

# Southeast Arizona Transmission Study

## **Saturation Case EHV & HV Analysis**

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# 138kV N-1 overloads for EHV option A

- SOUTH to HARTT
- VAIL to ROBERT BILLS
- SSNO30 to SANTA CRUZ
- N. LOOP to WEST INA (N. LOOP to RILLITO)

# SOUTH to HARTT

## PROBLEM:

SOUTH to HARTT, this 138kV circuit becomes overloaded with only the N-1 loss of Vail to SSNO28 as shown in the single line provided. Local infrastructure connection problem.

## SOLUTION(s):

- (a) Serve SSNO29 from UES system, i.e. tap the Vail to Kantor line when it is rebuilt to 138kV and serve SSNO28 via South to SSNO28 and SSNO28 to Hartt.
- (b) (1) and (2) from above and tie to TEP to UES i.e. incorporate a Vail to SSNO28 and SSNO28 to SSNO29 (2 county problem)

# VAIL to ROBERT BILLS

## PROBLEM:

VAIL to ROBERT BILLS, this 138kV circuit becomes overload with the N-1 loss of the adjacent Vail to Irvington circuit, and more.

## SOLUTION(s):

- (a) serve SSNO17 as a radial out of Robert Bills.
- (b) New, Third Vail to SSNO17 to Irvington 138kV circuit.

# SSNO30 to SANTA CRUZ

## PROBLEM:

SSNO30 to SANTA CRUZ, this circuit is overload (109%) with the N-1 loss of SSNO30 to Midvale due to excess looped flow via SSNO30 to SANTA CRUZ and back to MIDVALE.

## SOLUTION(s):

Tie SSNO30 into the Irvington to Kino (Tucson) circuit. This option distributes the power evenly through out the 138kV system within this area thus mitigating N-1 issues local to this area.

# N. LOOP to WEST INA (N. LOOP to RILLITO)

## PROBLEM:

N. LOOP to WEST INA, this circuit is nearly overload ALIS and is overloaded (129%) for the loss of the parallel circuit N. Loop to SSNO3, and others.

## SOLUTION(s):

- (a) Reconductor N. LOOP to WESTINA
- (b) Tap N. LOOP to DMP with DELCERRO thus balancing power out of N. LOOP.

## SOLUTION PROBLEM:

N. LOOP to RILLITO, this circuit is overload (104%) with only the N-1 loss of RANCHO VISTOSO to LACANADA

## SOLUTION(s):

- (a) EHV in to RILLITO
- (b) Reconductor N. LOOP to RILLITO
- (c) Additional 138kV infrastructure