

# Southwest Area Transmission (SWAT) Update

1

**ARIZONA 8<sup>TH</sup> BIENNIAL TRANSMISSION  
ASSESSMENT**

**E-00000D-13-0002**

**WORKSHOP #1**

**MAY 15, 2014**



# SWAT's Purpose

2

May 20, 2009

## **Southwest Area Transmission Subregional Planning Group CHARTER**

### I. Purpose

- The Southwest Area Transmission (SWAT) subregional planning group is a voluntary study group that has been created to serve the following purpose:
- *To provide an open and collaborative forum where interested parties are encouraged to participate in the planning, coordination, and implementation of a robust transmission system in Arizona, New Mexico, and parts of Colorado, west Texas, southern Nevada, and the Imperial Valley area of California. The open stakeholder participation envisioned in this process is intended to result in transmission expansion plans that meet a variety of needs and have a broad basis of support.*

# SWAT Area



## SWAT Footprint covers:

Arizona

New Mexico

Southern Nevada

Southern California (IID, LADWP)

West Texas (El Paso)

## Meetings:

All SWAT Oversight, Subcommittee, Work Group or Study Group meetings are open to interested stakeholders.

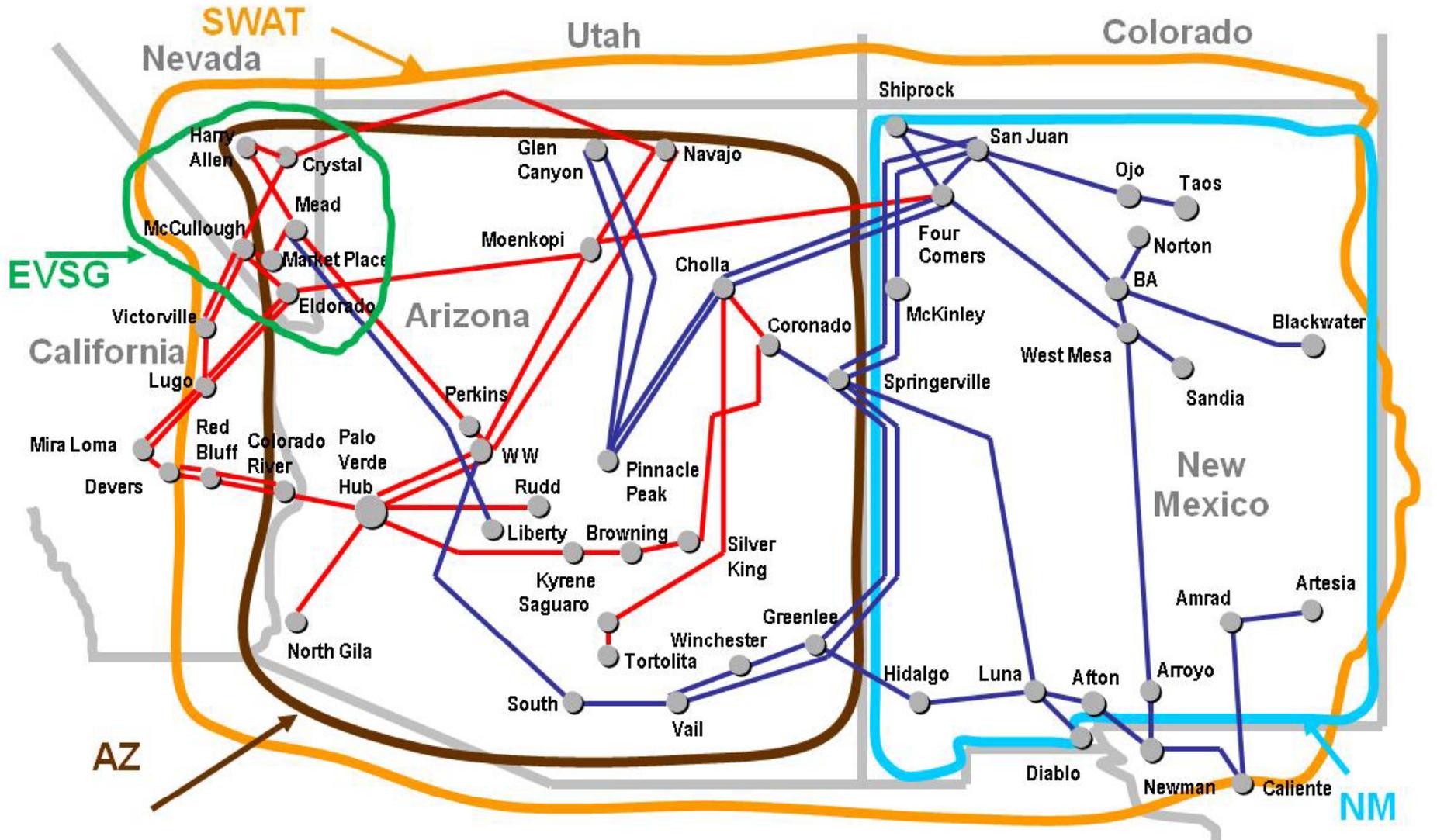
Four meetings per year in: February, May, August, and November

## Meeting materials located at:

[http://www.westconnect.com/planning\\_swat.php](http://www.westconnect.com/planning_swat.php)

**SWAT**  
Southwest  
Area  
Transmission

# SWAT Subcommittees & Footprints



SWAT  
AZ  
NM  
EVSG

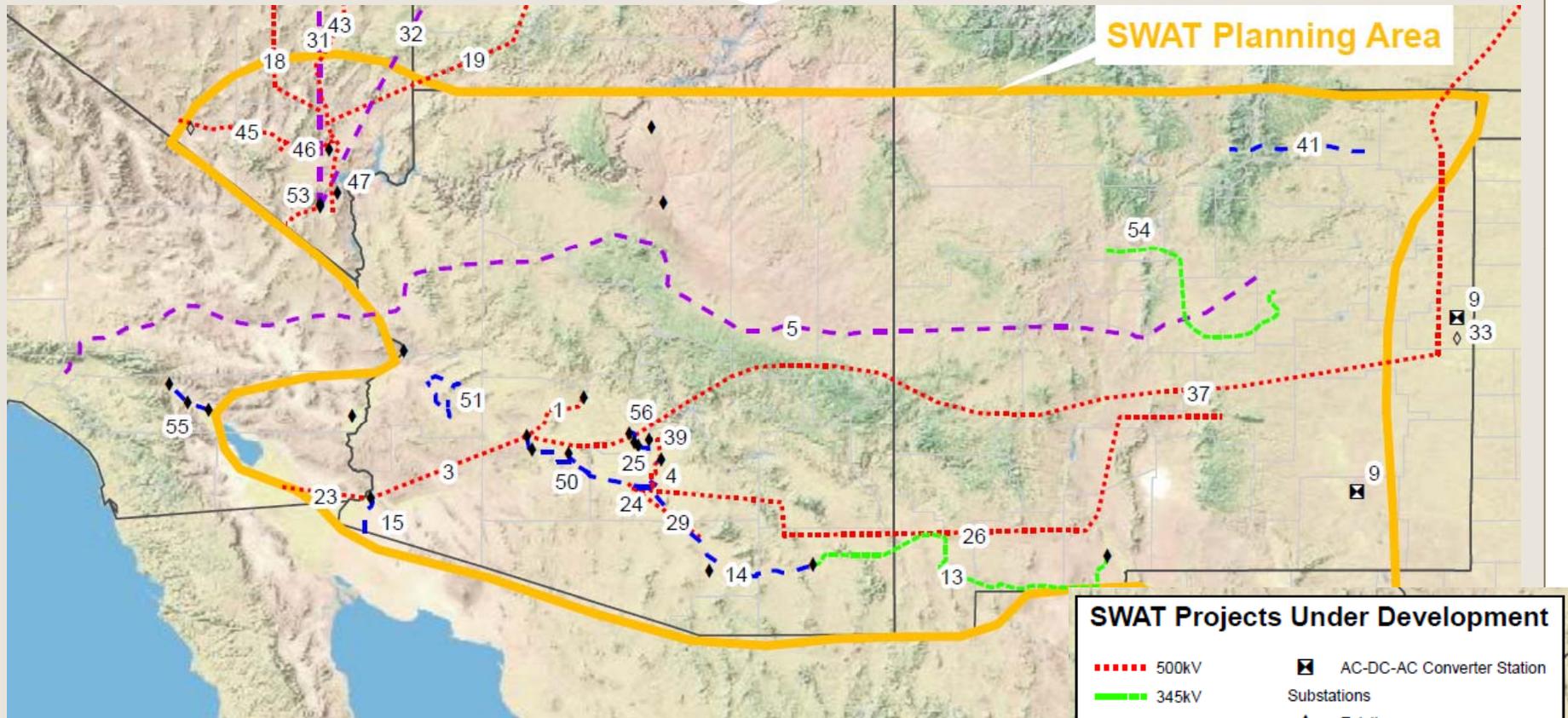
Southwest Area Transmission  
Arizona Transmission System  
New Mexico Transmission  
Eldorado Valley Study Group

Footprint wide work groups: Short Circuit, Transmission Corridor, California Interface, Coal Reduction Assessment Task Force

500kV  
345kV

# Projects in SWAT footprint

5



<http://www.westconnect.com/documents.php#cat83>

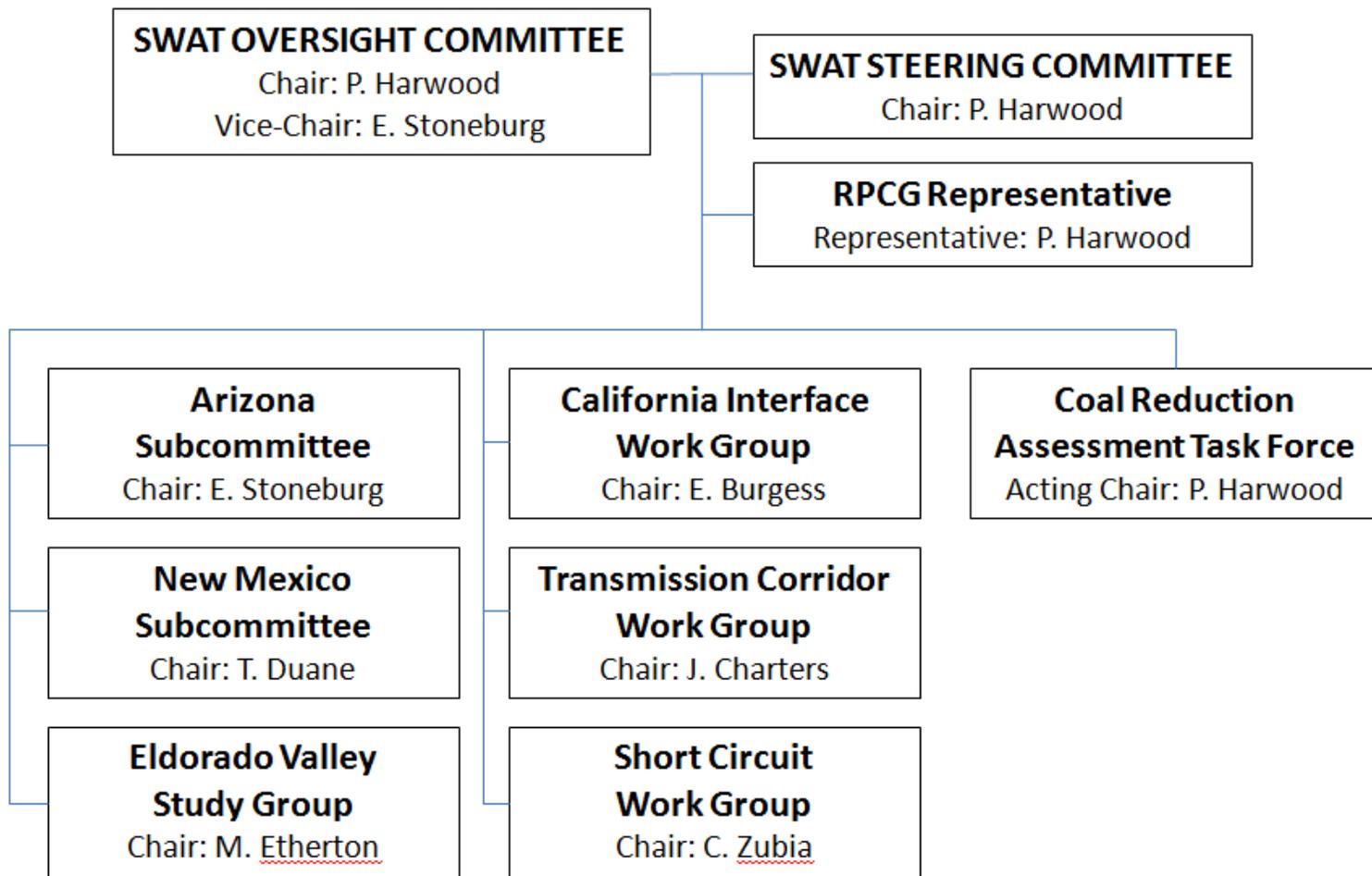
**SWAT Projects Under Development**

500kV	AC-DC-AC Converter Station
345kV	Substations
230kV	Existing
500 / 600kV DC	Future
Below 230kV	

Last Updated: 2/6/2014

# SWAT Structure and Subcommittees

6



# SWAT Oversight Committee

7

- Discussed Order No. 1000 implementation, hosted several educational webinars, continuing discussions on SWAT role within WestConnect O1K process.
- Maintained Maps and Project listings for SWAT
- Provided a forum to announce new transmission projects and share updates on existing projects.
- Coordinated on State and Federal issues related transmission development
- Coordinated on seams issues with other planning regions, especially CAISO

# SWAT Oversight Committee (continued)

8

- Continued to support TEPPC, Regional Planning Coordination Group, WestConnect, and other regional planning forums.
- Submitted two TEPPC study requests – high distributed PV and high renewable exports to California.
- Shared information on WECC activities, Reliability Standards, etc.
- Presented information on industry topics such as: Wind production tax credits, Environmental permitting issues, etc.
- Presented and coordinated work of subcommittees as discussed on next slides.

# Committee Updates

9

- **Arizona Subcommittee (SWAT-AZ)**
  - Formed in February 2013 by merging CATS, SATS, and CRT
  - Coordinated several cases for SWAT studies and utilities' studies
  - Coordinated the technical study work to support the Biennial Transmission Assessment (BTA) which included:
    - ✦ 10<sup>th</sup> Year Snapshot Study (N-1-1)
    - ✦ Load Forecasts for Reliability Must Run Studies
    - ✦ Extreme Corridor Study
  - Shared project and other technical updates.
  - Holding educational presentations (e.g. NERC planning standards, environmental permitting resources, Transmission planning tools, etc.)

# Committee Updates (continued)

10

- **California Interface Work Group**

- Formed in May 2103 to address seams issues between SWAT and California entities such as CTPG, CAISO, and CPUC.
- Held several webinars to review transmission plans and studies by these groups
- Submitted data and comments to 2014/2015 CAISO study plan

- **New Mexico Study Group**

- Continued to monitor and report on studies and transmission projects in the area

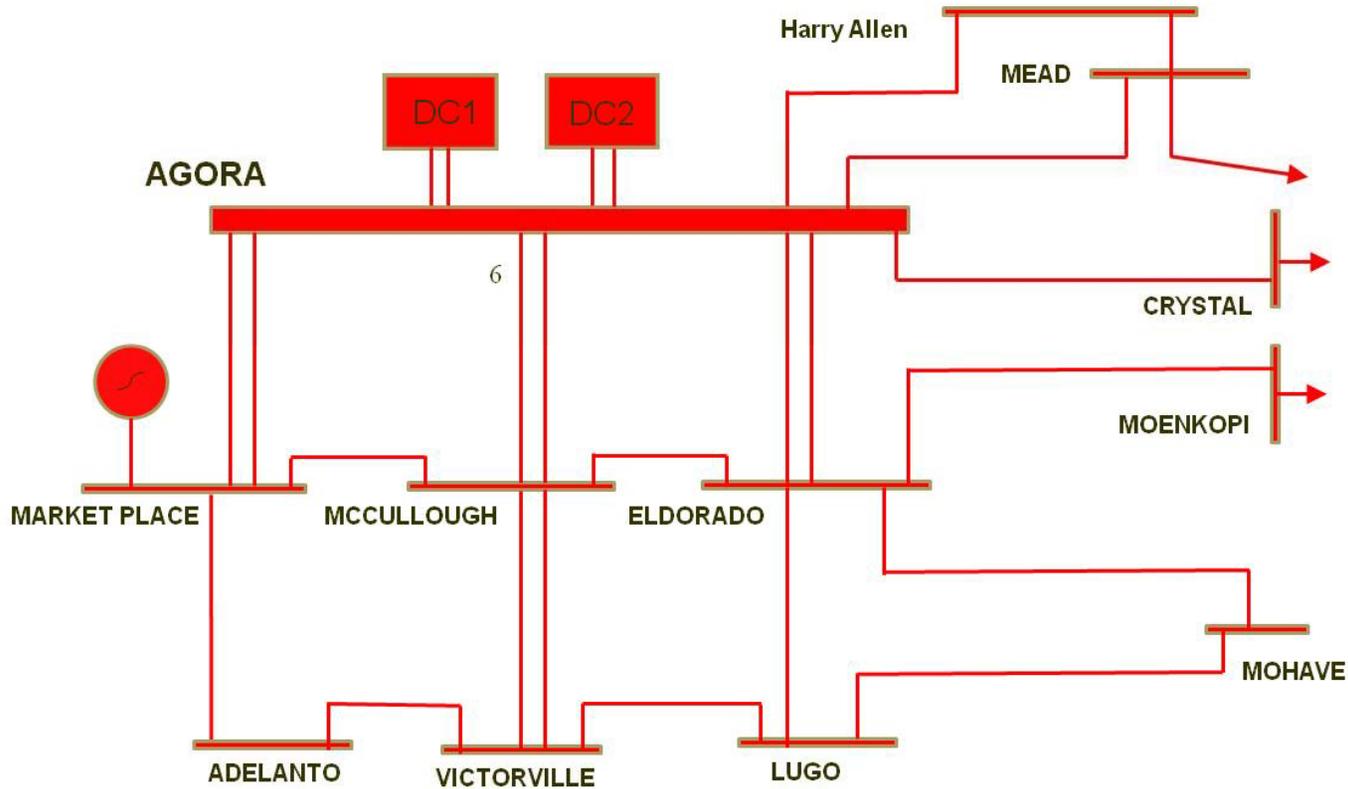
- **Eldorado Valley Study Group (EVSG)**

- Coordinated projects in the area, developed map, shared updates, etc.
- Completed a high level fault duty study (Feb. 2013) to test the base system, planned projects, and conceptual projects in the EVSG area (including a new conceptual terminal station, Agora Substation).

# EVSG Fault Duty Study

11

## AGORA Conceptual 500kV Plan



# EVSG 3-PH Fault Duty Summary

12

BUS NAME	MAXIMUM THREE-PHASE (AMPS)									
	SWAT BASE CASE	EVSG w/AGORA and SNIP	(delta)	One 3000MW HVDC	(delta)	Two 3000MW HVDC	(delta)	1000MW AC (CSP) SOURCE	(delta)	TOTAL DELTA
AGORA 525kV	N/A	54,429	N/A	58,057	3,628	61,687	3,630	66,496	4,809	N/A
Eldorado 525kV	51,144	55,006	3,862	58,436	3,430	61,839	3,403	66,692	4,853	15,548
Eldorado 230kV	56,399	56,645	246	57,316	671	57,922	606	58,692	770	2,293
Marketplace 525kV	48,754	52,767	4,013	55,973	3,206	59,149	3,176	64,274	5,125	15,520
McCullough 525kV	52,014	55,183	3,169	58,641	3,458	62,074	3,433	67,054	4,980	15,040
McCullough 230kV	57,645	57,906	261	58,659	753	59,341	682	60,213	872	2,568
Mead 525kV	46,757	48,423	1,666	50,161	1,738	51,801	1,640	53,862	2,061	7,105
Mead North 230kV	62,978	63,142	164	63,747	605	64,290	543	64,960	670	1,982
Mead South 230kV	61,052	61,104	52	61,604	500	62,053	449	62,620	567	1,568

Note: HVDC Assumptions are conservative and subject to specific design considerations.

# EVSG Fault Duty Study Results

13

- Examine HVDC incremental contributions in more detail at POI as well as regional busses. Assumptions vary.
- Addition of Agora and additional line terminations (SNIP, ELD/MCC/MKP ties) increased the fault duties by approximately 3,200 – 4,000A (8% increase)
- Each 3000MW DC termination increased the fault duties by approximately 3,200-3,400A (6% increase).
- Addition of 1000MW CSP increased the fault duties by approximately 4,800-5,100A (9% increase).
- Total potential increase in fault duty for this analysis was found to be approximately 15,000A (30% increase).
- Transmission Owners should review the existing breaker ratings as several 525kV breakers are rated at 40,000-50,000A today and potential future mitigation requirements beyond 63,000A.

# Committee Updates continued

14

- **Short-Circuit Working Group (SCWG)**

- Continued updating the CAPE and ASPEN cases for SWAT planning area. Hope to have a new ASPEN working model by Sep. 2014.

- **Transmission Corridor Work Group (TCWG)**

- Maintained general information presentation for outreach and educational activities
- Began discussing the opportunities and drawbacks of a potential transmission corridor along proposed interstate I-11

# Committee Updates continued

15

- **Coal Reduction Assessment Task Force**
  - Formed March 2014
  - Assessing reliability impacts of anticipated and hypothetical coal retirements in the southwest
  - Hope to provide feedback for forthcoming EPA Rulemaking on CO<sub>2</sub> emissions control pursuant to Clean Air Act Section 111(d) and Presidential Climate Action Plan

# Next Meetings

16

- **August 19, 2014 – Westminster, Colorado**
  - Tri-State's office
- **November 19, 2014 – Phoenix, Arizona**
  - SRP PERA Club
- **February 18, 2015 – Las Vegas**
  - NVE Office

# Questions?

17

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