

Meeting Agenda
Southwest Transmission Expansion Plan (STEP)
March 8-9, 2004

March 8 - 1:00 p.m. to 5:00 p.m.
Best Western Island Palms Hotel
2051 Shelter Island Drive, San Diego, CA 92106

March 9 - 9:00 a.m. to 3:00 p.m.
Sempra Energy Building, Main Auditorium
101 Ash St, San Diego, CA

Call-in number: 877-670-4099 (Passcode: 925206)

1. Welcome, introductions, meeting goals – Harlow Peterson/Armie Perez
2. Dynamic Voltage Support Study Scope and Criteria – Jeff Miller
3. Presentations from Various Manufacturers on Dynamic Voltage Support Equipment and Others

Presentations on March 8, 2004:

- D-VAR and Super-VAR Technology – American Superconductor Corp.
- Reliable Dynamic Reactive Power Support in Transmission Systems with SVC – ABB
- Recharging the Grid – Switching on to New Aluminum Conductor Composite Core (ACCC) Cable – Composite Technology Corp.
- FACTS Planning Considerations – Exponent, Inc.

Presentations on March 9, 2004:

- STATCOM system – Mitsubishi Electric Power Products, Inc.
 - An overview of a chain-link STATCOM system and a case study of the STATCOM / SVC hybrid technology – Areva T&D
 - Application of thyristor-controlled series capacitors (TCSC) and unified power flow controller (UPFC) - Siemens
4. Recent operating experience with the SCIT-EOR Nomogram – Mark Willis
 5. Five minute status reports on related studies and projects
 - Sub-group to develop the initial upgrades (series capacitor upgrades and a second Devers 500/230 kV transformer) – Bob Smith
 - Path 49 Upgrade Project Review Group – Kishore Patel
 - SSG-WI - Harlow Peterson
 - Southwest Area Transmission (SWAT) – Harlow Peterson

- SWAT Colorado River Transmission (CRT) Group – Ken Bagley
- Western Arizona Transmission Studies (WATS) – Brian Keel
- Sub-group to develop a new line from Arizona to California – Jim Charters
- Palo Verde-Devers #2 Project – Pat Arons
- Los Angeles area generation additions – Pat Arons
- US/Mexico border studies – Kishore Patel
- Sub-group developing a new line into San Diego – Kishore Patel
- San Diego area generation additions – Kishore Patel

6. Member comments

7. Review action items and assignments

8. Next meeting – Proposed for May 19th, 2004 in San Diego.

STEP 2004 Goals

First Quarter

1. Agree on the allocation of capacity for short-term upgrades.
2. Agree on the criteria for determining the voltage support requirements for the short-term upgrades and develop a technical study plan to determine requirements.
3. Agree on the short-term west of Devers project (reactor, reconductoring, or Mountainview)
4. Agree on the series capacitor ratings.
5. Invite voltage support equipment manufacturers to a STEP meeting to discuss available technologies, modeling in studies, and costs

Second Quarter

1. Reach agreement on the integration of the new line between Arizona and California with the underlying system that runs north and south along the Colorado River.
2. Complete the economic, reliability, and preliminary routing assessments for the various options for a new line into San Diego.
3. Complete studies to determine voltage support requirements
4. Agree on voltage support requirements for the STEP area.
5. Gain all the utility and ISO approvals that are necessary to proceed with the short-term upgrades.

Third Quarter

1. Order all equipment necessary to complete the short-term upgrades.
2. Reach agreement on whether or not to proceed with a new line into San Diego, and if so, select the preferred option.
3. Gain utility and ISO approvals necessary to proceed with a new line from Arizona to California.
4. Agree on transmission economic assessment methodology.
5. Develop study plan for long range STEP study (i.e., 10-20 years).

Fourth Quarter

1. Gain Utility and ISO approvals necessary to proceed with a new line into San Diego.
2. Begin development of the STEP long-range plan (10+ years) using SSG-WI updated databases.

Current STEP Transmission Plan

Initially, 26 alternatives were considered in the STEP Screening Study. From these, six alternatives were selected for more detailed studies. Those studies led to the following general plan for upgrades. Additional studies are underway to further refine and develop these projects.

San Diego Upgrades (EOR rating unchanged at 7550 MW)

1. Miguel 500/230 kV #2, Imperial Valley-Miguel 500 kV Series Capacitor Upgrade, and Miguel-Mission 230 kV #2 (under construction)

Short-term Upgrades (EOR rating increased to 8050 MW)

1. Hassayampa-N. Gila-Imperial Valley Series Capacitor Upgrade, Palo Verde-Devers Series Capacitor Upgrade, and Devers 500/230 kV #2.
2. Small West of Devers Upgrade (install reactor in limiting line or Mountainview)
3. Navajo-Crystal and Moenkopi-Eldorado Series Capacitor Upgrade

New Line between Arizona and California (assumes completion of the short-term upgrades)(EOR rating increased to 9500 MW)

1. Rebuilding of the four 230 kV lines west of Devers.
2. New Harquahala-Devers 500 kV line
3. Connection of the Blythe #2 power plant to the Palo-Verde Devers 500 kV line
4. Addition of a new double circuit 230 kV line north out of Blythe to Parker Substation.

New Line into San Diego for Economic and Reliability Need (assumes completion of the short-term upgrades)

- Option 1) New Talega-Escondido-Valley/Serrano Line with or without the Lake Elsinore Advanced Pumped Storage project
- Option 2) New Imperial Valley-Rainbow 500 kV line
- Option 3) New Imperial Valley-Ramona 500 kV line
- Option 4) New Imperial Valley-East of Escondido 500 kV line
- Option 5) New Imperial Valley-Miguel 500 kV line.
- Option 6) New La Rosita-Tijuana 230 kV Double Circuit 230 kV line with 230 kV reinforcements as needed between Tijuana and Miguel and between La Rosita and Imperial Valley.