

CALIFORNIA COASTAL COMMISSION

455 MARKET STREET, SUITE 300
SAN FRANCISCO, CA 94105-2219
VOICE (415) 904- 5200
FAX (415) 904-5400
TDD (415) 597-5885
WWW.COASTAL.CA.GOV



F9a

CDP Filed: 3/23/23
180th Day: 9/19/23
Staff: TL-SF
Staff Report: 4/26/23
Hearing Date: 5/12/23

STAFF REPORT: PERMIT AMENDMENT

Application No.: **A-3-SLO-04-035-A1**

Applicant: **Pacific Gas and Electric Company**

Location: Diablo Canyon Nuclear Power Plant, approximately six miles north of Avila Beach, San Luis Obispo County.

Description of Original Project: Construct and operate a radioactive waste storage facility known as an Independent Spent Fuel Storage Installation ("ISFSI") within a high security area of the Diablo Canyon Nuclear Power Plant complex.

Proposed Amendment: Amend previously approved development by modifying spent fuel handling and storage components at the ISFSI and power plant, including removal of surface structures and regrading concrete pads to accommodate a horizontal storage system adjacent to the ISFSI's current vertical storage system.

Staff Recommendation: **Approval with conditions.**

SUMMARY OF STAFF RECOMMENDATION

Pacific Gas and Electric Company ("PG&E" or "Permittee") has requested an amendment of Coastal Development Permit ("CDP") A-3-SLO-04-035, approved by the Coastal Commission ("Commission") in 2004, that allowed PG&E to construct and operate an Independent Spent Fuel Storage Installation ("ISFSI") at its Diablo Canyon

Nuclear Power Plant (“Diablo Canyon”) near Avila Beach in San Luis Obispo County. PG&E uses the ISFSI to store uranium-based fuel that has been used at the power plant. Although described as “spent fuel,” it remains highly radioactive after it is removed from the power plant’s reactors and must be stored safely for tens of thousands of years to prevent the release of radiation into the environment. Several decades ago, the federal government began efforts to identify a permanent repository for spent nuclear fuel; however, the federal government has not yet found a permanent storage solution. Until there is a federally approved permanent or interim offsite repository for spent nuclear fuel storage, spent fuel is stored onsite at nuclear power plants across the country, generally within ISFSIs that operate under licenses and requirements issued by the U.S. Nuclear Regulatory Commission (“NRC”).

The existing ISFSI at Diablo Canyon is located at an elevation of about 300 feet and several hundred feet inland of the power plant complex, most of which is located along or within about a quarter mile of the shoreline. As originally approved, the ISFSI consists primarily of several reinforced concrete pads and various security components within a fenced area, and stores spent fuel using a system of vertical casks/cannisters secured to the surface of the concrete pads. The requested amendment would allow PG&E to make slight alterations to the surface of those pads and to switch from the currently used vertical system to a horizontal system for storing the remaining spent fuel that would be generated through the end of Diablo Canyon’s current license period for power generation, which runs until August 2025.

PG&E plans to install new Horizontal Storage Modules (“HSMs”) within the existing ISFSI structure between June 2025 and March 2026. The HSMs are reinforced concrete structures about 25 feet long and 20 feet tall and store canisters/casks containing spent fuel. After installation of the HSMs, over the next several years PG&E would load spent fuel from storage pools located within the power plant complex into horizontal cannister/cask units, which would be transported to the ISFSI structure and placed within the HSMs. PG&E would also modify various components at the fuel handling building within the power plant complex to accommodate the change from vertical to horizontal storage and transport. Spent fuel already stored in the existing vertical cask system will not be moved or affected by this proposed change to a new storage system for future fuel storage, and the new proposed horizontal storage system would be fully accommodated within the area remaining at the existing ISFSI footprint that had been designed for the current vertical storage system. As discussed below, the proposed horizontal storage system is very similar to one that the Commission approved for an extended CDP term in October 2022 for the San Onofre Nuclear Generating Station (“SONGS”). Finally, PG&E would also modify components, including doorways and various types of loading equipment, at the fuel handling building adjacent to the power plant to accommodate the change from vertical to horizontal storage.

Note: The proposed project described herein relates to Diablo Canyon’s existing NRC-licensed ISFSI operations only and addresses the storage of the spent fuel that has been, or will be, generated from now until the end of the power plant’s current license periods, which end on November 2, 2024, for Unit 1 and August 25, 2025, for Unit 2. The storage of any spent fuel that may be generated during any potential extended operations beyond August 25, 2025, or future relicensing for power generation at Diablo Canyon pursuant to California Senate Bill 846 (2022) (“SB 846”) or otherwise is, therefore, outside of the scope of this CDP amendment and is not authorized by this CDP amendment. Furthermore, this CDP amendment limits the presence of the ISFSI to a term no later than 2030, as discussed below.

Certain aspects of this proposed project are outside of the Commission’s jurisdiction, pursuant to federal preemption. The United States Nuclear Regulatory Commission (“NRC”) has exclusive jurisdiction over all radiological aspects of Diablo Canyon. Under federal law, the state is preempted from imposing upon operators of nuclear facilities any regulatory requirements concerning radiation hazards or nuclear safety. However, the state may impose requirements related to other issues, including conformity to the Coastal Act. The key Coastal Act issues raised by this proposed project and within the Commission’s jurisdiction relate to the risks of coastal and geologic hazards and to public access to the shoreline.

As part of its application to amend its CDP, PG&E provided a comparison of various features of the proposed horizontal storage system (manufactured by Orano USA) and the existing vertical storage system (manufactured by Holtec, Inc.). PG&E represented that the proposed horizontal storage system (“Orano system”) would have the same or fewer impacts regarding relevant coastal resources as compared to the impacts the Commission evaluated in its approval of the existing Holtec system. For example, PG&E noted that, because each unit of the Orano system holds more spent fuel than the Holtec units, it would require fewer truck and transporter trips to the ISFSI structure, which would reduce air emissions and would result in fewer impacts when the HSMs are being delivered to Diablo Canyon via roads that provide public access to the shoreline. The Orano canisters/casks are also more easily transported between the power plant complex and the ISFSI than the Holtec canisters and can be loaded with spent fuel from the storage pools sooner than can the Holtec units, which is expected to allow the eventual decommissioning of the power plant to proceed more quickly and at lower costs. Both systems are designed to meet the seismic requirements required by the NRC for nuclear safety at Diablo Canyon.

In its review of the original CDP, the Commission evaluated the original project’s effects on various coastal resources, including public access and recreation, geologic hazards, environmentally sensitive habitat areas (“ESHA”), water quality, spill prevention and response, cultural and archaeological resources, water and sewage service, visual resources, and energy production. Because it would result in much more limited construction activities, the currently proposed amendment is not expected to result in different effects on most of those resources but is expected to result in new or additional adverse effects in the areas of hazards and public access to the shoreline.

These effects, and the Special Conditions needed to address them, are described in the Findings below. First, [Special Condition 2](#) from the original CDP is modified to limit authorization of this ISFSI to no later than 2030 unless PG&E applies for a new or amended CDP that addresses the ongoing transportability of the storage units, evaluates offsite storage that may become available, and assess the ongoing effects of climate change and sea level rise on offsite transportability. This would allow the Commission to consider updated projections of coastal hazards and the status of offsite interim storage facilities if PG&E applies for an extended authorization beyond 2030. In addition, SB 846 sets out an option of potentially relicensing and extending (instead of decommissioning) Diablo Canyon's power generation operations to October 31, 2029 for Unit 1 and October 31, 2030 for Unit 2. Any relicensing of Diablo Canyon's power generation operations at this point remains uncertain; however, an approval for relicensing of the power plant could potentially require PG&E to make modifications to the ISFSI to store additional spent fuel or to move all or some of the spent fuel stored in the ISFSI to an off-site storage facility if one is developed and becomes available. Thus, it is appropriate to limit the term of this proposed CDP amendment to 2030.

New [Special Condition 8](#) would require PG&E to fund an independent review of the Aging Management Programs for the ISFSI to ensure that those programs can sufficiently characterize the units' transportability of the fuel storage canisters. It would also require PG&E to incorporate recommendations of that review in its site-specific Aging Management Programs. This condition is similar to one the Commission approved in October 2022 for another ISFSI at SONGS in San Diego County. New [Special Condition 9](#) would require PG&E to provide annual reports to the Commission on the status of offsite storage facilities that could eventually accommodate spent fuel from Diablo Canyon. New [Special Condition 10](#) would require PG&E to conduct ongoing monitoring of the roadways within the coastal zone that would eventually be used for offsite transport, as those routes would be subject to the ongoing and likely increasing effects of climate change and sea level rise that could potentially affect their capacity to allow transport. [Special Condition 10](#) would also require PG&E to provide an alternatives analysis of transport options if these roadways become unsuitable for transport. New [Special Condition 11](#) recognizes that the transport of these new large storage units to the Diablo Canyon ISFSI is likely to result in temporary disruption of the public's use of these roadways, one of which – Avila Beach Drive – is a heavily used road the public uses for access to the shoreline and for recreation. [Special Condition 11](#) would require PG&E to characterize the type and timing of any disruption of public access, identify and implement feasible measures to avoid or minimize that disruption, and then provide compensatory access amenities to mitigate for any remaining access disruption. In recognition of the risks and liabilities associated with the proposed development, new [Special Condition 12](#) requires PG&E to reimburse the Commission for any attorney fees and costs that may result from this permit and new [Special Condition 13](#) provides that PG&E acknowledges the risks involved with the development and that it indemnify the Commission of any liability that may be associated with approval of this permit. Commission staff therefore recommends that the Commission **approve, with conditions**, the proposed amendment to coastal development permit A-3-SLO-04-035.

TABLE OF CONTENTS

I. MOTION AND RESOLUTION.....	6
II. NEW AND MODIFIED CONDITIONS	6
III. FINDINGS AND DECLARATIONS	13
A. BACKGROUND	13
B. PROPOSED AMENDMENT	15
C. STANDARD OF REVIEW	17
C. OTHER AGENCY APPROVALS FOR THIS AMENDMENT	18
D. TRIBAL CONSULTATION	18
E. NEW DEVELOPMENT AND HAZARDS.....	19
F. PUBLIC ACCESS TO THE SHORELINE.....	26
G. CALIFORNIA ENVIRONMENTAL QUALITY ACT	29

APPENDICES

[Appendix A – Substantive File Documents](#)

EXHIBITS

[Exhibit 1](#) – Map of Project Location

[Exhibit 2](#) – Transporter Route

[Exhibit 3](#) – Horizontal Storage Modules

[Exhibit 4](#) – ISFSI Aerial View

[Exhibit 5](#) – CDP #A-3-SLO-04-035 (2004)

I. MOTION AND RESOLUTION

Motion

I move that the Commission **approve** the proposed amendment to Coastal Development Permit No. A-3-SLO-04-035 pursuant to the staff recommendation.

Staff recommends a **YES** vote on the foregoing motion. Passage of this motion will result in approval of the amendment and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

Resolution

The Commission hereby approves the coastal development permit amendment on the grounds that the development as amended and subject to conditions, will be in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit amendment complies with the California Environmental Quality Act because either: 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the amended development on the environment, or 2) there are no feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the amended development on the environment.

II. NEW AND MODIFIED CONDITIONS

Note: Except as modified by this amendment, all standard and special conditions in the original Coastal Development Permit A-3-SLO-04-035 (see [Exhibit 5](#)) remain in effect. This permit amendment is granted subject to the following amended and new conditions as shown below in ~~strikethrough~~ and **bold double underlined text**.

Modified Existing Conditions

Special Condition 2 is modified as follows:

Decommissioning or Changes to the ISFSI: This permit does not authorize development activities associated with any potential decommissioning of the ISFSI or changes to the ISFSI not described in ~~permit submittals~~ **the approved permit, as amended**. The Permittee shall submit a new coastal development permit application or amendment to this permit if such activities are proposed.

Unless extended by action of the Commission pursuant to an application submitted prior thereto, this permit shall terminate and be of no further force and effect on December 31, 2030. No later than twelve months before that date,

the Permittee shall apply for an amendment to this coastal development permit to retain, remove, or relocate the spent fuel located at the ISFSI facility. This application shall be supported by:

- a. An evaluation of current and future coastal hazards based on the best available information;
- b. Evidence that the fuel storage canisters will remain in a physical condition sufficient to allow offsite transport, pursuant to the applicable Aging Management Programs and Implementing Procedures (“AMPs”) (described in Special Condition 8), which are designed to ensure that the canisters remain transportable for the full life of the authorized project; and,
- c. An analysis examining the merits and feasibility of available offsite alternatives.

New Conditions

New Special Condition 8:

Aging Management Program Review and Reporting of Inspection Results.

- a. Upon receipt by the Permittee of the Nuclear Regulatory Commission’s approval of a license extension for the ISFSI, which Permittee shall promptly provide to the Commission, the Permittee shall fund an independent, third-party review of the following in the Aging Management Programs (“AMPs”) relevant to the ISFSI: (1) the canister inspection, monitoring and maintenance techniques that will be implemented, including prospective non-destructive examination techniques and remote surface inspection tools; (2) the type of data that will be collected and the reporting frequency; (3) all available evidence related to the physical condition of the canisters and their susceptibility to degradation processes such as stress corrosion cracking, including any available, pre-existing inspection documentation, photographs, and videos; and (4) remediation measures that will be implemented, including the submission of a coastal development permit amendment application, if the results of the canister inspection and maintenance do not ensure that the fuel storage canisters will remain in a physical condition sufficient to allow on-site transfer and offsite transport for the term of the project as authorized under Special Condition 2.
- b. The third-party reviewer(s) shall be selected by the Executive Director, and the Executive Director shall have full discretion for the development and completion of products resulting from this review. All such products provided to the Permittee shall also be provided concurrently to the Executive Director. The Permittee’s provision of funds: (1) shall not in any way be contingent on the hiring of any specific person or firm; (2) shall not be dependent on the work product, including but not limited to any recommendation of any person hired to review the AMPs,

- (3) shall not be dependent on the result of any Commission action pertaining to the Permittee's CDPs; and (4) shall not exceed \$200,000.**
- c. The independent third party must have qualifications that include the following:**
- i. No current (or within the prior year) direct employment or other direct financial benefit provided by the Permittee.**
 - ii. Degree in engineering with commercial industry work experience and familiarity with non-destructive examination techniques and weld repairs.**
 - iii. Disclosure of work done regarding spent fuel storage or transportation, or related topics, including within California or nationally.**
 - iv. Understanding of technical and regulatory aspects of spent nuclear fuel handling and storage systems, including: aging mechanisms, effects, and management, maintenance, or surveillance programs; spent nuclear fuel container transportability; Nuclear Regulatory Commission (NRC) regulations and technical reports (i.e., NUREG-1927 "Standard Review Plan for Renewal of Specific Licenses and Certificates of Compliance for Dry Storage of Spent Nuclear Fuel") and related publications; American Society of Mechanical Engineers (ASME) standards and requirements; and other related subjects.**
 - v. Prefer familiarity with the types of spent nuclear fuel handling and storage systems used at SONGS.**
- d. The findings of the independent, third-party review shall be reported in writing to the Executive Director by February 1, 2025. Additional time may be provided for the independent, third-party review by the Executive Director based on reasonable cause and demonstrated progress. If the Executive Director's review, informed by the report prepared by the independent, third-party reviewer, indicates that additional and/or different inspection, evidence, reporting, and/or remediation measures from those in the AMPs should be taken to ensure that spent fuel storage canisters will remain in a physical condition sufficient to allow offsite transport and remain transportable for the full life of the authorized project, the Executive Director shall provide a written list of those additional and/or different inspection, evidence, reporting, and/or remediation measures to the Permittee and one of the following shall occur:**
- i. The Permittee shall, within 180 days of receiving the written list from the Executive Director, modify the AMPs and/or their Implementing Procedures to incorporate the inspection, evidence, reporting, and/or remediation measures recommended by the Executive Director and seek any required NRC approval of such modification by that date. The Permittee shall submit any such modified AMPs to the Executive Director for review and approval upon approval by the NRC; or**

- ii. The Permittee shall, within 180 days of receiving the written list from the Executive Director, submit a complete application to the Commission for a CDP amendment for continued authorization of the ISFSI in a manner consistent with the additional and/or different inspection, evidence, reporting, and/or remediation measures identified on the written list provided by the Executive Director.
- e. As part of the AMPs, the Permittee shall perform required inspections of the ISFSI and spent fuel canisters, as determined through the above recommendations by the independent, third-party reviewer, and in no case later than March 1, 2028, unless that deadline is extended for good cause by the Executive Director. The Permittee shall provide a report to the Executive Director within 180 days of the completion of each canister inspection. The report shall contain the following:
 - i. Information regarding the canisters inspected and their location within the ISFSI.
 - ii. Inspection results and analysis, including trending of the data as compared to any previous inspections.
 - iii. Any corrective actions taken as a result of the inspection.
 - iv. Evaluation of the inspection interval, and whether inspection intervals will be adjusted based on the inspection data collected.
 - v. Evaluation of the inspection data to determine if canister degradation is proceeding at a rate which may impact the canister ability to be transferred on-site or transported offsite during the term of the project as authorized under Special Condition 2.
 - vi. A summary of the ISFSI facility system inspections.
 - vii. The results of any updated statistical analyses incorporating data from the inspection.

New Special Condition 9:

Ongoing Reporting on Alternative Waste Storage Facilities. The Permittee shall submit an annual report for the Executive Director's review and approval beginning no later than December 31, 2023 that includes:

- a. The status of the Permittee's efforts to identify and evaluate alternative offsite facilities where spent fuel canisters stored at the Diablo Canyon ISFSI may be accepted. These may include, but are not limited to, commercial consolidated interim storage facilities and permanent disposal facilities;
- b. The Permittee's activities to advance the establishment of offsite facility locations and the status of Permittee's efforts to secure an offsite facility to accept those spent fuel canisters;
- c. Information on the United States Department of Energy activities related to the federal spent nuclear fuel management program;
- d. Information on Congressional activities to address needed changes to federal legislation;

- e. Current information and status of transportation planning to facilitate the transfer of canisters offsite; and
- f. International developments related to spent fuel management and their relevance to the domestic spent fuel management program.

New Special Condition 10:

Transport Route Monitoring and Alternatives Assessment.

AT LEAST 60 DAYS PRIOR TO THE FIRST HORIZONTAL STORAGE MODULE DELIVERY, the Permittee shall provide for Executive Director review and approval a proposed monitoring program describing the measures it will implement to assess conditions on and along all roadways within the coastal zone expected to be used to transport spent fuel to any off-site locations, including the Diablo Canyon entrance road and Avila Beach Drive. The proposed measures are to be sufficient to determine whether the roadways will remain suitable at all times during the term of this permit amendment to allow transport spent fuel from the Diablo Canyon ISFSI to a suitable offsite storage facility. The monitoring program shall be developed by a licensed professional engineer in conjunction with the County of San Luis Obispo. The program shall identify how the Permittee will conduct monitoring sufficient to detect and anticipate effects of hazards resulting from climate change and sea level rise that may affect the roadways capacity to transport spent fuel to off-site locations. It shall also describe how monitoring will be modified as needed to detect any projected increase in those hazards before they occur to provide an "early warning" system for any needed changes to these roadways. The proposed program shall also provide for submitting reports to the Executive Director at least annually that describe the results of ongoing monitoring, that describe all maintenance and repair activities conducted on those roadways to correct or avoid conditions that could affect the transport of spent fuel, and that describe any expected changes resulting from that monitoring or from updated sea level rise and climate change projections.

The program is to also identify feasible alternatives that may be necessary to ensure offsite transport, including measures to improve these roadways, such as regrading, elevating, relocating, etc., and alternative transport methods if it becomes infeasible to modify these roadways, such as alternative routes or methods of transport (e.g., barging). The program is to also identify how the Permittee will work with the County of San Luis Obispo if any of these measures would require a new or modified coastal development permit.

Upon Executive Director approval, the Permittee shall implement the program as approved.

New Special Condition 11:

AT LEAST 60 DAYS PRIOR TO DELIVERY OF THE FIRST HORIZONTAL STORAGE MODULE, the Permittee shall submit for Executive Director review and approval a Traffic Control and Mitigation Plan prepared in conjunction with the County of San Luis Obispo and the Port San Luis Harbor District that provides the following:

- **The expected number of trips, their duration, and routes within the coastal zone that will be used to transport HSMs to Diablo Canyon during project construction.**
- **The size of vehicles to be used during these trips and any modifications needed along the routes to accommodate these vehicles.**
- **All measures that will be implemented to avoid or reduce the effects of closures or restrictions on the public's use of these routes, including but not limited to, transporting during non-peak use times, providing notice through various media of upcoming closures or restrictions, providing for intermittent road openings during equipment transport trips when feasible, and others.**
- **The type and number of closures or restrictions on public access and recreation that will remain after these measures are implemented. These are to include, but are not limited to, the number of lost overnight camping opportunities, any reduction in use of Port San Luis for commercial or recreational fishing, lost opportunities to access the Pecho Coast Trail and the Point San Luis Lighthouse, etc.**

For these remaining closures or restrictions, the Plan shall propose mitigation measures to fully compensate for them. Depending on the types of impacts, proposed mitigation may include measures such as providing enhanced access to nearby camping or fishing sites, improving public access and recreation amenities at or near the affected areas, providing alternative means of access such as temporary shuttle service during closures, or others. The Plan shall describe these proposed measures and include a qualitative and quantitative description of the benefits to be provided relative to the expected impacts of any closures or restrictions.

Upon the Executive Director's approval of the Plan, the Applicant shall implement the Plan as approved. If the Executive Director determines that any of these measures would require a coastal development permit, the Applicant shall, within 60 days of that determination, provide a complete application to amend this permit in a manner necessary to implement these measures.

New Special Condition 12:

Liability for Costs and Attorneys' Fees. the Permittee shall reimburse the Coastal Commission in full for all Coastal Commission costs and attorneys' fees -- including (1) those charged by the Office of the Attorney General, and (2) any court costs and attorneys' fees that the Coastal Commission may be required by a court to pay – that the Coastal Commission incurs in connection with the defense of any action brought by a party other than Permittee against the Coastal Commission, its officers, employees, agents, successors and assigns challenging the approval or issuance of this permit, the interpretation and/or enforcement of permit conditions, or any other matter related to this permit. The Permittee shall reimburse the Coastal Commission within 60 days of being informed by the Executive Director of the amount of such costs and fees. The Coastal Commission retains complete authority to conduct and direct the defense of any such action against the Coastal Commission.

New Special Condition 13:

Assumption of Risk, Waiver of Liability and Indemnity. By acceptance of this permit, the Permittee acknowledges and agrees:

- a. **That the site may be subject to hazards from coastal erosion, storm conditions, wave uprush, and tsunami runup;**
- b. **To assume the risks to the Permittee and the property that is the subject of this permit of injury and damage from such hazards in connection with this permitted development;**
- c. **To unconditionally waive any claim of damage or liability against the Commission, its officers, agents, and employees for injury or damage from such hazards; and,**
- d. **To indemnify and hold harmless the Commission, its officers, agents, and employees with respect to the Commission's approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards.**

III. FINDINGS AND DECLARATIONS

A. BACKGROUND

In December 2004, the Commission approved coastal development permit (CDP) A-3-SLO-04-035 allowing PG&E to construct and operate an Independent Spent Fuel Storage Facility, or ISFSI, at the site of PG&E's Diablo Canyon Nuclear Power Plant (see [Exhibit 1](#)).¹ The ISFSI is located within the approximately 760-acre Diablo Canyon power plant complex, which includes the power plant, administration buildings, security systems, and various other infrastructure needed to support power plant operations. This 760-acre site is within the larger PG&E-controlled lands that cover almost 12,000 acres along this stretch of the San Luis Obispo County coast.

The ISFSI is located several hundred feet inland of the power plant at about 300 feet elevation. It consists primarily of seven side-by-side reinforced concrete pads, with each pad about 7.5 feet thick and about 105 by 68 feet in size, and includes fencing and other security infrastructure. The ISFSI is subject to federal requirements regarding radiological safety and security.²

The ISFSI stores used, or "spent," nuclear fuel from the Diablo Canyon Power Plant. Although it is described as "spent fuel," it remains highly radioactive after it is used and requires secure storage for tens of thousands of years to prevent harm to humans and the environment. This and other similar ISFSIs around the county are meant to provide temporary onsite storage for spent fuel from nuclear reactors until the U.S. Department of Energy develops a long-term permanent storage facility or until it approves one or more interim or temporary offsite facilities. However, it is uncertain when such a facility might become available. The Commission's 2004 approval acknowledged that until an appropriate offsite storage facility becomes available, the spent fuel would remain at Diablo Canyon.

In 2004, the U.S. Nuclear Regulatory Commission ("NRC") approved PG&E's application to construct and operate the ISFSI for a 20-year license term, which runs until March 22, 2024. Earlier this year, PG&E applied to the NRC for a 40-year extension of that ISFSI license, which if approved, would allow the ISFSI to continue storing spent fuel until March of 2064.³

¹ In April 2004, the County of San Luis Obispo approved a CDP for the project. That CDP was appealed to the Commission, which found substantial issue in July 2004 and then held a de novo hearing in December 2004, during which it approved the current CDP.

² See 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor-Related Greater Than Class C Waste."

³ Pursuant to 10 CFR 72.42, licensees may request extension of up to 40 years.

PG&E designed the currently approved ISFSI to accommodate only the spent fuel PG&E expected to be generated at Diablo Canyon during the power plant's current license periods (i.e., until August 2025). At the time of PG&E's March 9, 2022, application submittal to the NRC to extend the license for the ISFSI, PG&E was planning to start power plant decommissioning in 2025 and complete it about nine years later. Since that time, the state has enacted SB 846 (2022), which sets out an option of potentially relicensing Diablo Canyon's power generation operations for an additional five years instead of decommissioning them.

PG&E has initiated the process to seek relicensing of power generation operations from NRC but has not yet submitted its complete application to NRC. In March 2023, NRC granted PG&E's request for an exemption from a federal requirement that any license renewal application be submitted at least five years prior to expiration of the existing license. Under this exemption, NRC determined that if PG&E submits a complete license renewal application no later than December 31, 2023, and if the NRC finds it acceptable for docketing, the existing operating licenses for Diablo Canyon Units 1 and 2 will be considered to be timely renewed under NRC regulations until the NRC has made a final determination on the license renewal application. In that event, PG&E may continue to operate Diablo Canyon beyond the existing license terms (ending in 2024 and 2025 for Units 1 and 2, respectively) pending NRC's determination on the license renewal application. The NRC anticipates taking about 22 to 30 months to review any license renewal application that PG&E submits.

The existing ISFSI structure was sized based on the amount of spent fuel PG&E expected to generate up until August 2025 (the end of the current licensing period for power generation operations) and on the extent of the area needed to store that spent fuel in the storage system that PG&E has used until now, which are vertical canisters constructed by Holtec, Inc. ("Holtec system"). Therefore, if Diablo Canyon's power generation operations continue beyond August 2025 as a result of NRC's consideration of PG&E's anticipated request for relicensing, any additional spent fuel generated beyond August 2025 would likely require a new or expanded ISFSI or would require PG&E to store that additional fuel in spent fuel pools at the power plant for an indefinite period.

Diablo Canyon's nuclear generators are fueled on regular cycles during which about one-third to half of the fuel within the generators is removed and replaced with new fuel about every 18 to 20 months. The fuel consists of small uranium pellets contained within metal rods about 12 feet long. These rods are grouped into fuel assemblies, with each of Diablo's two nuclear reactor pressure vessels holding 193 fuel assemblies. As the fuel is used, its levels of radioactivity increase significantly due to the formation of various radioisotopes during the nuclear fission process. Once the fuel is no longer useful for generating power, the fuel assemblies are removed from the reactor vessels and stored in either of two "spent fuel pools" within the power plant complex where they remain for about five years to allow some of the higher levels of remaining radioactivity to decay.

Once the spent fuel has “cooled” sufficiently in the pools, PG&E transfers the fuel assemblies into the Holtec system’s canister and cask system, which consists of large, heavy concrete and metal containers that are sealed from the environment and are designed to confine radioactive materials and to safely dissipate the heat generated from the decaying spent fuel. Each of these canister/cask units can store 32 spent fuel assemblies. Once ready for transfer, the spent fuel assemblies are moved from the spent fuel pools to these canister/cask units within the fuel handling building next to the reactor buildings. Once the fuel assemblies are within these units, they are loaded onto transporters and moved along roads within the power plant complex to the ISFSI (see [Exhibit 2](#)).

The ISFSI was designed to hold 140 Holtec canisters/casks and currently holds 58 of those canisters/casks, which collectively store a total of 1,856 fuel assemblies. The spent fuel pools currently store about 1,800 assemblies and PG&E estimates that by the end of the current August 2025 license period, there will be a total of 2,542 assemblies in the pools. If PG&E’s current permit amendment request is approved, it would be able to transfer these assemblies from the pools to the proposed Orano storage units within the existing ISFSI. It could also continue to use the current Holtec storage system or a combination of both systems. With those final 2,542 assemblies, the ISFSI would reach its remaining capacity for storage of fuel associated with power plant operations.⁴

In addition to potential relicensing of power generation operations beyond 2025, the County of San Luis Obispo is preparing an environmental impact report that will evaluate proposed decommissioning, in the event that decommissioning occurs in the near-term instead of relicensing. It is not yet known whether relicensing will occur and what additional development may be required if relicensing is approved, and PG&E is therefore continuing to work with the County on a decommissioning environmental impact report while simultaneously working towards potential relicensing.

B. PROPOSED AMENDMENT

The Commission’s original approved CDP from 2004 included **Special Condition 2**, which authorized PG&E to conduct only those development activities proposed at the time and required PG&E to submit an application for a new or amended CDP if PG&E proposed to decommission or otherwise modify the ISFSI. PG&E is now proposing such a modification, as it plans to change the system it uses to store spent fuel at the ISFSI. Instead of continuing the use of the Holtec vertical storage system, it would use a horizontal storage system known as the “NUTECH horizontal modular storage system,” or “NUHOMS,” manufactured by Orano USA (referred to herein as the “Orano system”). This proposed change came about as a result of a 2018 California Public

⁴ PG&E estimates that the new Orano units can hold a total of 2,553 fuel assemblies and that there will be 2,542 assemblies needing storage by August 2025. This would allow for storage of 11 additional assemblies; however, each refueling cycle at Diablo Canyon generates several dozen spent fuel assemblies so would exceed the amount that could be stored at the ISFSI.

Utilities Commission (“CPUC”) review of the expected costs to eventually shut down and decommission Diablo Canyon’s power generation operations.⁵ PG&E agreed to pursue a modified dry storage system that would reduce the time spent fuel assemblies would need to be stored in the pools before being moved to dry storage, which would allow for an overall reduction in Diablo Canyon’s expected decommissioning schedule and costs.

The modifications proposed through this amendment are meant to address only the spent fuel generated during Diablo Canyon’s current license periods. Relicensing of Diablo Canyon’s power generation operations at this point remains speculative; however, an approval for license renewal could potentially require PG&E to propose a new or expanded ISFSI to store additional spent fuel or to propose moving all or some of the spent fuel to an off-site storage facility if one is developed and becomes available. Either proposal would be the subject of a future application for a new or amended CDP.

The Orano system is similar to the existing Holtec system being used in the ISFSI in that the spent fuel is stored in canister/cask units, although the Orano system stores these units in Horizontal Storage Modules (“HSMs”), which are reinforced concrete vaults about 25 feet long and 20 feet tall (see [Exhibit 3](#)), instead of vertical modules for the existing Holtec system. These proposed HSMs would be placed side-by-side on the currently unused portion of the existing ISFSI pad (see [Exhibit 4](#)). Each Orano unit holds 37 fuel assemblies as compared to the 34 stored by the Holtec units, so the remaining spent fuel to be generated through August 2025 can be fully accommodated within the existing ISFSI footprint that was designed for the Holtec system. Even with this amended permit and the availability of the new Orano system, PG&E may choose to continue its use of the Holtec system for some period of time. However, even with the modifications proposed in this requested permit amendment, the ISFSI would not have the capacity to store fuel generated during power plant operations extending beyond the current NRC-approved August 2025 operating term.

Switching to the Orano system would allow PG&E to remove spent fuel from the pools up to several years earlier as compared to the Holtec system. This will allow any eventual plant decommissioning to occur more quickly, as PG&E would then be able to more quickly disassemble and remove the Diablo Canyon fuel handling building after the plant shuts down, which would then allow for other removal and decommissioning activities to occur sooner. The Orano system also has a handling advantage in that the units are continually supported on horizontal guide rails and do not need to be lifted or suspended during transport from the fuel loading building to the ISFSI or from the ISFSI to an eventual long-term offsite storage facility if one becomes available. The Orano system also includes a built-in inspection port and allows the use of several non-destructive examination tools to detect potential damage, such as high-resolution cameras, sampling of surface deposits, and inspection of eddy currents. If these examinations detect known or suspected canister damage, Orano has developed and is

⁵ See 2018 CPUC Decommissioning Cost Estimate triennial proceedings.

developing methods to address certain types of damage. One method, which has been implemented at the Idaho National Laboratory, involves moving the cannister to a concrete module that includes additional sealing and monitoring.⁶ Orano is also developing techniques, such as a “cold spray” method, to address potential surface degradation issues on the cannisters. There is also an active Aging Management Program in place for the Orano system, which includes ongoing in situ inspections, corrosion management, and other measures meant to detect any problems with the cannisters.

PG&E proposes to install up to 69 Orano HSMs within the existing ISFSI footprint to store the remaining amount of spent fuel expected to be generated by the end of the current license period. To accommodate these new Orano units, PG&E proposes to modify the existing ISFSI by extracting the metal baseplates that were bolted to the surface of the ISFSI’s concrete base in anticipation of being used to support the vertical Holtec casks. Existing Holtec canisters/casks already storing fuel at the ISFSI will not be affected or moved. The pad surfaces will then be restored and levelled using high-strength grout. Some of these baseplate locations have circular concrete sections that protrude above the pads that will be ground away to provide a level surface for the new HSMs. This grinding process will be done with diamond-head grinders and will include a water slurry provided by water tanker trucks to cool the grinding head and control dust generated during the grinding.

PG&E also proposes to modify the transport area at the fuel handling building within the power plant complex where fuel removed from the pools is transferred to the storage canisters/casks. These modifications would replace components such as doorways and lifting equipment used to load and transport vertically-oriented units with those needed to load and transport the horizontally-oriented casks.

The HSMs would be constructed offsite at a concrete batch plant in Bakersfield, California and transported to Diablo Canyon by truck. PG&E estimates about 340 truck trips would be required. The HSMs would be placed initially in a staging area near the ISFSI and then placed on the ISFSI pad using a crane.

PG&E expects to start work in June 2025 and complete placement of the HSMs by March 2026.

C. STANDARD OF REVIEW

⁶ See February 2019 Spent Fuel Workshop presentation by PG&E to the Diablo Canyon Decommissioning Engagement Panel, available at: https://www.pge.com/pge_global/common/pdfs/safety/how-the-system-works/diablo-canyon-power-plant/diablo-canyon-power-plant/Agenda-and-Meeting-Slides-022219.pdf

The project site is within the certified Local Coastal Program (“LCP”) jurisdiction of San Luis Obispo County, which approved the original 2004 CDP for the ISFSI that was then appealed to the Commission. The Commission found substantial issue with that appeal and then approved a subsequent CDP during a de novo hearing later that year.

Pursuant to Coastal Act Section 30604(b), the Commission therefore retains ongoing jurisdiction for any proposed amendments to this CDP, though the standard of review remains the County’s LCP. Additionally, because the project site is between the first public road and the sea, the proposed amendment is subject to relevant public access provisions of the Coastal Act’s Chapter 3.

Federal preemption of radiological aspects of the proposed project

The NRC has exclusive jurisdiction over radiological aspects of Diablo Canyon and the ISFSI. Under federal law, the state is preempted from imposing upon operators of nuclear facilities any regulatory requirements concerning radiation hazards and nuclear safety. The state may, however, impose requirements related to other issues. The U.S. Supreme Court, in *Pacific Gas and Electric Company v. State Energy Commission*, 461 U.S. 190, 205 (1983), held that the federal government has preempted the entire field of “radiological safety aspects involved in the construction and operation of a nuclear plant, but that the states retain their traditional responsibility in the field of regulating electrical utilities for determining questions of need, reliability, costs, and other related state concerns.” The Coastal Commission findings herein address only those state concerns related to conformity to applicable policies of the LCP and Coastal Act, and do not evaluate or condition the amendment with respect to nuclear safety or radiological issues.

C. OTHER AGENCY APPROVALS FOR THIS AMENDMENT

The NRC regulates radiological and nuclear safety aspects of the ISFSI and the storage methods used pursuant to requirements of 10 CFR Part 72. The NRC has issued a general license for the Orano system, which allows it to be used at a number of ISFSIs around the county, including Diablo Canyon. As noted above, PG&E’s current ISFSI license for its Holtec storage system expires in March 2024 and PG&E has applied to the NRC for a 40-year extension of it. PG&E expects to receive the approved extension prior to March 2024 and has committed to provide a copy to Commission staff upon receipt.

D. TRIBAL CONSULTATION

The Diablo Canyon lands affected by this proposed project are within the ancestral homelands of the Chumash people, who have lived along much of this stretch of what is now the central California coast. Commission staff contacted two Chumash representatives to provide information about this proposed amendment and offer formal or informal Tribal Consultation.

In response to this outreach, staff conducted informal Consultation on April 3rd and 5th, 2023, with Chair Mona Olivas Tucker of the yak tiʻu tiʻu yak tihini Northern Chumash Tribe. Staff provided Chair Tucker with information about the project and confirmed to her that PG&E had designed the project to involve no ground disturbance. The Chair asked to re-open consultation if it is later determined that the project would disturb soil or involve excavation.

E. NEW DEVELOPMENT AND HAZARDS

LCP Policy 1 for Hazards states:

New Development. All new development proposed within areas subject to natural hazards from geologic or flood conditions (including beach erosion) shall be located and designed to minimize risks to human life and property. Along the shoreline new development (with the exception of coastal-dependent uses or public recreation facilities) shall be designed so that shoreline protective devices (such as seawalls, cliff retaining walls, revetments, breakwaters, groins) that would substantially alter landforms or natural shoreline processes, will not be needed for the life of the structure. Construction of permanent structures on the beach shall be prohibited except for facilities necessary for public health and safety such as lifeguard towers. [THIS POLICY SHALL BE IMPLEMENTED AS A STANDARD.]

LCP Policy 2 for Hazards states:

Erosion and Geologic Stability. New development shall ensure structural stability while not creating or contributing to erosion or geological instability. [THIS POLICY SHALL BE IMPLEMENTED AS A STANDARD AND PURSUANT TO SECTION 23.07.086 OF THE CZLUO.]⁷

The proposed project involves new development in an area subject to several hazards that could affect the development and result in adverse effects on coastal resources. The Commission's review requires consideration of two distinct issue areas regarding hazards, both related to the intent of the proposed development to ensure ongoing transportability of the units used to store spent fuel at the site. The first set of issues is associated with hazards at the ISFSI and power plant site itself, while the second relates to ensuring that the accessways that would be used eventually to transport the units offsite remain available and suitable for that transport.

Site hazards

⁷ These LCP provisions are to be implemented consistent with Coastal Act Section 30253, which states, in relevant part: "New development shall do all of the following:

- (a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.
- (b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs..."

Diablo Canyon and its ISFSI site are within an area subject to relatively severe seismic hazards as well as coastal hazards. These hazards are discussed in detail in the Commission's 2004 Findings for the original CDP. PG&E designed and constructed many of the structures within the Diablo Canyon complex in recognition of the potential for seismic events at the site and, for the past several decades, has conducted ongoing research and evaluation to better characterize the type and degree of the potential hazards at the site and the surrounding area.

As described in the Commission's 2004 Findings for the original CDP, PG&E originally selected the ISFSI site due in part to its location on relatively competent bedrock and based on studies PG&E conducted to ensure the ISFSI would not be affected by landslides or slumps from nearby higher elevation areas. The ISFSI was additionally designed to avoid or resist potential surface rupture, ground shaking, liquefaction, or other seismic phenomena, and both the existing Holtec and proposed Orano systems are similarly designed to resist the maximum expected intensities of those events, as currently understood.

At the time of the original CDP approval in 2004, the Commission evaluated a range of potential seismic and coastal risks, including those that could result from the above hazards. With the exception of new information on seismic risks described below, the conditions relevant to an analysis of the ISFSI structure are not materially different than what the Commission previously reviewed. For example, the 2004 approval identified a potential hazard that erosion at a blufftop near part of the road between the power plant and the ISFSI could at some point affect transportability along that road and the Commission therefore required through Special Condition 5 that PG&E conduct ongoing monitoring of the bluff erosion rate. Since then, monitoring has shown no appreciable increase in the erosion rate and no increased risk to transport. Both PG&E and the NRC have continued to evaluate and update seismic hazards assessments for Diablo Canyon operations, some of which were required for Diablo Canyon and other nuclear power plants by the NRC in response to the 2011 Tohoku earthquake in Japan that resulted in significant damage to the Fukushima nuclear power plant. These included developing several different deterministic and probabilistic analyses, conducting hazards assessments at various recurrence intervals for nearby earthquake faults, some of which were not known of at the time of the Commission's 2004 approval, "disaggregation" analyses to determine which seismic sources would contribute most to the various seismic hazards to which the Diablo Canyon site is subject, among other analyses.⁸

⁸ See, for example, April 24, 2018 PG&E letter to NRC re: Seismic Probabilistic Risk Assessment for the Diablo Canyon Power Plant, Units 1 and 2 - Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 2.1: Seismic of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident.; January 22, 2019 NRC letter to PG&E in response to its April 2018 seismic risk assessment; and June 2020 Diablo Canyon Units 1 and 2 Final Safety Analysis Report (FSAR) Update, Revision 25.

For purposes of this CDP amendment, the current understanding provided by these updated assessments shows that the higher potential seismic ground-shaking intensities at the site and in the region remain within the design parameters of the ISFSI and of both the Holtec and Orano storage systems. For example, analyses conducted in response to the 2008 discovery of the nearby Shoreline Fault showed that the maximum expected earthquake from that fault would be of lower intensity than the maximum expected from the Hosgri Fault, which had served as the primary fault for design purposes at Diablo Canyon. Importantly, although some of these updated analyses show higher maximum expected ground acceleration than previously considered at Diablo Canyon – e.g., up from a previous 0.75g to about 0.86g from the Hosgri Fault – this increase can be accommodated by both storage systems, which are designed to accommodate up to about 1g of ground acceleration.

Nonetheless, the new development proposed through this amendment would involve constructing and placing additional structures at a site subject to relatively severe seismic risks and other potential hazards. The structures and modifications associated with the new Orano system are expected to provide equal or greater protection as compared to the existing system, with the Orano system units expected to be subject to only minor movement of no more than a few inches during the most extreme projected events at the site.⁹

Another hazard at the site relates to the ISFSI's proximity to the ocean, where the proposed structures and storage units would be subjected to sea air. The combination of sea air, moisture, and heat generated by the storage system, along with stresses that may occur during loading, transport to the ISFSI, and seismic events, could lead to corrosion or degradation of the storage units. While the units are designed to accommodate a certain level of degradation and still remain suitable for transport, there is uncertainty about how long they would need to remain on site and how long they can retain the ability to be safely transported. As noted above, it is not clear at this point when or whether an off-site storage facility might be available, so these units could remain at this location indefinitely.

This level of uncertainty about when or if other storage options will become available leads to an associated uncertainty about how the storage units will continue to function and be transportable as expected over their design life and possibly beyond. The NRC licenses both the Orano and Holtec systems for up to 40 years and includes aging management procedures for each, though the system manufacturers have projected that their systems can safely store fuel for decades longer. Both systems, though, would be subject to the above-referenced hazards at this ISFSI location, which could reduce their expected design lives.

⁹ For example, the maximum probable earthquake expected at Diablo Canyon and that serves as the design basis to ensure safe shutdown of most of the facility's radiological safety components would have a maximum ground acceleration substantially lower than the approximately 1.0g vertical and horizontal acceleration used as the design basis for the Orano systems.

Although PG&E's ISFSI license application to the NRC includes aging management programs that include inspection and maintenance procedures for the storage systems, the Commission is including in this amendment a condition to ensure the storage units remain transportable. This condition is similar to the condition the Commission recently included in its October 2022 approval of the ISFSI at the San Onofre Nuclear Generating Station ("SONGS").¹⁰ **Special Condition 8** requires PG&E to fund an independent, third-party review of the same inspection and maintenance elements in its aging management programs as the SONGS programs. This requirement is meant to provide assurance about the transportability of the storage units at Diablo Canyon and helps ensure consistency in the Commission's approach and methodology for evaluating transportability of the canisters from a coastal hazards standpoint.

The Orano system is built to resist certain levels of corrosion and seismic events and has been approved for general use at sites around the county, but most do not have Diablo Canyon's relatively high seismic hazard risks and the corrosive effects of its coastal air quality. The Orano system design includes features such as inspection ports and allows for inspection by small "crawler robots" to detect any changes of the storage canister surfaces.

To ensure that the AMPs adequately address the concerns above and will ensure ongoing transportability, the Commission is requiring through **Special Condition 8** that PG&E fund review of these AMPs to both ensure ongoing transportability and to provide an early warning if conditions develop that might affect transportability of the storage units. Along with requiring funding for the review, **Special Condition 8** requires PG&E to incorporate recommendations from that review into its site-specific operations and maintenance of the two systems, with the primary focus of this review being to ensure that any feasible measures needed to maintain the systems' transportability are implemented.

Special Condition 8 also establishes specific requirements for selecting an independent, third-party reviewer and describes the range of issues to be addressed in that review. For example, the reviewer, who will be selected by the Executive Director, must have expertise and experience with spent fuel storage and transport, understanding of applicable technical and regulatory aspects of those issue areas, and must not have been involved or had direct financial benefit with PG&E, Orano, or Holtec within the one year preceding the review. The results of the independent review would be provided to the Executive Director, and if the Executive Director's review indicates that additional or different inspection, evidence, reporting, and/or remediation measures from those in the AMPs should be taken, PG&E is to either (1) incorporate the new or different measures into the AMPs, seek any required NRC approval of the modification, and submit the modified AMPs to the Executive Director for review and approval, or (2) incorporate the new or different measures into its operations through an application to

¹⁰ See CDP E-00-014-A2 (SONGS, NUHOMS/Orano ISFSI system); and CDPs 9-15-0228 and 9-15-0228 (SONGS, Holtec ISFSI system)

the Commission for a CDP amendment for continued authorization of the ISFSI consistent with the new or different measures recommended by the Executive Director. **Special Condition 8** also specifies that any initial cask/canister inspections conducted under these measures are to occur by no later than 2028, which is approximately concurrent with PG&E's planned first loading of the Orano units.

Ensuring ongoing availability and suitability of transport

The Commission is also addressing the issue of transportability through two additional special conditions and modifications to one existing condition. New **Special Condition 9** requires PG&E to provide ongoing reporting (annually) that provides the status of offsite facilities that may become available for storing Diablo Canyon's spent fuel. It also requires PG&E to describe its activities to advance the establishment of these facilities and its efforts to secure storage space should it become available.

This proposed development would be subject to potential hazards related to the ongoing and increasing effects of climate change and sea level rise. Some areas within the Diablo Canyon complex, including part of the road that PG&E has used, and will continue to use, to transport spent fuel from the fuel handling building to the ISFSI are expected to experience erosion and bluff retreat during the expected life of the ISFSI. **Special Condition 5** of the Commission's original CDP for the ISFSI requires PG&E to conduct ongoing monitoring of a coastal bluff area near the transporter route along Shore Cliff Road (see [Exhibit 2](#)), which is meant to provide advance notice if erosion rates show the transportability of the storage units along the roadway would be threatened within about 75 years. PG&E would transport the proposed Orano units along the same route. PG&E is continuing to implement that required monitoring, and it has not yet detected an erosion rate that would result in a threat to the roadway.

At the time of the Commission's 2004 approval, there were no offsite storage facilities available for Diablo Canyon's spent fuel. As a result, that 2004 review and its requirements focused on ensuring that spent fuel could be transported within the Diablo Canyon complex. While there are still no offsite long-term storage facilities that can accommodate Diablo Canyon's spent fuel, PG&E indicated that one of its key considerations in selecting the Orano system was the transportability of the storage units, which can be loaded onto specially designed trailers and trucked to offsite facilities. PG&E and other entities are also working towards developing suitable offsite facilities, and there is a potential that offsite interim storage sites may be developed and federally authorized within the coming years. **Special Condition 9** ensures that the Commission is provided with the status of those potential offsite storage opportunities for Diablo Canyon's spent fuel.

Another key transportability concern for Diablo Canyon relates to the ongoing and increasing effects of climate change and sea level rise on the routes that would be used to provide transport to offsite locations. Since the Commission's 2004 approval of the current CDP, there have been substantial increases in the observed and projected effects of climate change and sea level rise along the California coast, including increases in the number and intensity of storm events expected to result in higher rates

of erosion, shoreline retreat, or other related phenomena, including along the routes proposed to eventually transport the units offsite from Diablo Canyon. Current assessments project that these events are expected sooner and with greater intensity than had been projected in 2004.

PG&E's main transport route would first traverse several miles of the Diablo Canyon entrance road, most of which is a two-lane road routed along the hills and coastal terraces on the south side of the Diablo Canyon lands. That road will likely be subject to increasing amounts of erosion or damage due to the expected increased severity of storm and weather events that accompany climate change. The transport route would then proceed along Avila Beach Drive, most of which is immediately adjacent to the shoreline and is subject to the effects of sea level rise. Much of the two-mile stretch of Avila Beach Drive between the Diablo Canyon entrance gate and Avila Beach, including a bridge over the mouth of San Luis Obispo Creek, is just a few feet above sea level and is currently within the 100-year flood zone. It is already subject to being periodically closed due to storms, high tide events, or other similar phenomena.

California's current guidance for sea level rise planning anticipates an increase of at least 3.5 feet of sea level rise within approximately 25 years. With that amount, or even less, of increase, it is likely that all or part of this stretch of Avila Beach Drive will experience greater adverse effects of sea level rise. Therefore, this transport route may be adversely affected by sea level rise before spent fuel can be transported along it. These effects could include inundation – either from the sea or from rising groundwater levels – undermining of the roadway, damage from wave action, or other events, any of which could require the roadway to be elevated or relocated or could require extensive repairs in order for it to be passable for fuel transport vehicles.

As discussed above, it remains unclear when a permanent or interim offsite storage facility will become available for spent nuclear fuel, but long-term onsite storage will be affected by increasing risks associated with coastal hazards. The Commission is modifying **Special Condition 2** of the original CDP to limit the term of this CDP amendment to no later than 2030. While substantial increases in sea level are not expected this quickly, this limited term allows for the necessary monitoring of ongoing maintenance requirements along these roadways, allows for near-term changes in sea level rise projections to be incorporated into this transportability evaluation, and provides time for PG&E and the County to conduct initial long-term planning approaches for these roadways. The modified **Special Condition 2** also provides that if PG&E applies for a future CDP amendment to extend the term of authorization for the ISFSI beyond 2030, the amendment shall be accompanied by an evaluation of available offsite facilities, an analysis of the then-current transportability of the storage units, and an evaluation of current and projected coastal hazards based on information available at that future date. This allows for updated projections of coastal hazards if PG&E applies for an extended authorization beyond 2030. Moreover, it currently remains unclear whether Diablo Canyon power plant will be relicensed for power generation operations or decommissioned beyond 2030.

Additionally, through new **Special Condition 10**, the Commission is also requiring PG&E to conduct ongoing monitoring of the expected transport routes within the coastal zone that would be used when offsite storage becomes available. This Special Condition is similar to, and an expansion of, the original CDP's above-referenced **Special Condition 5**. This new **Special Condition 10** extends the type and range of that monitoring to include the roadways between Diablo Canyon and Avila Beach, in acknowledgement that they are likely to be affected by climate change and sea level rise within the design lives of the Orano and Holtec systems. These roadways are primarily the several miles of the Diablo Canyon entrance road between the ISFSI and the entry gate at Port San Luis and approximately two miles of Avila Beach Drive between Port San Luis and the community of Avila Beach that is within the LCP jurisdiction of San Luis Obispo County.

Special Condition 10 requires PG&E to develop, in conjunction with the County, a monitoring program for Executive Director review and approval that describes proposed monitoring measures it will implement to assess conditions along these roads that could affect eventual transport of the spent fuel storage units. The conditions to be monitored include, but are not limited to, changes in erosion, water elevations, and the rates of shoreline erosion along the roads, tallying ongoing damage to the roads caused by storms or other events, and the type and amount of maintenance needed to repair the roads. This program is to include ongoing reporting (no less than annually) that describes those conditions. **Special Condition 10** also requires PG&E to evaluate, on an ongoing basis, updated projections of sea level rise and climate change and the expected or potential effects of those updated projections on risks expected to affect the roads.

Although Avila Beach Drive is not owned or controlled by PG&E, the condition of the road is relevant to the proposed project because PG&E is relying on the road for project access and eventual spent fuel transport if that is to occur in the future. Furthermore, PG&E and the County have long conducted joint planning for various purposes related to Diablo Canyon – for instance, a 2010 PG&E study on evacuation routes from Diablo Canyon identified the Avila Beach Drive bridge as being subject to potential collapse during an earthquake, and the County in 2018 conducted seismic updates on the bridge. There have been similar planning efforts between the County and the Port San Luis Harbor District to address expected sea level rise effects on nearby infrastructure, including Avila Beach Drive. PG&E can monitor conditions along Avila Beach Drive and can incorporate updates in sea level rise and climate change projections to evaluate likely effects on its eventual transport route. PG&E can also evaluate potential alternatives if conditions along Avila Beach Drive deteriorate or are anticipated to do so within the timeframe of any expected offsite transport of the spent nuclear fuel.

Special Condition 10 further requires PG&E to identify and evaluate potential alternatives for the necessary transport if these transport routes are not available when offsite storage becomes available. These alternatives are to include measures that could be implemented along these transport routes to ensure they remain suitable for transport – e.g., elevating, regrading, relocating, etc. In addition, they are to describe

alternative transport options that may be needed if it becomes infeasible to modify the roadways as needed to allow for transport, such as developing and using other transport routes (e.g., routing through Montana de Oro State Park), using alternative methods of transport (e.g., barging), or others to move the fuel offsite. **Special Condition 10** also requires PG&E to work with the County to apply for a coastal development permit to implement selected measures, if the Executive Director determines a permit would be needed. Further, **Special Condition 10** requires PG&E to incorporate updated climate change and sea level rise projections into its monitoring and reporting efforts.

Conclusion

With the inclusion of these new and modified Special Conditions, the Commission finds that the proposed development can be implemented as intended in a manner consistent with relevant LCP policies.

F. PUBLIC ACCESS TO THE SHORELINE

LCP Section 23.04.420 states, in relevant part:

Coastal Access Required. Development within the Coastal Zone between the first public road and the tidelands shall protect and/or provide coastal access as required by this section. The intent of these standards is to assure public rights of access to the coast are protected as guaranteed by the California Constitution. Coastal access standards are also established by this section to satisfy the intent of the California Coastal Act.

a. Access defined:

- (1) Lateral access: Provides for public access and use along the shoreline.
- (2) Vertical access: Provides access from the first public road to the shore, or perpendicular to the shore.
- (3) Pass and repass: The right of the public to move on foot along the shoreline.

b. Protection of existing coastal access. Development shall not interfere with public rights of access to the sea where such rights were acquired through use or legislative authorization. Public access rights may include but are not limited to the use of dry sand and rocky beaches to the first line of terrestrial vegetation.

Coastal Act Section 30210 states:

In carrying out the requirement of Section 4 of Article X, the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resources from overuse.

Coastal Act Section 30211 states, in relevant part:

Development shall not interfere with the public's right of access to the sea where acquired through use, or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

Coastal Act Section 30604(c) states:

Every coastal development permit issued for any development between the nearest public road and the sea or the shoreline of any body of water located within the coastal zone shall include a specific finding that such development is in conformity with the public access and public recreation policies of Chapter 3 (commencing with Section 30200).

The LCP and Coastal Act generally requires that public access to the shoreline be provided to the extent feasible and that development not interfere with existing access. Coastal Act Section 30212(a) specifically requires that new development to be located between the first public road and the sea provide public access, though not when it would be inconsistent with public safety.

The Commission's original approval of the ISFSI's CDP acknowledged that public access and recreation were not appropriate within the immediate vicinity of the ISFSI but found that the long-term presence of the ISFSI would result in a substantial loss of long-term public access to nearby shoreline areas. It required, through **Special Condition 3**, that PG&E implement a managed access program to safely allow the public to access parts of PG&E's North Ranch lands, which cover much of the northern part of the approximately 12,000 acres of PG&E-controlled lands along this stretch of the coast.

This currently proposed project is not expected to result in additional losses of long-term public access, as it will be within the same footprint of the existing ISFSI. However, it will cause some additional short-term impacts to public access and recreation resulting from the approximately 338 truck trips PG&E estimates are needed during project construction to transport the HSM components to Diablo Canyon along roads that provide access to the shoreline. There would be somewhat fewer overall trips than the approximately 420 trips the Commission originally evaluated for delivering the Holtec components and associated sand/gravel needed for the Holtec system's onsite concrete mixing; however transporting the large Orano HSMs will likely require special handling and temporary closures or travel restrictions along parts of the route, including the relatively narrow Avila Beach Drive, which provides about two miles of shoreline and recreational access between Avila Beach and the Diablo Canyon entrance gate.

Avila Beach Drive provides several types of access and recreational amenities. It is the only road to the Port San Luis Pier, which is used for commercial and recreational fishing, and it provides the only vehicular access to a campground located near the pier. Additionally, the public has long used pullouts along the road for informal camping and

recreational opportunities along much of this route, including access to the adjacent beach and shoreline, wildlife viewing, and other activities. The road also provides the only vehicle access to the Pecho Coast Trail, which provides public access along part of the shoreline within the Diablo Canyon lands, and to the historic Point San Luis Lighthouse, which provides tours and various events for the public.

Avila Beach Drive, as well as other roads in the area that provide public access to the shoreline, are often crowded and slow, particularly with summer weekend traffic to the area's beaches. As noted in PG&E's application for this proposed project, the EIR for the original ISFSI included a mitigation measure limiting project traffic during peak hours and requiring PG&E to prepare and implement a Traffic Control Plan to reduce the effects of project-related traffic. **Special Condition 11** of this amendment now requires PG&E to prepare, in conjunction with the County and the Port San Luis Harbor District, an updated Traffic Control Plan for Executive Director review and approval that describes the routes PG&E will use to transport project-related equipment to and from the ISFSI during construction, provides the expected timing of those trips, and describes the special traffic control measures that will be needed to accommodate the transport – e.g., temporary closures or restrictions, need for flaggers or additional signal vehicles, etc. **Special Condition 11** further requires PG&E to estimate the amount of public access disruption expected to occur due to these traffic control measures – for example, the number of lost camping opportunities, reduced informal use of the pullouts along the narrow Avila Beach Drive, delayed visits to the Pecho Coast Trail or Point San Luis Lighthouse, etc. – and to identify mitigation measures that will avoid or minimize these reductions in coastal access and recreation – for example, scheduling transport during non-peak use periods, providing notice to the interested public in advance of any scheduled transport, etc. Finally, and to address the reductions that would remain after these avoidance and minimization measures are implemented, **Special Condition 11** requires PG&E to propose measures to compensate for those reductions – for example, if the reductions include lost access opportunities to Port San Luis or the Pecho Coast Trail, PG&E may propose providing a temporary shuttle service that could provide access to those areas during any closures or may propose allowing additional hiking opportunities on the Pecho Coast Trail.¹¹

Conclusion

With the inclusion of this new Special Condition, the Commission finds that the proposed development can be implemented consistent with relevant public access and recreation policies of the LCP and Coastal Act.

¹¹ For example, PG&E currently allows docent-led hikes along the Trail on just two days per week.

G. CALIFORNIA ENVIRONMENTAL QUALITY ACT

Section 13096 of the Commission's Code of Regulations requires Commission approval of Coastal Development Permits to be supported by a finding showing the permit, as conditioned, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment.

The Coastal Commission's review and analysis of CDP applications has been certified by the Secretary of Resources as being the functional equivalent of environmental review under CEQA. As a responsible agency, the Commission conducted its analysis of the potential impacts of the proposed development that the Commission is authorized by the Coastal Act to review. The Commission has reviewed the relevant coastal resource issues associated with the proposed project and has identified appropriate and necessary conditions to assure protection of coastal resources consistent with the requirements of the Coastal Act. The staff report discusses the relevant coastal resource issues with the proposed development. All public comments received to date have been addressed in the staff report. The Commission incorporates its findings on Coastal Act consistency at this point as if set forth in full.

The development proposed under this CDP amendment will result in minimal impacts on coastal resources included within those issue areas or is otherwise conditioned to such that there are no additional feasible alternatives or feasible mitigation measures available, beyond those required, which would substantially lessen any significant adverse environmental effect that approval of the proposed project, as modified, would have on the environment. Therefore, the Commission finds that the proposed project can be found to be consistent with the Coastal Act and CEQA Section 21080.5(d)(2)(A).

APPENDIX A: SUBSTANTIVE FILE DOCUMENTS

Pacific Gas & Electric Company, application to amend CDP A-3-SLO-04-035, March 2023.

Pacific Gas & Electric Company, application to U.S. Nuclear Regulatory Commission to extend ISFSI license – Docket No. 72-26, Materials License No. SNM-2511, and associated documents.

Pacific Gas & Electric Company – application and associated file documents for A-3-SLO-04-035, 2004.