

# Cottonwood – Olinda 1 & 2 Reconductoring and Substation Rating Upgrades

7/15/2015  
Revised 8-3-2015

## Project Description

### Line Reconductor

Project consists of conductor, insulator, and attachment hardware upgrade on of 8.8 miles of double circuit 230kV transmission line. Replacing the existing conductor with higher ampacity conductor on the 17.6 circuit miles.

### Substation Work

Olinda - Install (4) 230 KV switches  
Replace the LFZP Optimo line relays for lines 1&2.  
Cottonwood - Modify relay settings on both lines.

## Purpose

This will maintain compliance with North American Electric Reliability Corporation/Western Electricity Coordinating Council (NERC/WECC) transmission planning standards, improve the operational dispatch of the Trinity River Division (TRD) and Shasta CVP resources, and will recover lost peaking capacity. Balancing Area Operators and Transmission Owners are required to identify possible non-compliant areas and to develop a specific mitigation plan in advance. The northern CVP generation area has several areas of concern including N-1 and N-2 thermal overloading (NERC Reliability Standard TPL-003). TRD generation includes the Keswick, Trinity, Spring Creek, and J.F. Carr plants.

## Location

Cottonwood substation is located east of Interstate 5 south of Redding CA.

Olinda is located west of Interstate 5 south of Redding CA.

## Conceptual Cost

Reconductor	\$10,423,125
Substation	\$3,800,000

## Project Status/Schedule

Switches - Contract award September 2015  
Installation to start in November 2015

Reconductoring - Contract will be awarded in January 2016 with construction to start in the fall 2016.

Substation - Work will begin in 2018

## Rate Impact

**See Attached**

# Keswick-Airport-Cottonwood Reconductor and Substation Rating Upgrades

7/15/2015  
Revised 8/3/2015

## Project Description

### **Line Reconductor**

Project consists conductor, insulator, and attachment hardware upgrade on 20.15 miles of single circuit 230kV transmission line. The 20.15 total miles consists of the Keswick-Airport line (10.06 miles) and the Airport-Cottonwood line (10.09 miles).

### **Substation Work**

Keswick – Replace jumpers, (3) switches, and modify relay settings.  
Airport – Replace jumpers, modify relays and CT taps,  
Cottonwood – Modify relay settings, replaces switches, jumpers, T-tap

## Purpose

This will maintain compliance with North American Electric Reliability Corporation/Western Electricity Coordinating Council (NERC/WECC) transmission planning standards, improve the operational dispatch of the Trinity River Division (TRD) and Shasta CVP resources, and will recover lost peaking capacity. Balancing Area Operators and Transmission Owners are required to identify possible non-compliant areas and to develop a specific mitigation plan in advance. The northern CVP generation area has several areas of concern including N-1 and N-2 thermal overloading (NERC Reliability Standard TPL-003). TRD generation includes the Keswick, Trinity, Spring Creek, and J.F. Carr plants.

## Location

Cottonwood substation is located east of Interstate 5 south of Redding CA.

Airport substation is located east of Interstate 5 south of Redding CA.

Keswick substation is located northeast of Redding CA

## Conceptual Cost

Reconductor \$9,242,659  
Substation \$4,275,000

## Project Status/Schedule

Reconductoring - Contract will be awarded in September 2016 with construction to start in the fall 2017.

Substation - Work will begin in 2018

## Rate Impact

**See Attached**

# Station Service Power Upgrades at 8 Substations

7-15-2015  
Revised 8-3-2015

## Project Description

Upgrade and modernize the service entrances that provide power to the following substations; Livermore, Olinda, Tracy, Keswick, Folsom, Shasta, Flanagan, Roseville

## Purpose

The service entrances are of the original equipment when these substations were built. Below is a very general list for each station and their deficiencies

1. Livermore (LLL)-Poses a safety hazard as energized parts are exposed when the cabinet door is opened.
2. Olinda (ODA)-Replacement parts are not easily attained; the 52a and 52b are not interchangeable. Critical substation.
3. Tracy (TRY) - Equipment is antiquated and unreliable. Critical substation.
4. Keswick (KE) - Equipment is antiquated, parts are not easily attained. The 52b side is fed from the USBR's power plant breaker #16 and jumpers through the substation in various locations. This needs to be addressed.
5. Folsom (FOL) - Equipment is antiquated and unreliable. Critical substation.
6. Shasta (SHA) - Equipment is antiquated and unreliable.

7. Flanagan (FLN)-Currently has an automatic transfer switch (ATS) that is broken. Conductors have to be physically moved during certain outages. It would logically be replaced during new control room project with City of Shasta Lake.
8. Roseville (RSC) - Equipment is antiquated, parts are not easily attained.

## Location

All substations are located in Central Valley project.

## Conceptual Cost

\$3,987,500

## Conceptual Schedule

- Design complete December 2017
- Award construction contract September 2018
- All work complete September 2020

## Rate Impact

**See attached**

# Folsom 115/230KV Transformer

7-15-2015  
Revised 8-3-2015

## Project Description

Replace the existing 120 MVA 230/115KV transformer at the Folsom substation or install a 2<sup>nd</sup> transformer in parallel with the existing.

## Purpose

The existing configuration of the Folsom substation is a single 120MVA 230/115KV transformer. The Western Asset Management system has deemed this transformer as a transformer with a very low Health Index in the SNR system. This transformer also has one of the highest consequence scores in the event of failure. Given the criticality of this transformer and the difficulty of getting an outage to perform maintenance it appears a better alternative to changing the transformer out is to install a 2<sup>nd</sup> capable of operating in parallel.

## Location

Folsom Substation is located adjacent to the Folsom dam.

## Conceptual Cost

Construction Contract	\$2,500,000
<u>Material</u>	<u>\$2,500,000</u>
Total Project	\$5,000,000

## Conceptual Schedule

- Order Transformer December 2016
- Engineering and Construction specification complete October 2017
- Award contract March 2018
- All work complete May 2020

## Rate Impact

**See Attached**

Memo To: Market Participants  
 Date: August 5, 2015  
 Subject: Rates Impacts for Proposed Capital Improvement Projects

The table below represents the estimated changes to the existing Central Valley Project Transmission Revenue Requirement (TRR) effective April 1, 2015, and the FY 2015 Power Revenue Requirement (PRR) effective October 1, 2014, if any of the proposed capital improvement projects are constructed and placed into service. The TRR and PRR percentage changes include projected increase in annual interest and depreciation expenses as a result of each capital improvement project; however, they do not take into consideration future year CVP O&M costs, other asset additions, or asset retirements. There is no additional capacity included for rate making purposes.

Proposed Capital Improvements	Estimated Cost	Estimated Change		Functional Assignment	
		TRR	PRR	Transmission	Non-Transmission
Cottonwood-Olinda Substation Rating Upgrade	\$3,800,000	0.80%	(0.05%)	100%	0%
Keswick-Airport and Airport-Cottonwood Substation Rating Upgrade	\$4,275,000	0.89%	(0.04%)	100%	0%
Station Service Power Upgrades	\$3,987,500	0.21%	0.19%	62%	38%
Folsom Transformer Installation	\$5,000,000	(1.08%)	.76%	0%	100%

Assumptions:

- Interest rate: 4%
- Repayment Term: 29 Years
- No additional capacity
- Estimated cost includes estimate for IDC, and interest on repayable investment
- Starting Base for Calculations
  - TRR: \$43.7 Million
  - Capacity: 2302 MW
  - PRR: \$70.1 Million

Questions may be directed to Kevin Howard, Operations Manager, at (916) 353-4008 or Jennifer Henn, Rates Analyst, at (916) 353-4686.

Memo To: Market Participants  
 Date: April 29, 2013  
 Subject: Rates Impacts for Proposed Capital Improvement Projects

The table below represents the estimated changes to the existing Central Valley Project Transmission Revenue Requirement (TRR) effective April 1, 2013, and the FY 2013 Power Revenue Requirement (PRR) effective October 1, 2012, if any of the proposed capital improvement projects are constructed and placed into service. The TRR and PRR percentage changes include projected increase in annual interest and depreciation expenses as a result of each capital improvement project; however, they do not take into consideration future year CVP O&M costs, other asset additions, or asset retirements. There is no additional capacity included for rate making purposes.

Proposed Capital Improvements	Estimated Cost	Estimated Change	
		TRR	PRR
Cottonwood-Olinda No. 1 and No. 2, 230-kV Transmission Lines Re-conductoring	\$10.5 million	2.58%	(0.17%)
230-kV Shunt Reactor	\$12.0 million	2.93%	(0.18%)
Keswick-Airport and Airport-Cottonwood 230-kV Transmission Lines Re-conductoring	\$15.2 million	3.68%	(0.19%)
Transmission Asset Improvement Program (TAIP) (85% transmission)	\$81.8 million	12.16%	1.30%

Assumptions:

- With the exception of TAIP, asset additions are assumed to support the transmission function (*TAIP assumes costs are split 85% transmission; 15% power*)
- Interest rate: 4%
- Repayment Term: 45 Years
- No additional capacity
- Estimated cost includes estimate for IDC, and interest on repayable investment
- Starting Base for Calculations

- TRR: \$39.5 Million
- Capacity: 2291 MW
- PRR: \$73.4 Million

Questions may be directed to Pete Garris, Operations Manager, at (916) 353-4008 or Regina Rieger, Rates Manager, at (916) 353-4629.