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UNS Electric

Ten-Year Plan
For Years

2005-2014

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Introduction

The following ten-year plan pursuant to A.R.S. § 40-360.02 is submitted by UNS Electric. Included with this plan are transmission facilities planned for both the Mohave and Santa Cruz County service territories.

UNS Electric plans include several transmission projects in the next ten years. The majority of the system upgrades are planned for the Santa Cruz service territory, while one planned facility upgrade and one project are identified in the Mohave County region. Previously reported facilities that have been completed, canceled, or deferred beyond the upcoming ten-year period are not included. These plans are tentative information only, and pursuant to A.R.S. § 40-360.02 (F) are subject to change.

The following projects are proposed for the Mohave County Region:

- North Havasu – Griffith Transmission Line

The following projects are proposed for the Santa Cruz County Region:

- Nogales 115kV Transmission Line #2
- Gateway 345/115 kV Substation
- Valencia 115 kV Substation Expansion

In addition to planning UNS Electric transmission facilities, UNS Electric is actively involved in the following regional Arizona Transmission planning activities:

- Central Arizona Transmission Study (CATS)
- Central Arizona Transmission Study – High Voltage (CATS-HV)
- Joint Planning Agreement (JPA) with Western
- Southwest Area Transmission group (SWAT)

Service Territories

Following the short discussion of activities in the service territories are the maps of the planned facilities and schematic for several of the proposed projects.

Mohave County

In the summer of 2003, UNS Electric installed a new 230/69kV substation, North Havasu, connected approximately 10 miles north of the existing Black Mesa Substation. This new substation provides necessary additional capacity to serve load in the Lake Havasu area. The Western Area Power Administration ("Western") has previously determined that under certain operating conditions (specifically maximum generation at Hoover, Davis and Griffith power plants, zero generation at South Point and Parker power plants, Havasu Pumps on at maximum, region-wide peak load conditions, and an outage of the Davis – Topock 230kV #2 line) the Davis – Topock 230kV #1 transmission line may overload. UNS Electric believes that these simultaneous conditions during peak periods (including running the Havasu pumps on peak for the CAP) is not a credible condition; however, UNS Electric is working with Western to develop operating alternatives that would reduce the loading on the Davis – Topock 230kV #1 transmission line under these conditions. UNS Electric is also reviewing the long-term requirements for the North Havasu substation and still considers the Griffith – North Havasu 230kV line as an alternative for consideration, and currently has a CEC (Order #88) for this line addition.

Santa Cruz County

The UNS Electric long-term plan to improve reliability for the Santa Cruz service territory is to construct a redundant transmission line to Valencia substation from the new Gateway substation, per Line Siting Case #111. The construction of this line is pending the receipt of permits from the Department of Energy, the U.S. Forest Service and the Bureau of Land Management.

In the interim, UNS Electric in 2004 connected the UNS Electric distribution system to the Tucson Electric Power (TEP) distribution system to provide support under emergency system conditions.

Additionally in 2004, UNS Electric installed capacitor banks on its Santa Cruz County system to keep customer voltages at acceptable levels until the Gateway project can be completed.

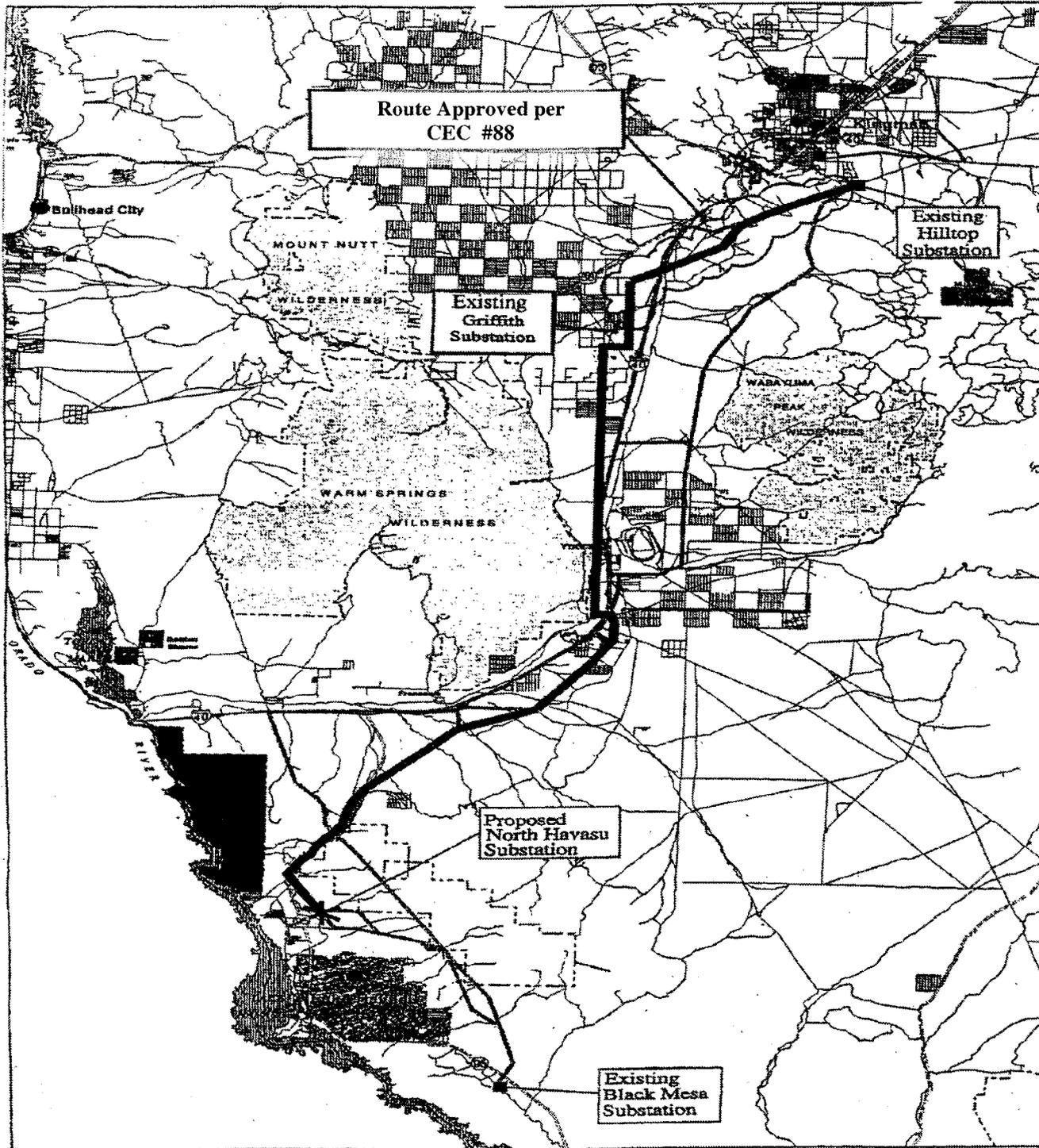
UNS Electric is also pursuing additional improvements/reinforcements to its existing distribution and transmission systems to further support reliability until completion of the Gateway project.

Mohave County

Transmission Projects

Line Designation	Griffith-North Havasu Transmission
Project Description	
Voltage	230 kV, 69 kV (double circuit)
Capacity	300 MVA (thermal)
Origin	Griffith Substation
Intermediate point(s)	None
Termination point	North Havasu Substation
Length (miles)	Approximately 40 miles
Routing	West of and parallel to I-40 to Gem Acres Interchange. Diagonal southeast to the Parker Davis line at Highway 95. Parallel to PD-1 to North Havasu Substation site southeast of the Lake Havasu city airport. Routing to be within corridor as approved and described in CEC Order #88.
Purpose	Reinforce the existing transmission grid and provide interconnection between UNS Electric load centers in Mohave County.
Schedule	
Construction Start	Under Study
Construction End	Under Study
Is Certificate Necessary	CEC Case 88

Griffith – North Havasu Transmission Project



Santa Cruz County

Transmission Projects

Line Designation	Nogales Transmission Line #2
Size	
Voltage	115 kV
Capacity	110 MVA (thermal)
Point of Origin	Gateway 345/115 kV substation (new)
Point of Termination	Valencia Substation (existing)
Length (miles)	Approximately 3
Routing	Generally South and East from TEP's proposed Gateway 345 kV substation crossing Interstate 19 and traversing private ROW. Routing to be within the corridor as described in the CEC.
Purpose	The additional transmission line increases transmission system reliability and provides additional load serving capacity to UNS Electric Santa Cruz Service Area.
Date	
Construction Start	Dependent upon permitting
Construction End	Dependent upon permitting
Is Certificate Necessary	CEC in Case 111

Project Designation	Gateway 345/115 kV Substation
Project Description	Located near Nogales, Arizona
Voltage	Operating voltages include: 345 kV, 115 kV, and 13.2 kV (future)
Capacity	100 MVA
Size	Approximately 265 feet x 450 feet
Equipment	Two 345 kV power circuit breakers, three 115 kV power circuit breaker bays (one installed initially) and associated switches, bus, fittings, relay metering and communication equipment.
Transmission Source	TEP's South-Gateway 345 kV line
Purpose	The proposed substation facilities provide an interconnection and source for UNS Electric's second transmission line to UNS Electric's Santa Cruz Service Area and a future distribution substation as provided for in CEC.
Schedule	
Construction Start	Dependent upon permitting
Construction End	Dependent upon permitting
Is Certificate Necessary	CEC in Case 111

Project Designation	Valencia 115 kV Substation Expansion
Project Description	Located near Nogales, Arizona
Voltage	Operating voltages include 115 kV and 13.2 kV
Capacity	110 MVA (line capacity)
Size	Approximately 200 feet x 200 feet
Equipment	Addition of two 115 kV line terminations, three 115 kV power circuit breakers, and associated switches, bus, fittings, relay metering and communication equipment.
Transmission Source	Gateway 345/115 kV Substation
Purpose	The proposed substation facilities provide an interconnection and source for UNS Electric's second transmission line to UNS Electric's Santa Cruz Service Area and a future distribution substation as provided for in CEC.
Schedule	
Construction Start	Dependent upon permitting
Construction End	Dependent upon permitting
Is Certificate Necessary	CEC in Case 111

Nogales Transmission Line #2

