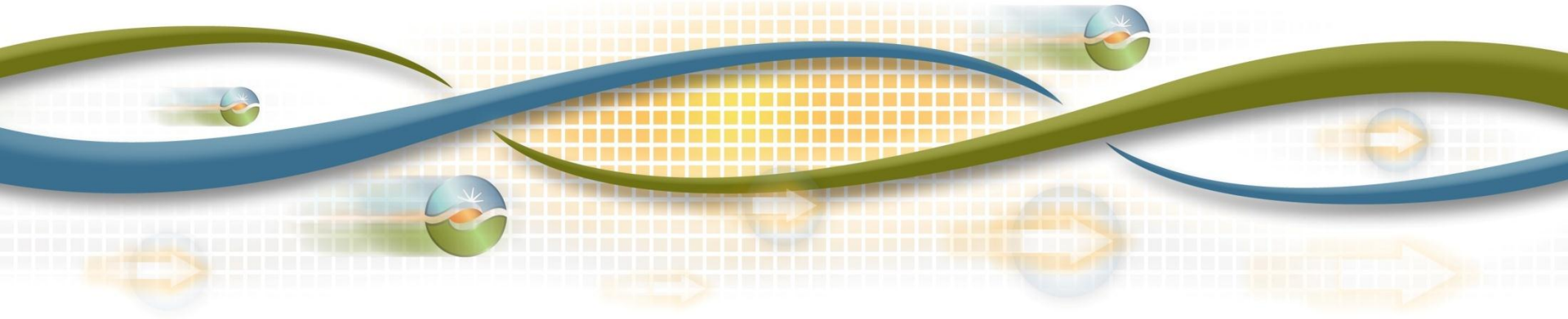


# Agenda – Day 2

## Preliminary Reliability Assessment Results

Kristina Osborne  
Stakeholder Engagement and Policy Specialist

2014-2015 Transmission Planning Process Stakeholder Meeting  
September 24-25, 2014



# 2014-2015 Transmission Planning Process Stakeholder Meeting - Today's Agenda

Topic	Presenter
Introduction	Kristina Osborne - ISO
SDG&E Proposed Reliability Solutions	Fidel Castro – SDG&E
SCE Proposed Reliability Solutions	Jonathan Yuen - SCE
VEA Proposed Reliability Solutions	Chris Tomchuk - VEA
PG&E Proposed Reliability Solutions	Kelly Dichoso, Meng Zhang & Prabodh Bhusal - PG&E
Next Steps	Kristina Osborne - ISO



A  Sempra Energy<sup>®</sup> utility



# 2014 Grid Assessment Results

## CAISO Stakeholder Meeting

September 24-25, 2014

# Agenda



- Introduction
  - San Diego Area Summary
  - Objectives
- SDG&E Grid Assessment Study
  - 2014 Study Scope
- Expansion Plan Summary
  - Study Results & Expansion Plan
    - Major Projects
    - Small Projects
- Project Summaries
  - Projects requiring CAISO approval
  - New distribution substations



# Introduction



## San Diego Area - Summary

- The assessment identified:
  - Category B and Category C overloads
  - Low steady-state voltage and voltage deviations on 69 kV substations driven by Category B contingencies
- Comparing to last year results:
  - All Category B overloads until years 2019 and 2024 mitigated by projects and/or SPS

# Introduction



## Objectives

- SDG&E Project Proposals
  - Mitigate overloaded facilities
    - Category B contingencies
  - Mitigate voltage deviations
    - Category B contingencies
  - Operating procedures, SPS
    - Category C contingencies



## 2014 Study Assumptions

- Study years
  - Five-Year Studies (2015-2019)
  - Ten-Year Study (2024)
- Major assumptions
  - CEC Load Forecast for San Diego
  - Cabrillo II peakers retired in 2014
  - Pio Pico peakers online starting in year 2015
  - Encina retired end of year 2017
  - SX-PQ 230 kV line in study years 2017 and later
  - CAISO-approved reactive power projects
    - 2x225MVAR Synchronous Condensers at Talega 230kV in year 2015
    - 2x225MVAR Synchronous Condensers at San Luis Rey 230kV in year 2016
    - 1x375MVAR Synchronous Condensers at Miguel 500kV in year 2017
    - 300MVAR Static VAR Compensator at Suncrest 230kV in year 2017
    - Imperial Valley Phase Shifter in year 2017

# Expansion Plan Summary



Project #	Project Title	ISO Status	ISD
<b>Proposed Projects Requiring CAISO Approval</b>			
P14XYZ	HV AC/DC Alternatives – Valley Inland Power Link	Pending	2023
P14XYZ	2 <sup>nd</sup> Pomerado – Poway 69kV Circuit	Pending	2015/16
P14XYZ	TL632A Granite Loop-In + Cancel TL631 Reconductor (Los Coches – El Cajon)	Pending	2015/16
P14XYZ	TL692 Reconductor: Japanese Mesa – Las Pulgas	Pending	2015/16
<b>New Distribution Substations</b>			
Info Only	Ocean Ranch Substation	-	2019
Info Only	Vine Substation	-	2017
Info Only	Salt Creek Substation	-	2016



# HV Transmission Lines – Valley Inland Power Link



- **Need Justification**

- Meet G-1/N-1 and N-1-1 planning criteria
- Retirement of SONGS
- Retirement of Once Through Cooling (OTC) units in Southern California
- In Service Date = June, 2023

- **Evaluation Criteria**

- Viable and Feasible Alternatives (Multi-Disciplinary)
- Reduce the Need for In-Basin Generation
- Transfer Capacity

- **Potential Technologies**

- AC – 500 kV and/or 230 kV
- HVDC – Voltage TBD ( $\pm 320$ -500 kV)
  - Line Commutated Converter (LCC)
  - Voltage Source Converter (VSC)
- Overhead, Underground and Underwater

**Project Title:**

**Valley Inland Powerlink**

**In-Service Date:**

**June 2023**

**Needs:**

- Loss of San Onofre Nuclear Generation (SONGS)
- Loss of Once-Through Cooling (OTC) units in SoCal

**Scope:**

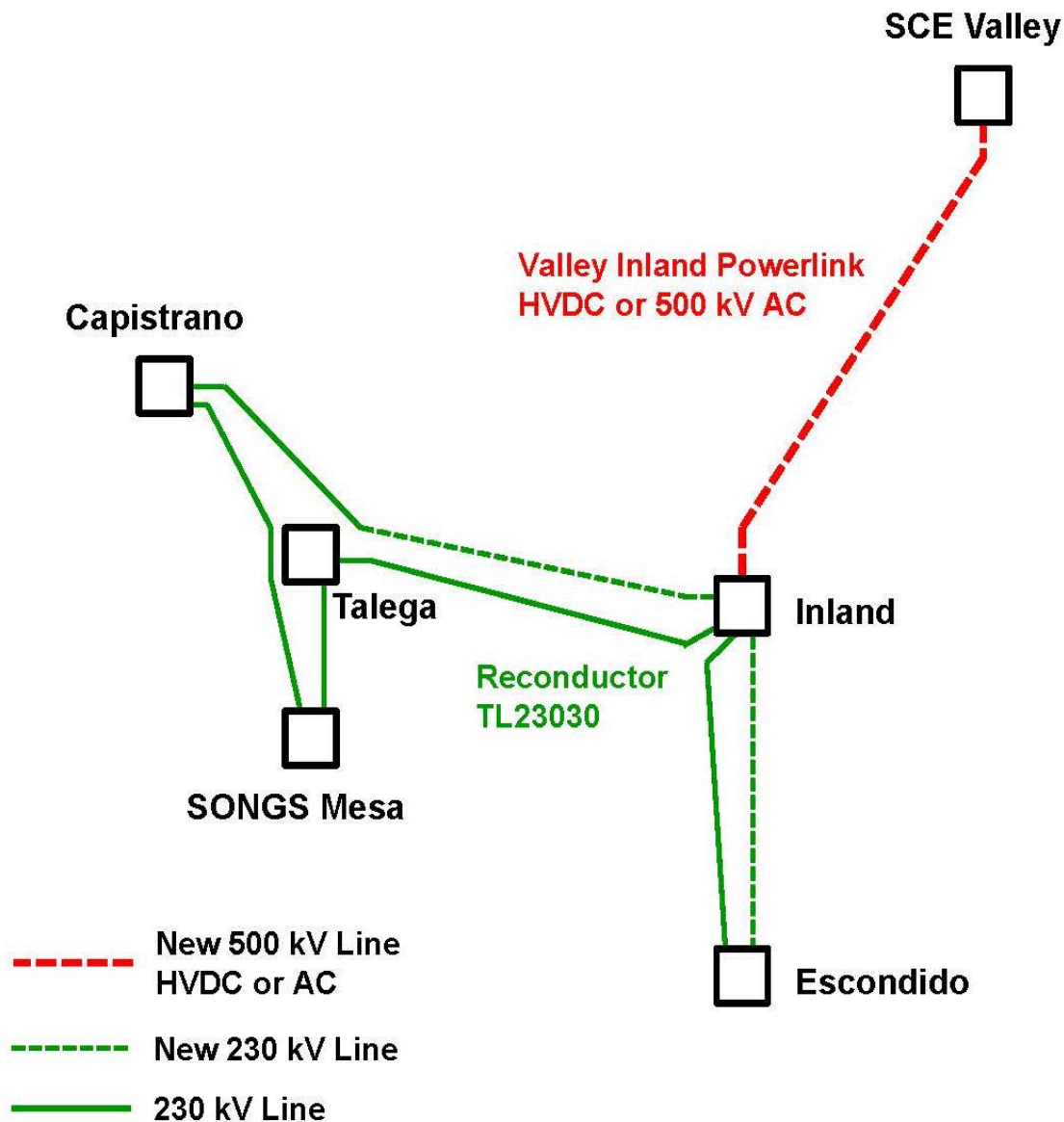
- Valley Inland Powerlink
  - New HVDC Transmission Line
- Talega-Escondido 230 kV lines
  - Reconductor and loop-in existing TL23030
  - Construct new lines between Talega and Escondido

**Alternative:**

- Valley Inland Powerlink – Alternative 2A
  - New 500 kV AC Line
- Talega-Escondido 230 kV lines: same scope as above

**Advantages:**

- Reduction of the need for in-basin generation within Southern California



# Valley Inland Power Link Summary of Justification



- Necessary to meet WECC 2.5% and 5% reactive margin requirements
- Partially replace inertia and dynamic reactive capability of retiring OTC generation
  - South Bay (2010 retirement)
  - SONGS (2013 retirement)
  - Encina (2017 OTC compliance date)
- Renewable Integration
  - Provides dynamic reactive capabilities that typical wind and photovoltaic/solar cannot provide
- Import Capability
  - Reduces the risk of voltage collapse during high import scenarios
- Operational Flexibility
  - Improves 230 kV voltage control
  - Increases secure operating range

**Project Title:**  
**2<sup>nd</sup> Pomerado – Poway 69kV Circuit**

**District:**  
**North East**

**Need-Date**  
**June 2015**

**Project:**  
**P14XYZ**

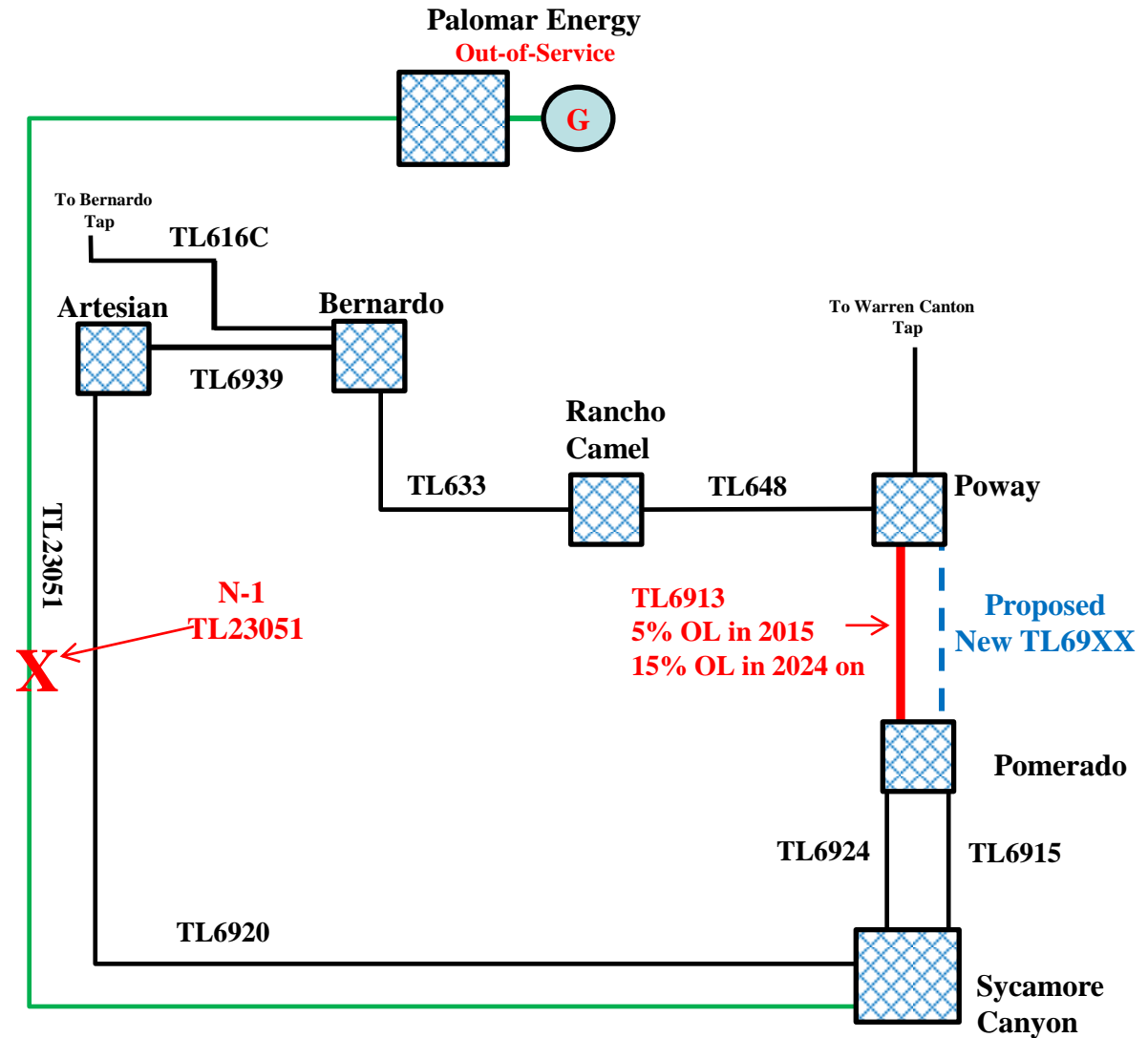
**Driving Factor:**  
NERC Cat B Criteria Violations  
for a G-1/N-1 scenario

- Issues:**
- G-1 of Palomar Energy and N-1 of TL23051 overloads TL6913:
    - 5% in 2015
    - 15% in 2024
  - Violation occurs PRE and POST Artesian East 230kV Expansion.

**Scope:**  
Install a second Pomerado to Poway 69kV circuit to achieve a 155MVA rating.  
Circuit will be ~ 2.6miles

**Cost Range:** \$17M-\$19M

**Alternatives/Cost Range:**  
Exhausted all alternatives



**Legend**

Contingency



Overloaded  
Conductor



Substation



69 kV Line



230 kV Line





**Project Title:**  
**TL632A Granite Loop-In**

**District:**  
**Eastern**

**Need-Date:**  
**June 2015**

**Project:**  
**P14XYZ**

**Driving Factor:**

- Mitigate overloads on TL631
- Provide a third source into Granite.
- Removes existing 3-terminal tap.

**Scope:**

- RFS Granite Tap and Loop-in TL632 into Granite Sub
- Double circuit design from Granite to tap, creating 2-Los Coches – Granite 69kV lines and reconfigure TL6914 to terminate at Miguel and Loveland.

**Cost: Pending**

**Issues:**

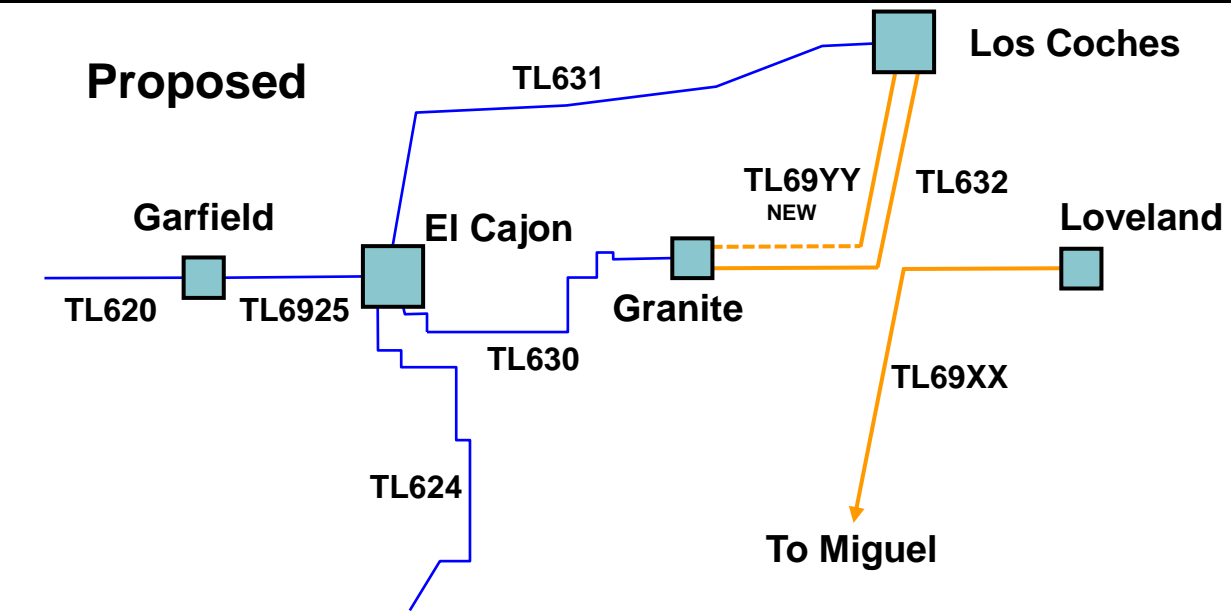
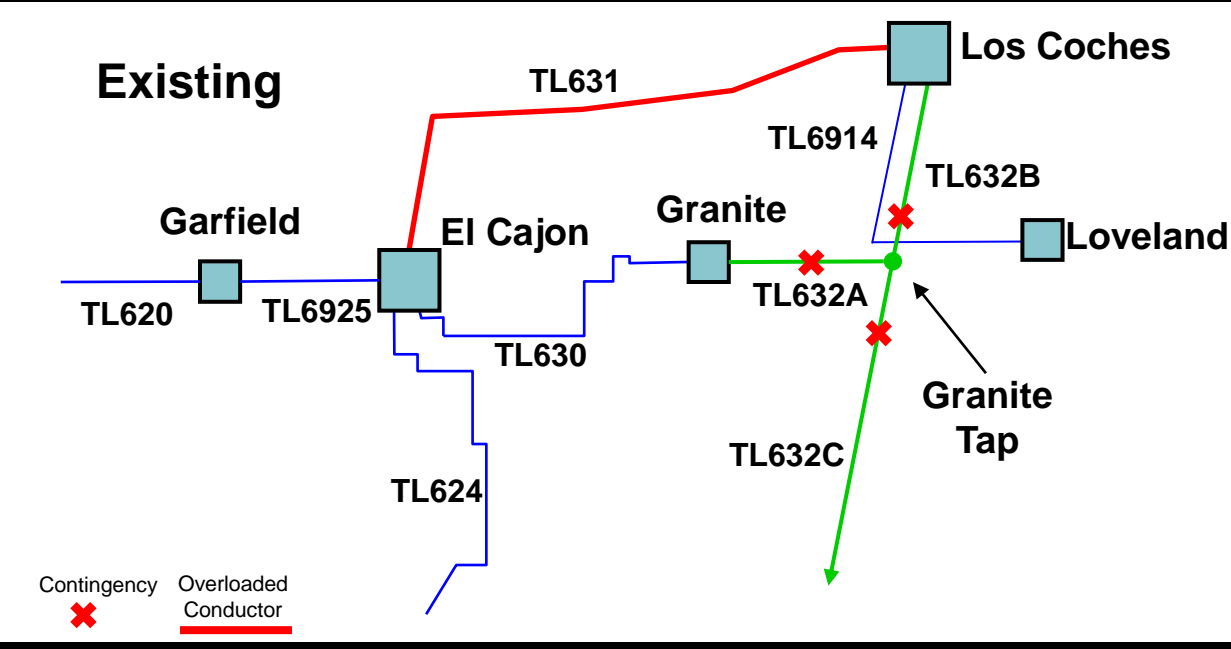
- N-1 of TL632 overloads TL631
- Grid Ops watch list: GR is 100+MW substation with only 2 sources

**Benefits:**

- Operational flexibility
- Add a 3<sup>rd</sup> line at Granite
- RFS existing 3-Terminal Line
- Cancel/Delay TL631 Reconductor

**Alternatives:**

Reconductor TL631 to mitigate overloads – TRC and CAISO approved.



**Driving Factor:**

Cat C criteria violations, 8% OL , N-2 of TL23007 and TL23052

**Scope:**

Reconductor TL692 to archive a minimum continuous rating of 102 MVA. Line is approximately 8 miles.

**Estimated Cost:** \$6.4M-\$7.1M

**Issues:**

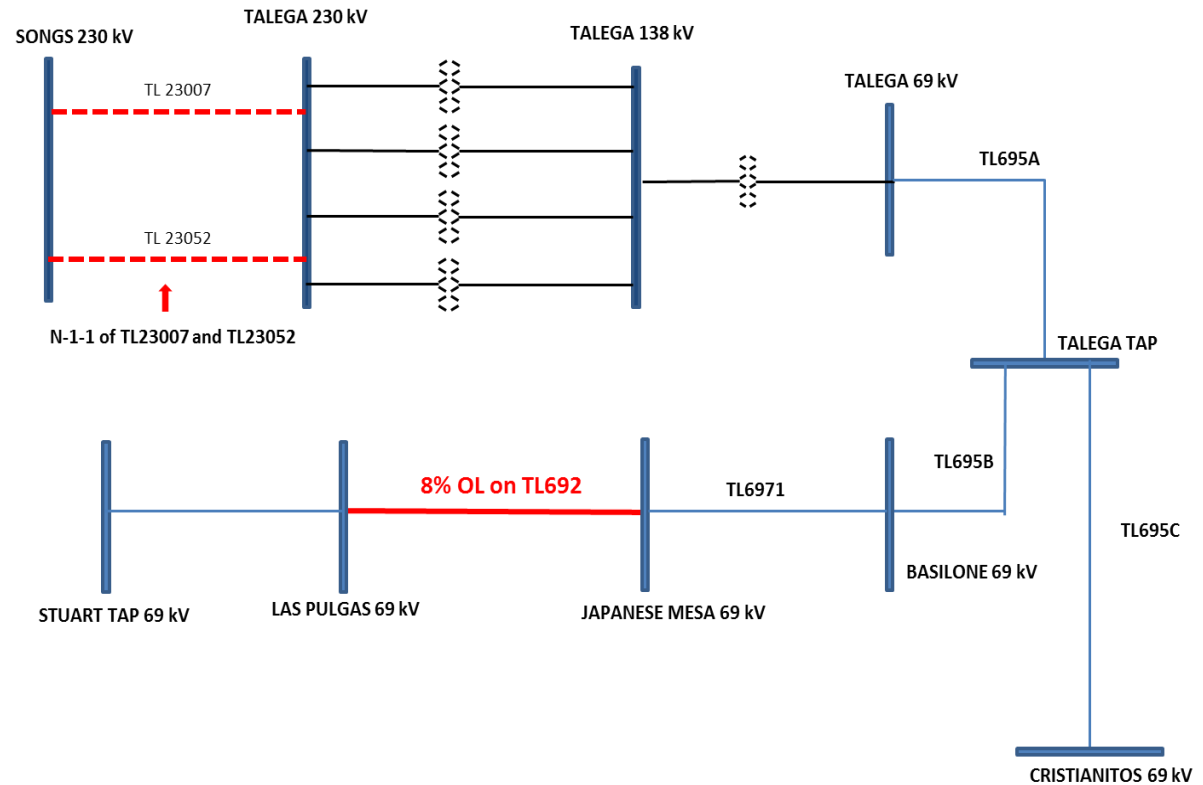
- Outage at TL23007 and TL23052 causes a 108% loading on TL692 in 2015
- G-1 (Pen-Out), TL23052 and TL23007 causes a 119% loading on TL692 in 2015
- W2S Project not until 2017/18

**Benefits:**

- RFS existing Talega Bank 50 SPS
- Advance W2S Project – estimated \$19.5M-\$21.4M

**Alternative:**

Drop load at Basilone or Japanese Mesa substations



# Expansion Plan Summary- New Substations



- Ocean Ranch Substation
- Vine Substation
- Salt Creek





**Driving Factor:**  
Provide capacity to the rapidly growing load in the Downtown and surrounding San Diego Load pocket area.

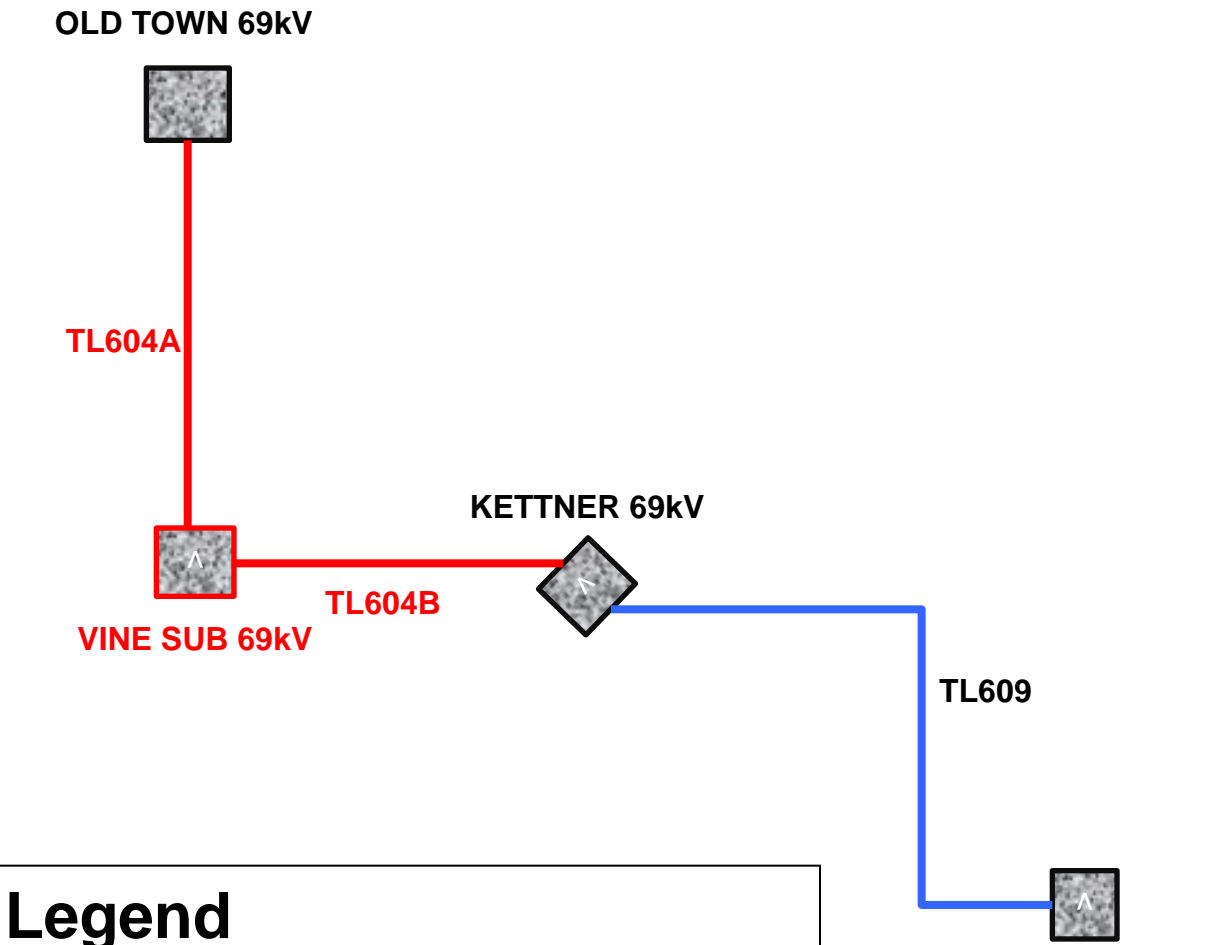
- Scope:**
- Initially install 3-30MVA banks at Vine Substation (69/12kV).
  - Loop-in TL604 into Vine Sub .
  - The ultimate capacity of Vine Substation is 120MVA.

**Preliminary Estimate :**  
\$40-44 million

**Issues:**  
The existing 69/12kV substations cannot support the growing load demand.

**Alternative:**  
There are no alternatives, the existing substations capacity is less than the projected new business load.

**Proposed**



**Legend**

-  Substation
-  Loop-In TL604 to VINE SUB
-  TL609 KE-B

**Project Title:**  
**Salt Creek Substation**

**District:**  
**Metro**

**Need-Date:**  
**June 2016**

**Project:**  
**Info Only**

**Driving Factor:**  
 Provide capacity to the existing and future load in the Otay Ranch Load pocket area.

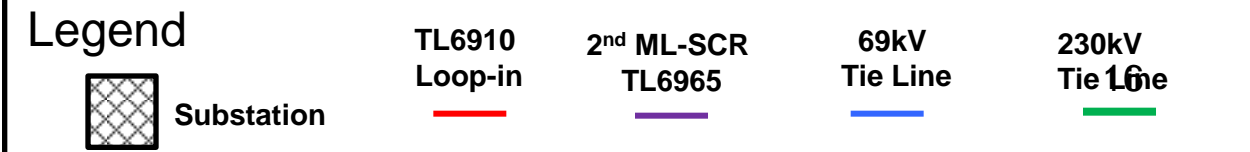
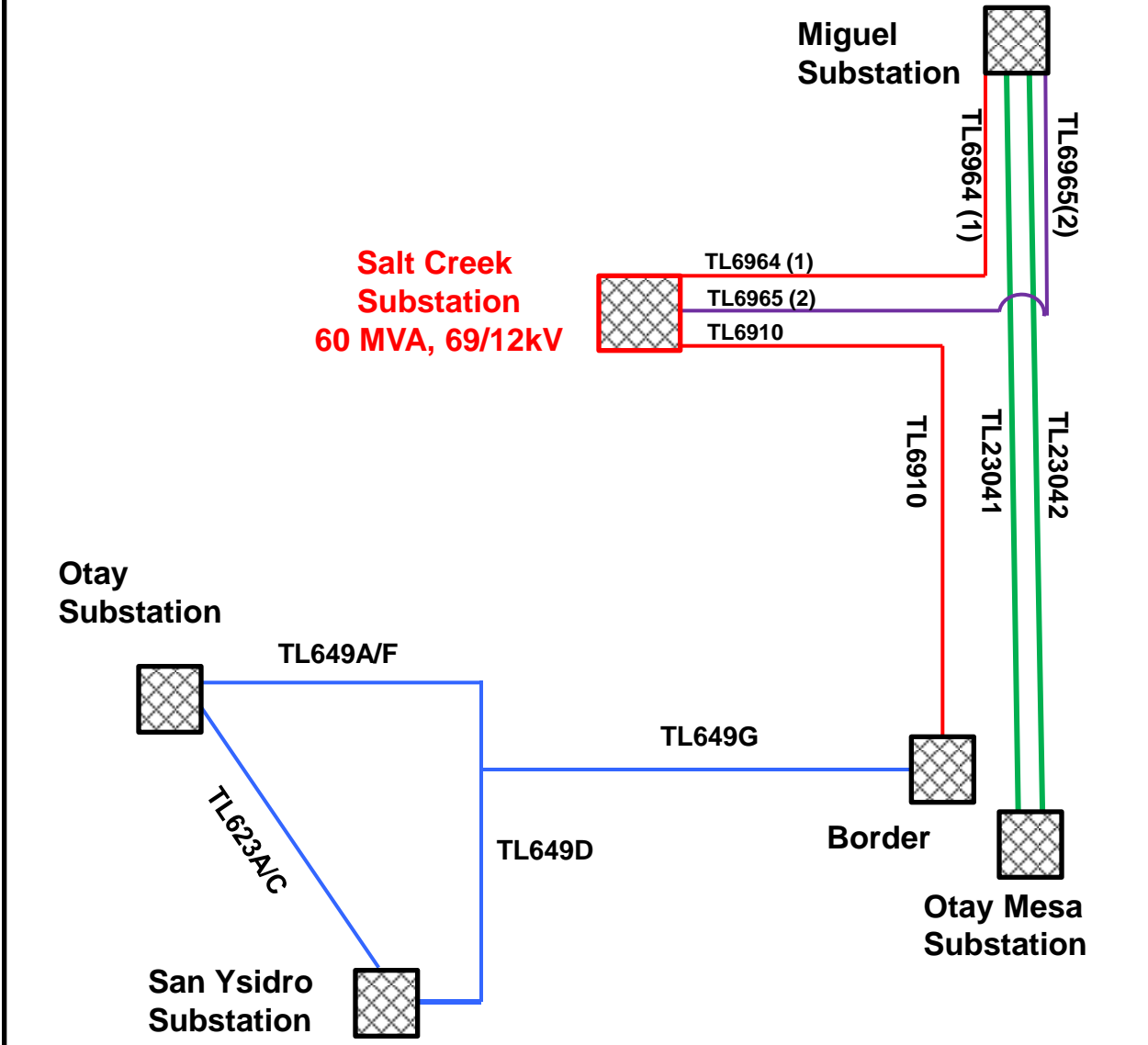
**Scope:**

- Construct a 60MVA, 69/12kV, Salt Creek Substation.
- Loop-in TL6910 into Salt Creek and add a second circuit, TL6965 from Miguel to Salt Creek Substation.
- The ultimate capacity of Salt Creek Substation is 120MVA

**Cost:** \$70-77 million

**Issues:**  
 The existing system cannot support the projected load growth in the area.

**Alternative:**  
 There are no alternatives, the existing substations capacity is less than the projected new business load.



# Questions?



**Send comments to:**

**Fidel Castro**

**San Diego Gas & Electric**

**8316 Century Park Court, CP-52K**

**San Diego, CA 92123**

**Phone: (858) 654-1607**

**e-mail: [frcastro@semprautilities.com](mailto:frcastro@semprautilities.com)**

# **Southern California Edison 2014 Proposals**

Jonathan Yuen  
Power Systems Planner

2014-2015 CAISO TPP Stakeholder Mtg  
September 25, 2014  
Folsom, CA



## Metro Area: Laguna Bell Corridor Upgrades

### Objective:

Upgrade the Laguna Bell – Mesa No. 1 & 2 and Lighthiipe – Mesa 220 kV lines to achieve conductor rating

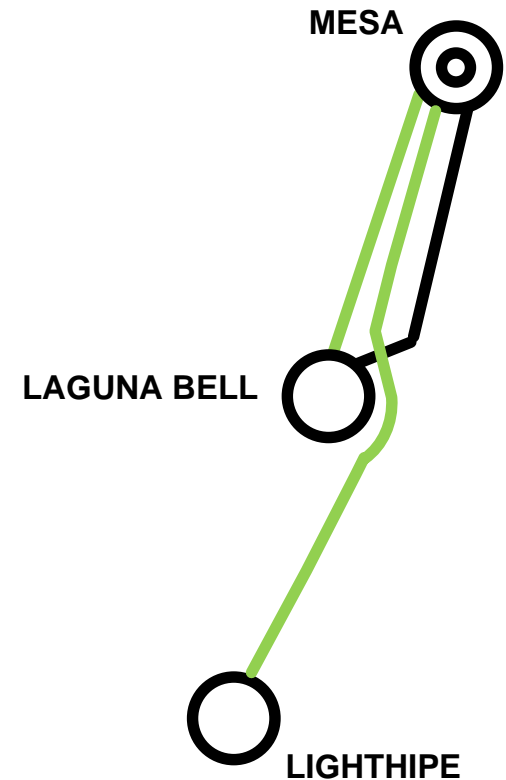
### Preliminary Scope:

- Replace terminal equipment at Laguna Bell for Mesa No. 1 and No. 2 220 kV lines
- Replace terminal equipment at Lighthiipe for Mesa 220 kV line
- Remove clearance limitations on two lines
  - **Laguna Bell - Mesa No. 1 220 kV** (estimated 1 span)
  - **Lighthiipe - Mesa 220 kV** (estimated 1 span)

**Operating Date:** December 2020

**Cost Estimate:** \$ 5M

### Laguna Bell Corridor



#### LEGEND

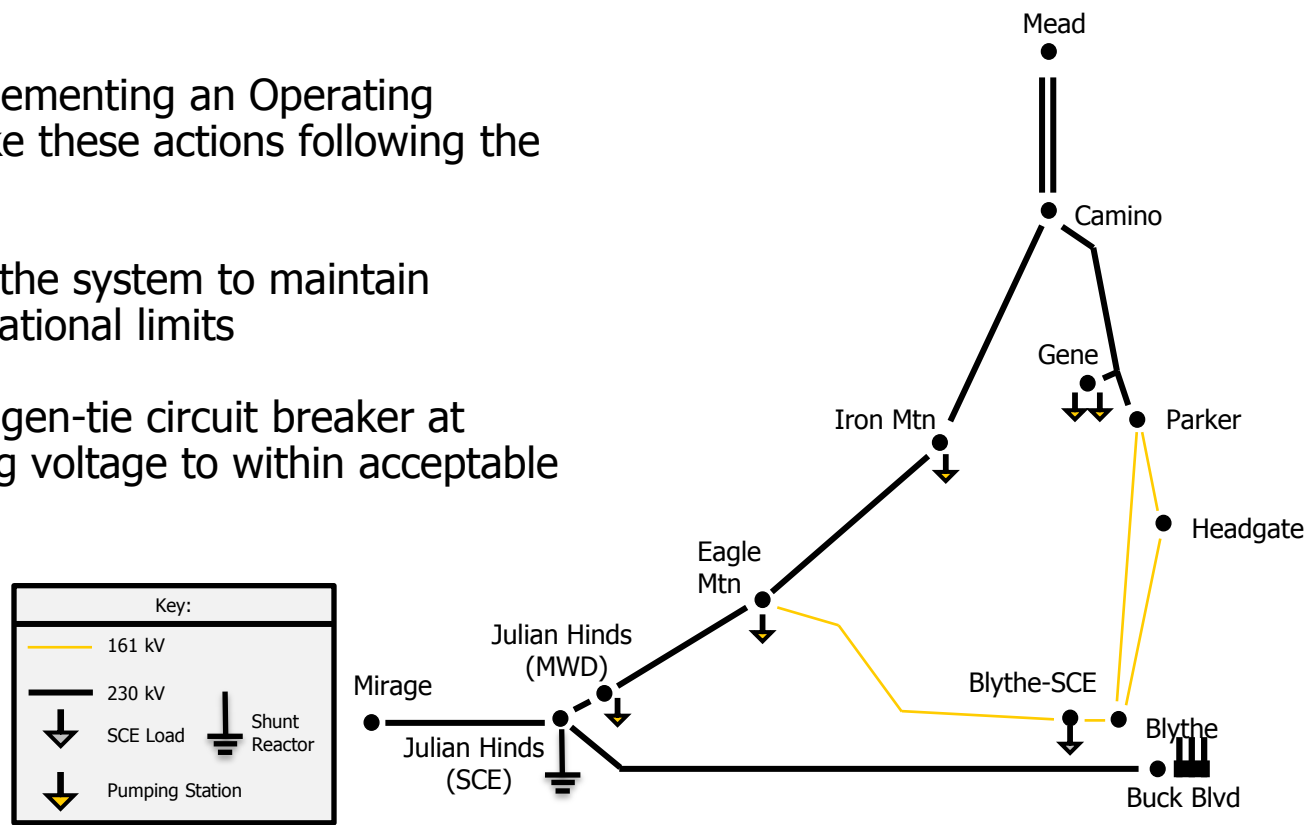
- 220 kV Transmission Substation
- ⊙ 500/220 kV Transmission Substation
- 220 kV Transmission Lines

# Eastern Area: Operating Procedure

**Background:** A forced outage of the Julian Hinds – Mirage 230 kV line followed by a forced outage of the Julian Hinds shunt reactor (or vice-versa) will cause high voltages in the Eastern Area in excess of the SCE breaker ratings.

**Mitigation:** SCE is implementing an Operating Procedure which will take these actions following the first contingency:

1. Attempt to readjust the system to maintain voltages within operational limits
2. Open the Buck Blvd gen-tie circuit breaker at Julian Hinds reducing voltage to within acceptable limits





**Valley Electric Association, Inc.**

A Touchstone Energy® Cooperative 

# Valley Electric Association's 2014 Request Window Proposals

Chris Tomchuk

EVP of Engineering & Operations

2014/2015 ISO Transmission Plan

September 25, 2014

Folsom, CA



Valley Electric Association, Inc.

A Touchstone Energy<sup>®</sup> Cooperative 

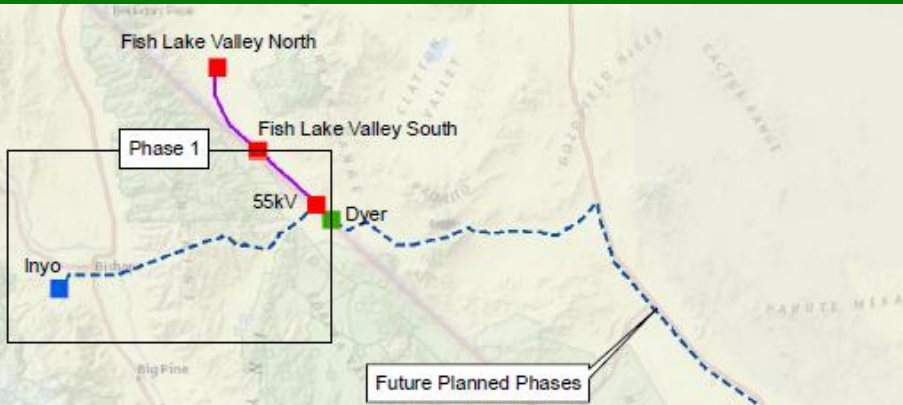
# Projects Seeking CAISO Approval

- Nevada West Connect 230 kV - Phase I



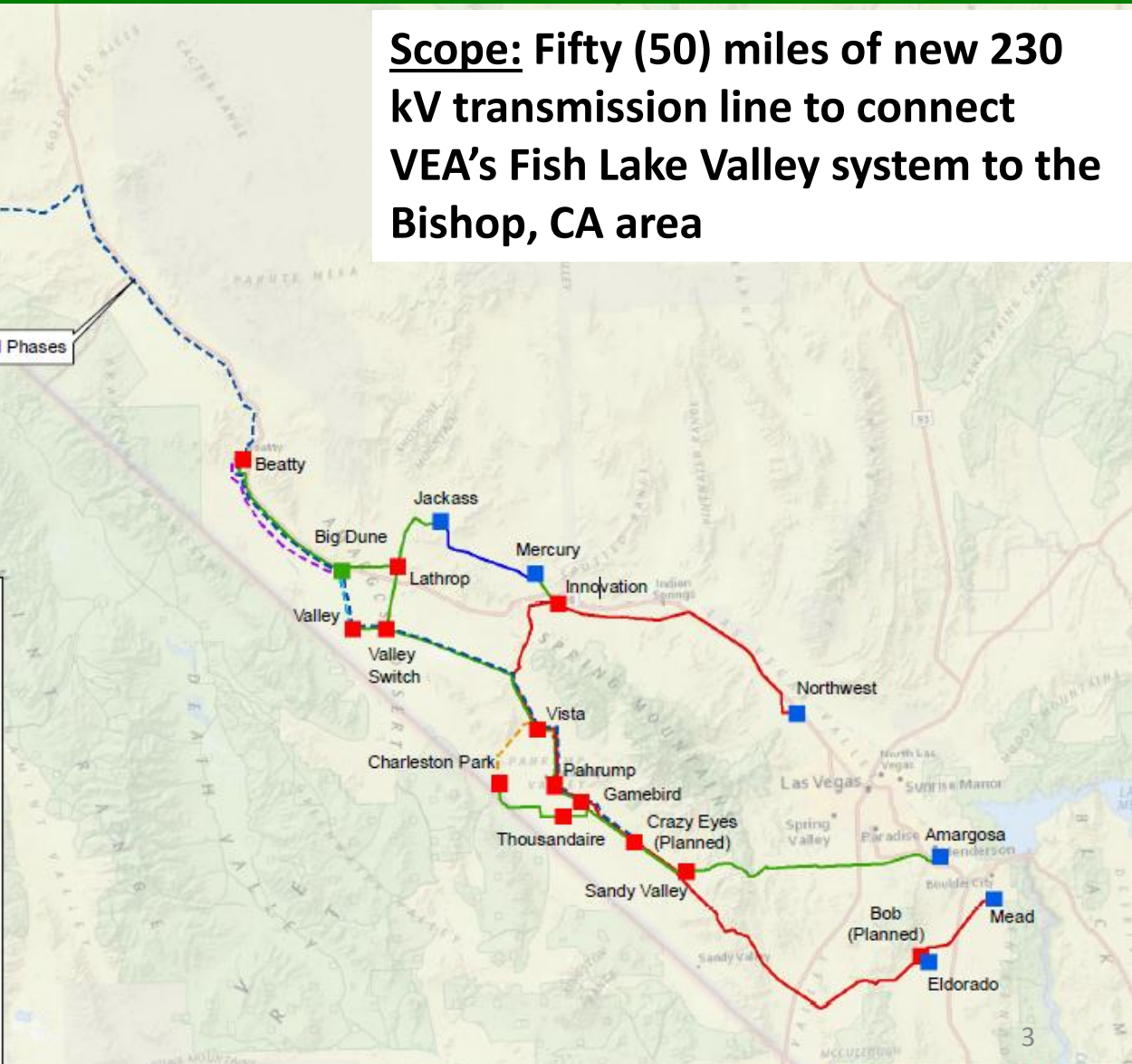


**Scope: Fifty (50) miles of new 230 kV transmission line to connect VEA's Fish Lake Valley system to the Bishop, CA area**



**Legend**

- VEA Substations
- VEA Substations (Proposed)
- Non-VEA Substations
- VEA 230kV Transmission Line
- VEA 138kV Transmission Line
- VEA 55kV Transmission Line
- Non-VEA Transmission
- - - Vista Sub to Charleston Park Sub - 138kV (Planned)
- - - Big Dune Sub to Beatty Sub - 138kV (Proposed)
- - - Big Dune Sub to Valley Sub - 138kV (Proposed)
- - - Crazy Eyes Sub to Inyo Sub - 230kV (Proposed)





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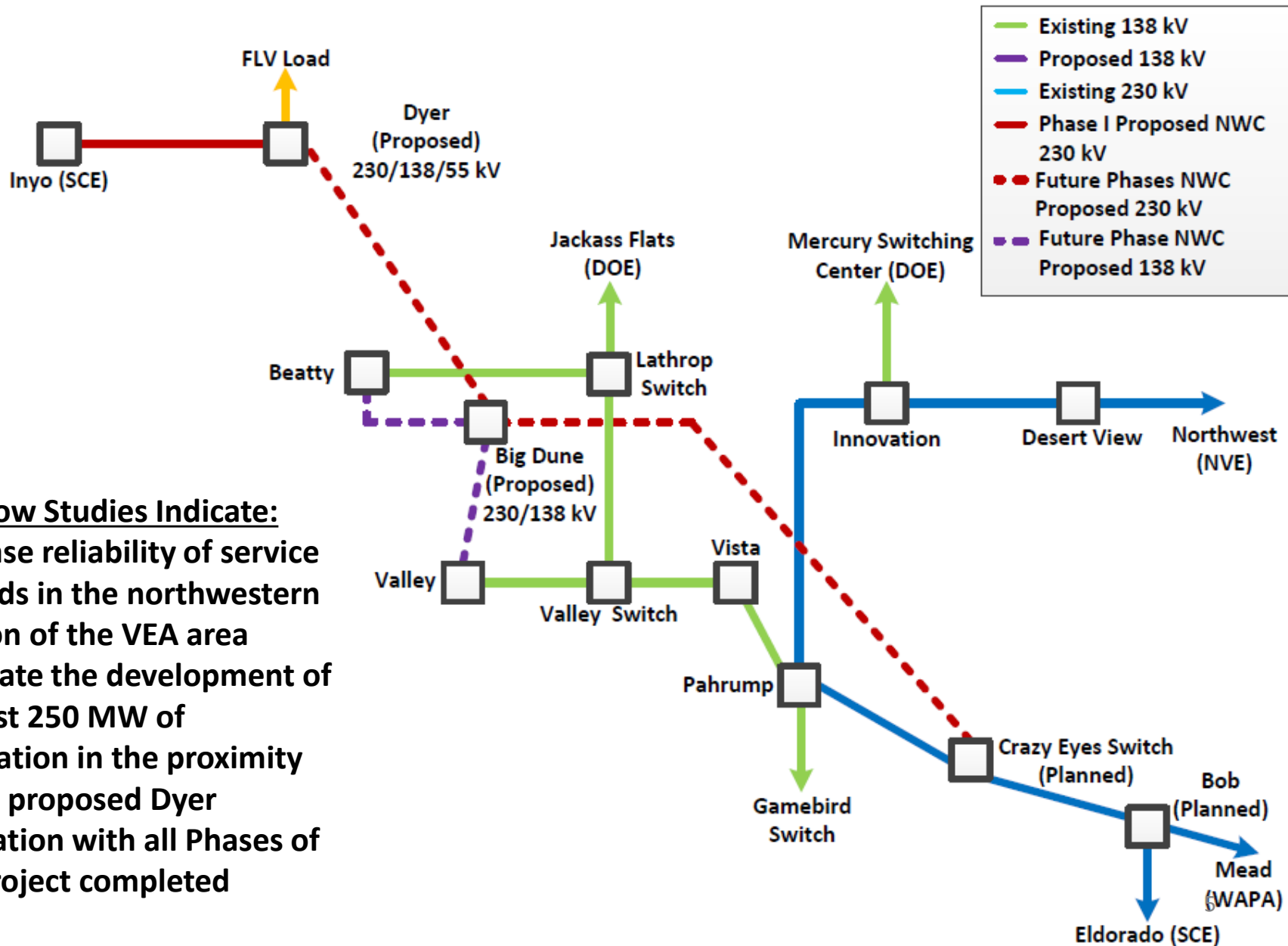
# Nevada West Connect 230 kV New Line Phase 1

Needs Addressed: Phase 1 of the Project mitigates impacts of outages to VEA members in the Fish Lake Valley area.

This Project also provides for integration of renewal resources, relieves congested areas, and increases transfer/import capacity between CA and NV

Cost: Approximately \$165 M

In Service Date: Mid-2018



**Power Flow Studies Indicate:**

- Increase reliability of service to loads in the northwestern portion of the VEA area
- Facilitate the development of at least 250 MW of generation in the proximity of the proposed Dyer substation with all Phases of the project completed



**Valley Electric Association, Inc.**

A Touchstone Energy® Cooperative 

Questions?

# PG&E's 2014 Request Window Proposals

**CAISO 2014-2015 Transmission Planning  
Cycle**

*Kelly Dichoso*

PG&E

September 25, 2014







# Transmission Projects Overview

## Projects Seeking CAISO Approval – Yosemite/Fresno

1. Le Grand-Chowchilla-Dairyland 115 kV Loop
2. Panoche-Oro Loma 115 kV Reconductoring
3. Barton Airways - Sanger 115kV Line Load Interconnection

## Projects Seeking CAISO Approval – Stockton

1. Kasson-Louise 60 kV Load Interconnection



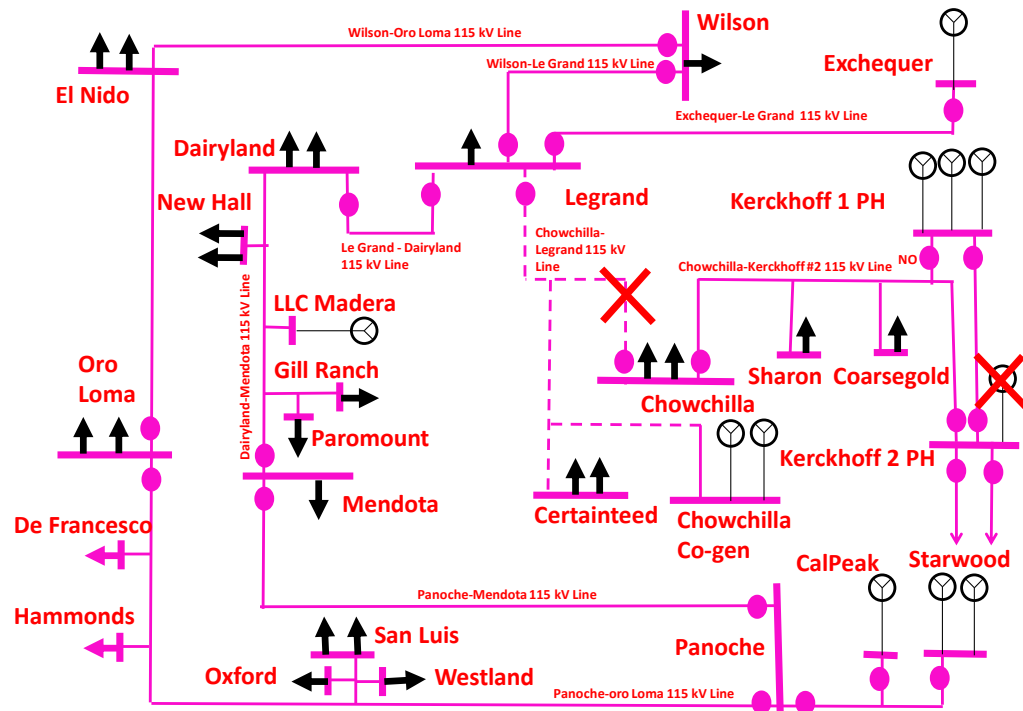
# Le Grand-Chowchilla-Dairyland 115 kV Loop

## Area Background

- The Chowchilla Substation (Chowchilla) is located in Madera County and is critical in supplying electric power to the City of Chowchilla
- The Le Grand-Chowchilla 115 kV Line is the primary line for importing power from the Wilson Area to Chowchilla
- Additional power is supplied to Chowchilla from Sanger and the Kerckhoff PH units, via the Chowchilla-Kerckhoff 115 kV Line

## Assessment

- L-1/G-1 outage: Le Grand-Chowchilla 115 kV Line overlapped with the Kerckhoff No. 2 Power House
  - Low Voltage Facility: Chowchilla and Sharon Prison substations at 0.86 per unit
  - Transmission Line Facility: Chowchilla-Kerckhoff #2 115 kV Line is loaded to 99% of its SE ratings in 2024
  - Load Serving Capacity is limited by the Chowchilla-Kerckhoff #2 115 kV Line
  - Only two (2) MW of additional load can be added to Chowchilla in 2024 before exceeding its SE rating





# Le Grand-Chowchilla-Dairyland 115 kV Loop

## Preferred Scope

- Construct roughly two (2) miles of DCTL to loop Chowchilla onto the Le grand-Chowchilla 115 kV Line with conductors rated to handle at least 631 Amps and 742 Amps under normal and emergency conditions
- Upgrade Chowchilla 115 kV Bus to a six (6) element ring bus

## Alternative Considered

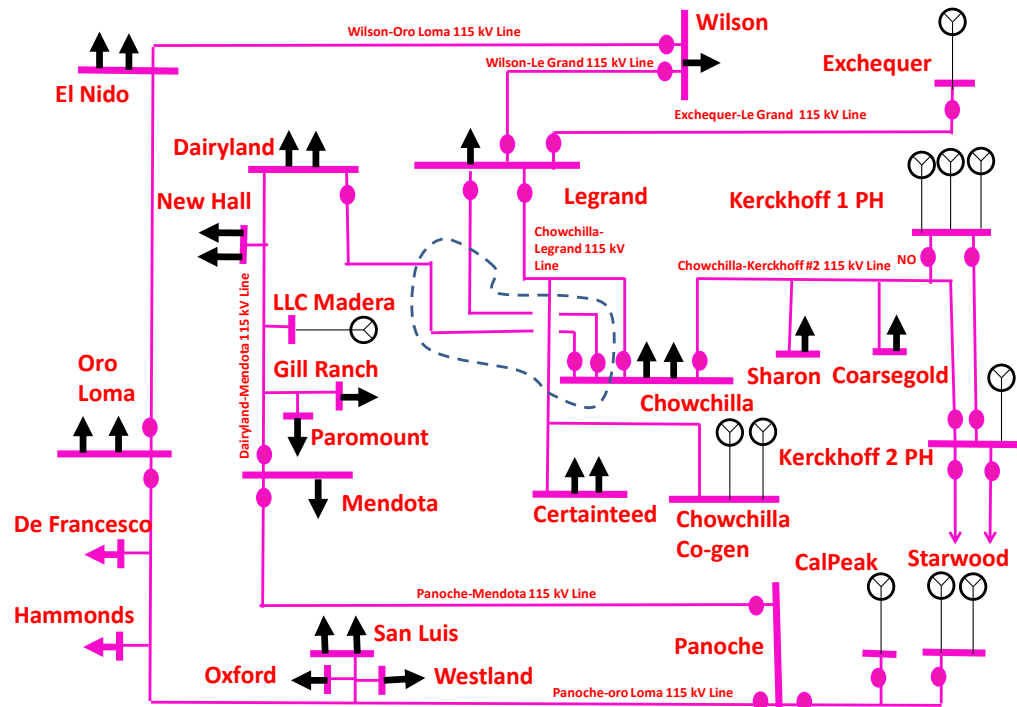
- Install four (4) steps of 10 MVAR at Chowchilla Substation
- Will require future project (beyond 2024) to reconductor 24 mile section of the Chowchilla-Kerckhoff #2 115 kV Line

## Proposed In Service Date

- May 2022

## Estimated Cost

- \$25M - \$40M





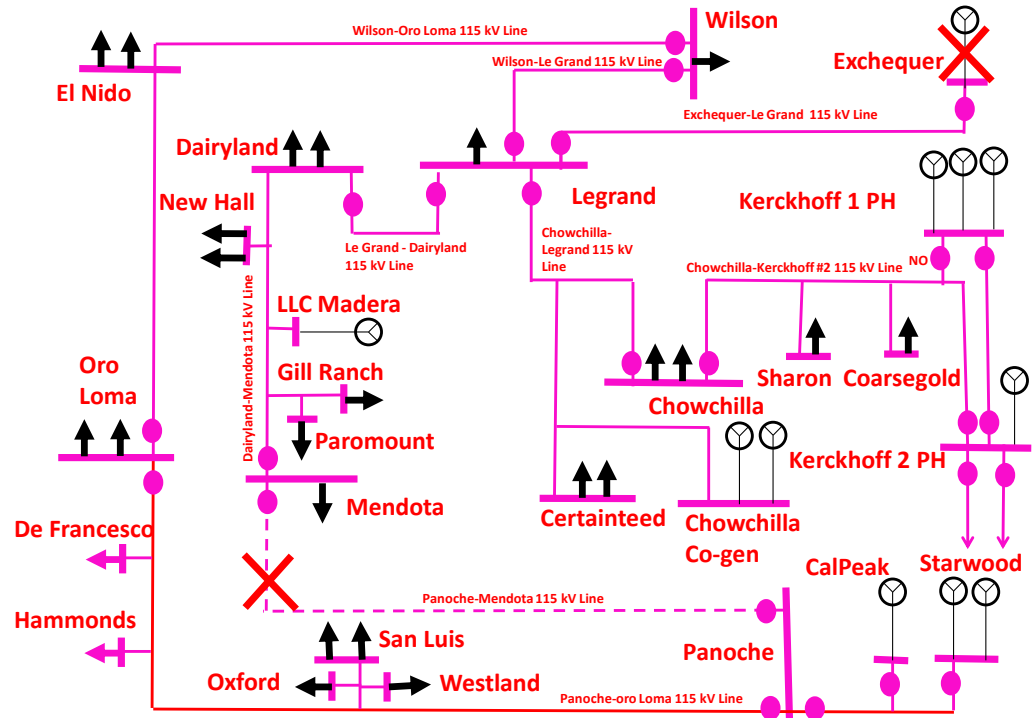
# Panoche-Oro Loma 115 kV Reconductoring

## Area Background

- Panoche and Oro Loma substations are located in the western section of Fresno County and serves (directly and indirectly) over 30,000 customers
- Panoche Substation currently has five (5) 115 kV sources which include the Panoche-Oro Loma, Panoche-Mendota, Panoche-Schindler #1 and #2, and Panoche-Cal Peak-Starwood 115 kV lines
- Oro Loma Substation currently has two 115 kV sources which include the Panoche-Oro Loma and Wilson-Oro Loma 115 kV lines

## Assessment

- L-1/G-1 outage: Panoche-Mendota 115 kV Line overlapped with Exchequer Generation
  - Transmission Line Facility: Panoche-Oro Loma 115 kV Line is loaded to 114% of its SE ratings in 2024





# Panoche-Oro Loma 115 kV Reconductoring

## Preferred Scope

- Reconductor 17 miles of the Panoche-Oro Loma 115 kV Line between Panoche Jct. and Oro Loma 115 kV Substation with conductors rated to handle at least 825 Amps and 975 Amps under normal and emergency conditions
- Upgrade circuit breaker and switches at Panoche Substation
- Upgrade switches and bus conductor at Hammonds Substation

## Alternative Considered

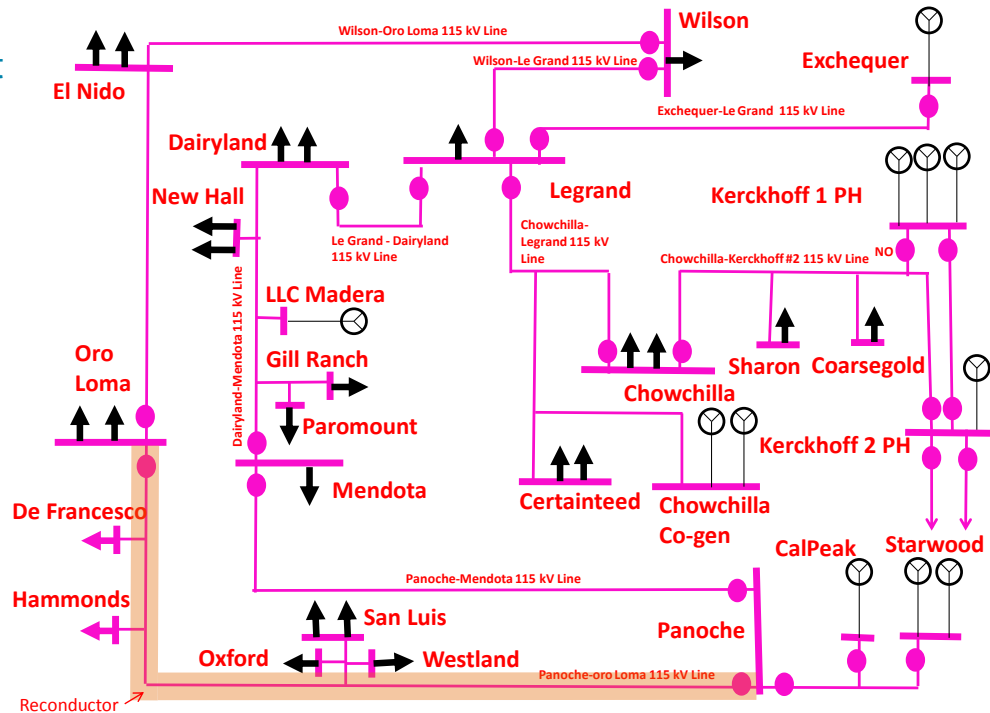
- Curtailment of roughly 500 MW of generation at Panoche and south of Panoche Substation

## Proposed In Service Date

- May 2022

## Estimated Cost

- \$30M - \$45M





# Barton Airways - Sanger 115kV line Load Interconnection

## Preferred Scope

- This project proposes to connect a new customer owned ~200ft tap line from PG&E's Barton Airways – Sanger 115kV Line to a new customer owned substation

## Other Alternatives Considered

- Interconnection onto Manchester Airways – Sanger 115 kV Line via a new 115 kV line extension to the Project facility (Transmission)
- Interconnection into PG&E's Airways Substation 115 kV Bus via a new 115 kV line extension of ~1.7 mile to the Project facility (Transmission)
- Interconnection onto Barton 1115 12 kV Feeder via a new 12 kV line extension to the Project facility (Distribution)
- Interconnection into Airways Substation 12 kV Bank via a new 12 kV line extension to the Project facility (Distribution)

## In Service Date

- December 1, 2016

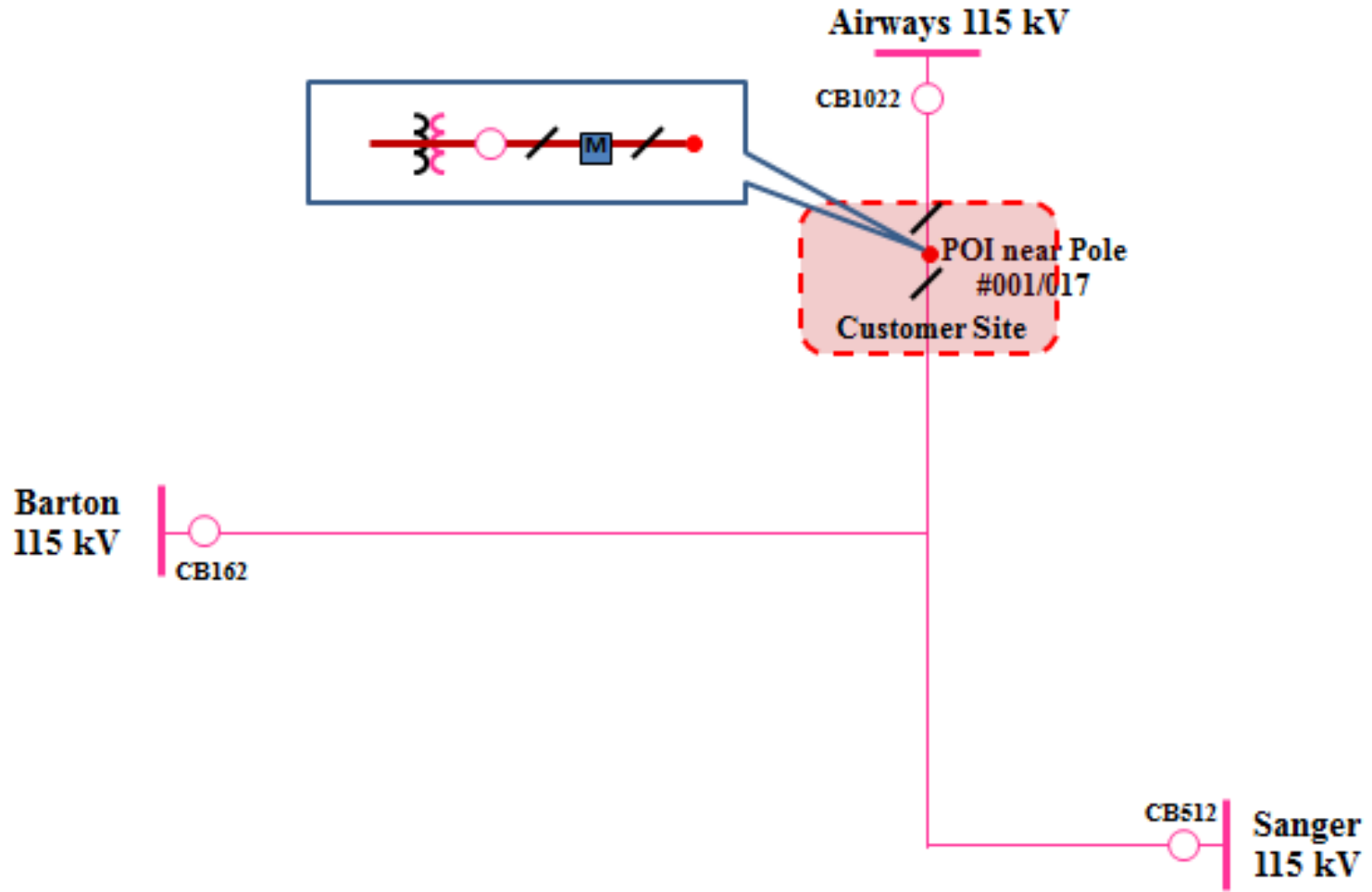
## Estimated Cost

- Interconnection
  - \$1.2~2.4M
- Network Upgrades
  - None





# Barton Airways - Sanger 115kV line Load Interconnection



Single Line Diagram



# Kasson-Louise 60 kV Load Interconnection

## Area Background

- The project will serve residences & businesses within Lathrop
- The customer plans to interconnect a new substation with a projected load of 14 MW to PG&E's electric transmission grid, south of Interstate 5 near Lathrop, California
- The 60 kV interconnection is an interim connection since there are adverse impacts above 7 MW
- The POI will be changed to the 115kV line prior to the identified impacts based on the projected load growth provided by the customer, this load level will be reached in 2016

## Assessment

- No overloads below 7 MW
- Future plans to move to the Schulte Sw Sta – Kasson – Manteca 115kV Line when load grows beyond 7 MW



# Kasson-Louise 60 kV Load Interconnection

## Preferred Scope

- The customer owned new 60kV substation and a 60 kV transmission line will be tapped into PG&E's Kasson-Louise 60kV Line
- Install three new switches on the Kasson-Louise 60 kV line so the new tap line can be isolated from permanent faults on the tap line sections

## Alternatives Considered

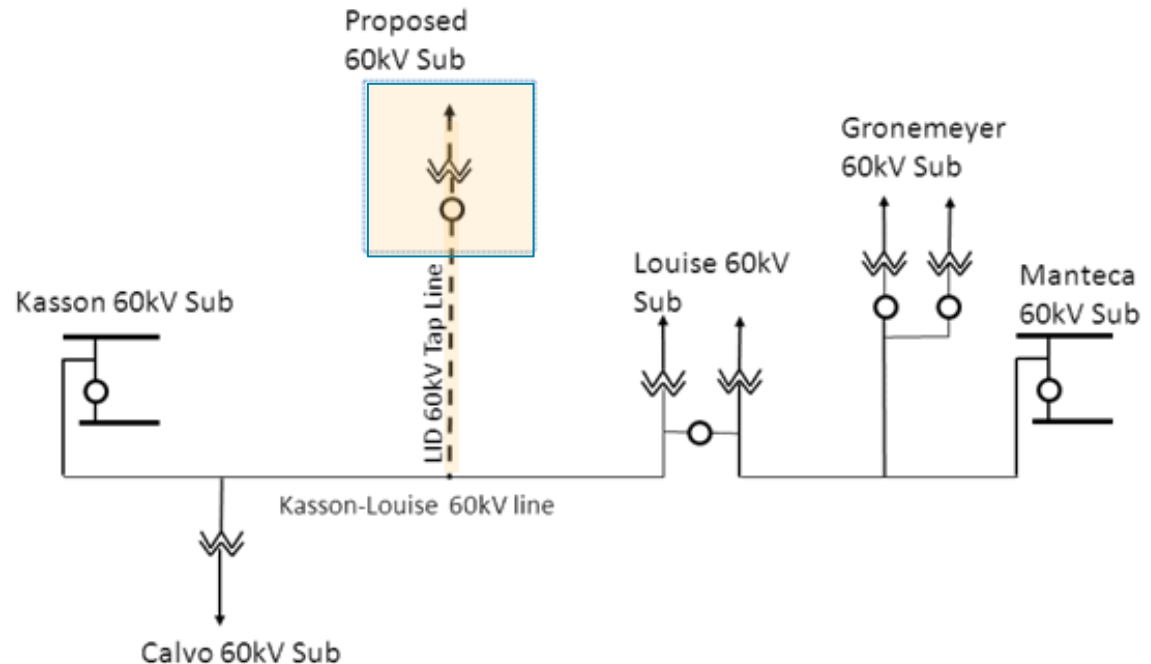
- Status Quo (No interconnection)

## Proposed In Service Date

- December 2015

## Estimated Cost

- \$1 to 2 million



# Thank you



# PG&E's 2014 Request Window Proposals

**CAISO 2014-2015 Transmission Planning  
Cycle**

*Meng Zhang*

PG&E

September 25, 2014





# Transmission Project Overview

## Project Seeking CAISO Approval – Kern

1. Semitropic– Wasco – Famoso – Kern Oil – Kern 70 kV Voltage Conversion

## Project Seeking CAISO Approval – Los Padres

1. Santa Ynez – Sisquoc 115kV line Load Interconnection





# Semitropic– Wasco – Famoso – Kern Oil – Kern 70 kV Voltage Conversion

## Area Background

- The Northeast Kern 115 kV system is served from Kern PP, Kern Oil Substations in the south and Semitropic Substation in the north
- The system serves approximately 22,300 customers and the load is forecasted to reach 300 MW by 2024
- The system serves a number of oil industrial customers and has been receiving new load and load increase applications
- 4,330 customers at Famoso, Charca and Semitropic Substations along with Wasco Prison are served radially during summer months to mitigate thermal concerns
- Local retirement of QF generation is expected in 2014, with the loss of roughly 36.5 MVA of generation capacity

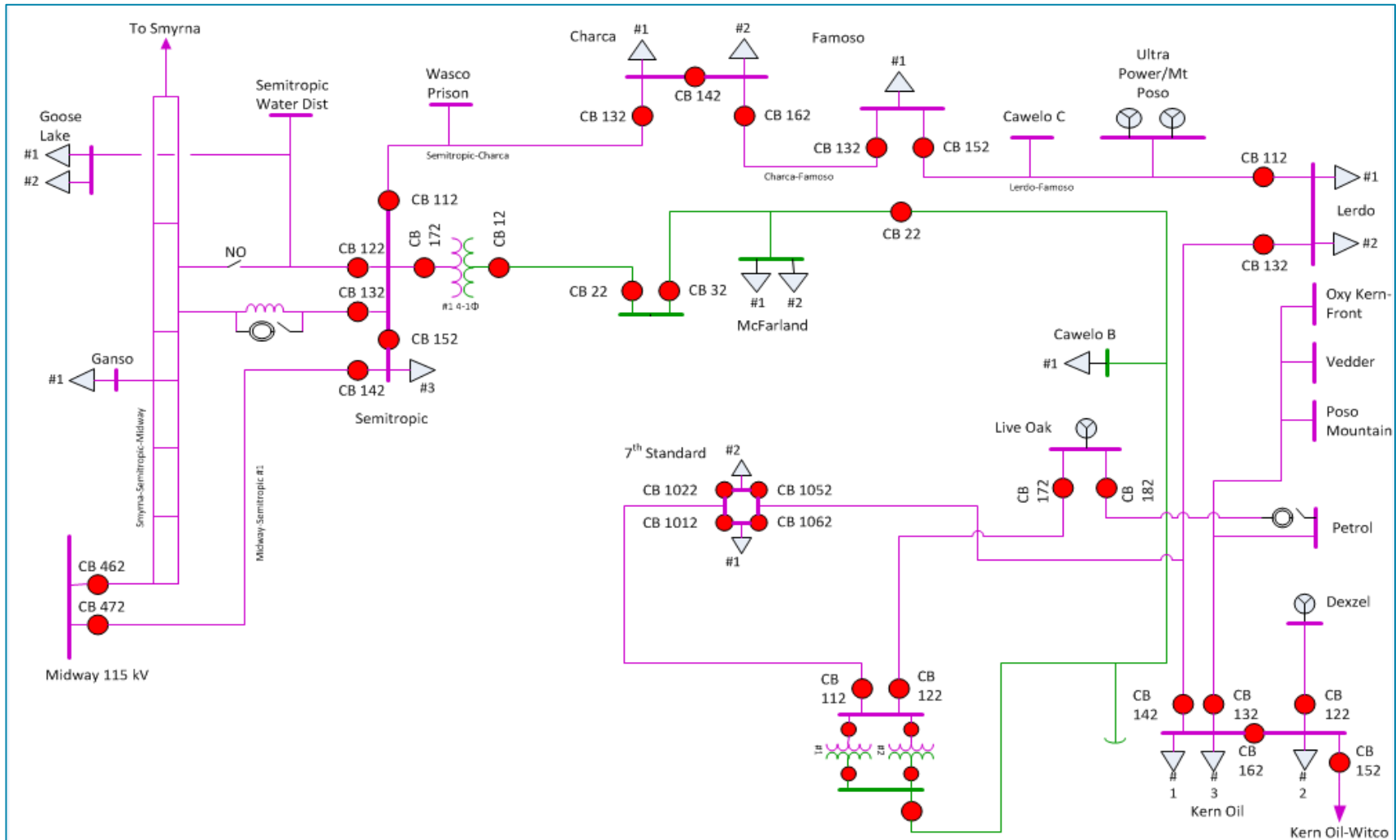
## Assessment

- Outage Facility:
  1. L-1: 7<sup>th</sup> Standard – Kern 115 kV Line
  2. L-1/G-1: Kern Oil – Witco 115 kV Line & Live oak Co Gen
  3. L-1/G-1: Kern – Live Oak 115 kV Line & Live Oak Co Gen
  4. L-1/G-1: Kern Oil – Witco 115 kV Line & Mt Poso Co Gen
- Overloaded Facility:
  1. Lerdo – Kern Oil – 7<sup>th</sup> Standard 115 kV Line
  2. Kern – Live Oak 115 kV Line
  3. Kern Oil – Witco 115 kV Line
  4. Live Oak – Kern Oil 115 kV Line



# Semitropic- Wasco – Famoso – Kern Oil – Kern 70 kV Voltage Conversion

## Existing System





## **Semitropic– Wasco – Famoso – Kern Oil – Kern 70 kV Voltage Conversion**

### **Preferred Scope**

- Convert and reconductor 20 miles of the Semitropic – Wasco – Famoso 70 kV Line to 115 kV operation
- Convert and reconductor 25 miles of the Kern – Kern Oil –Famoso 70 kV line to 115 kV operation
- Reconductor 10 miles Kern Oil – Lerdo Jct – Lerdo section of the Lerdo – Kern Oil – 7<sup>th</sup> Standard 115 kV Line
- Reconductor 0.5 miles Semitropic Jct – Semitropic section of the Smyrna – Semitropic – Midway 115 kV Line
- Convert Famoso 115 kV bus, Kern Oil 115 kV bus and Kern PP 115 kV bus Section “E” to Breaker-And-A-Half (BAAH) to terminate the new 115 kV lines
- Remove Semitropic 115/70 kV transformer and use the terminal for the converted line

### **Alternatives Considered**

- Alt 1: New Rio Bravo – 7<sup>th</sup> Standard 115 kV Line

### **Proposed In Service Date**

- May 2025

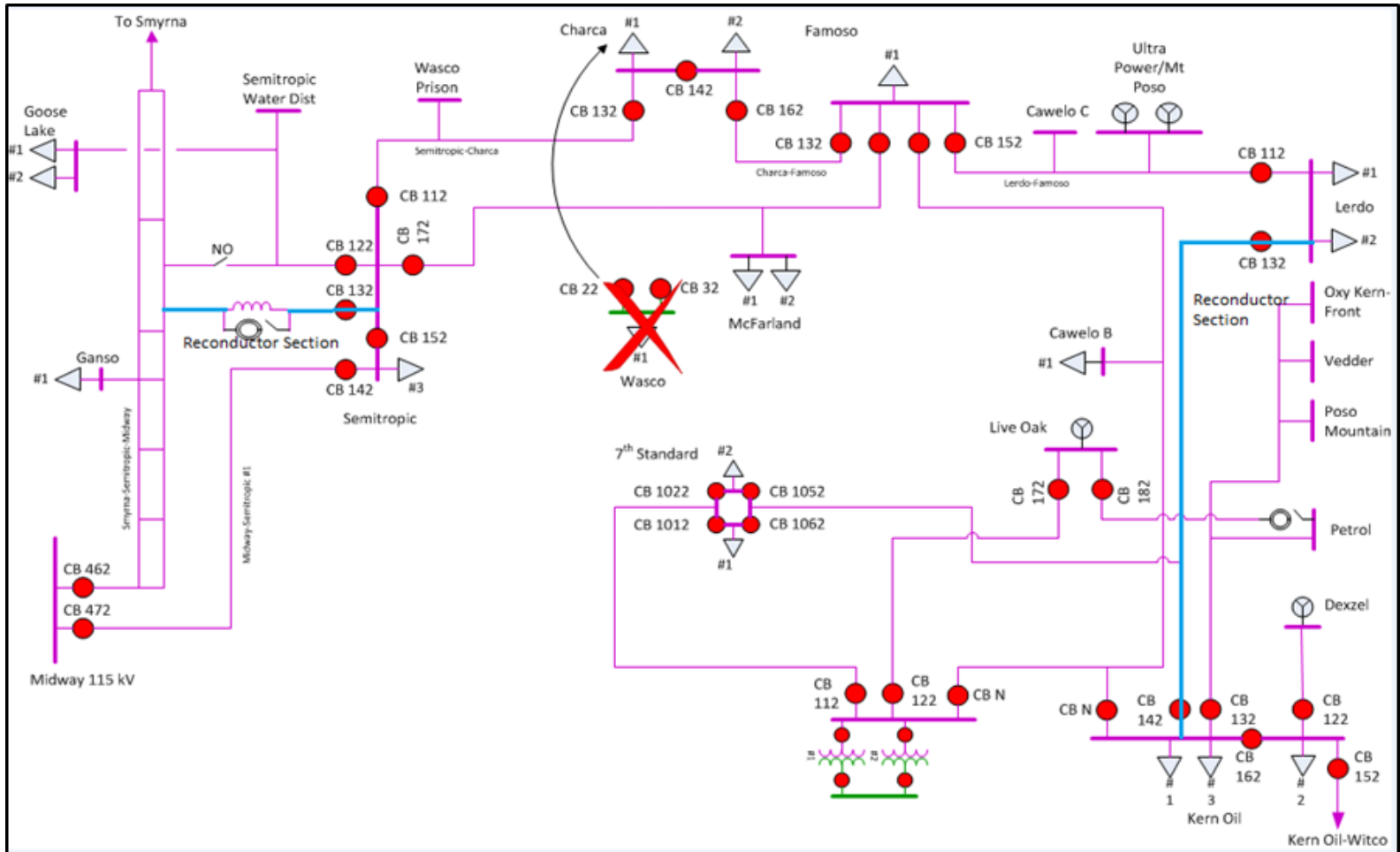
### **Estimated Cost**

- \$85M - \$125M



# Semitropic– Wasco – Famoso – Kern Oil – Kern 70 kV Voltage Conversion

## Post Project





# Santa Ynez – Sisquoc 115kV Line Load Interconnection

## Preferred Scope

- This project proposes to connect a new customer owned 115kV tap line from PG&E's Santa Ynez – Sisquoc 115 kV Line to a new customer owned substation
- The Scope of the Project include:
  - Transmission Line extension from Santa Ynez – Sisquoc 115 kV Line, Pole 004/079, to Customer A's Proposed Substation location
  - Three (3) SCADA Switches with 5-bottle interrupters and automatics for Power Fail and Restore

## Other Alternatives Considered

- Distribution Service via Palmer Substation
- Directly Connect to Palmer Substation

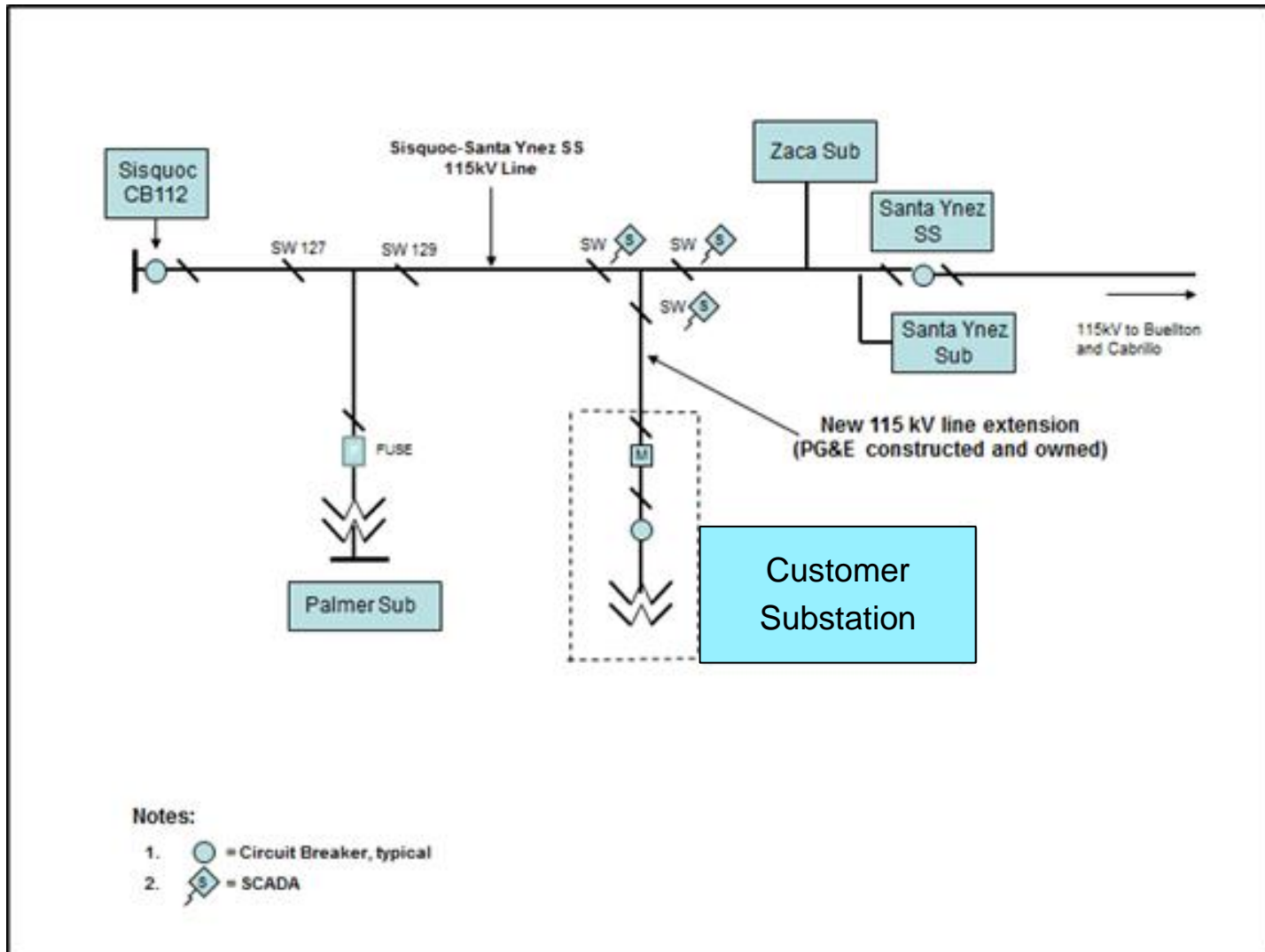
## Proposed In Service Date

- January 1, 2017

## Estimated Cost

- Interconnection
  - \$1.8M
- Network Upgrades
  - None

# Santa Ynez – Sisquoc 115kV Line Load Interconnection



Single Line Diagram

# Thank you





# PG&E's 2014 Request Window Proposals

**CAISO 2014-2015 Transmission Planning  
Cycle**

*Prabodh Bhusal*

PG&E

September 25, 2014





# Transmission Project Overview

## Project Seeking CAISO Approval – North Valley

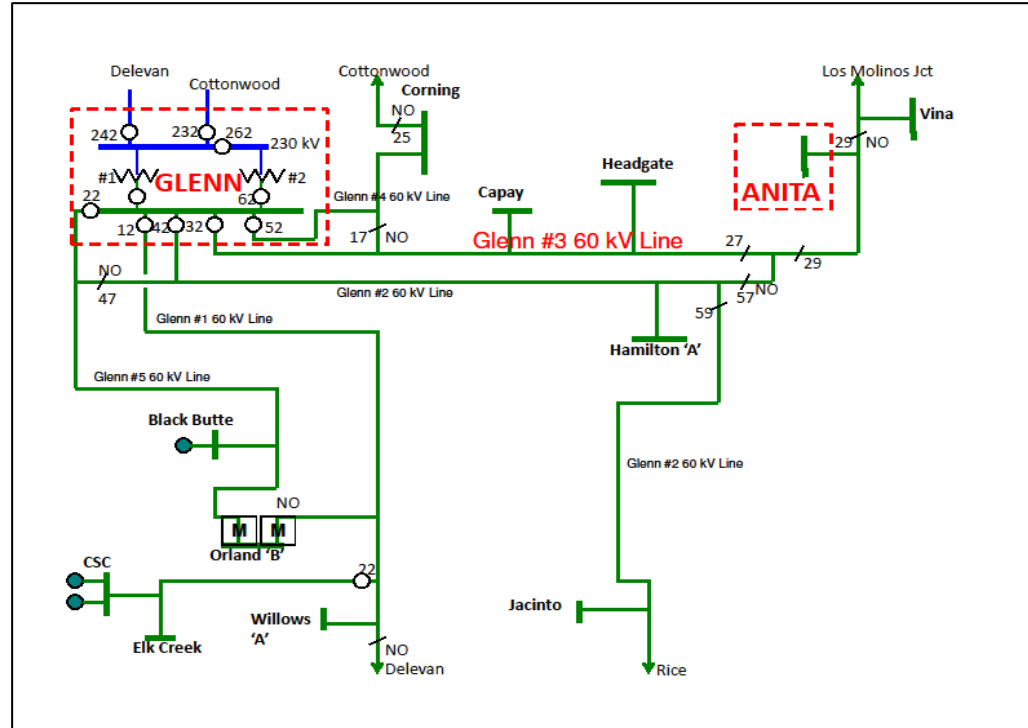
1. Anita 60 kV Substation Conversion to 115 kV Operation



# Anita 60 kV Substation Conversion to 115 kV Operation

## Area Background

- Anita Substation is a single tap 60 kV substation normally supplied by the Glenn #3 60 kV Line (approx. 17.5 miles long)
- Approximately 2,286 customers are served by this Anita Substation
- The existing Anita area distribution system capacity is approximately 32.5 MVA, and the future planned capacity is planned for 60 MVA by end of 2016 to meet the forecasted load growth
- The current Anita Load Serving Capability (LSC) is limited to 19 MVA due to transmission system limitations
- The alternate source is normally open at Vina Substation, this source is not sufficient to serve Anita Load





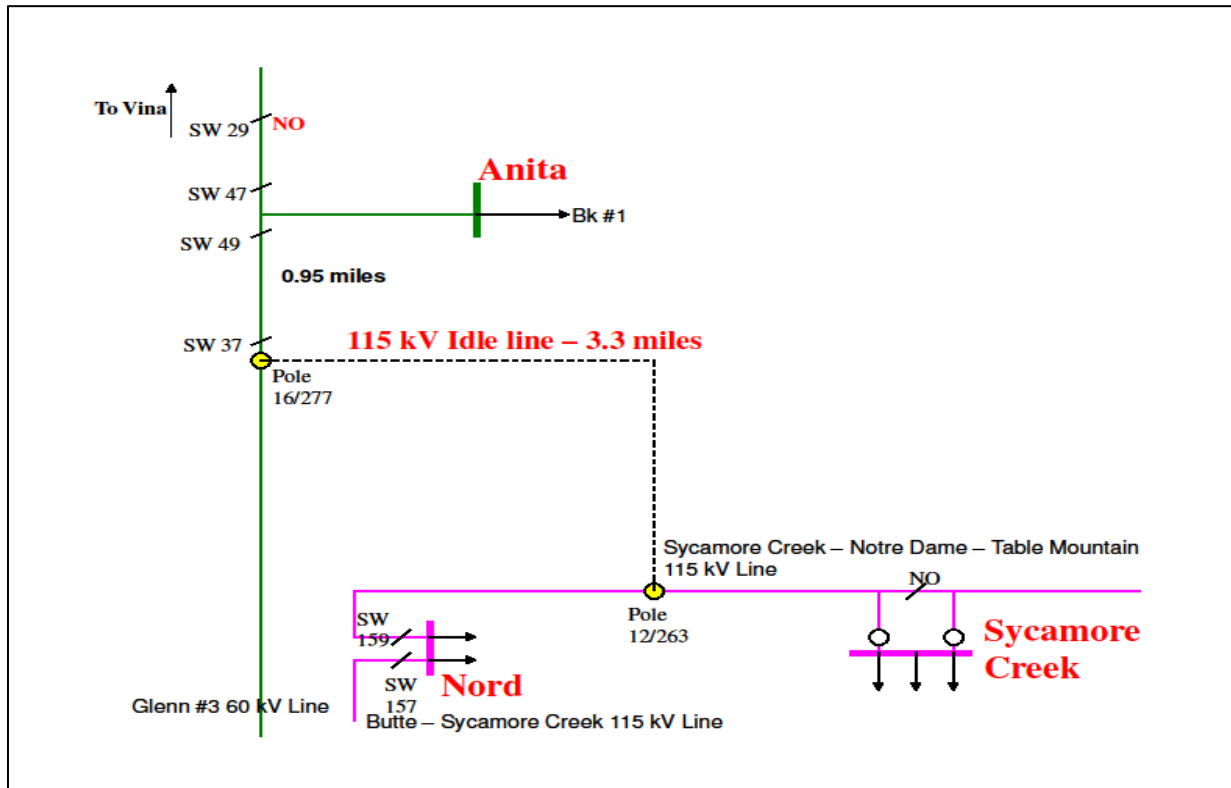
# Anita 60 kV Substation Conversion to 115 kV Operation

## Area Background ...Continued....

- There is a 115 kV idle line approx. 3.3 miles long off the Butte – Sycamore 115 kV Line nearby Anita Substation

## Assessment

- Normal System Condition: Glenn #3 60 kV Line overload with increased load at Anita Substation
- N-1 Outage: Glenn 230/60 kV Transformer #2 overloading for outage of Transformer #1





# Anita 60 kV Substation Conversion to 115 kV Operation

## Preferred Scope

- Build approximately 4.5 miles of new double circuit line on the Existing Idle Line Right-of-Way with a conductor capable of at least 631 amps summer normal rating (Equivalent 715.5 AAC)
- Complete Anita Substation Ring Bus, and convert to 115 kV operation
- Loop in new double circuit line to Anita Substation

## Proposed In Service Date

- May 2024

## Estimated Cost

- \$20M - \$30M

## Alternatives Considered

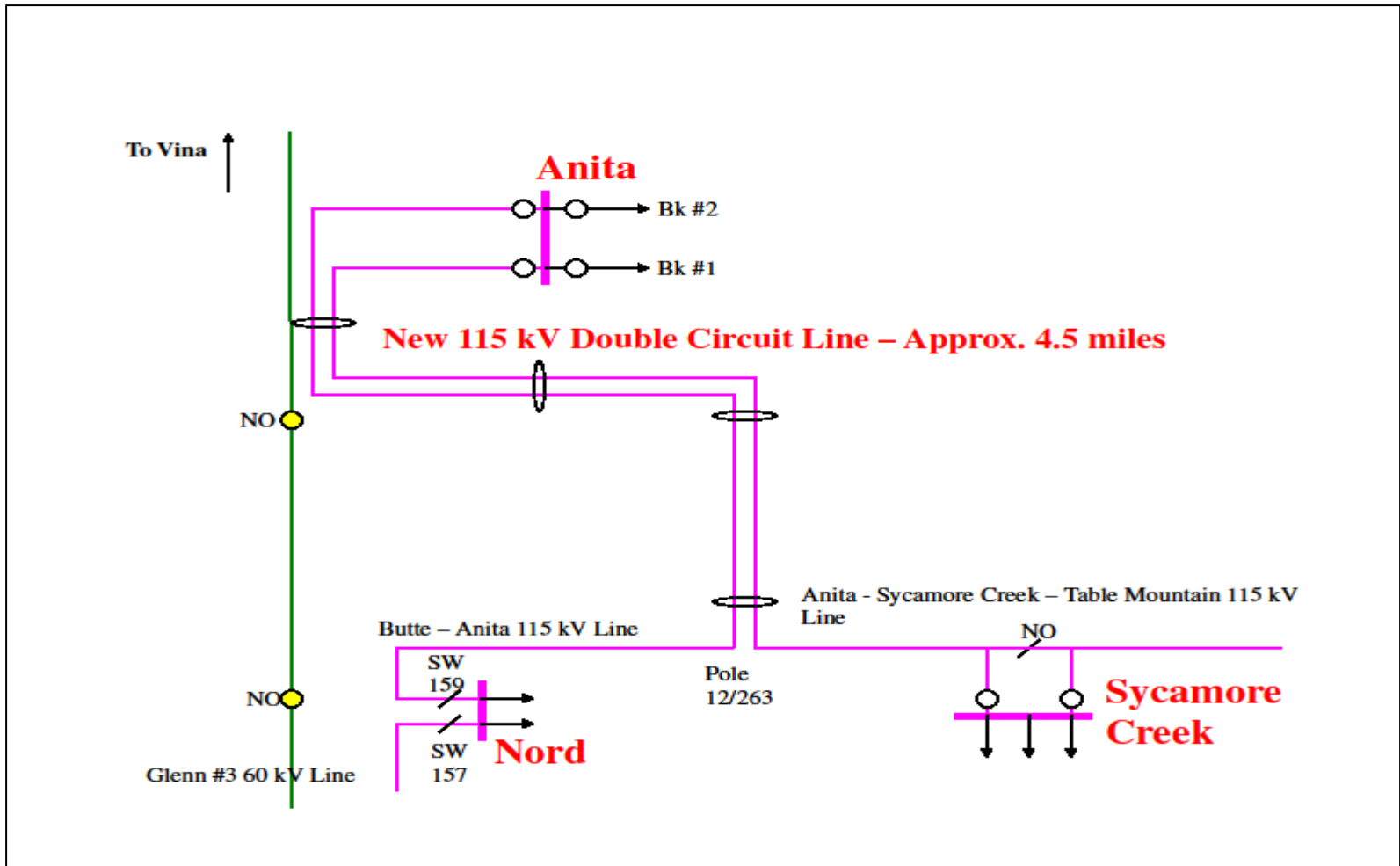
### *Alt #1: Anita 60 kV Area Reinforcement*

- Reconductor Glenn #3 60 kV 17.5 miles Line from Glenn to Anita Substation
- Replace Glenn #2 Transformer
- Estimated Cost: \$20M - \$30M



# Anita 60 kV Substation Conversion to 115 kV Operation

## Preferred Scope ...Continued...



# Thank you



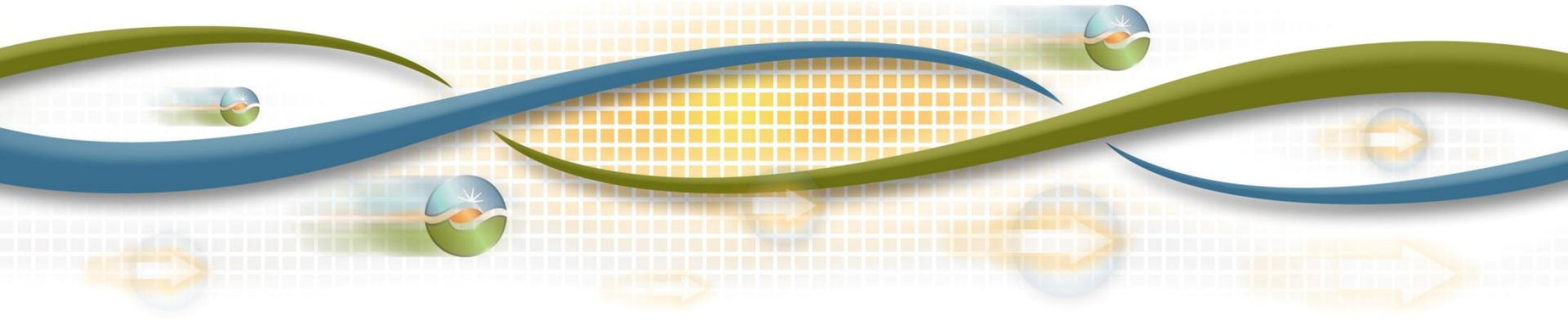


## Next Steps

Kristina Osborne

Stakeholder Engagement and Policy Specialist

2014-2015 Transmission Planning Process Stakeholder Meeting  
September 24-25, 2014



# Next Steps

Date	Milestone
September 25- October 9	Stakeholder comments on ISO preliminary reliability results and PTO mitigation solutions to be submitted to <a href="mailto:regionaltransmission@caiso.com">regionaltransmission@caiso.com</a>
October 15	Request window closes. Submissions to be submitted to <a href="mailto:requestwindow@caiso.com">requestwindow@caiso.com</a>
October 30	Post final 2014-2015 reliability study results