Docket	:	A.25-06-017
Exhibit Number	:	CA-06
Commissioner	:	M. Baker
Admin Law Juge	:	R. Haga
Witness	:	H. Eng

PUBLIC ADVOCATES OFFICE
CALIFORNIA PUBLIC UTILITIES COMMISSION

TESTIMONY ON PRUDENCE OF OPERATIONS FOR MOUNTAIN VIEW FIRE COST-RECOVERY APPLICATION

Reasonableness of Operations Prior to Ignitions

San Francisco, California
December 12, 2025

TABLE OF CONTENTS

PRUDENCE OF OPERATIONS

I. INTRODUCTION

This exhibit pertains to Liberty's application to recover costs associated with the November 2020 Mountain View Fire (Application 25-06-017).

This exhibit presents the analyses of the Public Advocates Office at the California Public Utilities Commission (Cal Advocates) regarding the faults on the Topaz 1261 circuit the day of the Mountain View ignition, and Liberty's recloser settings.

This exhibit relates specifically to Exhibits Lib-02, Liberty's testimony on Ignition, and Exhibit Lib-03, Liberty's testimony on Prudence of Operations.

II. SUMMARY OF FINDINGS

A total of three (3) phase-to-phase faults occurred at 9:48 a.m., 10:53 a.m., and 11:55 a.m. on November 17, 2020. The first two phase-to-phase faults occurred in a span of 65 minutes. The phase-to-phase faults were caused by two overhead conductors slapping together. Given the windy weather condition at the time, Liberty should have been more vigilant and disabled the reclose function of the R2 1261 Topaz Recloser after the second phase-to-phase fault to prevent arcing, which led to the wildfire.

At the time of the 9:48 a.m. phase-to-phase fault, The R2 1261 Topaz Recloser was set to hotline tag or fire mode due to Liberty's ongoing construction work on the Topaz circuit. Because the recloser was in hotline tag mode, the fault caused the line to be de-energized.

After the 9:48 a.m. phase-to-phase fault and de-energization, Liberty patrolled the line and re-energized at 10:41 a.m. At the same time, Liberty disabled the hotline tag mode and the 1261 R2 Recloser was returned to normal mode.[1] Twelve minutes later at 10:53 a.m. a second phase-to-phase fault occurred. This second phase-to-phase fault did not trip the recloser, and Liberty took no action in response.

Liberty should have changed the settings back to fire mode and disabled the reclose function of Recloser R2 1261 Topaz after the second phase-to-phase fault at 10:53

[1] Exhibit (Ex.) Liberty-03 at 42.

a.m. Instead, Liberty left the recloser setting unchanged at "normal" mode. The "normal" mode setting enabled the recloser to reclose two times after the first fault. Each reclose operation energized the circuit segment downstream from the R2 1261 Topaz recloser.

Subsequently, the third phase-to-phase fault occurred at 11:55 a.m. and the C-phase conductor melted and fell to the ground, resulting in a phase-to-ground fault. Two seconds later, the R2 1261 recloser attempted to reclose but tripped instantly due to the existing ground fault. Fifteen seconds later, the recloser attempted to reclose the second time, then tripped and locked out, finally de-energizing the circuit segment downstream from the 1261 R2 Recloser, nearly two hours after the circuit segment first came into contact and tripped offline.[2]

The 1261 R2 Topaz Recloser had two reclose operations after the third phase-to-phase fault which led to a phase-to-ground fault. Each reclose operation caused the energized conductor to contact the ground or grassy area, which resulted in extremely high temperature and uncontrolled flow of electric current, leading to intense heat, arcs, and ignition risks.

III. OVERVIEW OF AUTO RECLOSERS AND THEIR SETTINGS

Auto reclosers are protective devices that can be operated automatically when a circuit experiences abnormally high electric current. In the event of a fault or disturbance, such as a short circuit or momentary overcurrent, the auto recloser acts as an automatic switch that opens to isolate the fault and then closes to restore power supply quickly. This quick restoration of power minimizes customer outage time and ensures electric service continuity.

Recloser settings determine how they will operate. Specifically, the settings determine the magnitude and duration of fault current required for the device to operate

[2] Ex. Liberty-03 at 43.

and de-energize a line. There are multiple settings to address different situations, including "normal" and "fire mode" conditions.[3]

Under the "normal mode" setting, the auto recloser recloses automatically for a preset number of times when the internal overcurrent relay trips. Tripping shuts off power to the circuit segment downstream of the auto recloser; reclosing restores power to the line. The auto recloser facilitates rapid fault isolation and service restoration following temporary faults via automatic reclosing. However, in conditions of increased fire threat, auto reclosing re-energizes the line which increases the potential for utility-equipment caused ignitions.

In the "non-reclose mode" or "fire mode", depending on the recloser's capabilities, the reclosers would not automatically attempt to reclose if they operated to de-energize a section of the circuit. The protective fire mode added a layer of security that reduces potential ignition risks at times of elevated risk.[4] The non-reclose mode setting is for worker safety, often used during Red Flag Warning Conditions, or when there is construction work.[5]

IV. TYPES OF ELECTRICAL FAULTS

For the purposes of this testimony, only the phase-to-phase fault and phase-to-ground fault are discussed.

A. Phase-to-Phase Fault

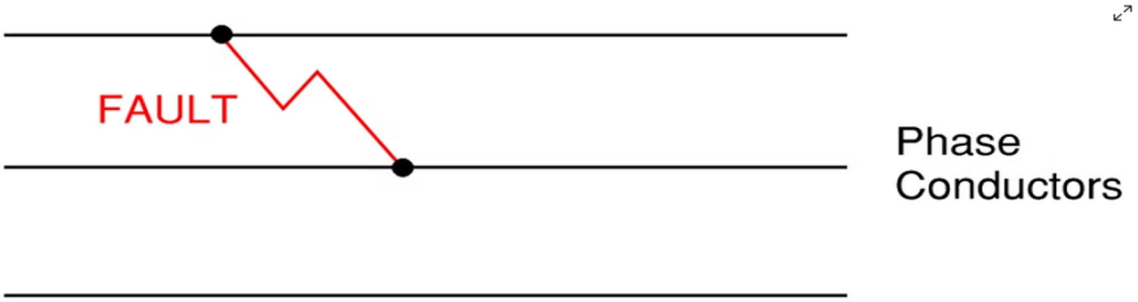
Phase-to-phase faults occur when any two-phase conductors such as AB, BC, or CA collide due to strong winds or vehicle hitting poles. In such cases the electric current flows directly between two phases and increases sharply to many orders of the rated current, which can result in significant voltage imbalance, damaging equipment and affecting system stability.

[3] Ex. Liberty-03 at 19.

[4] Ex. Liberty-03 at 41.

[5] Ex. Liberty-03 at 43.

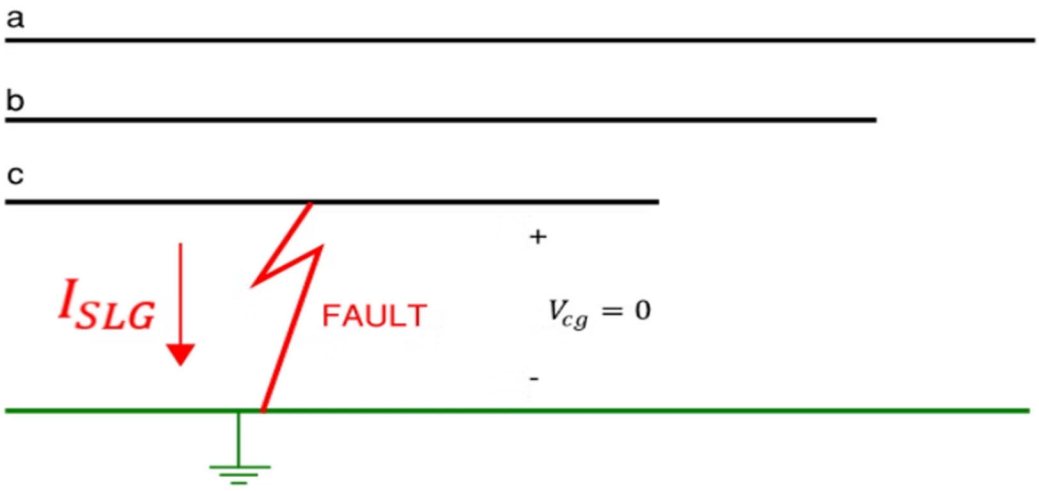
Figure 1: Phase-to-Phase Fault



B. Phase-to-Ground Fault

Phase-to-ground faults occur when a phase conductor (A, B, or C) is accidentally connected to the ground system (such as a tower, equipment housing, or the earth), forming a low impedance path. The typical causes can be a conductor falling after colliding with an adjacent conductor due to high winds or tree branches knocking down the conductor. Ground faults are chaotic with respect to their fault currents, due to the fact that the energized conductors are moving and the earth is a poor conductor.[6] The electric current thus increases dramatically leading to intensive heat, arcs and sparks and escalating to the spread of wildfire.

Figure 2: Phase-to-Ground Fault



[6] Ex. Liberty-02 at 11.

Although both phase-to-phase short circuit and phase-to-ground faults are both short circuit types, their fault paths are significantly different. Most importantly, the magnitude of the fault current of the phase-to-ground fault is much higher than the phase-to-phase fault current, thus making it more hazardous and destructive.

V. PROTECTION SCHEME ON THE 1261 TOPAZ CIRCUIT IN 2020

The 1261 Topaz Circuit was protected by two line reclosers, referred to as the 1261 R1 and 1261 R2 Reclosers. The 1261 R2 Recloser was the nearest upstream line recloser between the 1261 R1 Recloser and the West and East Poles. Following the fire, electrical events records were downloaded from the reclosers and analyzed by Liberty.[7]

The 1261 R2 Recloser's normal settings allowed for two reclose attempts prior to lockout. The first operation was on a fast-time-current curve with a two second reclose interval following operation. The second and third operations were on a delayed time-current curve, with a fifteen second reclose interval following the second operation. The 1261 R2 Recloser's normal settings used a 30 second reset timer.[8]

VI. ELECTRICAL EVENTS ON NOVEMBER 17, 2020

The sequence of events[9] is summarized in Table 1 and represented graphically in Figure 3.

[7] Ex. Liberty-02 at 10.

[8] Attachment 1, Liberty response to data request CalAdvocates-LIB-A2506017-003, Question 3.

[9] Attachment 2, Liberty response to data request CalAdvocates-LIB-A2506017-013 Question 1.

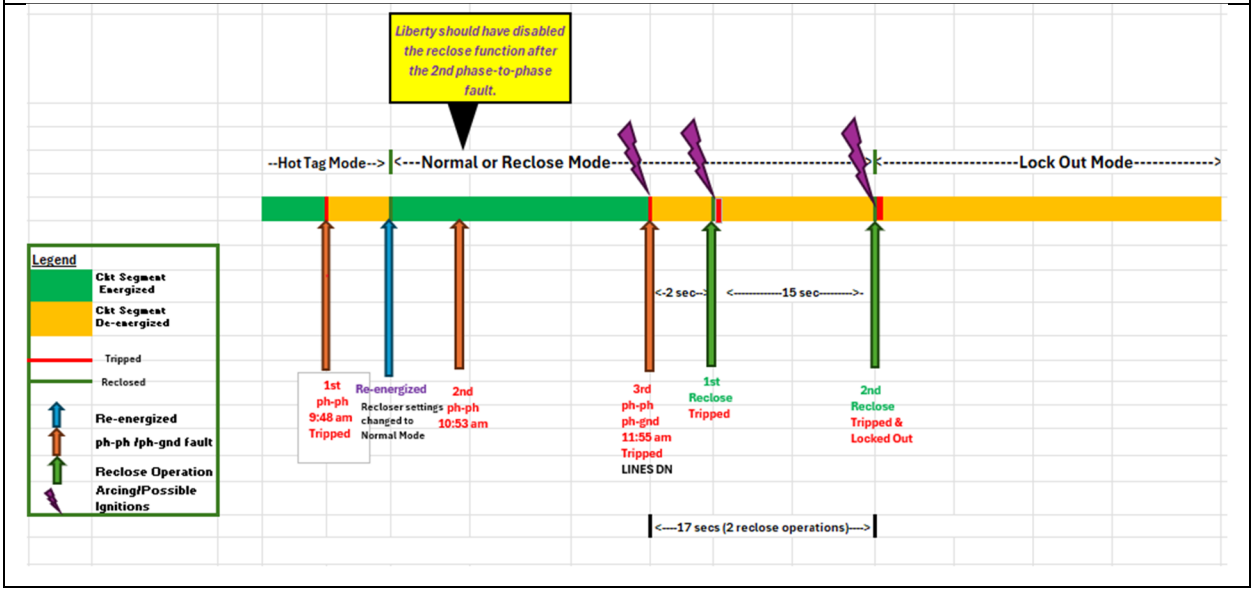
1

Table 1 – Summarizing the 1261 R2 Recloser Sequence of Events on November 17, 2021

Fault Type	Recloser Action	Time	Recloser Mode	Status of Circuit Segment Downstream of R2 Recloser
Ph-to-Ph	Trip	9:48 AM	Hot Tag	De-energized
Ph-to-Ph	None	10:53 AM	Normal	Energized
Ph-to-Ph	None	11:55 AM	Normal	Energized
Ph-to-Gnd	Trip	11:55.14.149 AM	Normal	De-energized
Ph-to-Gnd	1st Reclose	11:55:16.313 AM	Normal	Energized
Ph-to-Gnd	Trip after 1st Reclose	11:55:22.664 AM	Normal	De-energized
Ph-to-Gnd	2nd Reclose	11:55:37.760 AM	Normal	Energized
Ph-to-Gnd	Trip after 2nd Reclose	11:55:43.476 AM	Normal	De-energized
Ph-to-Gnd	Trip	11:55:43.476 AM	Lockout	De-energized, would not reclose

2

Figure 3 – Graphical Representation of the 1261 R2 Topaz Recloser Operations Timeline November 17, 2020



Three (3) consecutive phase-to-phase faults occurred in a matter of two hours on a windy day, with the first two phase-to-phase faults occurring within 65 minutes. Each phase-to-phase fault caused arcing and the conductor subsequently separated and fell to the ground. The separation of the conductor was caused by melting due to arcing.[10]

At 9:48 a.m., the first phase-to-phase fault tripped and de-energized the circuit segment downstream from R2 Recloser. At the time, the 1261 R2 Recloser was in "hotline tag" mode for worker safety because reconductoring work on Liberty's Topaz Line Rebuild Project was ongoing.[11] Hotline Tag Mode means that the recloser would not reclose if tripped. After the outage at 9:48 a.m. Liberty patrolled the line, and at 10:41 a.m. Liberty re-energized the circuit segment and disabled the hotline tag mode and returned to "normal" mode, enabling the recloser's reclose function.

At 10:53 a.m., the second phase-to-phase fault occurred but the recloser did not trip because the fault current was of insufficient amplitude and duration for the recloser to

[10] Ex. Liberty-03 at 8.

[11] Ex. Liberty-03 at 43.

operate. The fault self-cleared,[12] and the circuit segment remained energized. Despite the two consecutive phase-to-phase faults in high wind condition,[13] Liberty decided to leave he recloser settings in "normal" mode.

At 11:55 a.m., the third phase-to-phase fault occurred. Subsequently the C-phase overhead conductor separated and fell to the ground and caused a phase-to-ground fault. The R2 Recloser tripped the downstream circuit segment. Two seconds later at 11:55:22, the recloser attempted to reclose but tripped again due to the existing phase-to-ground fault. At 11:55:37, the recloser attempted to reclose again 15 seconds later but tripped and locked out due to the prevailing phase-to-ground fault.

VII. CONCLUSION

The Mountain View wildfire could likely have been prevented if Liberty had not changed the reclose setting from fire mode to normal mode when re-energizing after the 9:48 a.m. fault, or if it had changed the reclose setting back to fire mode after the second phase-to-phase fault at 10:53 a.m.

The fire mode setting could have prevented the R2 Recloser from reclosing after the recloser tripped due to the phase-to-ground fault, which resulted from the third phase-to-phase fault at 11:55 a.m. This third phase-to-phase fault caused the C-phase conductor to fall and come in contact with the ground, leading to a phase-to-ground fault.

Two consecutive phase-to-phase faults in approximately 65 minutes seemed uncharacteristic in an area susceptible to wildfire and prone to ignition risk on a windy day. The System Operator's actions were consistent with an assumption that there were no extenuating or high fire risk weather conditions at the time of the recloser activity. Liberty elected to have the recloser setting remain at the normal mode after the second phase-to-phase fault, which ultimately resulted in the Mountain View Fire. Had Liberty elected to change the R2 Recloser setting to fire mode, the phase-to-ground fault that caused the fire would not have occurred.

---

[12] Ex. Liberty-02 at 11, footnote 13.

[13] Ex. Liberty-03 at 40.

APPENDIX A

QUALIFICATIONS OF WITNESS

PREPARED TESTIMONY AND QUALIFICATIONS
OF
HERMAN ENG

My name is Herman Eng. My business address is 320 West 4th Street, Suite 500, Los Angeles, California. I am employed by the Public Advocates Office as a Senior Utilities Engineer (Specialist) in the Safety Branch. I am sponsoring the Testimony and Supporting Attachments of H. Eng.

I have a Bachelor of Science in Electrical Engineering from the University of California, Los Angeles, and a Master of Science in Electrical Engineering from California State University Los Angeles. I am a Professional Engineer in Electrical Engineering in the State of California, and my license number is 12233.

I have been working for the Public Advocates Office since January 2, 2023. I previously worked in the Los Angeles Department of Water and Power (LADWP) as an electrical engineer, an electrical engineering supervisor, and a Power Engineering Manager for over 35 years in the areas of System Protection, Distribution System Planning, Distribution System Reliability, Claims and Investigation, and Substation Automation (SCADA) Design.

I worked over three years as a System Protection Engineer. In this role, I maintained, tested and commissioned 4.8 kV to 500 kV protective relay schemes and operations in Industrial Stations, Distributing Stations, and Receiving Stations. I led a team of electrical testers to troubleshoot substation equipment during power outages. I wrote technical reports on findings, mitigation efforts and recommendations.

I also supervised a team of electrical engineers in LADWP's Distribution Planning Group for over five years. My team performed load forecasts and designed 4.8 kV feeder plans to relieve overload and improve operational efficiencies. We also analyzed feeder circuits to minimize losses and balance circuit-phase loading, and prepared plans for new distributing stations to enhance circuit reliability in meeting load growth.

I was a supervisor and led a team of engineers and statisticians to spearhead LADWP's Distribution Reliability Program in 2007, which aimed to improve LADWP's reliability performance. I have appeared in court and provided depositions, serving as an expert witness and a forensic engineer, defending the LADWP's legal position against claims and lawsuits pertaining to power outages. I have written a white paper on LADWP's Distribution System Reliability Assessment. I made a presentation to Southern California Public Power Association on calculations of reliability indices.

I was the supervisor and led a team of electrical engineers in Substation Automation Group. I managed a $75 million Substation Automation Program. I oversaw a team of electrical engineering consultants and contractors through design, testing, construction and installation on automation projects for over 40 substations. These projects involved upgrading electromechanical and first-generation microprocessor relays to the modern Schweitzer Engineering Laboratories (SEL) relays. The SEL relays would integrate protection, metering, and monitoring of equipment with the LADWP's Supervisory Control and Data Acquisition (SCADA) systems with the Energy Control Center.

Since joining the Public Advocates Office in January 2023, I have participated in proceedings regarding wildfire mitigation plans (WMPs) that are led by the California Office of Energy Infrastructure Safety. In particular, I have worked on the grid hardening issues in the wildfire mitigation. I have also reviewed GO 95 petitions by SCE.

For the past two years, I worked on both the Thomas Fire and Woolsey Fire and Debris Flow Cost-Recovery Applications (A.23-08-013) and (.24-10-002). I prepared and sponsored testimony regarding system protection.

This concludes my statement of qualifications.

APPENDIX B

SUPPORTING ATTACHMENTS

LIST OF ATTACHMENTS FOR APPENDIX B

Attachment #	Title
Attachment 1	Liberty's Response to Data Request CalAdvocates-LIB-A2506017-003, Question 3
Attachment 2	Liberty's Response to Data Request CalAdvocate-LIB-A2506017-013, Question 1

ATTACHMENT 1

Liberty's Response to Data Request CalAdvocates-LIB-A2506017-003, Question 3

Liberty Utilities (CalPeco Electric) LLC
933 Eloise Avenue
South Lake Tahoe, CA 96150
Tel: 800-782-2506
Fax: 530-544-4811

September 3, 2025

Liberty Utilities (CalPeco Electric) LLC

A.25-06-017
WEMA

The Public Advocates Office

Data Request No.:	CalAdvocates-LIB-A2506017-003
Requesting Party:	Public Advocates Office
Originator:	Herman Eng, Herman.Eng@cpuc.ca.gov
cc:	Aaron Louie, Aaron.Louie@cpuc.ca.gov
	Patrick Huber, Patrick.Huber@cpuc.ca.gov
Date Received:	August 19, 2025
Due Date:	September 3, 2025

REQUEST NO. 1:

For Recloser 1621 R2 on the Topaz 1261 circuit:

a. What was the phase-to-phase fault current setting as of November 17, 2020?
b. What was the phase-to-ground fault current setting as of November 17, 2020?
c. Did Liberty change the phase-to-phase fault current setting after the installation of the Recloser on March 2020?
    i. If yes, what was the most recent phase-to-phase fault current setting prior to November 17, 2020?
d. Did Liberty change the phase-to-ground fault current setting after the installation of the Recloser March 2020?
    i. If yes, what was the most recent phase-to-ground fault current setting prior to November 17, 2020?

RESPONSE:

a) The 1261 R2 Recloser had a phase pickup of 110 amps. Please see attachment Topaz 1261 R2 Line Recloser Upgrade (Memorandum).pdf, which specifies pickup amperages and time-current curves for the Topaz 1261 reclosers following the upgrade of the 1261 R2 Recloser in March 2020.

b) See response to part (a). The 1261 R2 Recloser had a ground pickup of 52 amps.

c) Liberty's records indicate the phase-to-phase fault current settings were updated as a result of a new coordination study when the 1261 R2 Recloser was upgraded in March 2020.

    i) Liberty's records indicate that, as of January 2015, the 1261 R2 Recloser had a phase pickup of 100 amps.

d) Liberty's records indicate the ground fault current settings were updated as the result of a new coordination study when the 1261 R2 Recloser was upgraded in March 2020.

    i) Liberty's records indicate that, as of January 2015, the 1261 R2 Recloser had a ground pickup of 70 amps.

REQUEST NO. 2:

a. Please define "Hot Tag," as used in [include reference here].
b. Please provide copies of any policies or manuals containing a "Hot Tag" setting operating procedure.
c. What is the difference between "Hot Tag" setting and "non-reclose mode" on a recloser?

RESPONSE:

Liberty objects to this Question as vague and ambiguous as to the term "Hot Tag" and incomplete as to subpart (a). Liberty understands "Hot Tag" to refer to "hotline tag" as that term is used in Liberty-03: Prudence of Operations and Liberty's Electric Operating Procedure. Subject to and without waiving its objections, Liberty responds as follows:

a) "Hotline tag" refers to an alternate setting or mode that may be selected for a recloser in connection with maintenance work on or near energized equipment. The hotline tag mode provides for instantaneous tripping at a specified pickup amperage and disables automatic reclosing functionality (meaning the recloser trips to lockout after a single operation).

b) Please see the attachment Clearance and Control - Electric Operating Procedure.pdf, which reflects the procedure in effect as of November 17, 2020 describing the use of hotline tag mode to support non-reclose assurance during maintenance on or near energized lines.

c) For reclosers that did not have a dedicated fire mode setting, such as the 1261 R1 Recloser, Liberty disabled reclosing functionality during fire season. For such devices, Liberty-03: Prudence of Operations describes settings with the reclosing functionality is disabled as "non-reclose mode," though this is not a specific recloser setting mode available for selection. As described in response to subparts (a) and (b) above, hotline tag refers to a specific mode selected in connection with maintenance work on or near energized equipment, which also disables reclosing functionality.

REQUEST NO. 3:

In the Application, Exhibit Liberty-02, page 11, Liberty states that "At approximately 11:55:43 a.m., thirty-two seconds after the initial ground fault, the 1261 R2 Recloser operated and locked out, de-energizing the Topaz 1261 Circuit downstream of the 1261 R2 Recloser."

a. What was the highest ground fault current recorded on Recloser 1621 R2 prior to lockout?
b. What was the time delay setting of 1621 R2 on the first reclose operation?
c. What was the time delay setting of 1621 R2 on the second reclose operation?
d. 1621 R2 is set for how many reclose operations?
e. How many reclose operations occurred in the 32 seconds before the 1621 R2 locked out?
f. Please explain the auto-reclosing scheme of 1621 R2.

RESPONSE:

Liberty understands all subparts of this Question to be referring to the 1261 R2 Recloser.

a) Based on the available relay data, the highest ground fault current recorded by the 1261 R2 Recloser prior to lockout was 261 amps.

b)-d) The 1261 R2 Recloser's normal settings allowed for two reclose attempts prior to lockout. The first operation was on a fast time-current curve with a two second reclose interval following operation. The second and third operations were on a delayed time-current curve, with a fifteen second reclose interval following the second operation. The 1261 R2 Recloser's normal settings used a 30 second reset timer.

e) Based on the available relay data, two reclose operations occurred before the 1261 R2 recloser tripped to lockout at approximately 11:55:43 a.m.

f) Please see response to subparts (b) – (d) above.

REQUEST NO. 4:

In the Application, Exhibit Liberty-02, page 43, Liberty states, "The 1261 R2 Recloser recorded a phase-to-phase fault around 9:48 a.m. and operated, de-energizing that portion of the circuit and causing an outage. Following a patrol of the affected line, at 10:41 a.m. the 1261 R2 Recloser was closed, re-energizing the line and restoring power to the affected customers. In coordination with field personnel supervising the reconductoring work, the hotline mode was disabled and the 1261 R2 Recloser was returned to normal mode."

a. Does "return to normal mode" mean that the 1261 R2 was returned to "reclose mode"?
    i. If yes, please state the reason why the 1261 R2 was returned to normal mode.
    ii. If no, explain the meaning of "normal mode."
    iii. Please provide any operating procedures justifying the return to normal mode following an outage when the recloser was in "hotline mode."

RESPONSE:

a) The quoted testimony in Liberty-02 indicates the 1261 R2 Recloser was restored to its normal settings, which allowed for reclosing, as described in Question 3, subpart (f). The 1261 R2 Recloser was returned to normal mode after field personnel reported that they had

patrolled the line after the outage and released their non-reclose assurance related to the reconductoring work on the 1261 Topaz Circuit that morning, meaning they no longer required the 1261 R2 Recloser to be in hotline tag mode. As described in *Liberty-03: Prudence of Operations*, the R2 Recloser and other reclosers were taken out of fire mode or non-reclose mode in early November 2020 after the Tahoe region received its first snowfall. Please see *Liberty-03: Prudence of Operations*, Part VI.B.3, which describes Liberty's policies related to recloser operations and Part VI.A, which describes Liberty's policies for patrol and re-energization of lines after an outage, and the attachment *Re-Energization of Circuits - Electric Operating Procedure.pd*f.

ATTACHMENT 2

Liberty's Response to Data Request CalAdvocate-LIB-A2506017-013, Question 1

Liberty Utilities (CalPeco Electric) LLC
933 Eloise Avenue
South Lake Tahoe, CA 96150
Tel: 800-782-2506
Fax: 530-544-4811

September 29, 2025

Liberty Utilities (CalPeco Electric) LLC

A.25-06-017
WEMA

The Public Advocates Office

Data Request No.:	CalAdvocates-LIB-A2506017-013
Requesting Party:	Public Advocates Office
Originator:	Herman Eng, Herman.Eng@cpuc.ca.gov
	Aaron Louie, Aaron.Louie@cpuc.ca.gov
	Patrick Huber, Patrick.Huber@cpuc.ca.gov
Cc:	Matthew Karle, Matthew.Karle@cpuc.ca.gov
Date Received:	September 15, 2025
Due Date:	September 29, 2025

REQUEST NO. 1:

On page 11 of Liberty-02, lines 4 through 7, states that "The 1261 R2 Recloser was in normal operating mode at the time, which provides for three reclose operations before locking out, as described further in Liberty-03. At approximately 11:55:43 a.m., thirty-two seconds after the initial ground fault, the 1261 R2 Recloser operated and locked out, de-energizing the Topaz 1261 Circuit downstream of the 1261 R2 Recloser."

Liberty's DR response to Question 3(e) of Data Request CalAdvocates-LIB-A2506017-003 states that "Based on the available relay data, two reclose operations occurred before the 1261 R2 Recloser tripped to lock out at approximately 11:55:43 a.m."

a) Please discuss and explain the discrepancy on the number of reclose operations on Liberty-03's three reclose operations versus the DR response of two reclose operations.
b) In the DR response, in the thirty-two seconds, how many reclose operations occurred after the initial ground fault?
c) Please provide the available relay raw data or waveforms downloaded from the 1621 R2 Recloser or SCADA, beginning with the initial ground fault to reclosing and locking out on November 20, 2020.

d) Please describe the timestamp of each reclose operation and lockout beginning with the initial phase-to-ground fault on November 20, 2020, by completing the table below:

	Time
Initial ground fault trip	
1st Reclose	
Trip after 1st Reclose	
2nd Reclose	
Trip after 2nd Reclose	
3rd Reclose	
Lock Out	

RESPONSE:

a) Liberty's response to Data Request CalAdvocates-LIB-A2506017-003, Question 3, is accurate. The 1261 R2 Recloser's normal settings allowed for two reclose operations prior to lockout. The quoted language from *Liberty-02: Ignition* should reference "three **relay** operations" rather than "three reclose operations." Liberty will correct this language in *Liberty-02* in forthcoming errata testimony.

b) Two reclose operations occurred before the 1261 R2 Recloser tripped to lockout.

c) Liberty objects to this subpart as vague and ambiguous as framed. Liberty understands this subpart to be asking for the .cev files downloaded from the 1261 R2 Recloser after the incident related to the phase-to-ground faults that began at approximately 11:55:14 a.m. on November 17, 2020. Please see attached file *1261 Phase-to-Ground Waveforms.zip* for these specific .cev files.

d) Please see below for the completed table. These times are approximate and reflect adjustments to account for time zone differences and alignment with the timestamps for the 1261 R1 Recloser device and SCADA. (Specifically, the timestamps from the records downloaded from the 1261 R2 Recloser device after the incident were adjusted by -58 minutes and 28 seconds.)

	Time
Initial Ground Fault Trip	11:55:14.149
1st Reclose	11:55:16.313
Trip after First Reclose	11:55:22.664
2nd Reclose	11:55:37.760
Trip after 2nd Reclose	11:55:43.476
3rd Reclose	N/A (there was no 3rd reclose attempt)
Lock Out	N/A (device locked out at 11:55:43.476 on trip after 2nd reclose)

REQUEST NO. 2:

Liberty's response to Question 3, parts (b) through (d) of Data Request CalAdvocates-LIB-A2506017-003 states that "The 1261 R2 Recloser's normal settings allowed for two reclose attempts prior to lock out. The first operation was on a fast time-current curve with a two second reclose interval following operation. The second and third operations were on a delayed time-

current curve, with a fifteen second reclose interval following the second operation. The 1261 R2 Recloser's normal settings used a 30 second reset timer."

a) Based on the DR response above, how many reclose operations took place following the initial phase-to-ground fault on November 17, 2020?
b) Please define and explain what is a "normal settings of a 30-second reset timer".

RESPONSE:

a) See Liberty's response to Question 1(b) of this set of data requests.
b) The 30-second reset timer delineates the period during which the recloser will proceed with its continuous sequence of operations regarding operation and reclose attempts. If the recloser initiates an initial trip and reclose operation, and then has no further operation within a continuous 30-second period, the recloser's sequence of operations resets, and a subsequent trip and reclose operation (*e.g.*, 60 seconds later) would occur consistent with the settings for an initial operation and reclose (operation on a fast time-current curve with a two-second reclose interval). Using the table in response to Question 1(d) of this set of data requests as an example, if more than 30 seconds had passed between any of the individual recloser events, the relay would have reset and started again at the "initial" trip step.

REQUEST NO. 3:

a) After the 1261 R2 Recloser locked out on November 17, 2020, how was the Recloser being reset? Was the reset performed manually in the field or remotely from the Nevada Energy Substation or Control Center?

RESPONSE:

Liberty objects to this Question as vague and ambiguous as framed, including with respect to its use of the term "reset." Liberty understands this Question to be asking what would happen after the 1261 R2 Recloser locked out and de-energized the Topaz 1261 Circuit downstream of the recloser as of the November 17, 2020 time frame. Subject to and without waiving its objections, Liberty responds as follows: The 1261 R2 Recloser did not need to be "reset" after locking out. The recloser could be closed to re-energize the circuit either remotely via SCADA or manually at the device. In either case, Liberty's operating procedures required that the line be patrolled by field personnel before re-energizing the circuit. These procedures were followed on November 17, 2020, see *Liberty-02: Ignition*, p. 11.

REQUEST NO. 4:

a) How many auto reclosers did Liberty have in the distribution system since November 17, 2020?
    i. How many of the auto reclosers at the time were programmed with two (2) reclose operations under normal settings?
    ii. What were the typical time intervals for the following conditions on reclosers programmed with two (2) reclose operations?
        1. Between the initial fault and the first reclose operation.
        2. Between the first reclose and second reclose operations.

b) Since November 17, 2020, how many auto reclosers were programmed with three (3) reclose operations under normal settings?
    i. What were the typical reclose time intervals for the following conditions on reclosers programmed with three (3) reclose operations?
        1. Between the initial fault and the first reclose operation.
        2. Between the first reclose operation and the second reclose operations.
        3. Between the second reclose operation and third reclose operations

RESPONSE:

a) Liberty objects to this Question as vague and ambiguous as framed, especially with respect to the time period of focus. Liberty understands this Question to be asking about the November 17, 2020 time frame. Liberty further objects to this Question to the extent that it is overbroad and unduly burdensome. Subject to and without waiving its objections, Liberty responds as follows: Based on a review of available records, there were approximately 29 automatic reclosers in use on Liberty's distribution system as of November 17, 2020. With respect to the time interval and sequence for reclose operations, the vast majority of these reclosers would have been programmed with normal reclose settings consistent with those described for the 1261 R2 Recloser in Liberty's response to Data Request CalAdvocates-LIB-A2506017-003, Question 3.
b) As explained in Liberty's response to Question 1(a) in this set of data requests, the quoted language from *Liberty-02: Ignition* should reference "three **relay** operations" rather than "three reclose operations." To Liberty's knowledge, none of Liberty's automatic reclosers was programmed to allow for three reclose operations prior to lockout under normal settings.

REQUEST NO. 5:

What is the peak loading in percent and amperes for the 1621 Topaz circuit in the following years?

a) 2017
b) 2018
c) 2019
d) 2020
e) 2021
f) 2022
g) 2023
h) 2024

RESPONSE:

Liberty objects to this Question as vague, ambiguous and overbroad as framed, especially with regard to the terms "peak loading" and "percent." Subject to and without waiving its objections, Liberty responds as follows: See below for information regarding peak loading on the Topaz 1261 Circuit. Based on Liberty's review of interval amperage data for the A phase of the Topaz 1261 Circuit from its SCADA historian system, the below values reflect the highest amperages on the A Phase of the Topaz 1261 Circuit as recorded through SCADA from the 1261 R1

Recloser, excluding certain outlier data determined to not reflect load amperage. Liberty does not have amperage data for 2017 and 2018.

a) No Data
b) No Data
c) 117 amps
d) 137 amps
e) 144 amps
f) 145 amps
g) 132 amps
h) 159.5 amps