the CAISO’s decision to execute the Black Start Agreement.

The CAISO has already provided its consultant’s report to the CPUC and to PG&E for informational purposes subject to the terms of a nondisclosure agreement. These materials, however, are not necessary for the Commission to review Marsh Landing’s rate schedule and supporting materials it has filed in this proceeding to reach a determination that the Black Start Agreement is just and reasonable. Granting the
CPUC’s request for an evidentiary hearing will delay resolution of this proceeding and impact the schedule to implement black start capability to address the reliability need. If Marsh Landing elects not to pursue the project, ratepayers may ultimately pay considerably more for this capability from another resource and will continue to face exposure to a prolonged outage in the event there is a need for black start service.

VII. CONCLUSION

The CAISO respectfully request that the Commission accept the Black Start Agreement between the CAISO and Marsh Landing. The agreement will facilitate efforts to enhance system restoration efforts in the San Francisco Bay Area in the event of a wide-spread power outage that requires the CAISO to implement a black start service.

Dated: March 31, 2020

Respectfully submitted,

/s/ Andrew Ulmer

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CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon all of the parties listed on the official service list for the captioned proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom, California this 31st day of March 2020.

\[signature\]

Martha Sedgley