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 territory.
- ☐ 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: Redacted **230 kV Capacity Increase**

      Submission Date: **09/14/2012**

   b. Project location and interconnection point(s): Redacted

   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 divided into two phases; the first phase scope is to install three terminal line switches at each of the California Department of Water Resources (CWDR) pumping plant taps on the** Redacted **230 kV Lines, which totals six tap points, for eighteen total line switches. The second phase scope is to replace roughly 96 circuit miles of conductor on the** Redacted **230 kV lines, from** Redacted **on each 230 kV**

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

line (≈48 miles each). The new conductor must be capable of at least 1126 Amps under summer normal and summer emergency conditions.

d. Proposed In-Service Date, Trial Operation Date and Commercial Operation Date by month, day, and year and Term of Service.

Proposed In-Service date (Phase I): **05 / 01 / 2015**

Proposed In-Service date (Phase II): **05 / 01 / 2018**

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: Redacted

Title: **Manager**

Company Name: **Pacific Gas and Electric Company**

Street Address: Redacted

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:

Redacted 230 kV Capacity Increase

IN-SERVICE DATE

Phase I: May 2015
Phase II: May 2018

PURPOSE AND BENEFIT

Reliability – NERC compliance.

PROJECT CLASSIFICATION

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

DESCRIPTION AND SCOPE OF PROJECT

The project scope is divided into two phases; the first phase scope is to install three terminal line switches at each of the California Department of Water Resources (CWDR) pumping plant taps on the Redacted 230 kV Lines, which totals six tap points, for eighteen total line switches. The second phase scope is to replace roughly 96 circuit miles of conductor on the Redacted Redacted 230 kV lines, from Redacted on each 230 kV line (≈48 miles each). The new conductor must be capable of at least 1126 Amps under summer normal and summer emergency conditions.

Load growth in the Redacted has led to transmission capacity limitations between Redacted substations on the two 230 kV lines. This project enables PG&E to serve the projected load growth at Redacted Redacted substation under normal, clearance, and emergency conditions. Furthermore, the increased transmission capacity will allow CDWR to reliably pump during periods of higher load at Redacted and enables greater flexibility during maintenance and clearance operations. Phase I of this project is intended to improve switching configurations for both lines under clearance conditions so as to maximize CDWR pumping and PG&E load serving capabilities. Additionally, this project will protect against NERC category C1 and C2 violations.

Phase I of this project is expected to cost between $5M and $8M, Phase II of this project is expected to cost between $80M and $120M.

BACKGROUND

Redacted substation is located in Redacted and is fed by a 50 mile long double circuit tower line from Redacted substation. There is approximately 500

MW of pump load operated by the CDWR along the Redacted #1 and #2 230 kV lines and approximately 100 MW of load on the Redacted 70 kV system served from two 200 MVA, 230/70 kV transformers. There is also a 115/70 kV transformer that serves the Redacted 115 kV line.

As a part of a settlement agreement in 1984 between PG&E and the CDWR, PG&E sold 75% of the transmission capability of the Redacted #1 and #2 230 kV lines to the CDWR. PG&E maintained 25% ownership of the transmission capability for the transfer of electric power to the Redacted area loads. Since the inception of this contract PG&E's load in the Redacted Redact area has grown and PG&E's utilization of the Redacted 230 kV lines has increased.

In March 2012, as part of the 2011/2012 Transmission Planning process, the CAISO approved the Redacted Voltage Support project which will install three 75 MVAR steps of mechanically switched capacitors on the Redacted 230 kV bus. This voltage support will help address the substantial transmission line losses and resulting voltage drop due to the length of these 230 kV lines, particularly when one line is out of service and highly loaded, but it does not fully address the transmission capacity limitations in the long term particularly as the load at Redacted continues to grow.

The project being proposed in this cycle will work in conjunction with the voltage support project and will allow PG&E to reliably serve the current and future Redacted area load by incrementally increasing PG&E's transmission capability from Midway substation to Wheeler Ridge. Additionally, this project will expand the operating flexibility of the 230 kV lines under system normal, emergency and clearance conditions which results in increased PG&E load serving, and CDWR pumping capabilities.

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.

STUDY CRITERIA

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

OTHER ALTERNATIVES CONSIDERED

Alternative 1: Status Quo

This alternative is not recommended because it does not mitigate the expected capacity constraints and does not address load growth concerns.

Other alternatives still under evaluation

PROJECT SCHEDULE

- Environmental and Permitting Processes – TBD
- Design – TBD
- Major Equipment – Conductor, Capacitors, Breakers, Switches
- Construction – TBD
- Operational – Phase I May 2015, Phase II May 2018

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 – Wheeler Ridge 230 kV Voltage Support Project

MISCELLANEOUS DATA

- PG&E will construct, own, and finance the project
- PG&E will be the planned operator of the project

GE PSLF MODELING INFORMATION

Redacted 230 KV CAPACITY INCREASE PROJECT PROPOSAL
OLDSECDD 30970, 38600, CKT=1, SEC=1, RPU=0.0053402, XPU=0.031989, BPU=0.064876, MVA1=604.3, MVA2=604.3
OLDSECDD 38600, 38640, CKT=1, SEC=1, RPU=0.0060685, XPU=0.036352, BPU=0.073723, MVA1=604.3, MVA2=604.3
OLDSECDD 38640, 38650, CKT=1, SEC=1, RPU=0.00012865, XPU=0.00077065, BPU=0.0015629, MVA1=604.3, MVA2=604.3
OLDSECDD 30970, 38605, CKT=1, SEC=1, RPU=0.0053402, XPU=0.031989, BPU=0.064876, MVA1=604.3, MVA2=604.3
OLDSECDD 38605, 38645, CKT=1, SEC=1, RPU=0.0060685, XPU=0.036352, BPU=0.073723, MVA1=604.3, MVA2=604.3
OLDSECDD 38645, 38655, CKT=1, SEC=1, RPU=0.00012865, XPU=0.00077065, BPU=0.0015629, MVA1=604.3, MVA2=604.3

ATTACHMENTS

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

Attachment 1

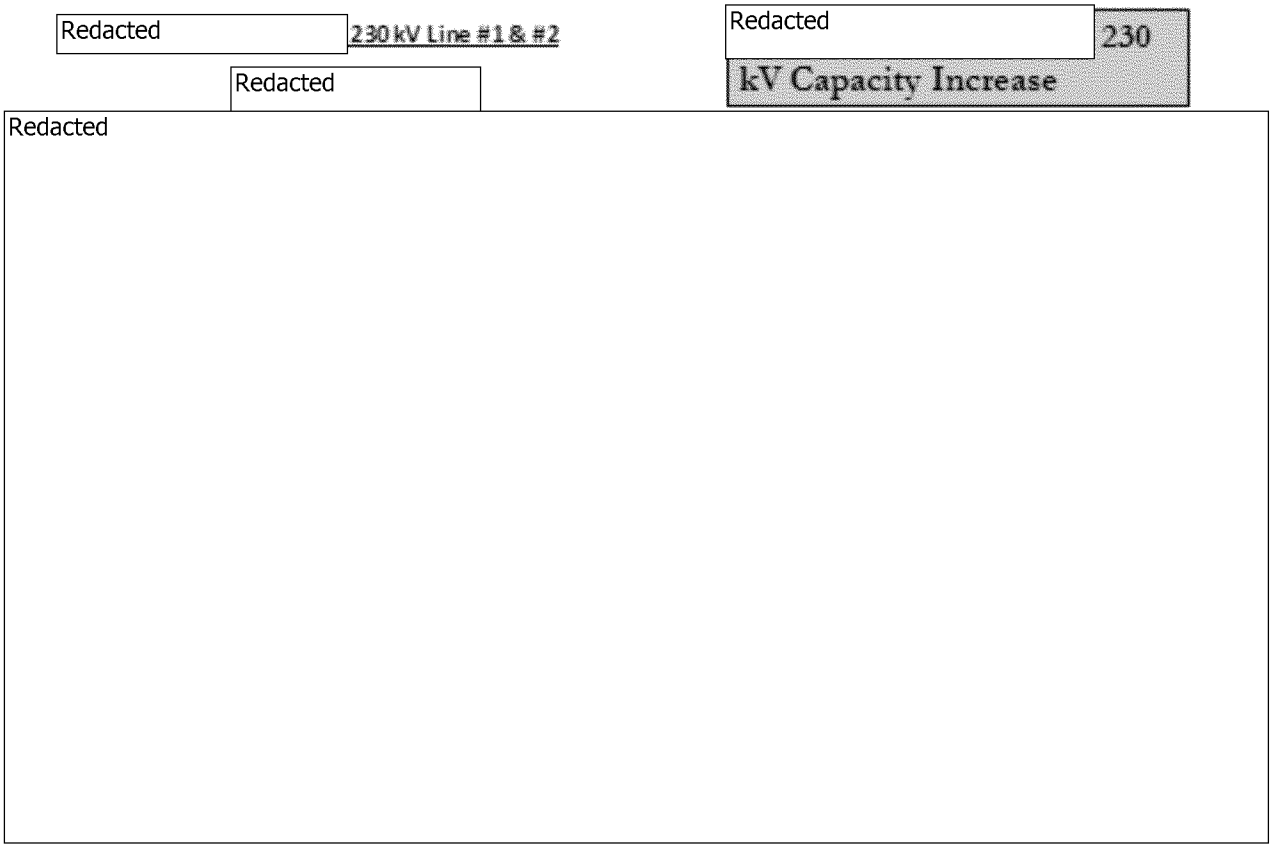

Figure 1: Existing Single Line Diagram

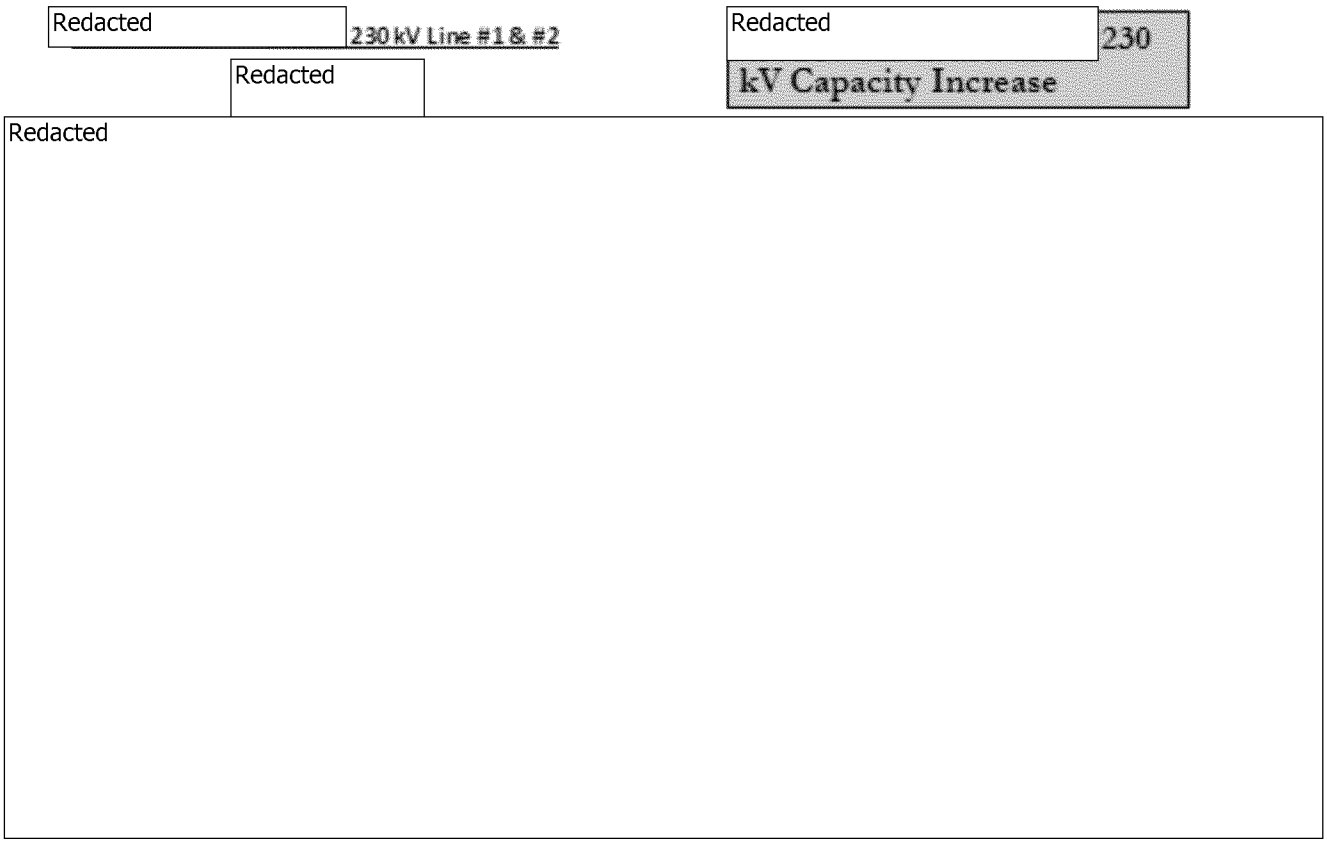

Figure 2: Proposed Single Line Diagram

Attachment 2

Area	2013 (MW)	2014 (MW)	2015 (MW)	2016 (MW)	2017 (MW)	2022 (MW)	Demand Growth (%)
Wheeler Ridge Area	102	105	106	119	119	121	2.1%

Table 3: Demand Forecast for Redacted **Area**

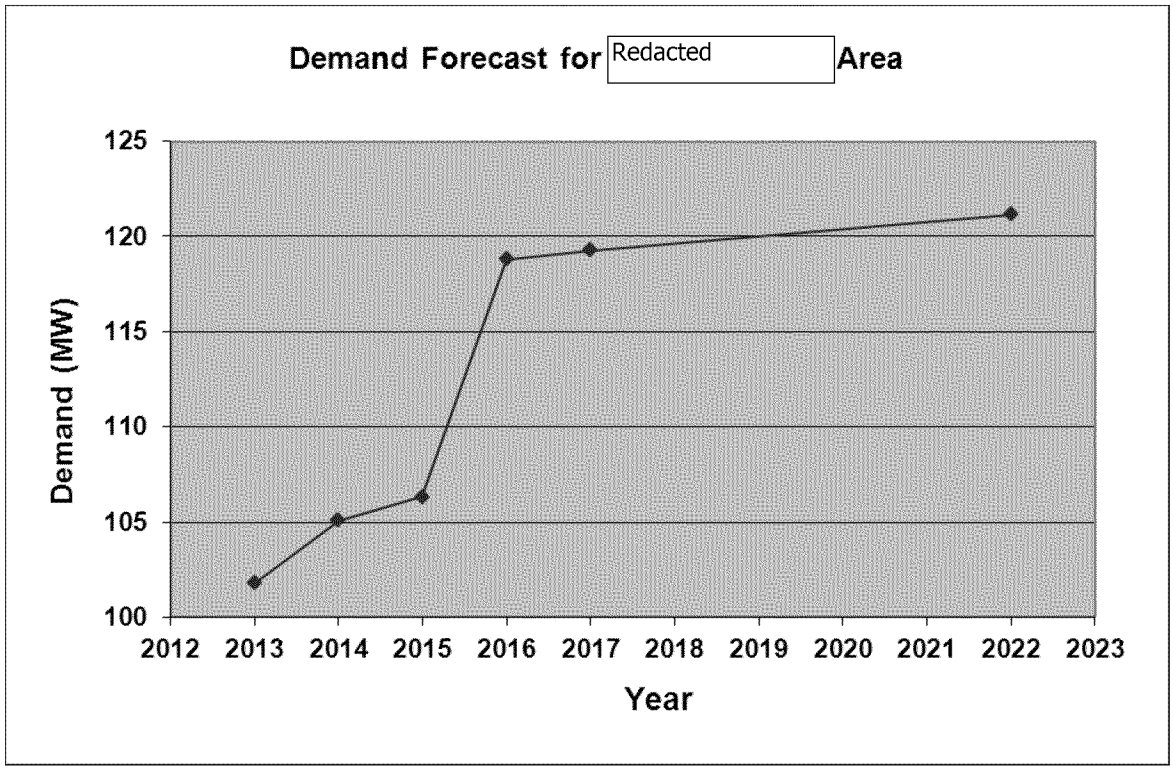

Figure 4: Demand Forecast Graph

Attachment 3

		Pre-Project						Post-Project	
Facility	Rating	2013	2014	2015	2016	2017	2022	2022	Contingency
Redacted Redac #2 230 kV Line	SN Rating 825 Amps	109%	112%	113%	109%	109%	110%	60%	Clearance of Redacted Redac #1 230 kV Line (Normal Rating)

Table 5: Power Flow Results

Attachment 4

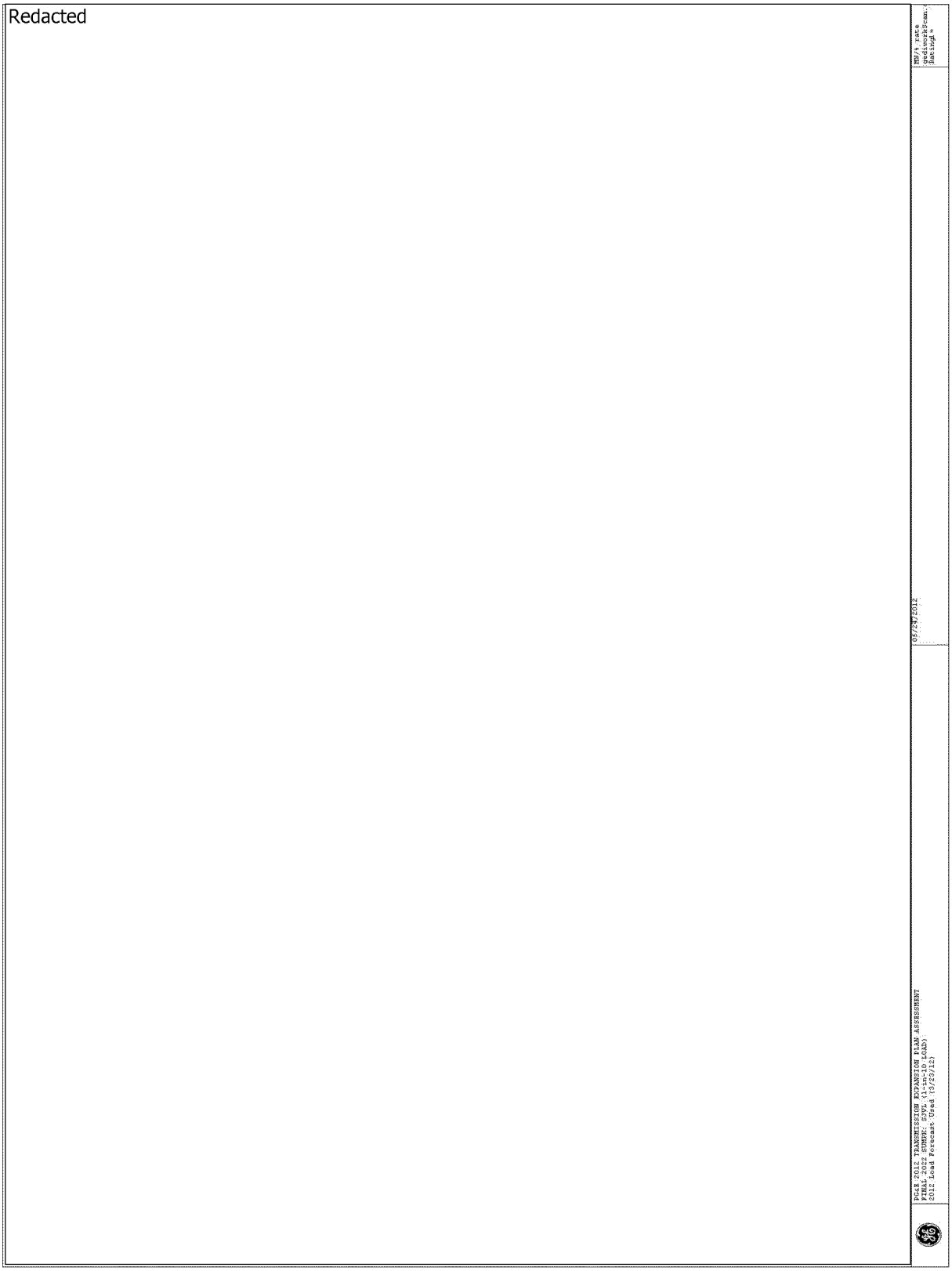

Figure 6: Pre Project – Redacted **#1 230 kV Line on clearance (Normal Ratings)**

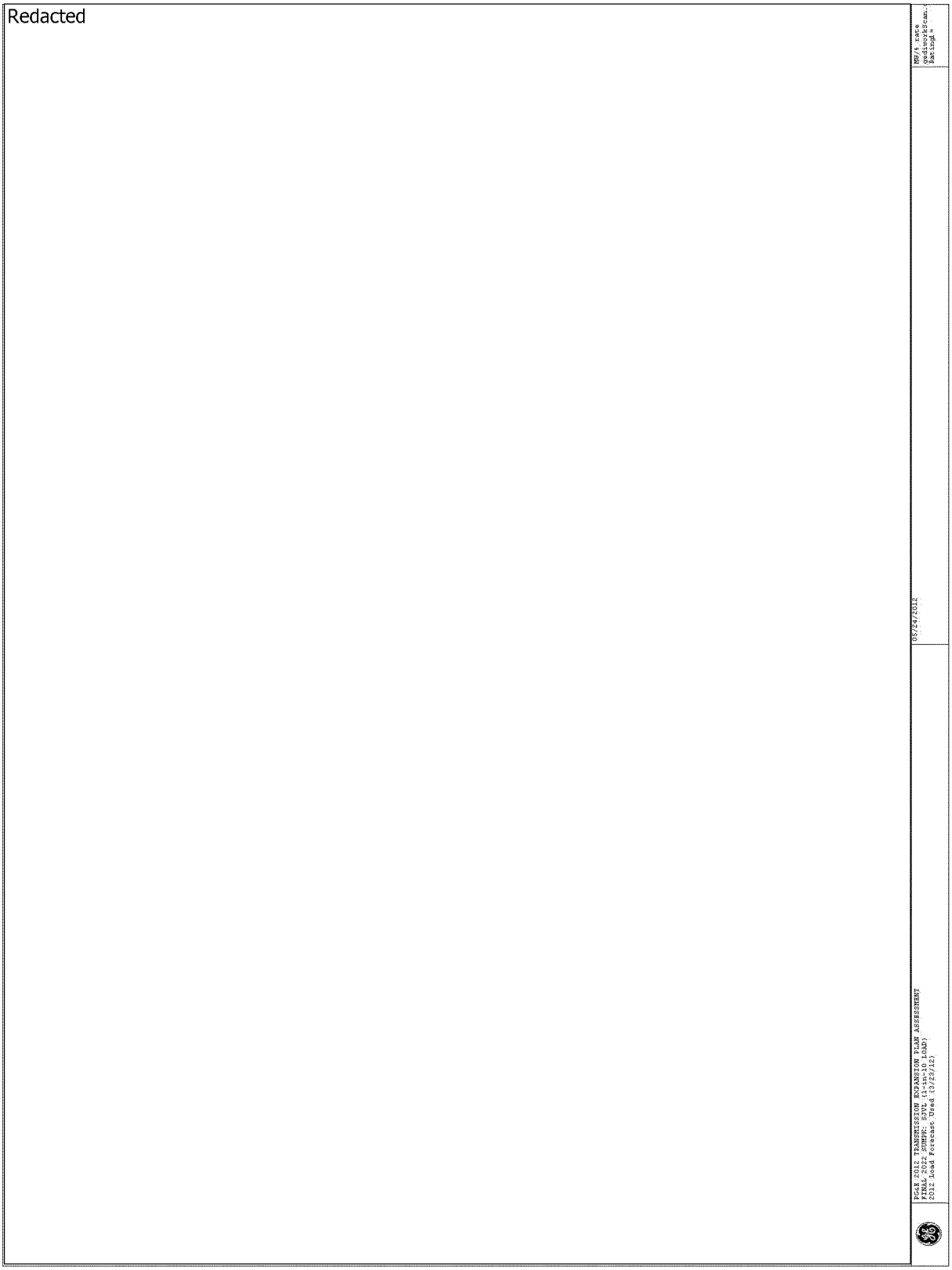

Figure 7: Post-Project – Redacted **#1 230 kV Line on clearance (Normal Ratings)**