

REQUEST WINDOW SUBMISSION FORM

Please complete this submission form and the Attachment A (technical data) and send the documentation to the ISO contact listed in section 2. Please note that this form should be used for the purpose of submitting information that applies to the scope of Request Window that is a part of the ISO Transmission Planning Process only. For more information on the Request Window, please refer to the Business Practice Manual (BPM) for the Transmission Planning Process which is available at:

<http://www.caiso.com/planning/Pages/TransmissionPlanning/Default.aspx>.

The undersigned ISO Stakeholder Customer submits this request to be considered in the CAISO Transmission Plan. This submission is for (check one)¹:

- Reliability Transmission Project (refer to section 1 of Attachment A)
 - Submission is requested by a PTO with a PTO service territory
 - Submission is requested by a non-PTO, a PTO without a PTO service territory or a PTO outside its PTO service territory².
- Merchant Transmission Facility (refer to section 1 of Attachment A)
- Location Constrained Resource Interconnection Facility (LCRIF) (refer to sections 1 & 2 of Attachment A)
- Project to preserve Long-term Congestion Revenue Rights (CRR) (refer to section 1 of Attachment A)
- Demand Response Alternatives (refer to section 3 of Attachment A)
- Generation Alternatives (refer to section 4 of Attachment A)

1. Please provide the following basic information of the submission:

- a. Please provide the project name and the date you are submitting the project proposal to the ISO. It is preferred that the name of the project reflects the scope and location of the project:

Project Name: **Diablo Canyon Voltage Support Project**

Submission Date: **9/14/2012**

- b. Project location and interconnection point(s): **Diablo Canyon Substation, San Luis Obispo County**
- c. Description of the project. Please provide the overview of the proposed project (e.g. overall scope, project objectives, estimated costs, etc.): **The project scope is to install a new +150/-75 MVAR Reactive Support Device at Diablo Canyon 230 kV Substation and construct the associated bus upgrades.**
- d. Proposed In-Service Date, Trial Operation Date and Commercial Operation Date by month, day, and year and Term of Service.

¹ Please contact the ISO staff at requestwindow@caiso.com for any questions regarding the definitions of these submission categories in this form.

² The PTO with a PTO service territory has the obligation to build reliability driven projects within its PTO service territory. See ISO tariff Section 24.4.6.2.

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION
CAISO TRANSMISSION PLANNING PROCESS
REQUEST WINDOW SUBMISSION FORM

Proposed In-Service date: **5 / 31 / 2016**
Proposed Trial Operation date (if applicable): / /
Proposed Commercial Operation date (if applicable): / /
Proposed Term of Service (if applicable):

e. Contact Information for the Project Sponsor:

Name:
Title: **Manager**
Company Name: **Pacific Gas & Electric**
Street Address:
City, State:
Zip Code:
Phone Number:
Fax Number:
Email Address:

2. This Request Window Submission Form shall be submitted to the following ISO representative:

Name: Dana Young
Email Address: requestwindow@caiso.com

3. This Request Window Submission Form is submitted by:

Check here if the information is the same as the Project Sponsor information in 1 (f) of this submission:

Name:
Title:
Company Name:
Street Address:
City, State:
Zip Code:
Phone Number:
Fax Number:
Email Address:

Diablo Canyon Voltage Support Project

IN-SERVICE DATE

May 2016

PURPOSE AND BENEFIT

Reliability – NERC compliance

PROJECT CLASSIFICATION

This project is a new project submitted for CAISO approval by March 2013

DESCRIPTION AND SCOPE OF PROJECT

The project scope is to install a +150/-75 MVAR Reactive Support Device at Diablo Canyon Substation. PG&E is considering installing either an SVC or synchronous condenser technology for this application in order to provide dynamic voltage control and support for Diablo Canyon Power Plant (DCPP).

This project is required to meet NERC Nuclear (NUC 001-2) and NERC Transmission Planning (TPL) Standards.

This project is expected to cost between \$35M and \$45M.

BACKGROUND

Diablo Canyon Nuclear Power Plant, located at Avila Beach in San Luis Obispo County, generates enough electricity to serve over 2.2 million people. The plant consists of two nuclear reactors which each have a gross output of approximately 1,190 MW. Each nuclear unit has approximately 50 MW of auxiliary plant load making the total DCPP net output 2,280 MW. The auxiliary plant load must have two different sources, according to NRC requirements. In the case of Diablo Canyon, the 230 kV and 500 kV stations serve as the two physically independent sources. Under normal conditions, the 500 kV source provides power to the vital auxiliary plant loads. However, following the loss or planned outage of either nuclear unit or both, the two auxiliary plant loads (totaling 100 MW and 75 MVAR), are immediately transferred to the 230 kV off-site power source.

Operating Instruction for Reliable Transmission Service to Diablo Canyon Power Plant, also known as O-23, identifies the related commitment of communication between DCPP and PG&E. This document also identifies which system conditions will result in low voltage at the Diablo Canyon 230 kV bus. In the event system conditions could result in low voltage, DCPP will have 72 hours to

completely shut down both nuclear units if the low voltage condition cannot be mitigated. DCPD has expressed concern allowing a clearance on the Morro Bay – Diablo 230 kV Line because of the uncertainty of acceptable voltage at Diablo Canyon 230 kV source following the transfer of auxiliary load.

Further, planning studies have concluded that in the event that the two DCPD Nuclear units are down (i.e. planned maintenance or outage) and the auxiliary plant load is served via the 230 kV system, an outage of the Morro Bay-Diablo 230 kV Line and Morro Bay Power Plant would result in low voltage of 0.87 per unit in 2017 at DCPD’s 230 kV bus. This voltage is below the required voltage requirements specified in the Nuclear Plant Interface Coordination Agreement.

BASE CASE AND STUDY ASSUMPTIONS

PG&E used base cases and assumptions approved in the CAISO Unified Planning Assumptions and Study Plan for the 2012/2013 Transmission Planning Process cycle.

The chart below depicts the amount of days Morro Bay Power Plant generated power during summer peaking months in 2010 and 2011. This data supports the assumption that Morro Bay Power Plant could be offline when the auxiliary load is transferred to the Diablo Canyon 230 kV source.

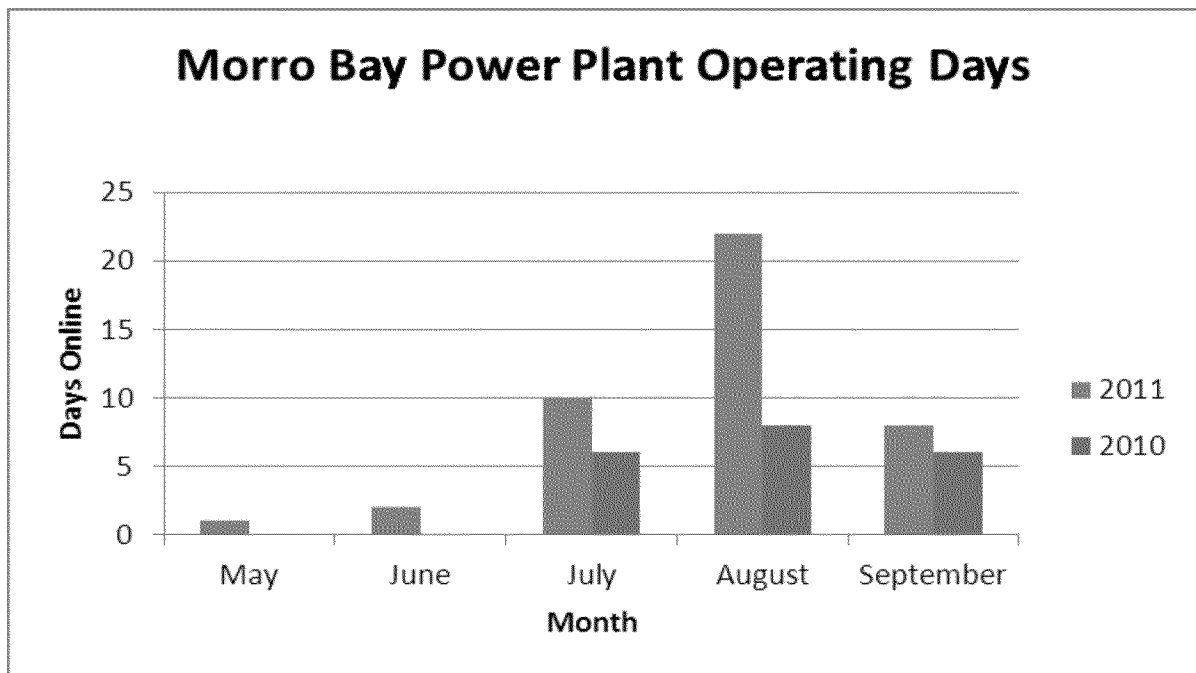


Figure 1: Morro Bay Power Plant Generation

STUDY CRITERIA

NERC Transmission Planning Reliability Standards
NERC Nuclear Reliability Standard
WECC Transmission Planning System Performance Criterion
California ISO Planning Standards

OTHER ALTERNATIVES CONSIDERED

Alternative 1: Status Quo

This alternative is not recommended because it does not mitigate the expected capacity and voltage constraints at DCPD.

Alternative 2: Loop [Redacted] kV Line into Diablo Canyon.

This alternative proposes to loop the existing [Redacted] 230 kV Line into the Diablo Canyon 230 kV Bus. This alternative is not recommended because it does not provide additional benefits when accompanied with future projects in the area.

PROJECT SCHEDULE

- Environmental and Permitting Processes – TBD
- Design – TBD
- Major Equipment – SVC or Synchronous Condenser, Circuit Breakers
- Construction – TBD

KEY ISSUES

- Land-Use Restrictions – TBD
- Environmental Concerns – TBD
- Special Metering or Protection - None
- Common Mode Exposure Items - None
- Interaction with other Projects or Studies – Midway-Mesa 230 kV Line Project

GEPSEF MODELING INFORMATION

#New +150/-150 SVC at Diablo Canyon 230 kV Bus

NEWGENS 30925, UNIT=1, STAT=1, PGEN=0, QGEN=0, QMAX=150, QMIN=150, +
VSCHED=1.02, BASEMVA=100, PMAX=0, PMIN=0, ZGENR=0, ZGENX=999.0 +
AREA=20, ZONE=320, OWN=390,

MISCELLANEOUS DATA

1. PG&E will construct, own, and finance the project
2. PG&E will be the planned operator of the project

ATTACHMENTS

1. Single Line Diagrams
2. Demand Forecast
3. Power Flow Summary
4. Pre and Post Project Power Flow Plots

Attachment 1

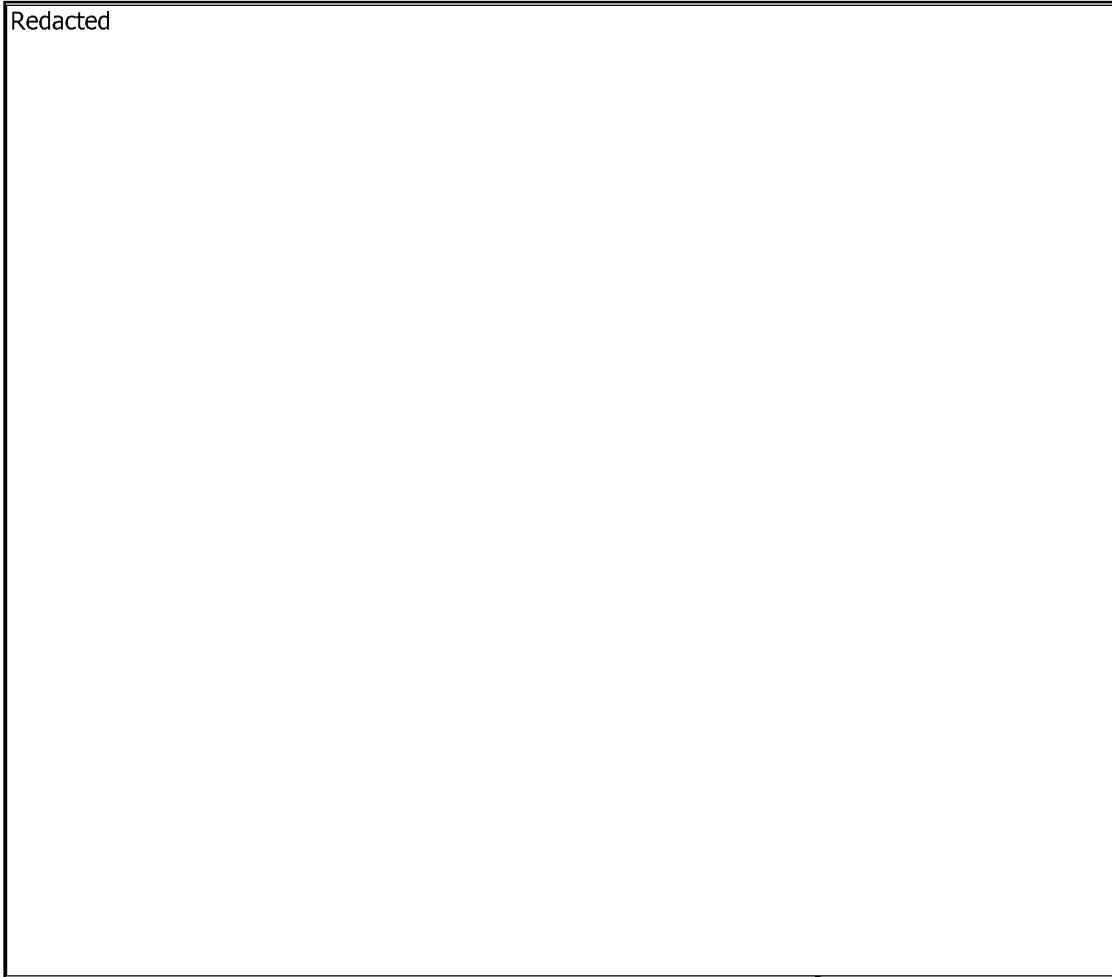


Figure 2: Existing Single Line Diagram

Note: In the figure above, the term “DCPP Startup” represents the DCPP vital auxiliary load.

Redacted

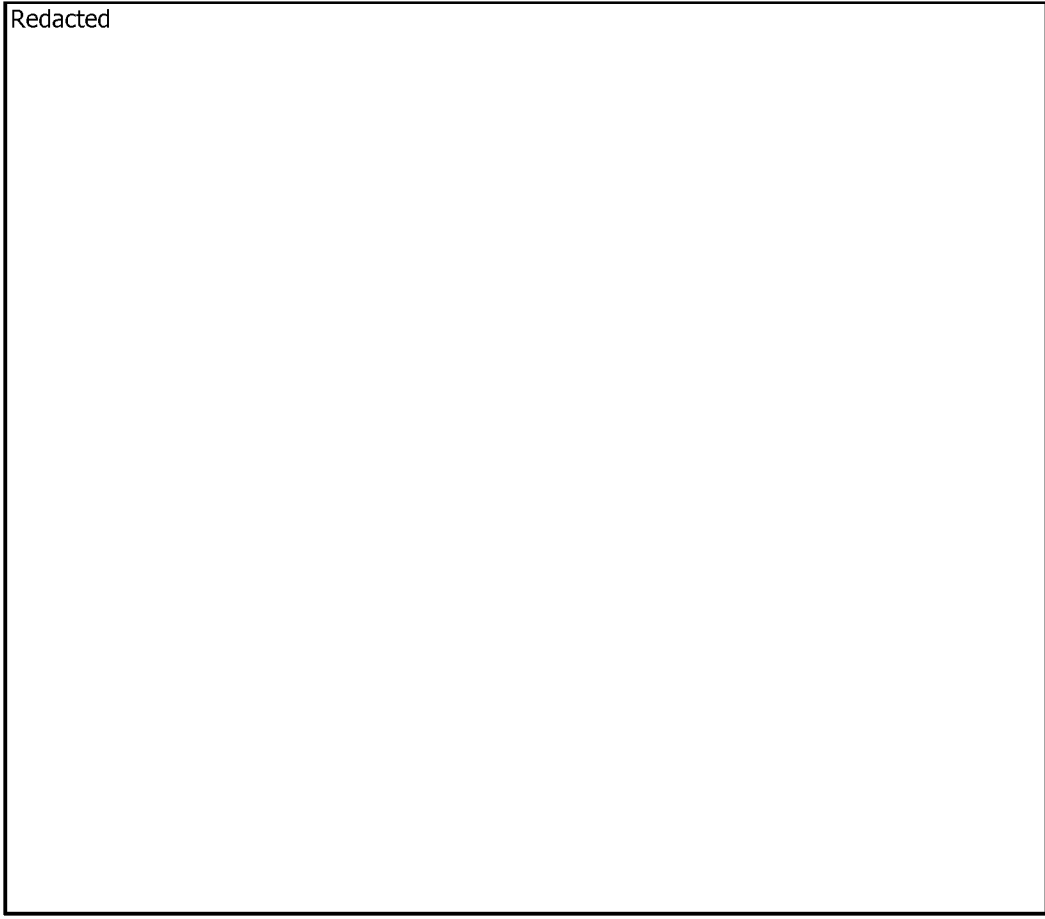


Figure 3: Proposed Single Line Diagram

Note: In the figure above, the term “DCPP Startup” represents the DCPP vital auxiliary load.

Attachment 2

Table 1: Demand Forecast for the Los Padres Division

Substation/Bank	2013 (MW)	2014 (MW)	2015 (MW)	2016 (MW)	2017 (MW)	Growth Rate (MW/yr)
Redacted Area Load	591	603	614	624	631	10
Diablo Canyon PP Auxiliary Load (@ 0.8 pf)	100	100	100	100	100	0
Total Area Load	691	703	714	724	731	10

Attachment 3

Table 2: Power Flow Results

			Pre Project						Post Project	
#	Facility	Facility Rating	2013	2014	2015	2016	2017	2022	2021	Contingency
1	Diablo Canyon Bus	230 kV	0.85	0.89	0.88	0.87	0.87	0.86	1.02	Redacted Redacted 230 kV Line & Morro Bay PP

Note: Pre Project and Post Project Facility Voltages are per unit values. Results assume Diablo Canyon Power Plant's entire vital auxiliary load is served from the 230 kV source.

Attachment 4

Redacted

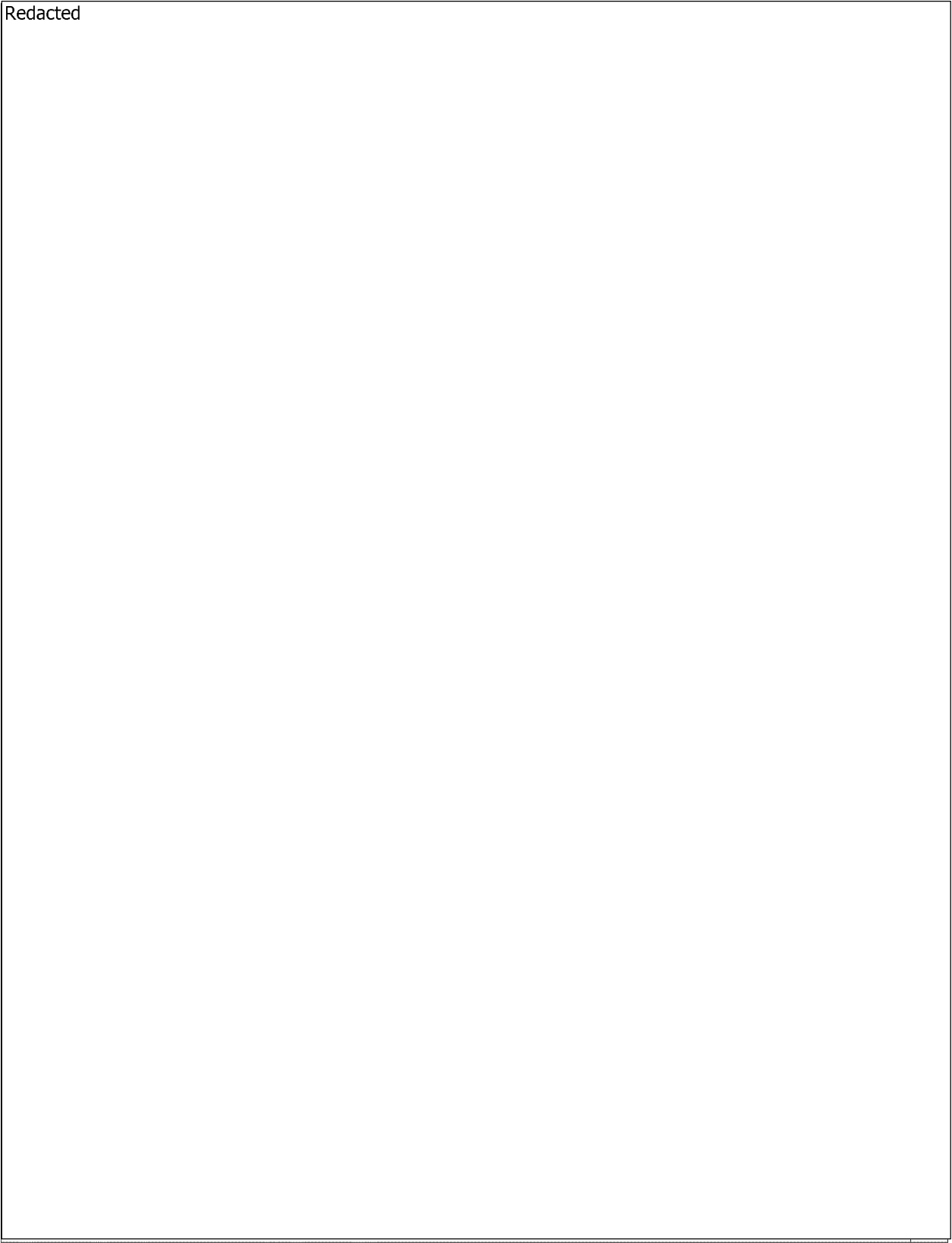


Figure 1: Pre Project – Normal Conditions

Redacted

Figure 2: Pre Project – Redacted Diablo 230 kV Line and Redacted Power Plant (L-1/G-1)

Redacted

Figure 5: Post Project – Normal Conditions

Redacted

Figure 6: Post Project - Redacted Diablo 230 kV Line and Redacted Power Plant (L-1/G-1)