Santa Cruz Reliability Must Run

Presented to the

Arizona Corporation Commission

7th BTA Workshop No. 1

July 10, 2012

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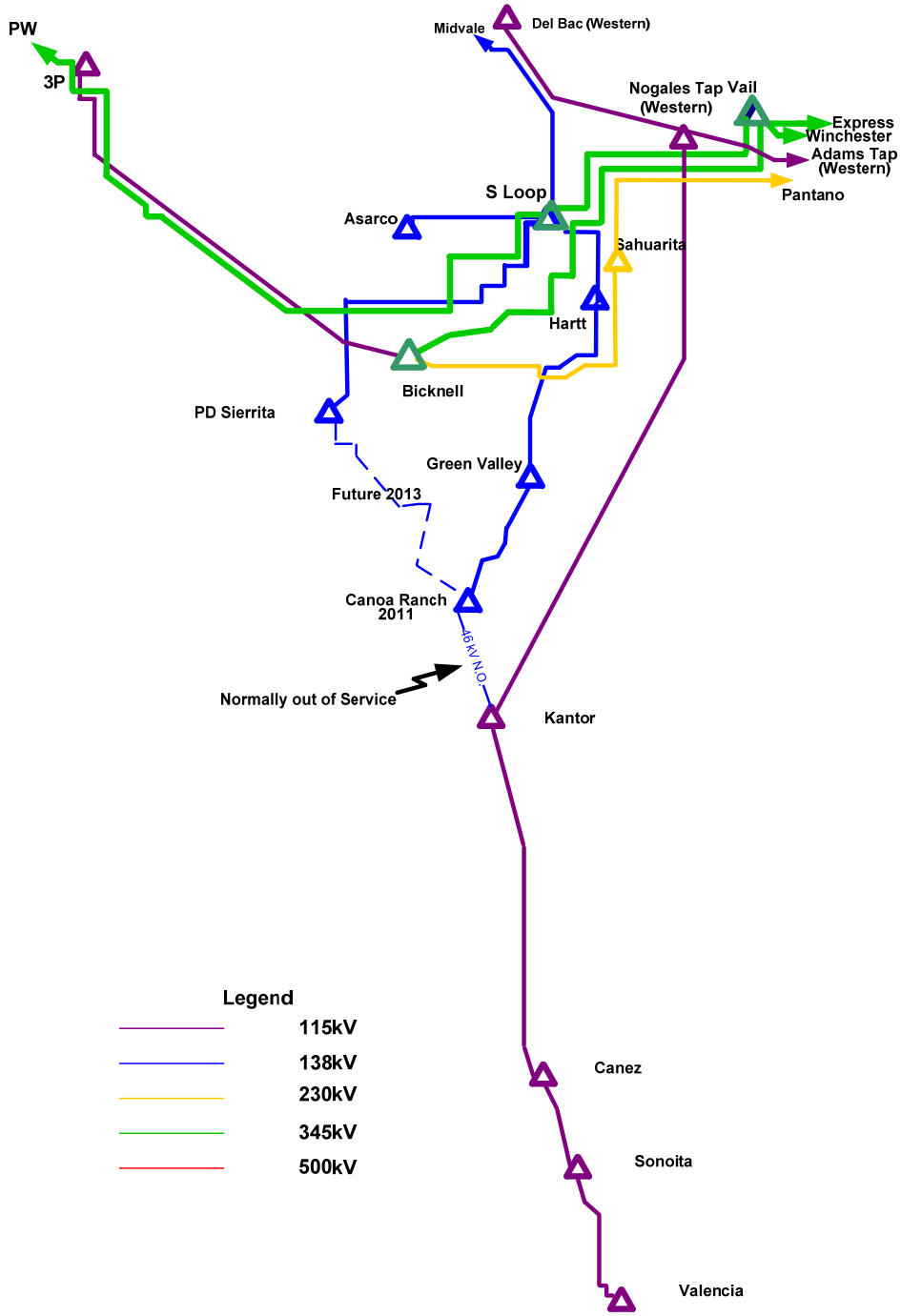
UNS Energy



EXISTING SANTA CRUZ TRANSMISSION SYSTEM

Existing 115kV NITS from WAPA

Nogales Tap Switchyard – Valencia Substation

Four Substations at Kantor, Canez, Sonoita & Valencia

Executive Summary

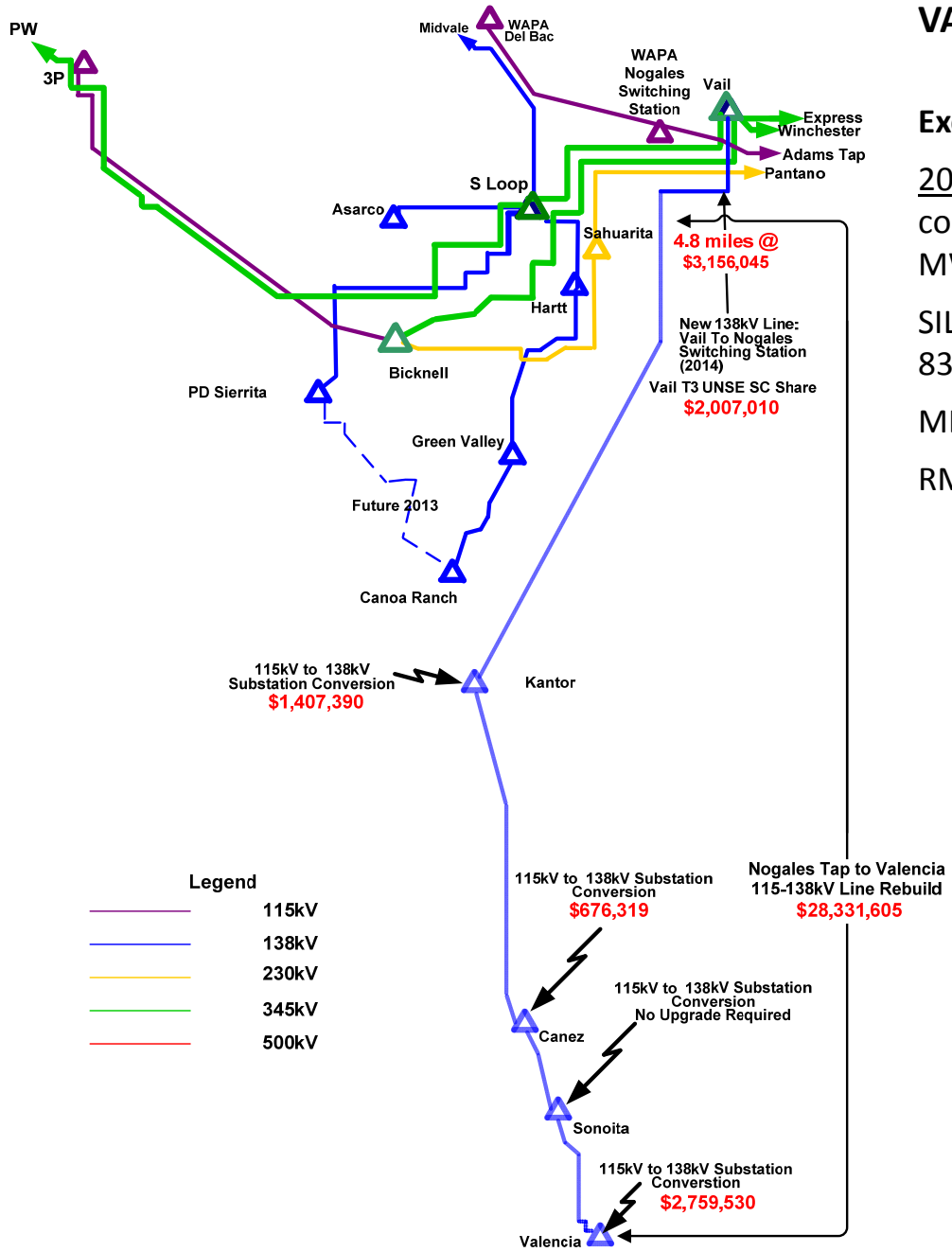
2014 with WAPA at 115kV: Load serving capability through combination of transmission and generation exceeds 100 MW.

SIL from Nogales Tap = 47.6 MW or SC load of 46 MW

MLSC = 123 MW

RMR = 16 MW

VAIL TO VALENCIA 138 KV CONVERSION



*All Costs are estimates and are intended for Transmission Planning and not budgeting.
Total includes Land and Environmental Costs

Executive Summary

2021 connected to TEP: Load serving capability through combination of transmission and generation approaches 160 MW.

SIL from Vail at 138kV = 86.8 MW (Maximum studied load = 83.8 MW)

MLSC = 159 MW

RMR – 0 MW

Santa Cruz Load Serving Analysis Summary

Year	Santa Cruz Forecasted Peak	Study System Load	Metric	Metric Value	Limiting Element	Limiting Outage	UNS Santa Cruz Study System Generation Dispatch		Annual Incremental RMR Generation Cost Estimate
							Station	Dispatch	
2014	78.4 MW	46 MW	SIL	47.6 MW	Valencia 115 kV bus dV	Del Bac – Nogales 115 kV line	None	0 MW	N/A
		123 MW	MLSC	123 MW	Del Bac 115 kV bus dV	Tucson - Del Bac 115kV line	Valencia CT1, 2, 3, 4	62 MW	N/A
		78.4 MW	RMR	16.0 MW	Del Bac 115 kV bus dV	Tucson - Del Bac 115kV line	Valenci CT4	16 MW	$544,525
2021	83.8 MW	83.8 MW	SIL	86.8 MW	Canez 138kV bus dV	CANEZ - SONOITA 138kV #1	None	0 MW	N/A
		159 MW	MLSC	159 MW	Canez 138kV bus dV	CANEZ - SONOITA 138kV #1	Valencia CT1, 2, 3, 4	62 MW	N/A
		83.8 MW	RMR	0 MW	N/A	N/A	None	0 MW	N/A

Effectiveness of New Facilities

- Planned conversion of the 115 kV circuit to 138 kV eliminates the RMR requirement demonstrated in the 2014 time-frame
- Comparison of Alternatives
  - Cost of new facilities that eliminate the RMR condition is estimated at $38,338,000
  - Annual RMR generation cost is estimated at $544,525