

Meeting Agenda

Southwest Transmission Expansion Planning (STEP)

July 29, 2003

Sempra Energy Building, Main Auditorium
101 Ash St, San Diego, CA
10:00 a.m. to 3:00 p.m.
Call-in number: 877-670-4099
(Passcode: 925206)

1. Welcome, Introductions, Meeting Goals – Harlow Peterson/Armie Perez
2. Activities of the STEP Work Group – Jeff Miller
 - Refinement of Alternatives Selected for Detailed Study
 - Proposed Phasing of Reinforcements for each Alternative (See Attachment)
3. Update on the Activities of the Seams Steering Group – Western Interconnection – Planning Work Group - Harlow Peterson
 - Planning Process
 - Economic Studies (2008 and 2013)
4. Economic Study Results: Assessing the Economic Benefit of the Different Transmission Addition Alternatives – Mohamed Awad
5. Member Comments
6. Review Action Items and Assignments
7. Next Meeting – Proposed for August 28th in San Diego
8. Next Meeting Agenda Topics

STEP Transmission Alternative Phasing for Economic Studies

Based on the 26 alternatives considered in the STEP Screening Study, six alternatives were selected for more detailed studies. To evaluate the economic benefit of the components of these transmission alternatives, a sequence of system additions needs to be assumed. This paper describes the initial assumptions for the sequence of facility additions for each alternative. The sequences are primarily based on the earliest projected operational date for each facility. Each step of these sequences will be modeled using production cost studies to assess the incremental benefit of each system addition.

Several initial system upgrades are common to all the alternatives and therefore form the base upon which each of the alternatives is built. These initial system upgrades include the following:

1. Miguel 500/230 kV #2 and Imperial Valley-Miguel 500 kV Series Capacitor Upgrade
2. Miguel-Mission 230 kV #2
3. Hassayampa-N. Gila-Imperial Valley Series Capacitor Upgrade
4. Palo Verde-Devers Series Capacitor Upgrade and Devers 500/230 kV #2

Of the six alternatives selected for more detailed study, four are AC alternatives and two are DC alternatives. The phasing of each alternative is as shown below.

Alternative AC-1

1. Add a new Harquahala-Devers 500 kV line.
2. Add a new Imperial Valley-San Diego 500 kV line.

Alternative AC-2:

1. Add a new Trilby Wash-Parker-Blythe-Devers 500 kV line and a new Trilby Wash-Westwing 500 kV line.
2. Add a new Imperial Valley-San Diego 500 kV line.

Alternative AC-3:

1. Add a new Imperial Valley-Devers 500 kV line (with a phase shifter).
2. Add a new Harquahala-Devers 500 kV line.
3. Add a new Valley-San Diego 500 kV line (with a phase shifter).

Alternative AC-4:

1. Add phase shifters (or unified power flow controllers) on the Navajo-Crystal and Moenkopi-Eldorado 500 kV lines. Coordinate the operation of the four phase

shifter installations between Arizona and Nevada to maximize transfers to Nevada.

2. Add a new Imperial Valley-San Diego 500 kV line.

Alternative DC-1:

1. Upgrade the Perkins-Mead-Adelanto 500 kV AC line to DC and extend it to Mira Loma (alternative terminations to Mira Loma include Adelanto and Vincent). DC terminals would connect the DC line with the AC system at Perkins, Marketplace, and Mira Loma. Add a new Trilby Wash-Westwing 500 kV line and a second Perkins-Westwing 500 kV line.
2. Add a new Imperial Valley-San Diego 500 kV line.

Alternative DC-2:

1. Upgrade the Perkins-Mead-Marketplace 500 kV AC line to DC with DC terminals at Perkins and Marketplace. Add a new Trilby Wash-Westwing 500 kV line and a second Perkins-Westwing 500 kV line.
2. Add a new Imperial Valley-San Diego 500 kV line.

JCM/July 11,2003