PG&E's 2012 Request Window Proposals

Greater Bay Area-South

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September 27, 2012

Transmission Projects Overview

Projects Seeking CAISO Approval

- Almaden Shunt Capacitor
- Stone Back-tie Reconductor
- Lockheed No. 1 115 kV Tap Reconductor
- Los Esteros-Montague 115 kV Substation Equipment Upgrade
- Monta Vista 230 kV Bus Upgrade
- Monta Vista-Wolfe 115 kV Substation Equipment Upgrade
- Newark-Applied Materials 115 kV Substation Upgrade
- NRS - Scott No. 1 115 kV Line Reconductoring

Almaden Shunt Capacitor

Background

- Almaden Substation has two distribution transformers (Nos. 1 and 3) which serve over 14,000 electric customers.
- A flip flop scheme is currently installed to automatically close circuit breaker 52 at Los Gatos following an outage of the Evergreen – Almaden 60 kV Line.

Assessment

- This project will mitigate low voltage at Almaden Substation following an outage of the Evergreen – Almaden 60 kV Line..

Scope

- The project scope is to install a 20 MVAR Mechanically Switched Shunt Capacitor with automatic voltage regulator at Almaden 60 kV Substation.

Other Alternatives Considered

- Status Quo
- Installing SVC at Almaden

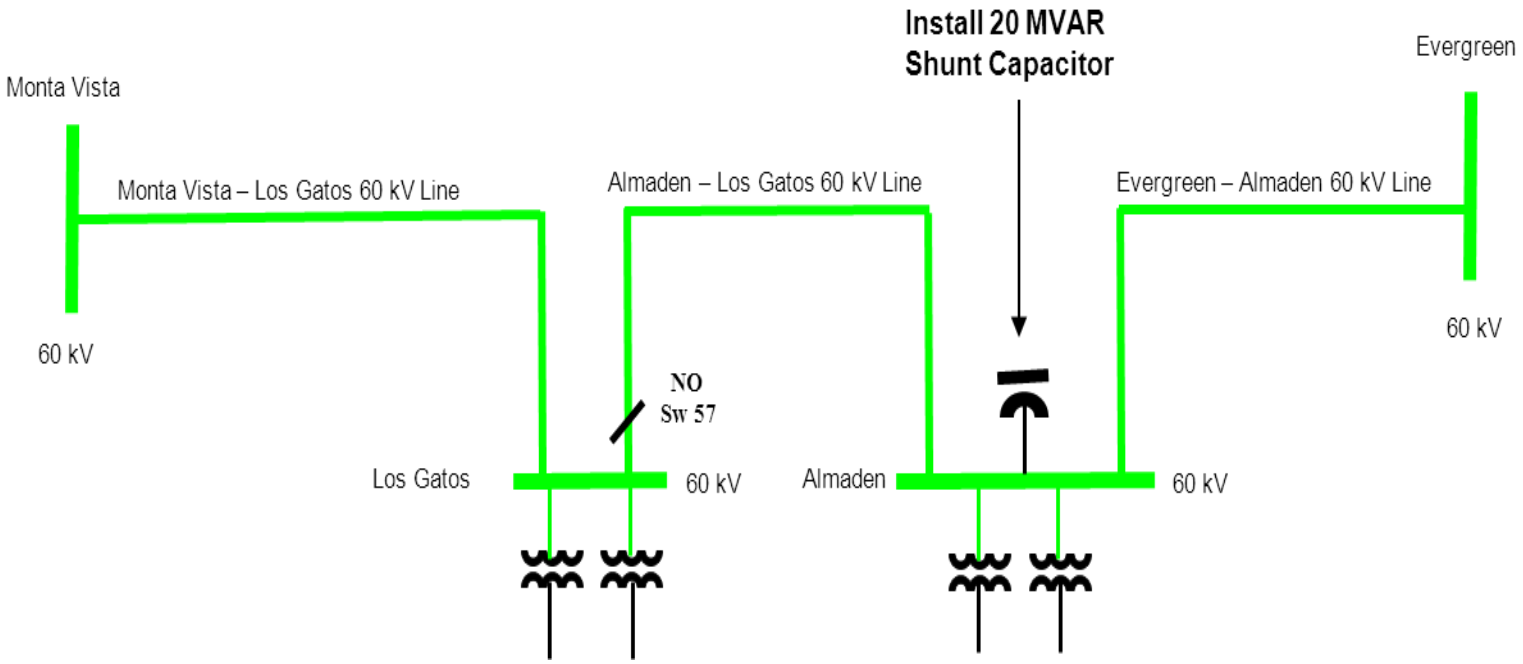
In Service Date

- May 2015

Cost

- $5M - $10M

Almaden Shunt Capacitor



Stone Back-tie Reconductor

Background

- In 2011, a flip flop scheme was installed to improve the reliability for Stone Substation. Stone Substation has two distribution transformers (Nos. 1 and 2) which serve over 20,000 electric customers.
- The 2013 total peak load for Stone substation is projected to be approximately 62 MW.

Assessment

- Planning analysis determined that the outage of Markham No. 2 Tap will cause the San Jose ‘B’ – Stone – Evergreen 115 kV Line to exceed its emergency thermal rating by 8% in 2017.

Scope

- Reconductor the Markham No.1 Tap of the San Jose ‘B’ – Stone – Evergreen 115 kV Line.

Other Alternatives Considered

- Status Quo
- Build New San Jose ‘B’-Stone 115 kV Line

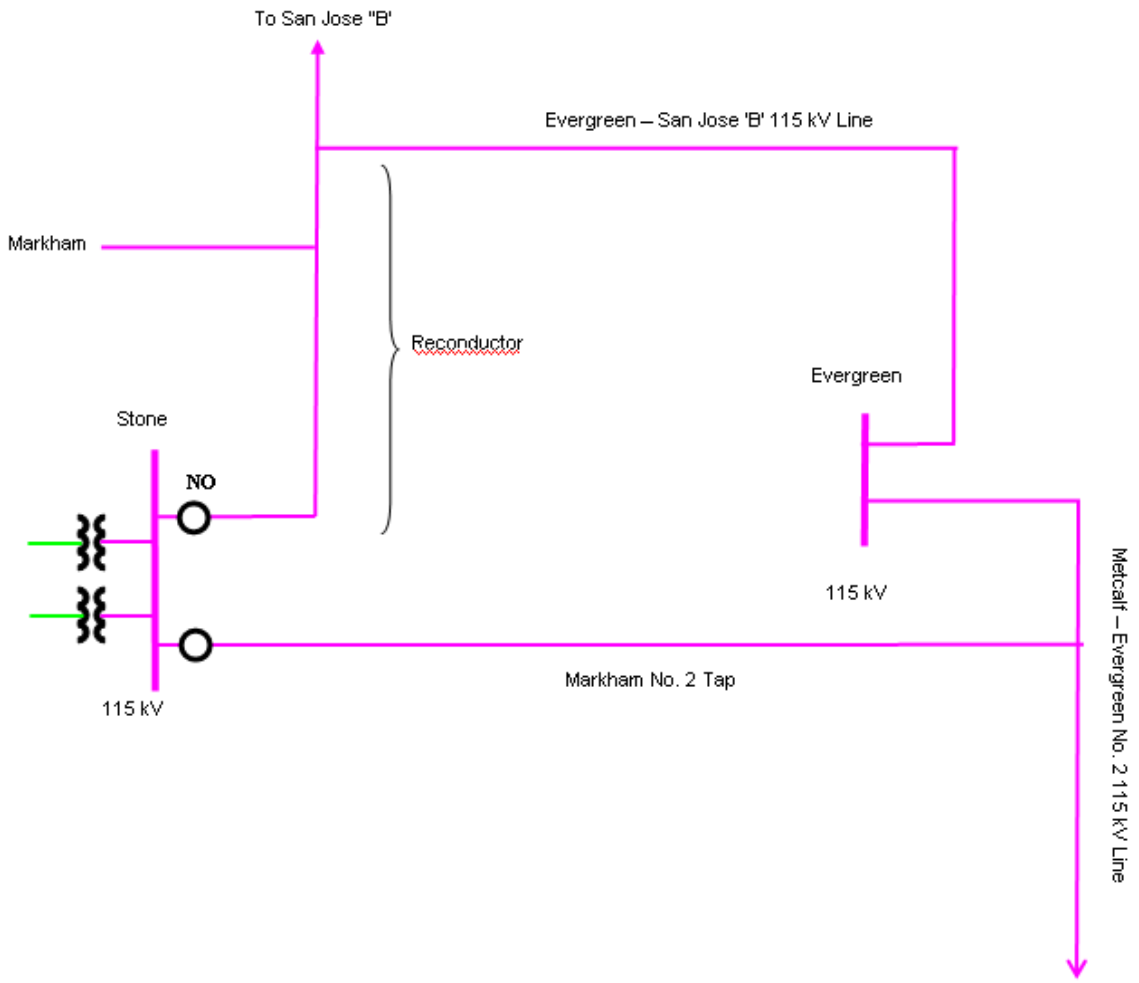
In Service Date

- May 2016

Cost

- $3M - $6M

Stone Back-tie Reconductor



Lockheed No. 1 115 kV Tap Reconductor

Background

- Lockheed 115 kV Area is double-tapped off of the Newark-Applied Materials and Newark-Lawrence 115 kV Lines.
- A flip-flop scheme restores load by energizing the normally open back-tie (by closing circuit breaker 172 at Lockheed 1 substation) between the two 115 kV taps.

Assessment

- An outage of the Newark-Applied Materials 115 kV Line would result in a thermal overload of the Lockheed No.1 115 kV Tap.

Scope

- The project scope is to reconductor the 1.7 mile long Lockheed No. 1 115 kV Tap with a conductor which has a summer emergency rating of at least 700 amps.

Other Alternatives Considered

- Status Quo

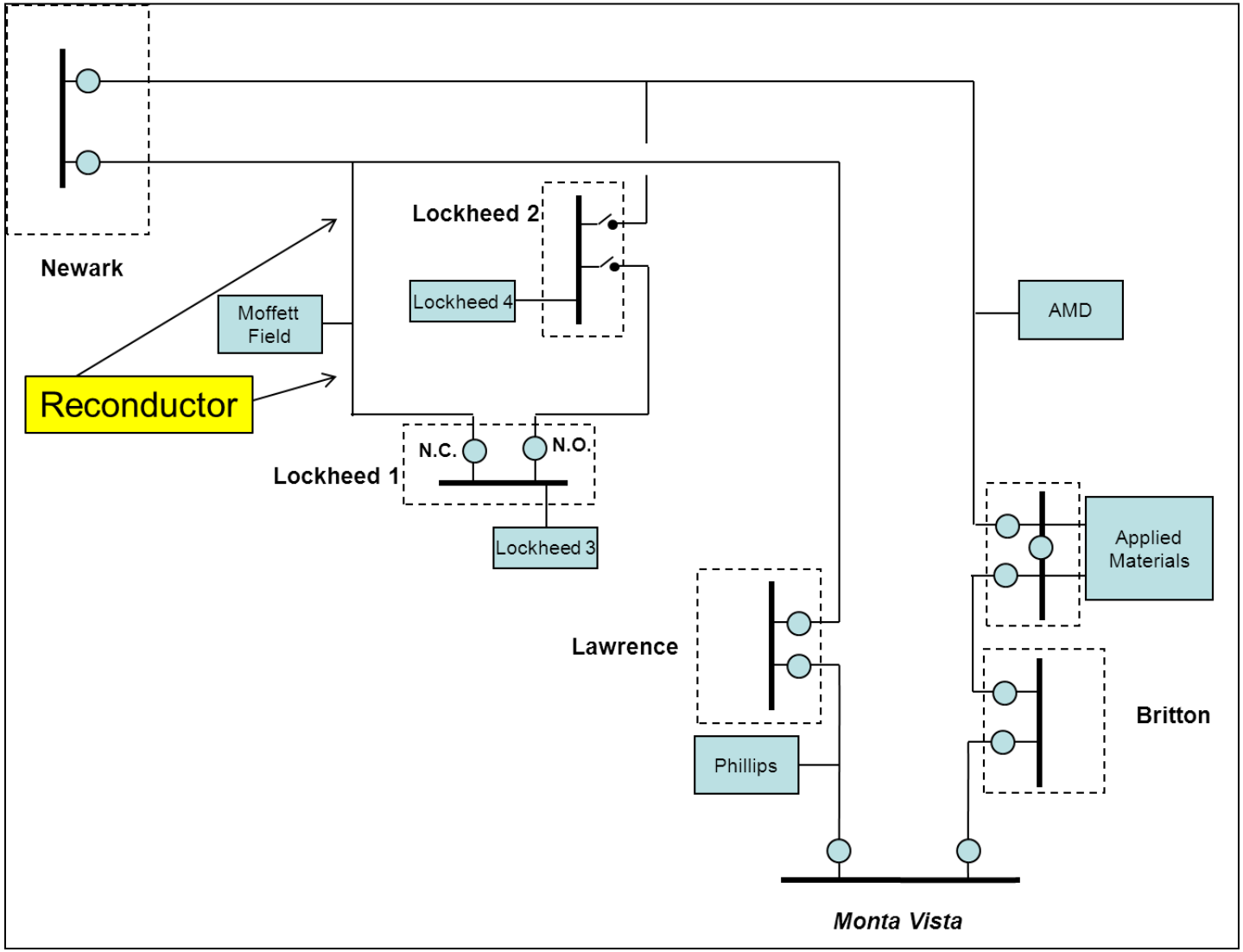
In Service Date

- May 2016

Cost

- $2M - $3M

Lockheed No. 1 115 kV Tap Reconductor



Los Esteros-Montague 115 kV Substation Equipment Upgrade

Background

- Montague and Trimble Substations are set up in a loop configuration via the Los Esteros-Montague, Montague-Trimble, and Los Esteros-Trimble 115 kV Lines.
- Montague and Trimble Substations have a combined 2013 summer peak load of 259 MW.

Assessment

- An outage of the Los Esteros-Trimble 115 kV Line and Metcalf Energy Center will result in an overload the Los Esteros-Montague 115 kV Line by 2016..

Scope

- The project scope is to upgrade limiting substation equipment at Montague Substation to fully utilize the Los Esteros-Montague 115 kV Line.

Other Alternatives Considered

- Status Quo

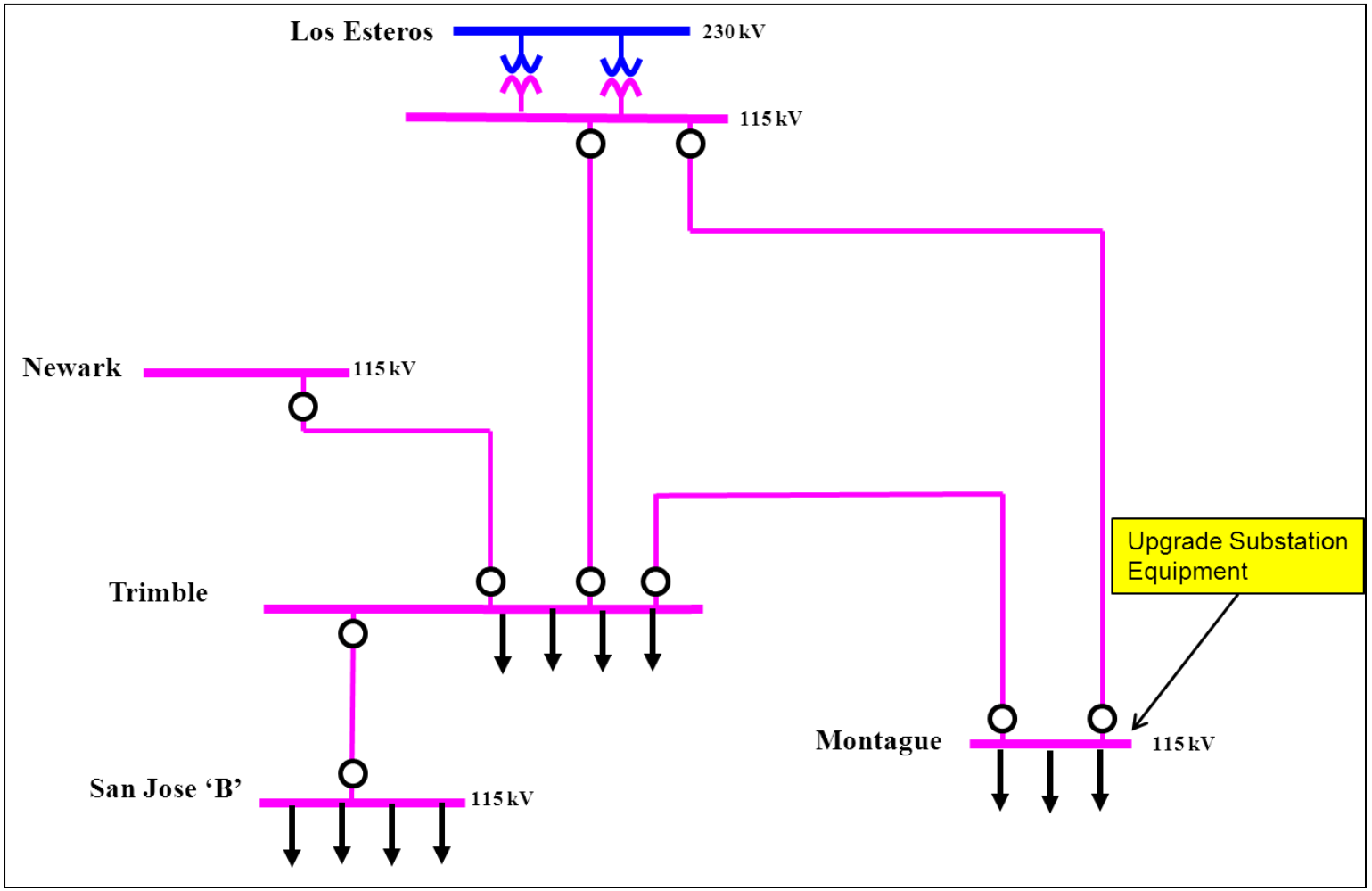
In Service Date

- May 2016

Cost

- $500,000 - $1M

Los Esteros-Montague 115 kV Substation Equipment Upgrade



Monta Vista 230 kV Bus Upgrade

Background

- Monta Vista Substation, located in Santa Clara County, serves almost all of PGE's De Anza Division. In 2011, the De Anza Division summer peak load was 827 MW.
- There are a total of 11 elements on the Monta Vista 230 kV bus, which currently has a double bus single breaker bus configuration.

Assessment

- A stuck breaker outage of Monta Vista circuit breaker 202 would result in extremely low voltages of around 0.7 per unit which could potentially lead to voltage collapse and blackout conditions throughout the De Anza Division.

Scope

- The project scope is to upgrade the Monta Vista 230 kV bus by installing bus sectionalizing breakers or converting the bus to BAAH configuration.

Other Alternatives Considered

- Status Quo
- Special Protection Scheme (SPS)

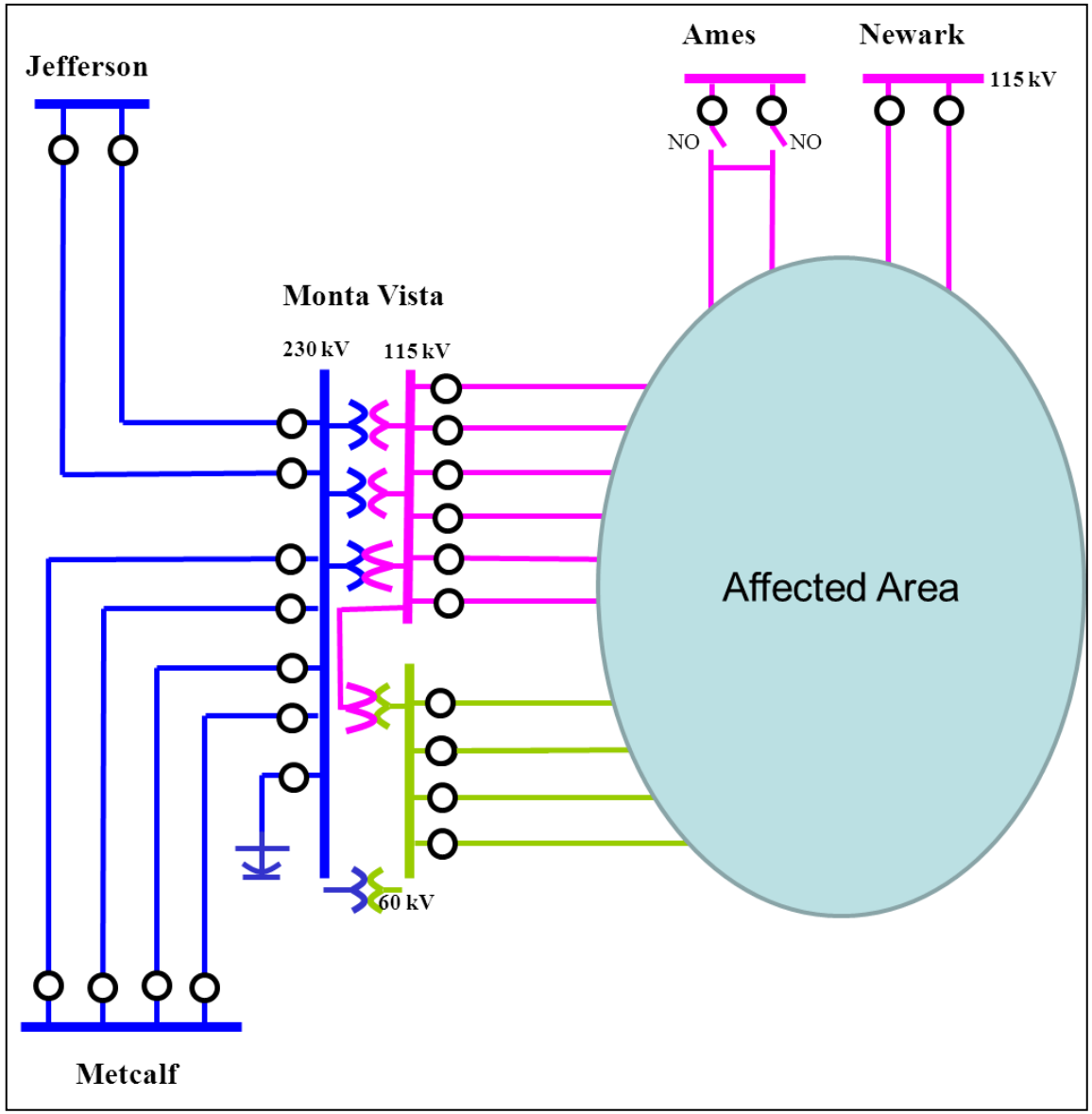
In Service Date

- May 2018

Cost

- $35M - $45M

Monta Vista 230 kV Bus Upgrade



Monta Vista-Wolfe 115 kV Substation Equipment Upgrade

Background

- The Wolfe and Stelling Substations area served by two 115 kV Lines from Monta Vista Substation.
- The Monta Vista-Wolfe and Stelling-Monta Vista 115 kV Lines consist mainly of 477 ACSS conductor
- These substations serve over 48,000 customers, primarily residential, or about 150 MW of load.

Assessment

- An outage of the Stelling-Monta Vista 115 kV Line could result in a overload on the Monta Vista-Wolfe 115 kV Line in 2015.

Scope

- The project scope is to upgrade limiting substation equipment at Wolfe Substation to fully utilize the Monta Vista-Wolfe 115 kV Lines installed conductor capacity.

Other Alternatives Considered

- Status Quo

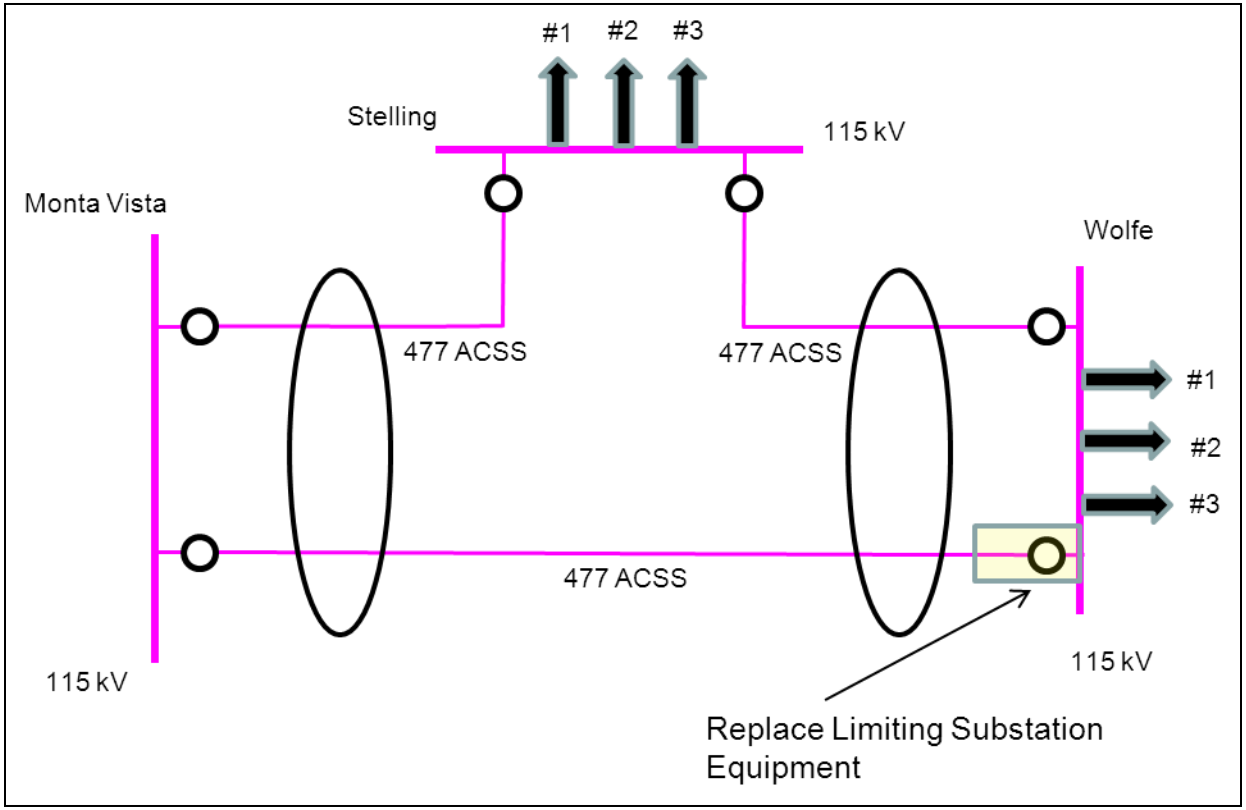
In Service Date

- May 2015

Cost

- $500,000 - $1M

Monta Vista-Wolfe 115 kV Substation Equipment Upgrade



Newark-Applied Materials 115 kV Substation Upgrade

Background

- Newark Applied-Materials and Newark-Lawrence 115 kV Lines are the only two 115 kV Lines that connect Newark Substation to Monta Vista Substation.
- With the expansion and addition of commercial and industrial load in the area these lines are expected to see much higher loading in the future years.

Assessment

- Planning analysis indicates that an outage of the Britton-Monta Vista 115 kV Line could result in a overload on the Newark Applied Materials 115 kV Line.

Scope

- The project scope is to upgrade limiting substation equipment at Newark Substation to fully utilize the installed conductor capacity installed on the Newark-Applied Materials 115 kV Line.

Other Alternatives Considered

- Status Quo

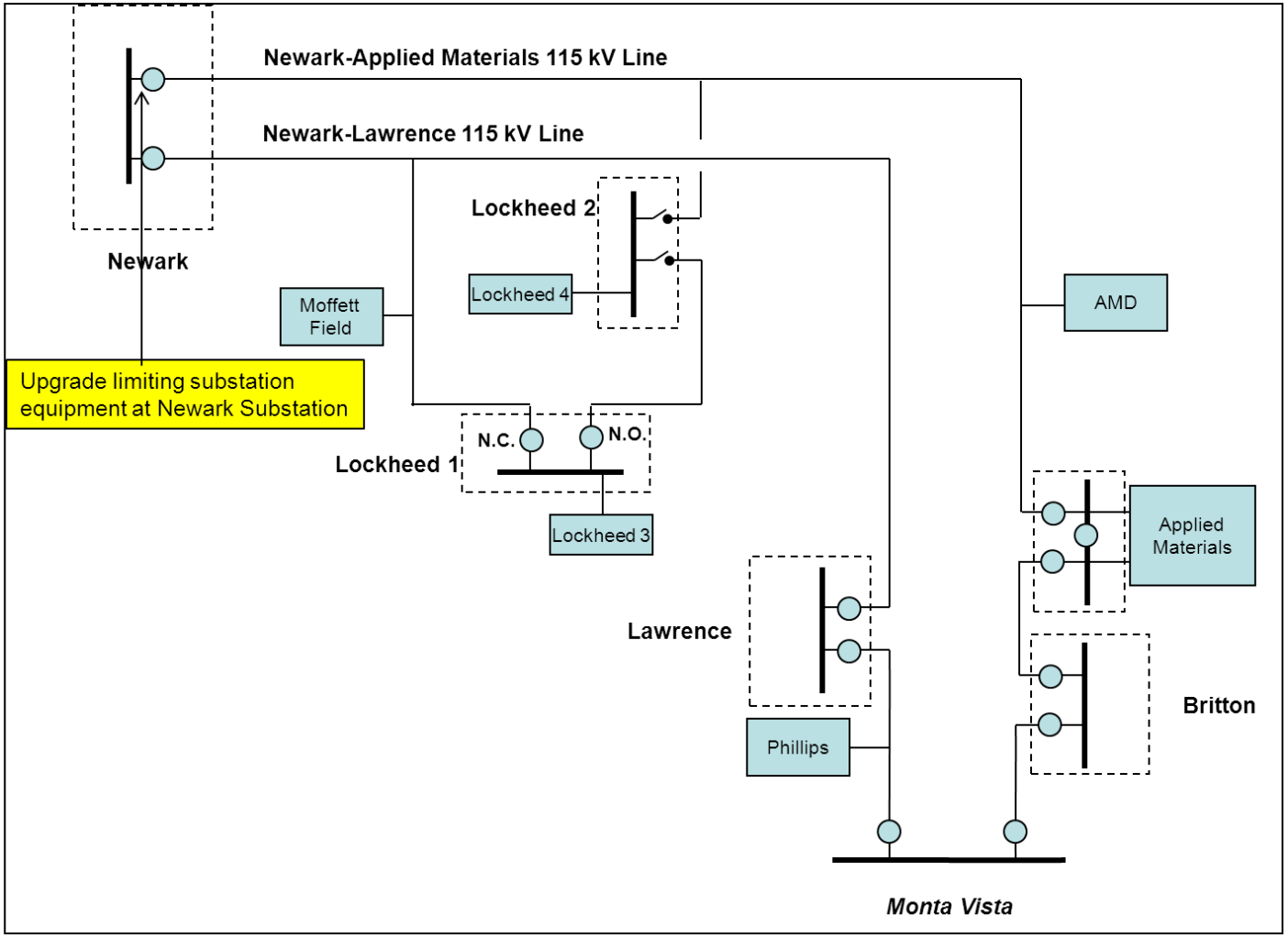
In Service Date

- May 2016

Cost

- $500,000 - $1M

Newark-Applied Materials 115 kV Substation Upgrade



NRS - Scott No. 1 115 kV Line Reconductoring

Background

- In 2002, SVP's Northern Receiving Station was interconnected into the PG&E's 115 kV system by looping PG&E's two Newark-Scott 115 kV lines forming the Newark-Northern and Northern-Scott lines.
- SVP owns the line termination equipment at all three receiving stations. However, PG&E owns all of the 115 kV Lines which serve SVP's receiving stations.

Assessment

- An outage of the Los Esteros-Nortech 115 kV Line and SVP's DVR Power Plant would result in a thermal overload of the NRS-Scott No. 1 115 kV Line.

Scope

- The project scope is to reconductor the NRS-Scott No.1 115 kV Line with conductor which has a summer emergency rating of at least 1500 amps.

Other Alternatives Considered

- Status Quo

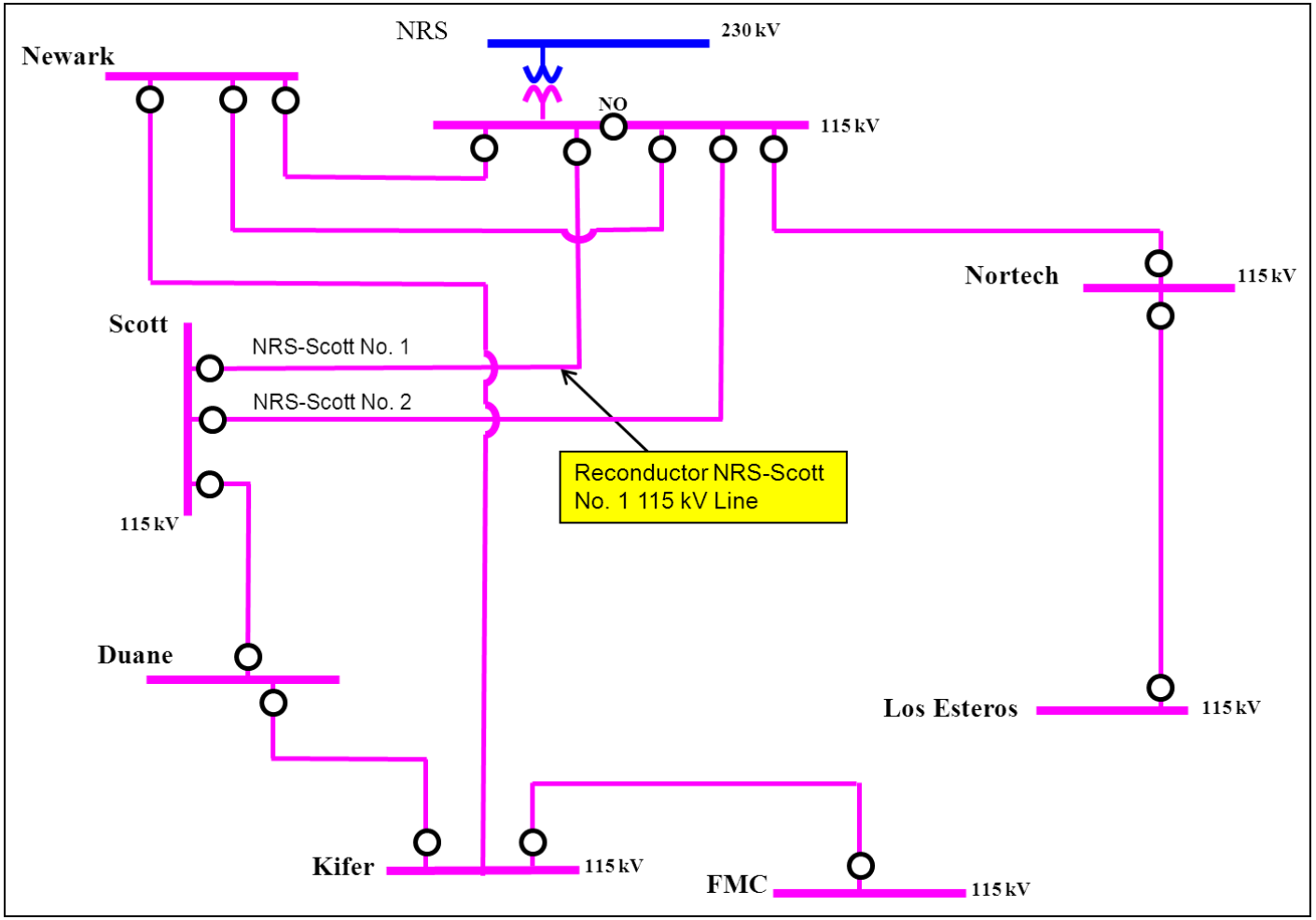
In Service Date

- May 2016

Cost

- $2M - $4M

NRS - Scott No. 1 115 kV Line Reconductoring



Thank You