

PUBLIC UTILITIES COMMISSION

505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298



August 28, 2025

Thomas Diaz
Regulatory Affairs
Southern California Edison
8631 Rush St, General Office 4 – 235E (2nd Floor)
Rosemead, CA, 91770

RE: ELM Series Capacitor Project: Minor Project Refinement #8 - **Revised**

Dear Mr. Diaz,

This letter documents the CPUC's thorough evaluation of all activities covered in this Minor Project Refinement (MPR), and requested revisions, and that no new impacts or increase in impact severity would result from the requested MPR activities.

Background

On February 7, 2025, Southern California Edison (SCE) submitted a request for MPR #8 to allow for implementation of cathodic protection measures related to SoCalGas's pipeline to occur after the in-service date of the ELM Series Capacitor (ELM) Project, rather than before the ELM Project in-service date, as specified in Mitigation Measure (MM) UT-1. Specifically, this request is to allow MM UT-1 to be fully implemented subsequent to the ELM Project being put in service. The reason for the requested refinement is that required AC Study and agreement between SCE and SoCal Gas on the type and location of cathodic protection has taken longer than planned. As well, approval of the final cathodic protection plan by agencies having jurisdiction over the pipeline rights of way is pending, with final approvals at an unknown date. The alternating current (AC) mitigation system, as outlined in the AC Study, is designed to reduce potential AC electrical interference effects to the SoCalGas pipelines Line 235 (L235) and Line 3000 (L3000). At their closest, the ELM Project transmission line and pipelines are approximately 150 feet apart. Based on their proximity to and the planned increased power flow on the transmission lines as a result of the ELM Project, these pipelines require additional protective measures to mitigate any AC impacts. MPR #8 for implementation of cathodic protection on the pipelines after the ELM Project in-service date was granted by CPUC on February 11, 2025.

Requested MPR Revisions

On August 27, 2025, SCE submitted requested revisions to MPR #8 to clarify operational restrictions with respect to the CPUC's February 11, 2025 approval. Specifically, SCE interprets the language of the approval to limit the operation of the Lugo-Mojave Transmission Line (L-M T/L) to 1,300 Amps, which is lower than the current equipment rating of 2,400 / 3,240 Amps. SCE believes it would need to derate the L-M T/L below its current line rating to implement this restriction and that limiting the system to operate at or below 1,300 Amps under all conditions would result in the inability of system operators to safely and reliably operate the transmission system. Therefore, SCE is requesting that the MPR #8 request be revised as presented below.

SCE MPR Request. SCE's MPR #8 request as approved February 11, 2025, is presented below indented, with proposed August 26, 2025 revisions shown as underline (additions) and strikethrough (deletions):

OVERVIEW AND DESCRIPTION

Pursuant to Mitigation Measure UT-1 (MM UT-1) summarized below, SCE is required to:

1. Determine and report to CPUC and BLM the location of conducting materials susceptible to induced voltages and currents adjacent to the ELM Project.
2. Conduct an alternating current interference study (AC Study) on the effects of the ELM Project 500 kV lines if SCE identifies that other utilities may be susceptible to an increased risk of corrosion due to induced currents or voltages as a result of the ELM Project.
3. Submit the AC Study and proposed mitigation measures meant to protect the potentially affected utilities to the CPUC and BLM for review and approval at least 60 days prior to initiation of installation of such protection.
4. Complete all required protective and grounding work prior to the ELM Project in-service date.
5. Provide confirmation to the CPUC and BLM that the necessary grounding or other appropriate measures to provide appropriate cathodic protection were installed prior to the ELM Project in-service date.

SCE has complied with Items 1 and 2 of MM UT-1 by:

- Identifying the location of materials adjacent to the ELM Project susceptible to induced voltages and currents documented in the AC Study, UT-3 Induction Study and other supporting material provided to Eric Chiang (CPUC), Joan Patrovsky (BLM), and Jose Najar (NPS) in a November 1, 2024 email from Thomas Diaz (SCE).
- Conducting an AC Study that analyzes the effects of the Proposed Project on several miles of Southern California Gas Company (SoCalGas) natural gas pipelines that parallel the ELM Project.

SCE in compliance with Item 3 of MM UT-1 has submitted the AC Study and proposed mitigation measures to the CPUC and BLM. CPUC and BLM approval is pending. SCE will provide the CPUC with an update at least 60 days prior to the start of the mitigation work once BLM approval is received.

SCE requests a MPR that would permit SCE to install the cathodic protection measures described in Item 4 and 5 of MM UT-1 after the ELM Project is in-serviced, rather than before the in-service date. As described in further detail below, this change will not result in any new significant impacts or increase in severity of any existing impact.

The alternating current (AC) mitigation system, as outlined in the AC Study prepared in compliance with MM UT-1 Item 2, is designed to reduce potential AC electrical interference effects to the SoCalGas pipelines Line 235 (L235) and Line 3000 (L3000). SoCalGas natural gas transmission pipeline L235 parallels approximately 55 miles of SCE's Lugo-Mohave 500- kilovolt (kV) Transmission Line.... Approximately 6 miles of a second SoCalGas pipeline, L3000, is also located near the transmission line.... At their closest, the ELM Project transmission line and pipelines are approximately 150 feet apart. Based on their proximity to and the planned increased power flow on the transmission lines as a result of the ELM Project, these pipelines require additional protective measures to mitigate any AC impacts.

An AC Study was conducted to determine the design measures necessary to mitigate AC risks to the SoCalGas pipelines.¹ SCE shall in accordance with the AC Study recommendations install AC mitigation adjacent to portions of the existing pipelines to mitigate the induced AC voltage levels to less than 15 V for personnel and public safety

¹ To protect the SoCalGas pipelines from AC impacts the mitigation would need to maintain AC potentials and current densities to levels less than 15 V and 30 A/m², respectively, after the capacity on the Eldorado-Lugo and Lugo-Mohave 500 kV Transmission Lines increased following completion of the ELM Project.

and to mitigate AC current densities levels to less than 30 A/m² to minimize potential adverse effects on pipeline integrity...

...SCE's planning studies show that each of the 500 kV transmission lines that make up the ELM Project will not operate at its respective maximum operating limits under normal operating conditions until 2028, several years after the Project is in-serviced. Because the AC mitigation risk will not materialize until 2028, an MPR that permits SCE to comply with MM UT-1 items 4 and 5 after the project in-service date would allow the ELM Project to be in-serviced as scheduled without creating any new risk to the SoCalGas pipeline or any new significant impacts or increase in severity of any existing impact to any resources.

The MPR applies only to the Lugo-Mohave Transmission Line (L-M T/L) sections of the ELM Project, where SoCalGas has planned AC Mitigation for their pipelines. While Although the ELM Series Capacitors installed along the Lugo-Mohave 500 kV Transmission Line (L-M T/L) will increase the normal line capacity of the transmission line from 2,400 Amps to 3,300 Amps, as a precaution, until the AC Mitigation is installed by SoCalGas, SCE does not plan to operate the L-M T/L to loading levels significantly beyond the historical peak value. SCE will operate the L-M T/L by bypassing one or more series capacitors such that the L-M T/L does not operate above the historical peak of 1,300 Amps unless necessary as a result of outages on other transmission facilities, during periods when system conditions would necessitate importing additional power to serve load demand, and/or fault conditions ("Increased Load Conditions"). Additionally, SCE will delay requesting that CAISO re-rate the line to the post-ELM rating until SCE has written confirmation from SoCalGas that the AC mitigation work is complete.

The historical peak value for 2024 did not exceed 1300Amp. This precaution will remain in place until construction of the pipeline mitigations are completed to limit any potential safety risks associated with the pipelines. With the Series Capacitor(s) in service, the L-M T/L loading is projected to increase by an additional 25-30% up until 2028. The target completion date for the pipeline mitigations construction is scheduled before 2028.

If Increased Load Conditions are planned, predicted or are found to exist, SCE will promptly notify SoCalGas in advance or as soon as practicable once SCE becomes aware of such condition. In the event of unexpected delays in the completion of the pipeline mitigations, SCE will notify the CPUC and will continue to operate the L-M T/L without exceeding the limits described above until the AC mitigation work is complete. This strategy ensures that the transmission line operates safely and effectively without compromising the integrity of the pipelines.

AC MITIGATION SCOPE

The AC mitigation work will consist of trenching and installing 2/0 copper wire approximately 10 feet from the edge of the pipeline for L235 (22 Sections) and for L3000 (13 Sections). For L235, Section 1 and Section 20 will require the installation of 2/0 copper wire on each side of the pipeline. For L3000 only Section 1 will require the installation of 2/0 copper wire on each side the pipeline.

Trenching for the 2/0 copper wire will be achieved using a "V-ditch" track type tractor (D4 or D6T model). The V-ditch tractor will install the copper wire and warning tape concurrently and will not result in an open trench. For each section, SSD will be required to isolate the alternating current from interfering with the direct current on the pipeline. For each of the SSD location, an excavation measuring approximately 5 ft by 5 ft by 6 to 7 ft deep will be performed to expose the top of the pipeline so that a #6 copper wire can be attached (pin-brazed) to the pipe and attaching the other end to the SSD. A separate #6 copper cable will extend from the SSD to the 2/0 copper cable.

In addition, 7 locations along L235 and 4 locations along L3000 will also require Coupon Test Stations (CTSs) to be installed for future electrical interference check. For each CTS, a 5ft by 5ft by 3ft to 4ft deep excavation located approximately 3ft from the pipeline is required. The test coupon will be installed in the excavation with wire extending to grade and terminating inside an enclosure measuring approximately 3 inches in diameter and 7-foot tall. Approximately 4 feet of the enclosure will be above grade.

The current work plan is to commence on L3000 Section 1 and work west towards Section 13. Once L3000 work is complete, work will transition to L235 Section 22 and will continue in an easterly direction to L235 Section 1, terminating at CTS 1.

Upon completion of the work, all areas will be restored to as near to their original condition as reasonably practicable.

CPUC Evaluation of MPR Request

MPR #8 shifts the timing of when pipeline cathodic protection measures would be installed. In accordance with the MMCRP, the subject MPR request was reviewed by CPUC to confirm that no new impacts or increase in impact severity would result from approving the MPR and that the subject request was within the geographic boundary of the Project study area.

The MPR applies only to the Lugo-Mohave Transmission Line (L-M T/L) where it is in proximity to the SoCalGas pipelines. Although the Series Capacitors installed on the L-M T/L will increase line capacity from 2,400 Amps to 3,300 Amps, as a precaution, until the AC Mitigation is installed by SoCalGas, SCE will operate the L-M T/L by bypassing one or more series capacitors such that the L-M T/L does not operate above the historical peak of 1,300 Amps unless necessary as a result of outages on other transmission facilities, during periods when system conditions would necessitate importing additional power to serve load demand, and/or fault conditions ("Increased Load Conditions"). Additionally, SCE will delay requesting that CAISO re-rate the line to the post-ELM rating until SCE has written confirmation from SoCalGas that the AC mitigation work is complete.

If Increased Load Conditions are planned, predicted or are found to exist, SCE will promptly notify SoCalGas in advance or as soon as practicable once SCE becomes aware of such condition. In the event of unexpected delays in the completion of AC mitigation work, SCE will notify the CPUC and will continue to operate the L-M T/L without exceeding the limits described above until the AC mitigation work is complete.

Environmental Analysis

A desktop environmental analysis was performed to determine the potential for impacts to sensitive resources to occur during implementation of the proposed activities within the proposed work area. The objective was to understand how shifting the timing of the mitigation could affect environmental resources. It was determined that the nature of the work previously approved by the CPUC and the mitigation measures attached to that approval are unchanged, except of the delay in implementing items certain requirements of MM UT-1 after the ELM Project is put in service. SCE has identified and agreed to operating parameters for the L-M T/L that would not increase the risks to the pipeline in the absence of the additional cathodic protection to be installed.

During implementation of cathodic protection under MM UT-1, all other applicable mitigation measures identified in the MMCRP will be implemented where they are applicable to the location of the work. These include measures applicable to:

- Air Quality
- Biological Resources
- Cultural and Tribal Cultural Resources
- Hazards and Hazardous Materials
- Noise
- Paleontological Resources
- Traffic and Transportation
- Utility and Service Systems
- Water Resources
- Wildland Fire

Conclusion: No environmental constraints were identified that would preclude delaying installation of cathodic protection to after the in-service date for the L-M T/L, given SCE's commitment on how the line would operate. As required by MM UT-2 (Implement mitigation measures during pipeline protection work), all mitigation measures applicable to the ELM Project would be implemented during installation of the cathodic protection for the pipelines.

The conditions noted below shall be met by SCE and its contractors:

- SCE shall notify the CPUC prior to the start of construction activities related to cathodic protection.
- All applicable Project MMs, APMs, compliance plans, and permit conditions shall be implemented. Some measures have on-going/time-sensitive requirements and shall be implemented prior to and during construction where applicable.

Sincerely,

A handwritten signature in black ink, reading "Narissa Jimenez-Petchumrus". The signature is written in a cursive, flowing style.

Narissa Jimenez-Petchumrus
CPUC Environmental Project Manager

cc: V. Strong, Aspen