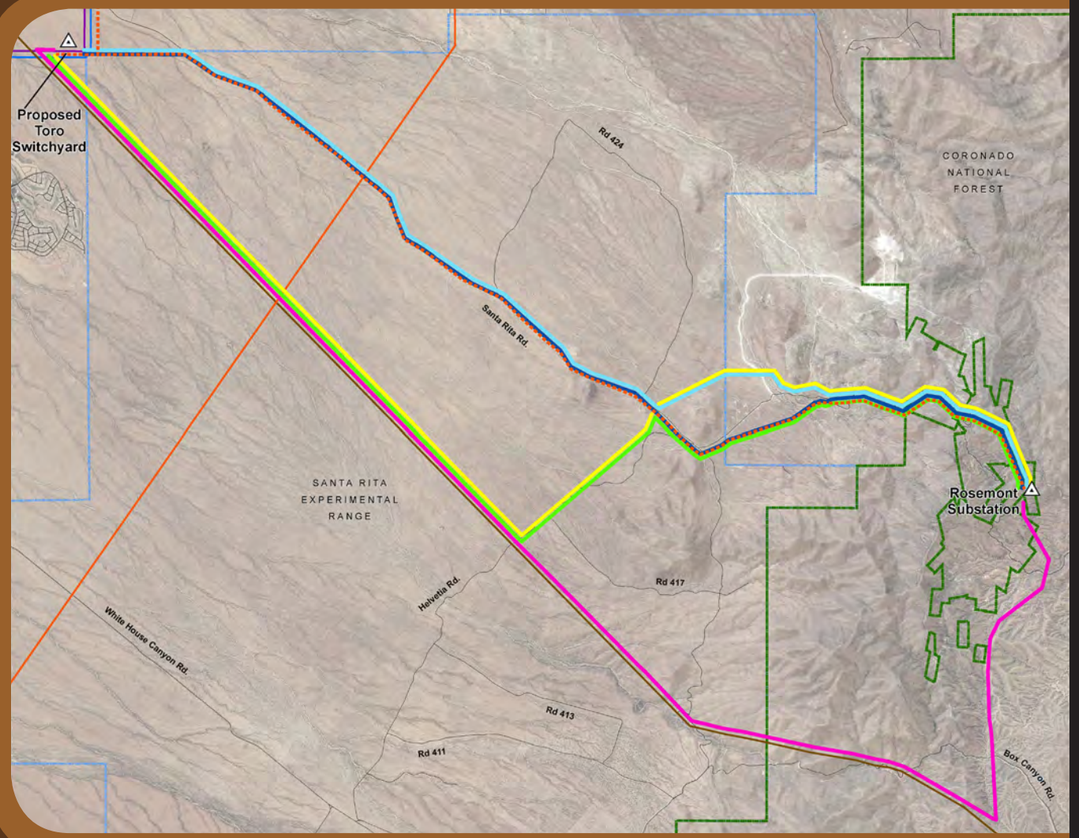
Rosemont 138kV Transmission Line Project

Application for a Certificate of Environmental Compatibility



Prepared for

Arizona Power Plant and Transmission Line Siting Committee

Submitted by

Tucson Electric Power Company

November 2011
Case No. 164

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BEFORE THE
POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE

In the matter of the Application of Tucson Electric Power Company for a Certificate of Environmental Compatibility authorizing the Rosemont 138kV Transmission Line Project, which includes the construction of a new 138kV transmission line and associated facilities originating at the proposed Toro Switchyard, Section 29, Township 17 South, Range 14 East, and terminating at the Rosemont Substation, Section 30, Township 18 South, Range 16 East, each located within Pima County, Arizona.

APPLICATION FOR A
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

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LIST OF ACRONYMS AND ABBREVIATIONS

ACC	Arizona Corporation Commission
AM	amplitude modulation
AN	audible noise
APE	area of potential effect
Arizona Register	Arizona Register of Historic Places
ASLD	Arizona State Land Department
AZGFD	Arizona Game and Fish Department
BLM	Bureau of Land Management
CCC	Civilian Conservation Corps
CEC	Certificate of Environmental Compatibility
CNF	Coronado National Forest
EHV	extra-high voltage
EIS	Environmental Impact Statement
EMF	electric and magnetic fields
EPG	Environmental Planning Group (EPG, Inc.)
ESA	Endangered Species Act
FM	frequency modulation
FR	Forest Road
IRA	Important Riparian Area
KOP	Key Observation Point
kV	kilovolt
MSCP	Multi-species Conservation Plan (Pima County)
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
PCA	Priority Conservation Area
RMP	Resource Management Plan
Rosemont	Rosemont Copper Company
ROW	right-of-way
SHPO	State Historic Preservation Office
SIO	Scenic Integrity Objective
SMS	Scenery Management System
SR	State Route
SRER	Santa Rita Experimental Range
TEP	Tucson Electric Power
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
VMS	Visual Management System
VQO	Visual Quality Objective
VRM	Visual Resource Management

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INTRODUCTION

PROJECT OVERVIEW

Tucson Electric Power (TEP), the applicant, is seeking a Certificate of Environmental Compatibility (CEC) for a proposed 138-kilovolt (kV) transmission line, in response to a request from Rosemont Copper Company (Rosemont) to serve electrical power to the Rosemont Copper operations facilities in the Santa Rita Mountains. The proposed line would run generally southeast approximately 13 miles from a proposed switchyard, the Toro Switchyard (to be located on private property owned by Rosemont, approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19 near the Country Club Road and Corto Road alignments), to a breaker constructed on Rosemont property. Rosemont intends to construct a substation at its operations facility that will connect to the breaker. The Rosemont Substation is part of Rosemont's mining operations and is not a part of this application. When the Rosemont Substation is referred to in this document as the termination point, it is referenced in this context. The proposed Toro Switchyard will tap into the existing 138kV transmission line that extends from the South Substation to the Green Valley Substation. The line would cross land under the following jurisdictions: Town of Sahuarita; Arizona State Land Department (ASLD) (which leases the majority of its land in this area to University of Arizona – Santa Rita Experimental Range [SRER]); Pima County; Coronado National Forest (CNF); and potentially, the Bureau of Land Management (BLM), depending upon the final route chosen. The line will require approval and right-of-way (ROW) from ASLD for any of the routes identified since they all cross state land. Figure 1 shows the project location, proposed Toro Switchyard location, Rosemont Substation, and land jurisdictions crossed, as well as the preferred and alternative routes.

This application identifies five alternative routes that were studied in detail. Of these, TEP has identified a preferred route and four alternative routes for consideration by the Arizona Power Plant and Transmission Line Siting Committee (Committee) and Arizona Corporation Commission (ACC). Details of the studies performed to arrive at the final set of alternatives are provided in Exhibit B – Environmental Report of this application.

PROJECT PURPOSE AND NEED

The primary purpose and need for the proposed transmission line is to provide timely, adequate, and reliable power to Rosemont for construction and operation of the mine facilities. TEP is proposing to construct a 138kV transmission line that would meet the needed capacity of 118 MW. It would run southeast approximately 13 miles from the proposed Toro Switchyard, approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19, just west of the Country Club Road and Corto Road alignments, to the Rosemont Substation, which would be located in the Santa Rita Mountains on Rosemont property.

ENVIRONMENTAL STUDIES AND ROUTE SELECTION PROCESS

TEP selected Environmental Planning Group (EPG, Inc.), a consulting firm, to conduct an environmental planning process that began in mid-2008 and continued up to the filing of this application. The goal of this process was to identify suitable transmission line routes that meet the project's purpose and need. The environmental planning process started with a review of the area at a regional scale. As the process advanced, the focus was narrowed, and the level of detail considered for route identification and evaluation was increased. In the very early stages of the study process for this project, TEP was anticipating the need to connect the new 138kV line to its extra-high voltage (EHV) system at either its South Substation or its Vail Substation in order to have sufficient capacity to serve Rosemont's needs (see Exhibit B – Environmental Report). After the engineering analysis was completed, the need to extend the new 138kV line back to TEP's EHV system was eliminated, and TEP determined that a 138kV line tapping the existing South to Green Valley 138kV line would have sufficient capacity. Once this was determined, the regional environmental study area was reduced. This change resulted in the regional study area displayed in Figure 1. Also, Rosemont at one time indicated a need for transmission dedicated to providing construction power pending the completion of the transmission line from the Toro Switchyard to the Rosemont Substation. Potential options were identified to meet this separate and additional need during the environmental planning and public outreach process. Later, Rosemont indicated that it no longer had a need for a separate transmission line for construction power. This is because the mine-construction activities that will require significant power can be performed when the line from the Toro Switchyard to the Rosemont Substation is completed. Therefore, TEP eliminated the separate construction power route options from the project. The Preferred Route and four alternatives are options to supply all of Rosemont's power needs for construction and operation of the mine.

The environmental planning approach allowed for consideration of a broad range of reasonable alternative transmission line locations early in the process. It also included solicitation of public input on potential alternatives and focus on specific details and construction feasibility prior to TEP identifying the five final alternative transmission line routes. The result of this process was the identification of five alternative routes that are environmentally compatible while still meeting TEP engineering system requirements, constructability standards, and cost considerations. Exhibit B provides details of the environmental planning process.

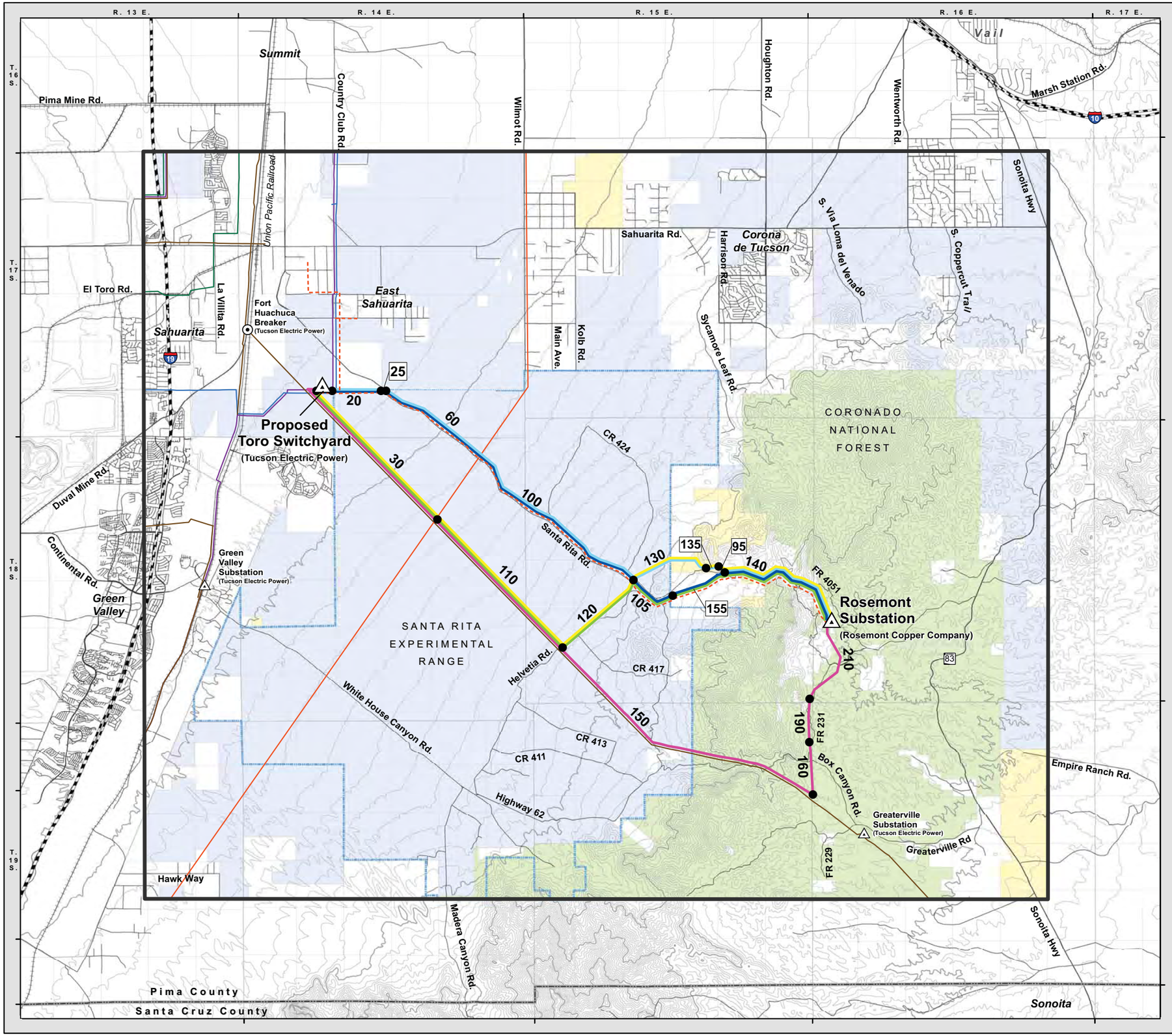
PUBLIC AND AGENCY INVOLVEMENT OVERVIEW

As a part of the environmental planning process, a comprehensive public and agency involvement program was implemented for the project. This component was supported by TEP to ensure an open and meaningful public dialogue and assist TEP in understanding the community's needs and obtaining input regarding the locations of the alternative transmission line routes. TEP, with assistance from EPG, initiated this program to notify and educate the public, agencies, community leaders, and other affected stakeholders regarding the need for the project, as well as to allow participation throughout the environmental planning process.

Rosemont 138kV Transmission Line Project

Project Location

Figure 1



Legend

Project Features

- Preferred Route
- Alternative Route 1
- Alternative Route 2
- Alternative Route 3
- Alternative Route 4
- Regional Study Area
- Proposed Water Pipeline Alignment

- Alternative Link
- Link Node
- Link Identification Number

Note: *The alternative routes shown on the map are a graphical representation.*

Land Ownership

- U.S. Forest Service
- Bureau of Land Management
- Arizona State Land Department

Special Management Areas

- Santa Rita Experimental Range

General Reference Features

- Substation or Switchyard Site
- Breaker Site
- Existing 345kV Transmission Line
- Existing 230kV Transmission Line
- Existing 138kV Transmission Line
- Existing 115kV Transmission Line
- Existing 46kV Transmission Line
- Interstate
- Highway
- Secondary Road
- Railroad
- Township Boundary
- Section Boundary
- County Boundary

Vicinity Map

Sources: StreetMap USA 2011; TEP 2011; Pima County 2011, Rosemont Copper Company 2011 EPG 2011

0 1 2 3 4 Miles

Contour interval = 100 ft.

November 2011

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Elements of the program included, but were not limited to, stakeholder group meetings, public open house meetings, local community meetings, newsletter mailings, a telephone information line, and website information. Exhibit J – Special Factors contains additional details of public and agency involvement activities.

PROPOSED TRANSMISSION LINES AND SWITCHYARD

Depending upon final route selection, the project will include the construction of approximately 13 to 18 miles of a 138kV transmission line between the proposed Toro Switchyard and the Rosemont Substation. The 138kV transmission line would follow an estimated 100-foot-wide ROW path acquired by lease or granted through the mining laws under the approval of a Mine Plan of Operations. The Rosemont Substation would be built on approximately 1 acre of Rosemont property, and the proposed Toro Switchyard on the western side of the study area would be on approximately 3 acres of Rosemont property. TEP has identified a preferred transmission line route and four alternative routes.

Preferred Route

The proposed transmission line route (Preferred Route) is approximately 13.2 miles long and originates at the proposed Toro Switchyard, located approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19. The route travels east approximately 1 mile and then southeast paralleling Santa Rita Road and a Rosemont water pipeline alignment that is part of the Rosemont mine plan of operations. Near the intersection of Santa Rita and Helvetia roads, the Preferred Route turns northeast and follows the Rosemont water pipeline alignment over Lopez Pass to the Rosemont Substation. This route would be located on land owned by the ASLD (which it leases to the SRER), CNF, and Rosemont.

The proposed transmission line and switchyard/substation sites satisfy the project purpose and need while providing a balance between public and agency input, potential environmental impacts, landowner considerations, and engineering and construction criteria. Figure 1 illustrates the Preferred Route.

ALTERNATIVE ROUTES

TEP has identified four alternatives to the Preferred Route that would satisfy the purpose and need. These alternative alignments also provide a balance between potential environmental impacts and engineering and construction criteria, but are contrary, to various extents, to preferences expressed by ASLD (leases to the SRER) and some members of the public.

Alternative Route 1

Alternative Route 1 is TEP's second choice and approximately 13.1 miles long. It follows the same path as the Preferred Route until approximately ½ mile northwest of the intersection of Helvetia and Santa Rita roads; instead of continuing southeast, Alternative Route 1 proceeds northeast in a new corridor, and then it turns east to connect to the Rosemont water pipeline

alignment that leads to the Rosemont Substation (similar to the Preferred Route). Figure 1 illustrates Alternative Route 1. This route would be located on land owned by the ASLD (which it leases to the SRER), BLM, Rosemont, and CNF.

Alternative Routes 2 and 3

Alternative Route 2 is approximately 15 miles long. It leaves the proposed Toro Switchyard, located approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19, in a westerly direction until it meets an existing TEP 46kV line (which serves Greaterville and Fort Huachuca areas). It then parallels the existing 46kV transmission line for approximately 7.6 miles in a southeasterly direction. The alignment turns northeast at Helvetia Road and generally follows this road until it intersects with the Rosemont water pipeline alignment at Santa Rita Road leading to the Rosemont Substation (similar to the Preferred Route). This route would be located on land owned by the ASLD (which it leases to the SRER), Rosemont, and CNF.

Alternative Route 3 is approximately 14.9 miles long. It follows the same path as Alternative Route 2 until approximately ½ mile northwest of the intersection of Helvetia and Santa Rita roads. Instead of continuing southeast along Santa Rita Road as in the Preferred Route and Alternative Route 2, Alternative Route 3 proceeds northeast in a new corridor (similar to Alternative Route 1) and then turns east to connect to the Rosemont water pipeline alignment that leads to the Rosemont Substation (similar to the Preferred Route). This route would be located on land owned by the ASLD (which it leases to the SRER), BLM, Rosemont, and CNF.

For both of these alternatives, the existing 46kV line would be consolidated onto the Project structures (subject to approval of the landowner) for the portion of the route that parallels the existing 46kV line, in order to reduce environmental impact. The existing 46kV structures would then be removed for this portion of these routes, based on approval by the landowner. Figure 1 illustrates Alternative Routes 2 and 3.

Alternative Route 4

Alternative Route 4 is approximately 18.2 miles long. Alternative Route 4 originates at the proposed Toro Switchyard, located approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19, and proceeds in a westerly direction until it meets an existing TEP 46kV line (which serves Greaterville and Fort Huachuca areas). It then parallels the existing 46kV transmission line in a southeasterly direction for approximately 14.1 miles and then turns north, leaving the existing 46kV alignment and paralleling portions of Forest Route (FR) 231, to the Rosemont Substation, a distance of approximately 4.1 miles (portions of which would be located within Rosemont mining operations area). For this alternative, the existing 46kV line would be consolidated onto the project structures (subject to approval of the landowner) for the portion of the route paralleling the 46kV alignment. The 46kV structures would then be removed for the 14.1 mile portion of Alternative Route 4 that is adjacent to the existing 46kV line, based on approval by the landowner. Figure 1 illustrates Alternative Route 4. This route would be located on land owned by the ASLD (which it leases to the SRER), CNF, and Rosemont.

APPLICATION FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

1. Name and address of Applicant:

Tucson Electric Power Company (TEP)
88 East Broadway, Tucson Arizona 85701
P.O. Box 711, Tucson, Arizona 85702

2. Name, address and telephone number of a representative of applicant who has access to technical knowledge and background information concerning this application, and who will be available to answer questions or furnish additional information:

Ed Beck
Director, Line Siting Services
Tucson Electric Power
88 East Broadway, Tucson Arizona 85701
P.O. Box 711, Tucson, Arizona 85702
(520) 884-3615

3. State each date on which the applicant has filed a ten-year plan in compliance with A.R.S. § 40-360.02, and designate each such filing in which the facilities for which this application is made were described. If they have not been previously described in a ten-year plan, state the reasons therefore.

The project is included in the TEP Ten-Year Plans filed in January of 2009, 2010, and 2011.

4. Description of the proposed facility, including:

a. With respect to an electric generating plant:

(not applicable)

b. With respect to a proposed transmission line:

i. Nominal voltage for which the line is designed; description of the proposed structures and switchyards or substations associated therewith; and purpose of constructing said transmission line.

The proposed project will incorporate single- and double-circuit 138kV structures. Double-circuit structures would be used for the consolidation with 46kV lines or distribution power lines, if applicable.

ii. Proposed structures:

The transmission line will be constructed using tubular steel monopole structures.

The structures would range between 75 and 150 feet above ground, depending on the span length and terrain. In limited cases, structures could be as tall as 199 feet for site specific clearance issues. The span length between structures would be approximately 750 feet, according to existing conditions and engineering requirements, to achieve

site-specific mitigation objectives. The tubular steel pole structures would have a self-weathering finish, and conductors would have a low-reflective (non-specular), dulled finish to reduce visibility.

Exhibit G – Concepts of Proposed Facilities contains a conceptual illustration of the proposed structures to be used for the project.

iii. Proposed switchyards/substations:

There are two proposed facilities to be constructed in association with this project. One would be the Rosemont Substation owned by Rosemont and which is not part of this Application. The other would be a switchyard (Toro) for tapping TEP's existing 138kV line and which is part of this Application. TEP would also install facilities before the Project terminates at the Rosemont Substation. That substation is part of the mining operations; therefore, it is not part of TEP's Application for approval of the Project. TEP will install a breaker (that will be operated by TEP) before the transmission line terminates at the Rosemont Substation. The proposed Toro Switchyard will include electrical equipment such as breakers and switches. TEP understands that the Rosemont Substation also will include transformers, in addition to other equipment such as switches and breakers. All equipment will be located within a perimeter fence. The Rosemont Substation would be located on Rosemont private property within the mining operations area in the Santa Rita Mountains. The facility would require approximately 1 acre of mining operations land owned by Rosemont.

The proposed Toro Switchyard site on the western end of the project is located in Pima County, east of the Town of Sahuarita, approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19, just west of the Country Club Road and Corto Road alignments. The facility would be located on private property (owned by Rosemont), within approximately 100 feet of the existing 138kV transmission line that will be tapped for this project, and require approximately 3 acres of land. The proposed Toro Switchyard would interconnect the proposed transmission line with the existing TEP 138kV transmission line that extends from the South Substation to the Green Valley Substation.

iv. Purpose of constructing said transmission line:

Electric utilities are required by the State of Arizona to provide electrical service to customers within their service territory upon request. The bulk of Rosemont's operations are within TEP's service territory, and Rosemont has requested that TEP provide electric power (Rosemont has identified 118 MW as its estimated load) to the Rosemont operations. The purpose of the project is to connect the Rosemont Substation to the existing TEP transmission system in order to provide adequate and reliable power for construction and operation of the Rosemont operations.

v. Description of geographical points between which the transmission line will be located:

The proposed transmission line will connect the following points:

- proposed Toro Switchyard on the western end in Section 29, Township 17 South, Range 14 East
- Rosemont Substation in Section 30, Township 18 South, Range 16 East

vi. Straight-line distance between such points:

The straight-line distance between the proposed Toro Switchyard on the western end and the Rosemont Substation is approximately 12 miles.

vii. Length of the transmission line for each alternative and sub alternative route:

- Preferred Route 13.2 miles (approximately)
- Alternative Route 1 13.1 miles (approximately)
- Alternative Route 2 15.0 miles (approximately)
- Alternative Route 3 14.9 miles (approximately)
- Alternative Route 4 18.2 miles (approximately)

viii. Nominal width of the right-of-way required, nominal length of spans, maximum height of supporting structures and minimum height of conductor above ground.

The applicant is requesting approval for a total ROW width of up to 100 feet, which would be located within a general 500-foot corridor to be approved as part of this CEC. The nominal length of span is approximately 750 feet. The typical height of supporting structures will vary from roughly 75 feet to 150 feet. In limited cases, structures could be as tall as 199 feet for site specific clearance issues. The minimum height of the conductor above existing grade will be 22 feet.

ix. To the extent available, the estimated costs of the proposed transmission line and route, stated separately. (If application contains alternative routes, furnish an estimate for each route and a brief description of the reasons for any variations in such estimates.)

Costs shown are for the total route. Differential costs (as compared to the Preferred Route) have been included for the alternative routes.

Table 1. Estimated Costs for the Preferred and Alternative Routes

Routes	Total Length/Size	Right-of-Way		Construction		Total Cost ($)
		Cost ($)	Increase from Preferred Route	Cost ($)	Increase from Preferred Route	
Preferred Route	**13.2 miles**	**758,000**	**—**	**9,633,000**	**—**	**10,391,000**
Alternative Route 1	13.1 miles	889,000	131,000	9,774,000	141,000	10,663,000
Alternative Route 2	15.0 miles	1,104,000	346,000	10,343,000	710,000	11,447,000
Alternative Route 3	14.9 miles	854,000	96,000	10,279,000	646,000	11,133,000
Alternative Route 4	18.2 miles	1,589,000	831,000	13,085,000	3,452,000	14,674,000

Table 1. Estimated Costs for the Preferred and Alternative Routes						
		Right-of-Way		Construction		
Routes	Total Length/Size	Cost ($)	Increase from Preferred Route	Cost ($)	Increase from Preferred Route	Total Cost ($)
Proposed Toro Switchyard	3.0 acres	90,000	—	14,600,000*	—	14,690,000
Rosemont Substation	1.0 acre	10,000	—	7,073,000	—	7,083,000
* This includes the cost of a statcom.						

x. Description of the proposed route and switchyard locations. (If application contains alternative routes, list routes in order of applicant's preference, with a summary of reasons for such order of preference and any changes such alternative routes would require in the plans reflected in (i) through (iv) hereof).

The applicant has identified one Preferred Route and four alternative routes for the project. The applicant is requesting a 500-foot siting corridor for the final route. The Preferred Route is illustrated on Figure 1, and more detailed information is provided in Exhibit A – Location and Land Use Maps.

PREFERRED ROUTE

The proposed transmission line route (Preferred Route) is approximately 13.2 miles and originates at the proposed Toro Switchyard, located approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19. The route travels east approximately 1 mile to Santa Rita Road and then southeast along Santa Rita Road, paralleling a Rosemont water pipeline alignment that will serve the Rosemont operations. Near the intersection of Santa Rita and Helvetia roads, the Preferred Route turns northeast and follows the Rosemont water pipeline alignment over Lopez Pass in the Santa Rita Mountains to the Rosemont Substation. The water pipeline ROW would be 30 feet wide and include a 14 to 20-foot permanent access road for construction, operation, and maintenance. When co-located with the water pipeline, the transmission line ROW (100') would be centered to include the entire water pipeline ROW so that the access road could be shared which would reduce construction disturbance. This route would be located on land owned by the ASLD (which it leases to the SRER), Rosemont, and CNF.

The proposed transmission line and switchyard/substation sites satisfy the project purpose and need while providing a balance between public and agency input, potential environmental impacts, and engineering and construction criteria. Figure 1 illustrates the Preferred Route.

The following links (or segments that form a route), referenced in Figure 1, were combined to form the Preferred Route: 20, 25, 60, 100, 105, 155, and 140.

ALTERNATIVE ROUTES

TEP has identified four alternatives to the Preferred Route that it believes satisfy the purpose and need. These alternative alignments also provide a balance between potential environmental impacts and engineering and construction criteria, but are contrary to preferences expressed by ASLD (which it leases to the SRER), some members of the public, and Rosemont.

Alternative Route 1 – Alternative Route 1 is TEP's second choice and is approximately 13.1 miles long. It follows the same path as the Preferred Route until approximately ½ mile northwest of the intersection of Helvetia and Santa Rita roads; instead of continuing southeast, Alternative Route 1 proceeds northeast in a new corridor and then turns east to connect to the Rosemont water pipeline alignment that leads over Lopez Pass to the Rosemont Substation. Figure 1 illustrates Alternative Route 1. This route would be located on land owned by the ASLD (which it leases to the SRER), BLM, Rosemont, and CNF.

The following links, referenced in Figure 1, were combined to form Alternative Route 1: 20, 25, 60, 100, 130, 135, 95, and 140.

Alternative Routes 2 and 3 – Alternative Route 2 is approximately 15 miles long. It leaves the proposed Toro Switchyard, located approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19, in a westerly direction until it meets an existing TEP 46kV line (which serves Greaterville and Fort Huachuca areas). It then parallels the existing 46kV transmission line for approximately 7.6 miles in a southeasterly direction. The alignment turns northeast at Helvetia Road to intersect with the Rosemont water pipeline alignment at Santa Rita Road leading over Lopez Pass to the Rosemont Substation. This route would be located on land owned by the ASLD (which it leases to the SRER), Rosemont, and CNF.

The following links, referenced in Figure 1, were combined to form Alternative Route 2: 30, 110, 120, 105, 155, and 140.

Alternative Route 3 is approximately 14.9 miles long. It follows the same path as Alternative Route 2 until approximately ½ mile northwest of the intersection of Helvetia and Santa Rita roads. Instead of continuing southeast along Santa Rita Road as in Alternative Route 2, Alternative Route 3 proceeds northeast in a new corridor and then it turns east to connect to the Rosemont water pipeline alignment that leads over Lopez Pass to the Rosemont Substation. This route would be located on land owned by the ASLD (which it leases to the SRER), BLM, Rosemont, and CNF.

The following links, referenced in Figure 1, were combined to form Alternative Route 3: 30, 110, 120, 130, 135, 95, and 140.

For both of these alternatives, the existing 46kV line would be consolidated onto the Project structures for the portion of the route paralleling the 46kV alignment up to Helvetia Road, in order to reduce environmental impact. The existing 46kV structures would then be removed for this portion of that line, subject to approval from the landowner. Figure 1 illustrates Alternative Routes 2 and 3.

Alternative Route 4 – Alternative Route 4 is approximately 18.2 miles long. Alternative 4 originates at the proposed Toro Switchyard, located approximately 3 miles south of Sahuarita Road and 3.5 miles east of I-19. It proceeds in a westerly direction until it meets an existing TEP 46kV line (which serves Greaterville and Fort Huachuca areas). It then parallels the existing 46kV transmission line in a southeasterly direction for approximately 14.1 miles and then turns north, leaving the existing 46kV alignment and paralleling portions of FR 231 to the Rosemont Substation, a distance of approximately 4.1 miles (portions of which would be located within the Rosemont mining operations area). For this alternative, the existing 46kV line would be consolidated onto the project structures for the portion of the route paralleling the 46kV alignment. The existing 46kV structures would then be removed for this portion of that line, subject to approval from the landowner. Figure 1 illustrates Alternative Route 4. This route would be located on land owned by the ASLD (which it leases to the SRER), CNF, and Rosemont.

The following links, referenced in Figure 1, were combined to form Alternative Route 4: 30, 110, 150, 160, 190, and 210.

xi. For each alternative route for which application is made, list the ownership percentages of land traversed by the entire route (federal, state, Indian, private, etc.)

The preferred and alternative routes would cross land owned by the following entities:

Table 2. Land Ownership Crossed by Alternative Routes (approximate miles)

Routes	USFS	BLM	ASLD	Private (Rosemont)	Total Length
Preferred Route	0.5 (3.8%)	—	9 (68.2%)	3.7 (28%)	13.2
Alternative Route 1	0.5 (3.8%)	1.1 (8.4%)	8.9 (67.9%)	2.6 (19.9%)	13.1
Alternative Route 2	0.5 (3.3%)	—	10.9 (72.7%)	3.6 (24%)	15
Alternative Route 3	0.5 (3.3%)	1.1 (7.4%)	10.8 (72.5%)	2.5 (16.8%)	14.9
Alternative Route 4	6.5 (35.7%)	—	11.4 (62.6%)	0.3 (1.7%)	18.2

5. List the areas of jurisdiction [as defined in A.R.S. § 40-360(1)] affected by each alternative site or route and designate those proposed sites or routes, if any, which are contrary to the zoning ordinances or master plans of any of such areas of jurisdiction.

The proposed and alternative routes cross unincorporated private (Rosemont) land; land under the jurisdiction of Pima County; and incorporated land under the jurisdiction of the Town of Sahuarita. The mileage of each route within each jurisdiction is as follows:

Table 3. Jurisdictions Crossed by Alternative Routes (approximate miles)

Routes	Unincorporated Pima County*	Incorporated Town of Sahuarita
Preferred Route	3.7	—
Alternative Route 1	2.6	—
Alternative Route 2	3.6	0.8
Alternative Route 3	2.5	0.8
Alternative Route 4	0.3	0.8

*Private lands crossed by the alternatives outside the Town of Sahuarita's boundaries

The Preferred Route and the alternative routes were identified through an environmental planning process that included coordination with Pima County, the Town of Sahuarita, ASLD, SRER, CNF, and the BLM. Representatives of these entities were consulted individually and/or in small group meetings. These representatives participated in the process, which offered multiple opportunities to provide input.

6. Describe any environmental studies applicant has performed or caused to be performed in connection with this application or intends to perform or cause to be performed in such connection, including the contemplated date of completion.

A comprehensive environmental study addressing the factors to be considered for a CEC was completed as part of the environmental planning process for the proposed project. The environmental study used secondary data, as well as data gathered during field reviews. The results of the environmental study process are described in Exhibit B – Environmental Report, as part of this application.

In conjunction with the environmental studies, an agency and public participation program was implemented in the environmental planning process to receive and incorporate feedback, disseminate information, determine preferences regarding alternative routes, and identify issues raised by the general public. The public and agency participation program has continued up through the submission of this application. Methods to achieve these objectives included, but were not limited to, stakeholder group meetings, public open house meetings, local community meetings, newsletter mailings, a telephone information line, and website information. More specific information regarding the agency and public participation program is provided in Exhibit B and Exhibit J of the application.

This application also includes a summary of the results of land use studies (exhibits A and B), biological evaluation (exhibits C and D), and visual and cultural resources evaluations (Exhibit E).

7. Rationale for alternatives selection:

The Preferred Route and alternative routes described in this application have been found by TEP and its environmental consultant (EPG) to be environmentally compatible with impacts equivalent to the impacts of previously approved routes and consistent with past ACC decisions regarding transmission line siting projects.

Rationale for each alternative is presented below.

Preferred Route – The Preferred Route takes advantage of existing access roads. This alignment would share an access road with the Rosemont water pipeline alignment for the entire length of the route. The use of existing access would minimize impacts to biological resources and reduce visual contrast. Also, the route is preferred by the major land owner, ASLD. Based on engineering considerations, the route is preferred because it is one of the shorter routes and is adjacent to the water pipeline allowing use of the pipeline access road, and it provides the opportunity to co-locate electrical distribution services for water booster stations on the same structures. SRER believes the Preferred Route minimizes the impacts to its activities. In addition, the only private property traversed by this route is owned by Rosemont.

Alternative Route 1 – This route has the same basic alignment as the Preferred Route, except it would use links 130, 135, and 95, instead of links 105 and 155. Similar to the Preferred Route, Alternative Route 1 would co-located with the water pipeline alignment for the majority of the route except along links 130,135, and 95. This small sub route was identified to reduce visual impacts of the proposed 138kV line to residences just southeast of a small hill. Although Alternative Route 1 will be partially screened by the topography and vegetation and is located farther away from the residences, it would require a new access road for links 130,135, and 95. New access would create additional disturbance to biological resources and have the potential to increase undesirable public access to areas within the SRER that currently are inaccessible. Upgrading of the access road will potentially affect a larger number of federally-protected Pima pineapple cacti that are present on the Preferred Route. The ASLD (which it leases to the SRER) has specifically objected to this route on multiple occasions during the planning process because of the potential impact to repeat photography locations, research study areas, and livestock facilities.

Alternative Route 2 – Alternative Route 2 consolidated with the existing 46kV transmission line, co-locates with Rosemont water pipeline alignment, and parallels portions of Helvetia Road. Although the alignment would be consolidated with the existing 46kV transmission line, the access road for this line is not currently being maintained, is nonexistent for portions, and would require upgrades for the construction and maintenance of the proposed project. Upgrading of the access road will potentially affect a larger number of federally-protected Pima pineapple cacti that are present on the Preferred Route or Alternative Route 1. Alternative Route 2 would reduce potential visual impacts from the proposed project because it would be co-located with existing vertical structures, reducing the overall project contrast. Potential impacts to residences in the Quail Creek subdivision would be partially to completely screened by vegetation and terrain for residences within ½ mile. Development of this alignment would require new access roads along a portion of Link 120. The ASLD (which leases state land to the SRER) has specifically objected to this alternative route on

multiple occasions throughout the planning process because of the potential impact to repeat photography locations, research study areas, and livestock facilities.

Alternative Route 3 – This route has the same basic alignment as Alternative Route 2, except it would use links 130,135, and 95 instead of links 105 and 155. Similar to Alternative Route 2, Alternative Route 3 would be consolidated with the existing 46kV transmission line, potentially reducing visual impacts and overall project contrast. Links 130, 135, and 95 will avoid visual concerns to residences along Santa Rita Road; however, it will require a new access road for links 130, 135, and 95 and create additional disturbance. Upgrading of the access road will potentially affect a larger number of federally-protected Pima pineapple cacti that are present on the Preferred Route or Alternative Route 1. The ASLD (which it leases to the SRER) has specifically objected to this alternative route on multiple occasions throughout the planning process because of the potential impact to repeat photography locations, research study areas, and livestock facilities.

Alternative Route 4 – Alternative Route 4 would be consolidated with the existing 46kV transmission line for the majority of its length near the junction of FR 231 (Link 160) on CNF land where it turns north to the Rosemont Substation. Alternative Route 4 is the longest route traversing the SRER and CNF. The majority of the route would require upgraded access; this would create additional disturbance to biological resources through areas of dense vegetation and steep slopes; however, portions of this alternative route would be within the Rosemont mining operations area. Impacts to federally-protected Pima pineapple cacti would be similar to Alternative routes 2 and 3. Alternative Route 4 crosses (spans) riparian habitat within Box Canyon, which supports several special status species. Alternative Route 4 was preferred by the Town of Sahuarita. The SRER (which leases state land from ASLD in the Study Area) and CNF have indicated concerns with this alternative route on multiple occasions throughout the planning process. The CNF expressed concerns about the visual impacts this alternative might cause. TEP believes that the Preferred Route and four alternative routes are all environmentally compatible based on the factors described in both the state siting statutes and in previous siting decisions. The following considerations justify TEP's belief:

- No long-term or adverse effects to populations of special status species or unique habitats are likely with the construction of the proposed routes.
- Visual impacts for residential, recreation, and travel route viewers would be reduced, based on the following assumptions:
  - The routes would generally co-locate with the Rosemont water pipeline alignment or be consolidated with the existing 46kV transmission line for the majority of the length of each route.
  - Materials used would include non-specular conductors and self-weathering structures.
- Land use impacts are avoided by using existing utility corridors/access roads for the majority of the routes. Portions of the routes not located within an existing or planned utility corridor are located on Rosemont private property or within the Rosemont operations boundary.

- Impacts to cultural resources are avoided through selective structure placement. In instances where sites cannot be avoided, impacts would be mitigated through the preparation and implementation of a Historic Properties Treatment Plan (HPTP).
- The Preferred Route and each of the alternatives presented in this application would meet the requirements for the Rosemont 138kV Transmission Line Project, provided that ASLD would grant authorization to use state lands for transmission facilities on those routes to which it currently objects.