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February 1, 2017

Docket Control  
Arizona Corporation Commission  
1200 West Washington Street  
Phoenix, AZ 85007

Re: Notice of Filing -UNS Electric, Inc.'s Ten-Year Plan  
Transmission Projects 2017-2026  
Docket No. E-00000D-17-0001

RECEIVED  
AZ CORP COMMISSION  
DOCKET CONTROL  
2017 JAN 30 P 4: 43

Pursuant to A.R.S § 40-360.02, attached is an original and thirteen copies of UNS Electric Inc.'s Ten-Year Plan Transmission Projects for years 2017-2026.

If you have any questions, please contact me at (520) 884-3680.

Sincerely,

Melissa Morales  
Regulatory Services Coordinator

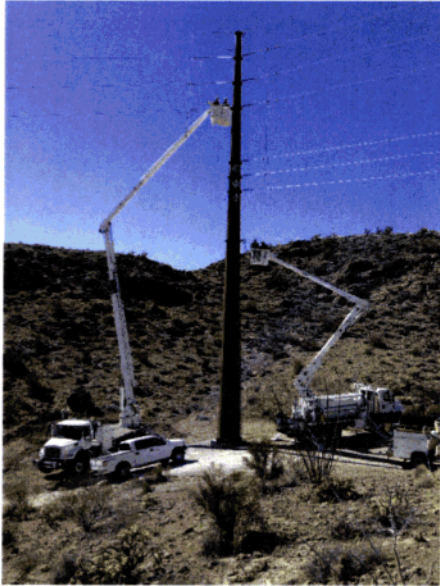
cc: Compliance Section, ACC

Arizona Corporation Commission

**DOCKETED**

**JAN 30 2017**

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**UniSource**Energy  
**SERVICES**

**UNS Electric, Inc.**

**TEN-YEAR PLAN  
TRANSMISSION  
PROJECTS  
FOR YEARS  
2017-2026**



JANUARY 31, 2017  
DOCKET NO: E-00000D-17-0001

UNS ELECTRIC, INC.  
 TEN-YEAR PLAN  
 TRANSMISSION PROJECTS  
 2017-2026

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UNS ELECTRIC, INC.  
TEN YEAR PLAN  
TRANSMISSION PROJECTS  
2017-2026

**Introduction**

**General Overview**

Pursuant to A.R.S. § 40-360.02, UNS Electric, Inc. (“UNSE”) hereby submits its 2017-2026 Ten-Year Plan for Transmission Facilities (“TYP”) to the Arizona Corporation Commission (“Commission”). This TYP describes the transmission facility projects of 115 kV or higher that UNSE may construct between the years 2017-2026.

The TYP has been prepared consistent with in-service dates for new distribution substations as determined by UNSE’s distribution planning process. The study was conducted in 2016 and the results of the study are represented in the TYP. Estimated in-service dates may vary depending upon changes in regulatory requirements, underlying assumptions, other utilities’ plans and economic conditions.

Included with this plan are transmission facilities planned for both the Mohave and Santa Cruz County service territories. Mohave County’s sub-transmission facilities are radial and are not part of the Bulk Electric System (“BES”). UNSE Facilities in Mohave County are served via Western Area Power’s (“WAPA”) transmission system. UNSE’s Santa Cruz County facilities are radial and are served via Tucson Electric Power Company’s (“TEP”) transmission system.

## **Load Forecast**

The TYP was developed based on UNSE's Corporate Forecast approved in December 2015. This forecast takes into account solar distributed renewable generation ("DG") and energy efficiency ("EE") programs, as well as UNSE's retail customer load. The load reduction due to DG and EE did not alter the TYP.

## **Project Status Definitions**

### **Planned Project(s)**

The TYP includes projects related to UNSE's 230 kilovolt ("kV") Extra High Voltage ("EHV") transmission system. There are no planned projects for UNSE's 138 kV High Voltage ("HV") transmission system.

### **Conceptual Projects**

In addition to the planned EHV projects, the TYP includes details on "conceptual" projects for the EHV and HV transmission systems. These conceptual projects are not expected to be built within the ten-year planning horizon and are shown as "To Be Determined" ("TBD") for the in-service date. These conceptual projects may become planned projects as they move into the ten-year planning horizon in subsequent studies.

## **Biennial Transmission Assessment Orders ("BTA")**

In the First BTA Decision (Decision No. 63876, July 25, 2001), the Commission ordered utilities to file, with their TYP's, internal planning criteria and system ratings with limiting elements identified. Upon request from the Commission, TEP can provide this information

under separate cover with confidential treatment<sup>1</sup> UNSE's transmission systems are planned to meet the North American Electric Reliability Corporation ("NERC") Transmission Planning ("TPL") Standards effective at the time the study was conducted. UNSE's internal planning criteria is consistent with these standards.

Consistent with the Sixth BTA Decision (Decision No. 72031, December 10, 2010), the Commission ordered that the TYP contain planned transmission re-conductor projects, substation transformer replacements, reactive compensation projects, and an evaluation of DG and EE programs that will affect UNSE's retail customer load and future transmission needs. These items have been included, however, the evaluation of the effects of DG and EE are consistent with the requirements as set forth in the Eighth (Decision No. 74785, Oct 24, 2014).

In the Seventh BTA Decision (Decision No. 73625, December 12, 2012), the Commission ordered suspension of the requirement for Reliability Must Run ("RMR") studies and implemented criteria for re-starting RMR studies based on a biennial review of the factors set forth in Seventh BTA Decision. Criteria that would trigger re-starting the RMR studies include:

- An increase of more than 2.5% in the load forecast since the previous BTA (e.g., relative to the final RMR study year for which the RMR studies were last filed.
- Planned retirement (or an unexpected long-term outage during the summer months of June, July or August) of a transmission or substation facility required to serve an RMR load pocket, unless a facility being retired will be replaced with a comparable facility before the next summer season.
- Planned retirement (or an unexpected long-term outage during the summer months of June, July or August) of a generating unit in an RMR load pocket that

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<sup>1</sup> Consistent with securing and sharing confidential treatment of Critical Energy Infrastructure Information under FERC Order No. 833 (November 17, 2016, Docket RM16-15-000).

has been utilized in the past for RMR purposes, unless a generator being retired will be replaced with a comparable unit before the next summer season.

- A significant customer outage in an RMR load pocket during summer months.

Upon review of these factors, UNSE is not required to conduct RMR studies for the Santa Cruz RMR load pocket.

In the Eighth BTA Decision (Decision No. 74785, Oct 24, 2014), the Commission ordered utilities with retail load to file a study with the Commission as part of the Ninth BTA docket identifying the effects of DG and EE installation and/or programs. UNSE does not have any BES facilities in the Mohave County area. The UNSE load served in Santa Cruz County is served from the TEP Vail substation. The effects of DG and EE for Santa Cruz County have been considered in the TEP study report submitted under the TEP TYP.

In the Ninth BTA Decision (Decision No. 75817, November 21, 2016), the Commission confirmed that each study required for the Ninth BTA demonstrated that the Arizona transmission system is reasonably prepared to reliably serve load in the ten year timeframe. The Commission confirmed the continued suspension of the requirement to perform RMR studies in every BTA. The Commission also confirmed the suspension of the requirement for TEP to file the Southwest Area Transmission Planning Group (“SWAT”) Coal Reduction Assessment Task Force (“CRATF”) report on behalf of the Arizona utilities within 30 days of completion as directed in Decision No. 74785. Utilities shall participate in the WestConnect Regional Planning process and coordinate Arizona reliability studies with WestConnect study and scenario results, and TEP will report the findings on behalf of the utilities in future BTA Proceedings.

### **Transmission System Maps Descriptions**

The TYP includes system maps depicting the existing transmission networks along with the addition of planned or conceptual projects, followed by individual project descriptions for

both the EHV and HV transmission systems. The maps and related descriptions are intended to be general planning-level documents to describe projects conceptually. The maps and related descriptions are not intended to represent specific routes or precise geographic project locations. The conceptual Maps and associated descriptions of the planned projects are attached.

### **Mohave County**

UNSE's Mohave County load is dependent on the WAPA's ability to serve the majority of its transmission needs in Northwest Arizona. The Commission has approved a Certificate of Environmental Compatibility ("CEC") (Case No. 88) for the proposed Griffith – North Havasu 230 kV line. The Commission subsequently extended the expiration date of this CEC to 2022. The timing for construction of this project will be determined by the growth of UNSE's retail load and limitations on the ability of the WAPA's transmission system to support Mohave County's load. A portion of this project (North Havasu to Franconia Substation) was completed in 2007 and is currently energized at 69 kV to support distribution needs at the Franconia Substation. UNSE will continue to work with the Arizona Subcommittee of SWAT<sup>2</sup>, or a designated work group of SWAT, to address issues in Mohave County.

### **Santa Cruz County**

UNSE's Santa Cruz County is served from a radial line that begins at TEP's 138 kV Vail substation ("Vail") and continues south where it terminates at the UNSE 138 kV Valencia substation ("Valencia"). To serve the Santa Cruz County loads, power flows from Vail to the termination point of Valencia. In the event the 138 kV line is out of service or load exceeds the capacity of the line, UNSE has four (4) generators located at Valencia and a tie to the TEP 46kV system that can continue to serve the Santa Cruz load.

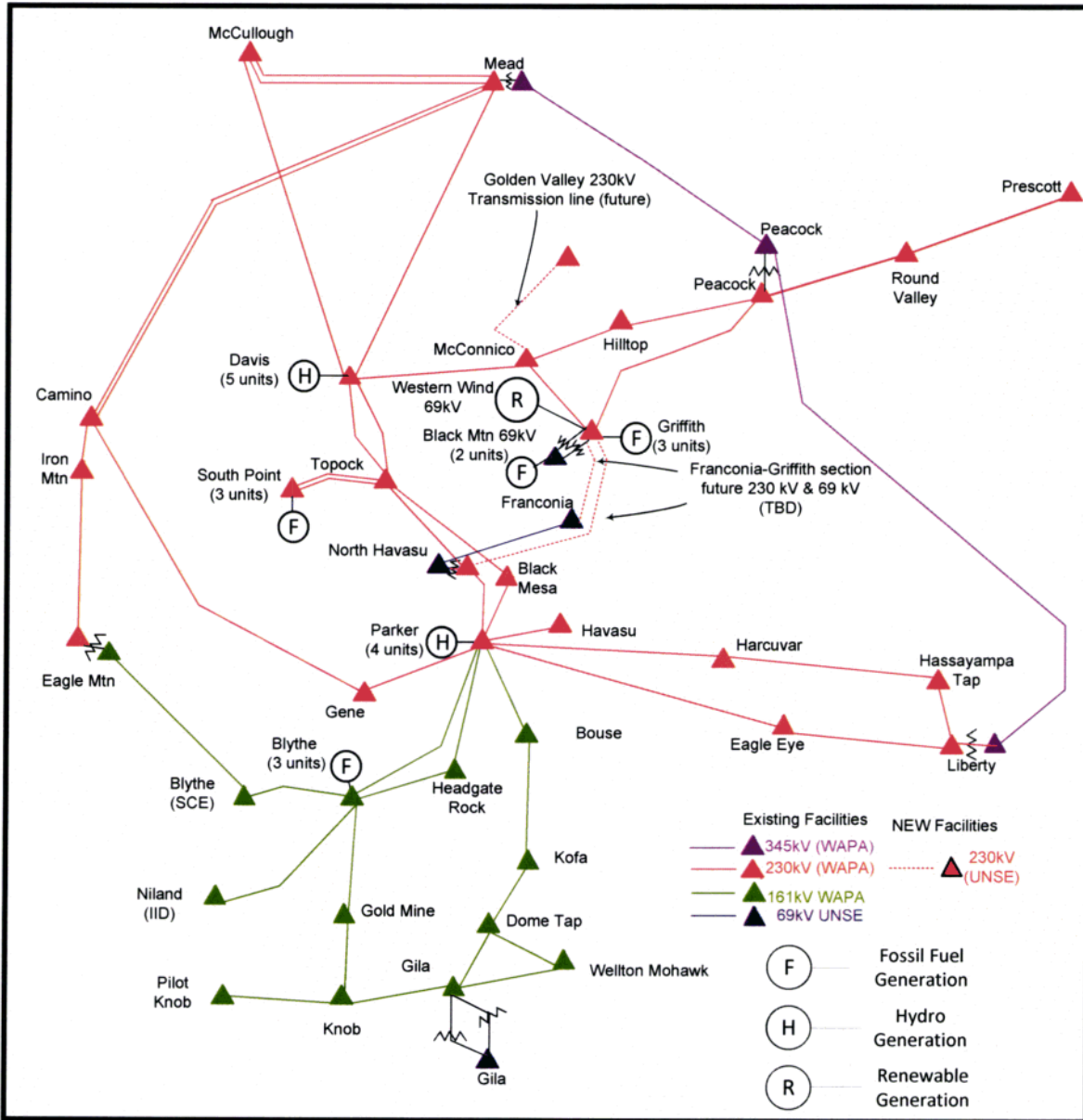
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<sup>2</sup>See <http://regplanning.westconnect.com>

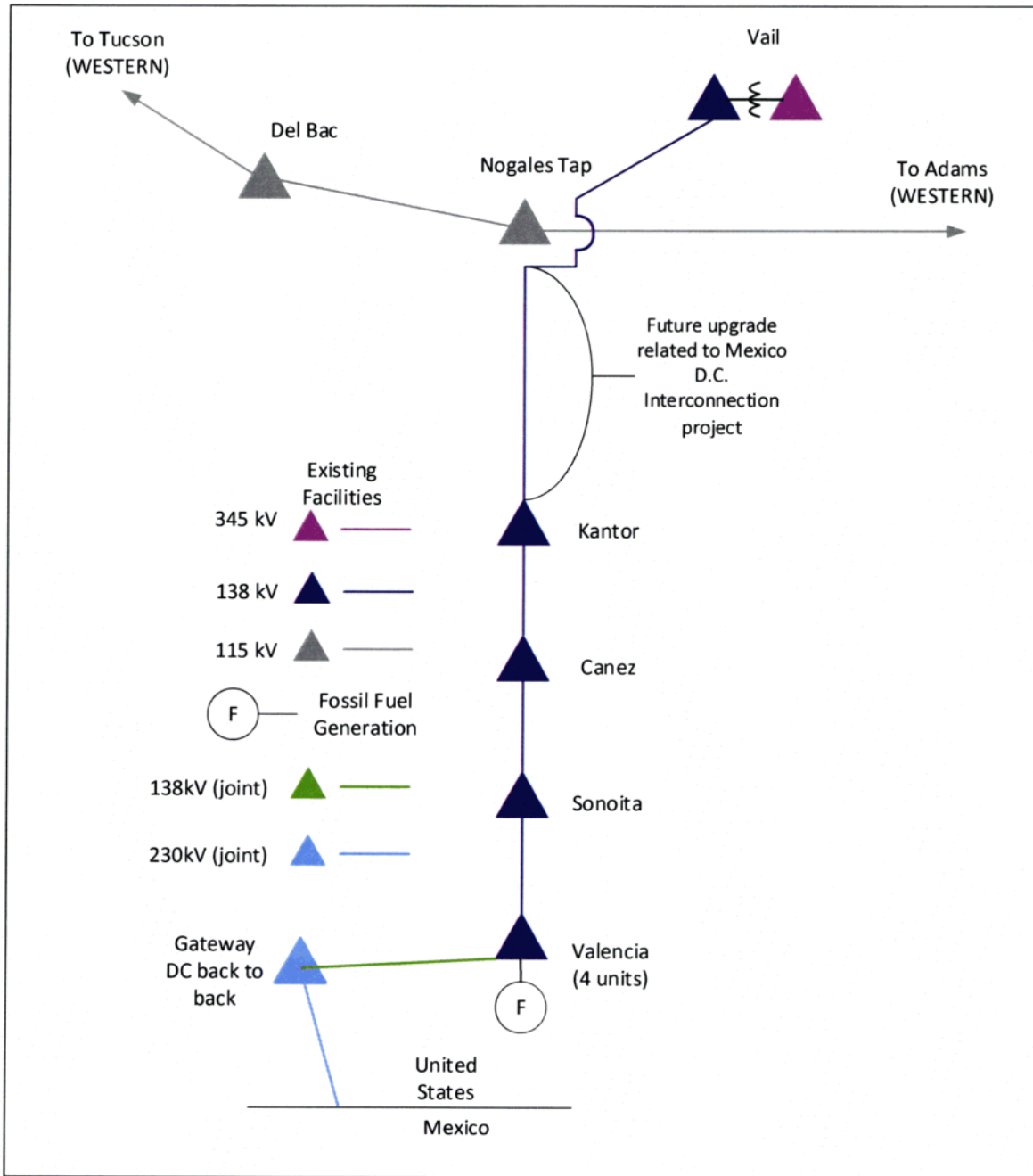


# Transmission System Maps

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**Figure 1.** Map of Mohave County Transmission System



**Figure 2.** Map of Santa Cruz County Transmission System

# Planned EHV Transmission Project

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UNS ELECTRIC, INC. TEN-YEAR PLAN TRANSMISSION PROJECTS	
MOHAVE COUNTY	
Line Designation:	
<b><i>Golden Valley 230 kV Transmission Line</i></b>	
Facility Parameters:	
a) Voltage:	230 kV
b) Capacity:	TBD
c) Point of Origin:	Harris Substation
d) Point of Termination:	Mineral Park Substation
e) Length:	Approximately 17 miles
Routing:	
	TBD
Purpose:	
	Improve load serving capability to West Golden Valley
Date:	
a) Construction Start:	2018
b) In-Service Date:	2021
Is Certificate Necessary:	
	Yes
Technical Studies:	
	Required

## Conceptual EHV Transmission Projects

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UNS ELECTRIC, INC. TEN-YEAR PLAN TRANSMISSION PROJECTS	
MOHAVE COUNTY	
Line Designation:	
<b>Griffith – North Havasu Transmission</b>	
Facility Parameters:	
a) Voltage:	230 kV
b) Capacity:	300 MVA (thermal)
c) Point of Origin:	Griffith Substation
d) Point of Termination:	North Havasu Substation
e) Length:	Approximately 40 miles
Routing:	West of and parallel to I-40 to Santa Fe Ranch Rd. 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.
Date:	
a) Construction Start:	North Havasu to Franconia, 2007
b) In-Service Date:	North Havasu to Franconia, 2007 <b>Complete</b> Franconia to Griffith, TBD
Is Certificate Necessary:	Case # 88 <sup>3</sup> -- An extension was approved by the ACC in July 2012 which expires in 2022.
Technical Studies:	Studies completed via Central Arizona Transmission Study group, Colorado River Transmission Study group, and SWAT, and is part of the WestConnect Transmission Plan

<sup>3</sup> Hilltop to Griffith portion of line already completed by Western Area Power.

UNS ELECTRIC, INC. TEN-YEAR PLAN TRANSMISSION PROJECTS	
SANTA CRUZ COUNTY	
Line Designation:	
<b><i>230kV Transmission Line from Future Gateway Substation to US / Mexico border</i></b>	
Facility Parameters:	
a) Voltage:	230 kV
b) Capacity:	150 / 300 MW (phased)
c) Point of Origin:	Gateway Substation
d) Point of Termination:	U.S. / Mexico border where line interconnects to Mexico line to substation within Nogales, Sonora
e) Length:	Approximately 5 miles (to US / Mexico Border)
Routing:	A 230 kV line would extend south from the future Gateway substation owned by Tucson Electric Power Company which will be the site of a DC converter station, then south to the border.
Purpose:	Proposed joint project by UNSE, Hunt Power, L.P., and others to reinforce the existing transmission grid and provide interconnection between the Western Interconnection in the U.S and the Mexico grid.
Date:	
a) Construction Start:	2018
b) In-Service Date:	2019
Is Certificate Necessary:	Some of the alignment may be covered by siting case 111.
Technical Studies:	Studies are under way.



# Conceptual HV Transmission Projects

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UNS ELECTRIC, INC. TEN-YEAR PLAN TRANSMISSION PROJECTS	
SANTA CRUZ COUNTY	
Line Designation:	
<b><i>Upgrade to Nogales Tap to Kantor portion of existing 138kV line serving Santa Cruz County</i></b>	
Facility Parameters:	
a) Voltage:	138 kV
b) Capacity:	System dependent
c) Point of Origin:	Location of old Nogales Tap Connection
d) Point of Termination:	Kantor Substation
e) Length:	Approximately 30 miles
Routing:	Expected to follow existing alignment
Purpose:	To improve reliability and increase the capacity of an older section of 138kV line that will in part support the interconnection request of the Mexico D.C. Interconnection project.
Date:	
a) Construction Start:	2018
b) In-Service Date:	2019
Is Certificate Necessary:	Amendment to CEC case No. 78, Decision 56097.
Technical Studies:	Studies are under way.

UNS ELECTRIC, INC. TEN-YEAR PLAN TRANSMISSION PROJECTS	
SANTA CRUZ COUNTY	
Line Designation:	
<b><i>138kV Transmission Line from Valencia Substation to Future Gateway Substation</i></b>	
Facility Parameters:	
a) Voltage:	138 kV
b) Capacity:	150 / 300 MW (phased)
c) Point of Origin:	Valencia Substation
d) Point of Termination:	Gateway Substation
e) Length:	TBD
Routing:	A 138 kV line would extend west and south from Valencia Substation to a site called Gateway owned by Tucson Electric Power Company.
Purpose:	Proposed joint project by UNSE, Hunt Power, L.P., and others to reinforce the existing transmission grid and provide interconnection between the Western Interconnection in the U.S and the Mexico grid.
Date:	
a) Construction Start:	2018
b) In-Service Date:	2019
Is Certificate Necessary:	Some of the alignment may be covered by siting case 111.
Technical Studies:	Studies are under way.

## Conceptual HV Reactive Projects

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UNS ELECTRIC, INC. TEN-YEAR PLAN TRANSMISSION PROJECTS	
SANTA CRUZ COUNTY	
Line Designation:	
<b><i>138kV SVC located at Future Gateway Substation</i></b>	
Facility Parameters:	
a) Voltage:	138 kV
b) Capacity:	System dependent
c) Point of Origin:	TBD
d) Point of Termination:	TBD
e) Length:	N/A
Routing:	N/A
Purpose:	
	To provide voltage support due to the power transferred across the future Mexico DC interconnection.
Date:	
a) Construction Start:	2018
b) In-Service Date:	2019
Is Certificate Necessary:	
	Amendment to CEC case No. 78, Decision 56097.
Technical Studies:	
	Studies are under way.