FACILITY PLAN

Electric System
Transmission and Generation (2010 – 2020)

City of Albuquerque and Bernalillo County

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CITY of ALBUQUERQUE
NINETEENTH COUNCIL

COUNCIL BILL NO. R-11-311 ENACTMENT NO. R. 2012. 023

SPONSORED BY: Isaac Benton, by request

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RESOLUTION

ADOPTING THE FACILITY PLAN: ELECTRIC SYSTEM TRANSMISSION AND GENERATION (2010-2020) (THE "2010 ELECTRIC FACILITIES PLAN") AND REPEALING THE FACILITY PLAN: ELECTRIC SERVICE TRANSMISSION AND SUBTRANSMISSION FACILITIES (1995-2005) (THE "1995 ELECTRIC FACILITIES PLAN").

WHEREAS, the Council, the Governing Body of the City of Albuquerque, has the authority to adopt and amend plans for the physical development of areas within the planning and platting jurisdiction of the City as authorized by statute, Section 3-19-3, NMSA 1978, and by its home rule powers; and

WHEREAS, the Electric Facilities Plan is a Rank II facility plan that describes the electrical transmission system serving the City of Albuquerque and unincorporated Bernalillo County; and

WHEREAS, the City of Albuquerque adopted the 1995 Electric Facilities Plan in 1996 (Enactment Number R-1996-38) and adopted an amendment in 2000 (Enactment Number R-2000-116), but has not revisited the Plan since then; and

WHEREAS, staff of the City of Albuquerque, Bernalillo County and the Public Service Company of New Mexico (PNM) have worked together to update and clarify the existing Plan through technical team meetings; and

WHEREAS, staff of the City, the County and PNM have expressed their support for and recommendation of the 2010 ELECTRIC FACILITIES PLAN; and

WHEREAS, on July 14, 2011, the Environmental Planning Commission (EPC), in its advisory role on land use and planning matters, recommended approval to the City Council of the 2010 ELECTRIC FACILITIES PLAN; and

WHEREAS, the 2010 ELECTRIC FACILITIES PLAN includes a project list for 2010-2020, a streamlined and clarified review process, an updated glossary, text and graphics, and addresses generation technologies such as solar and wind.

BE IT RESOLVED BY THE COUNCIL, THE GOVERNING BODY OF THE CITY OF ALBUQUERQUE:

SECTION 1. The Facility Plan: Electric Service Transmission and Subtransmission Facilities Plan (1995-2005) (the "1995 Electric Facilities Plan"), adopted in 1996, is hereby repealed and replaced with the Facility Plan: Electric System Transmission and Generation (2010-2020) (the "2010 Electric Facilities Plan"). In the event of conflicting statements between the two Plans, the newer attached Plan shall govern.

SECTION 2. FINDINGS ACCEPTED. The City Council adopts the following findings as recommended by the Environmental Planning Commission (EPC):

1. This request is for a recommendation to the City Council regarding text amendments to the Electric Service Transmission and Subtransmission Facilities Plan (1995-2005) (the "1995 Electric Facilities Plan"), a Rank II facilities plan which describes the electric transmission system serving the City of Albuquerque and unincorporated Bernalillo County.

2. The proposed text amendments consist of the following: a list of proposed electric facility projects for 2010-2020, a description and clarification of the review process, the addition of generation technologies such as solar and wind, a glossary of technical terms and an appendix of photo examples. Some language, organizational and graphic improvements are also included.

3. The proposed text amendments have been incorporated into an updated version of the 1995 Electric Facilities Plan entitled Facility Plan: Electric System Transmission & Generation (2010-2020) (the "2010 Electric Facilities Plan").

4. The EPC's task is to make a recommendation to the City Council regarding the proposed text amendments. The City Council is the City's Zoning Authority and therefore will make the final decision. The EPC is a recommending body.

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5. The 2010 Electric Facilities Plan is being considered concurrently through Bernalillo County's development review process (ZSPR-20110001). The County Planning Commission (CPC) held a public hearing on July 6, 2011 and deferred the County request for three months. The date of the subsequent Bernalillo County Commission (BCC) hearing is undetermined as of this writing.

6. The Albuquerque/Bernalillo County Comprehensive Plan, the City of Albuquerque Comprehensive Zoning Code and the 1995 Electric Facilities Plan are incorporated herein by reference and made part of the record for all purposes.

7. Intent of the City Charter:

Establishing and subsequently amending a Rank II Facility Plan to address electric system transmission and generation is an exercise in local self government (City Charter, Article 1). Standards for transmission line corridors and transmission/substation facilities, which address location, siting, environmental considerations and landscaping, generally express the Council's desire to ensure the proper use and development of land, and to promote and maintain a humane urban environment (City Charter, Article IX).

8. Intent of the Zoning Code (Section 14-16-1-3):

The proposed text amendments generally further the intent of the Zoning Code because they would update and improve a Rank II facility plan, the general purpose of which is to promote and maintain the health, safety and general welfare of the public.

9. The request furthers the following Comprehensive Plan Goals regarding Land Use and Environmental Protection & Heritage Conservation, respectively:

A. Developing and Established Urban Area Goal (Section B.5): The proposed text amendments would generally contribute to creating a quality urban environment. Clarification of the process would help ensure adequate review of projects, which must follow design standards to minimize impacts and contribute to a visually pleasing built environment.

B. Developed Landscape Goal (Section C.8): The proposed text amendments would not substantially alter existing design standards. Quality

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of the developed landscape would be maintained, and may generally improve due to the addition of a process to address generation technologies.

10. The request furthers the following Community Resource Management Goals of the Comprehensive Plan:

A. Service Provision Goal (Section D.1). The electric system can be managed in part through land use planning. The Electric Facilities Plan already provides a mechanism to link facilities planning to land use planning goals and policies. The proposed text amendments strengthen this mechanism by addressing generation technologies and making the approval process more transparent.

B. Energy Management (Section D.3). The proposed text amendments would contribute to maintaining an adequate supply of electric energy. Planning electric facilities is a technique for managing electric energy; projects serve to expand and maintain the electric transmission and generation system.

C. Economic Development (Section D.6). The proposed text amendments would add an economic development section. Electric facilities projects generally support economic development efforts. The existing design and location standards will continue to help ensure that electric projects are balanced with visual, ecological and land use considerations which promote overarching environmental and social goals.

11. The request furthers the following, applicable Comprehensive Plan policies:

A. Policy II.C.4a-noise considerations/planning process. The proposed text amendments would update the Electric Facilities Plan with respect to noise. Noise levels shall not exceed National Electrical Manufacturers Association guidelines. This regulation, and the fact that electric facility location is planned according to standards, helps prevent land use/noise conflicts.

B. Policy II.C.8c-incidental structures/visual intrusion. The existing design standards serve to minimize adverse visual effects. The proposed text amendments would not substantially alter the design standards; minimization

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of visual intrusion would continue. The siting study required for generation facilities would address visual considerations.

C. Policy II.D.3c-alternative/renewable energy sources. The Electric Facilities Plan is a mechanism for land use planning. Addressing alternative generation technologies, such as solar and wind, is a key reason for updating the Plan. The proposed text amendments are a step toward maximizing the potential for efficient use of alternative and renewable energy sources.

12. The revision process began in January 2010 with the need to update the project list and address generation technologies. Staff from the City of Albuquerque, Bernalillo County and the Public Service Company of New Mexico (PNM) collaborated. A Technical Team was formed; members reviewed a draft version Plan and provided comments.

13. The proposed 2010 Electric Facilities Plan features two significant improvements in addition to the standard updating of the Electric Projects list: clarification of the review and approval process and incorporation of generation technologies such as solar and wind.

14. The proposed text amendments warrant revision in places to improve clarity and remedy minor errors. The proposed conditions of approval are intended to achieve this.

15. The proposed text amendments were announced in the Albuquerque Journal, the Neighborhood News and on the Planning Department's web page. The Office of Neighborhood Coordination (ONC) sent e-mail notification on June 9, 2011 to neighborhood representatives. As of this writing, Staff has received a few informational inquiries and phone calls. There is no known opposition to the request.

SECTION 3. CONDITIONS OF APPROVAL. As recommended by the Environmental Planning Commission (EPC), the City Council adopts the Conditions of Approval. These conditions provide further clarification, reorganize some text, make minor editorial revisions and correct referencing.

SECTION 4. EFFECTIVE DATE AND PUBLICATION. This legislation shall take effect five days after publication by title and general summary.

SECTION 5. SEVERABILITY CLAUSE. If any section, paragraph, sentence, clause, word or phrase of this resolution is for any reason held to be invalid or

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unenforceable by any court of competent jurisdiction, such decision shall not affect the validity of the remaining provisions of this resolution. The Council hereby declares that it would have passed this resolution and each section, paragraph, sentence, clause, word or phrase thereof irrespective of any provisions being declared unconstitutional or otherwise invalid.

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PASSED AND ADOPTED THIS 22nd DAY OF February , 2012
BY A VOTE OF: 9 FOR 0 AGAINST.

Trudy E. Jones, President
City Council

APPROVED THIS 5th DAY OF March, 2012

Bill No. R-11-311

Richard J. Berry, Mayor
City of Albuquerque

ATTEST:

Amy B. Bailey, City Clerk

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BERNALILLO COUNTY

BOARD OF COUNTY COMMISSIONERS

RESOLUTION NO. 69-2011

ADOPTING FACILITY PLAN: ELECTRIC SYSTEM TRANSMISSION AND GENERATION (2010-2020) AND REPEALING THE FACILITY PLAN: ELECTRIC SERVICE TRANSMISSION FACILITIES (2005-20015).

WHEREAS, Section 3-19-9 NMSA authorizes the County to adopt a plan which addresses the general location and extent of public utilities and terminals, whether publicly or privately owned; and

WHEREAS, Bernalillo County and the City of Albuquerque have adopted Electric Facility Plans to guide the location and development of electric transmission facilities since 1985; and

WHEREAS, the County adopted the Facility Plan: Electric Service Transmission Facilities (2005-2015) in 2005, but has not since reviewed the plan on this changing aspect of development in the County's planning jurisdiction; and

WHEREAS, new concerns, including the importance of generation technologies, and new requirements for the location of transmission and generation facilities have prompted the drafting of new and revised language within the Facility Plan: Electric System Transmission and Generation (2010-2020) and the clarification of the required procedures for modifying existing transmission facilities and for the location, design, and approval of new electric transmission and generation facilities; and

WHEREAS, the staff of the City of Albuquerque, Bernalillo County, and the area's electrical utilities (Public Service Company of New Mexico and El Paso Electric) have updated and clarified the existing plan through technical and writing teams; and

WHEREAS, the staff of the City of Albuquerque, of Bernalillo County, and of electrical utilities have expressed their support of and recommendation for the Facility Plan: Electric System Transmission and Generation (2010-2020); and

WHEREAS, the amended and updated Electric Facility Plan contains clarified and strengthened standards which are sensitive to the quality of the environment and facilitate the

development of renewable energy sources and reflect and implement policies of the Albuquerque/Bernalillo County Comprehensive Plan; and

WHEREAS, the Environmental Planning Commission recommended approval of the Facility Plan: Electric System Transmission and Generation (2010-2020) to the City Council at the Environmental Planning Commission public hearing on July 14, 2011, and the County Planning Commission recommended approval of the plan to the Board of County Commissioners at the County Planning Commission public hearing on October 5, 2011.

NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS:

SECTION ONE: In order to further detail and implement the concepts of the Albuquerque/Bernalillo County Comprehensive Plan amended the Facility Plan: Electric System Transmission and Generation (2010-2020), attached as part of this resolution, is adopted within the planning jurisdiction

SECTION TWO. Facility Plan: Electric Service Transmission and Facilities (2005-2015) is hereby repealed and replaced with the attached Facility Plan: Electric System Transmission and Generation (2010-2020).

DONE this 15 day of November 2011.

BOARD OF COUNTY COMMISSIONERS

EXCUS

Maggie Hart Stebbins, Chair

EXCUS

Art De La Cruz, Vice Chair

Michelle Lujan Grisham, Member

Michael C. Wiener, Member

Wayne Johnson, Member

Legal Department

Date: 12/06/11

ATTEST:

Maggie Toulouse Oliver, Clerk

Date: 11/15/11

BERNALILLO COUNTY COUNTY CLERK SEAL STATE OF NEW MEXICO

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Robert J. Perry, Chief Administrative Officer
Deborah Stover, Planning Director

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PREFACE

On March 8, 1971, the City Commission adopted the *Plan for Electric Service* in Albuquerque as an element of the *City Master Plan* as required by state statute. The Plan was amended in 1972 to include an updated project list and general locations.

In 1981, the Plan was revised to include additional projects, extent and character of electric transmission and facilities and the policies became standards; this revision was adopted. The revised Plan was adopted in 1982 (Enactments 47-1982).

The *Facility Plan: Electric Service Transmission and Subtransmission Facilities 1985-1995* was revised. (Enactment 130-1985).

In 1995, the previous *Facility Plan: Electric Service Transmission and Subtransmission Facilities (1985-1995)* was revised to clarify and strengthen the procedures and standards for the location, design, and review of existing and proposed electric transmission and subtransmission facilities (Enactment 38-1996).

In 2000, the Description of Proposed Electric Facility Projects was updated and adopted by the Albuquerque City Council and the Bernalillo County Board of County Commissioners (Enactment 116-2000).

In 2005, *The Facility Plan: Electric Service Transmission and Subtransmission Facilities (1985-1995)* was revised. Changes included revisions to the title, maps, graphics and illustrations, the project list and to five of the appendices. Also added was a table on the approval process, information about generation technologies and a glossary of technical terms. The Bernalillo County Board of County Commissioners adopted the Plan in September of 2005 (Resolution 73-2005). The Albuquerque City Council did not adopt the 2005 Plan revision.

The 2010 Plan is being revised to clarify existing standards, provide guidance for the land use review of alternative energy generation facilities, and provide information on generation technologies. The 2010-2020 revision supersedes the *Facility Plan: Electric Service Transmission Facilities (2005-2015)* for Bernalillo County and supersedes the *Facility Plan: Electric Service Transmission and Subtransmission Facilities (1995-2005)* for the City of Albuquerque.

This 2010 Plan covers electric investor-owned utility transmission and the Plan now encompasses utility investor-owned generation facilities and privately-owned generation facilities or installations located in both the City of Albuquerque and Bernalillo County. It provides a mechanism through which planning and design of electric facilities can be coordinated and based on a consistent set of standards.

All facilities under construction and any existing facilities of the electric investor-owned utilities are approved upon adoption of this Plan. New electric facilities must comply with the Plan.

I. INTRODUCTION

Every metropolitan area requires a large, reliable supply of energy in the form of electricity to meet a variety of demands. Typically, electricity produced at generating plants is transmitted via major transmission lines and stepped down several times for ultimate use (Figure 1).

The system serving each metropolitan area is linked to other systems to form regional multi-state grids to balance supply with demand and to assure reliability. The size and complexity of the system serving a particular metropolitan area is directly related to the area's population and economic base, sources of generating fuel, and to the industrial, agricultural, mineral extraction, or military activities in surrounding areas.

A. Scope and Purpose

Bernalillo County, the City of Albuquerque, and the electric utilities (Public Service Company of New Mexico (PNM) and El Paso Electric Company) recognize the necessity for a Facility Plan for the Electric System (Plan). The Plan has stated policies for the system of electric transmission facilities in the City of Albuquerque and Bernalillo County which are referred to in this Plan as standards.

Transmission line corridors and substation sites are chosen based on the standards contained in this Plan, as well as economic feasibility and other operating requirements. These criteria support the long-range planning goals and policies of the City of Albuquerque, Bernalillo County and the electric utilities.

Electric facility planning has long been recognized as a critical infrastructure component to the health, safety and economic vitality of the community. Electric generation technologies have remained largely the same for decades, though technologies continue to evolve. PNM has an existing gas-fired generation station facility located in the City of Albuquerque and another gas-fired generation station facility in Bernalillo County. These facilities have met the peak demand for electric service for the urban area; however, after a long period where new generation had not been needed, generation will again be under consideration over the coming decades. For this reason, generation technologies and renewable energy generation facilities such as solar and wind have been included in this Plan.

B. Approval Processes

Tables 1, 2, 3 and 4, Approval Processes, describe the various approval paths for the City of Albuquerque and Bernalillo County. See also Section IV of this document.

The definitions included in Section IV on pages 7 and 8 are directly related to the understanding of the approval process for certain actions addressed in the Plan. Other relevant technical terms appear in Section VII, Glossary of Technical Terms.

II. GOAL AND OBJECTIVES

The goal of this Plan is to ensure that the City of Albuquerque and Bernalillo County have an electric transmission and generation system capable of delivering electric energy in the amount and locations needed by present and future area residents, businesses, and industries. This system must be based upon sound technical design, address environmental considerations and be within the economic means of the customer, the City of Albuquerque, Bernalillo County and the electric utilities.

The following five objectives support this goal:

1. To conduct system planning at least ten years into the future.
2. To provide a forum for the general public to comment on electric facility projects through public hearings before the EPC and CPC.
3. To present standards for the location and design of transmission facilities.
4. To preserve planned transmission line corridors from encroachments by new development.
5. To identify and describe the procedures for developing new generation facilities.

III. STANDARDS FOR THE LOCATION AND DESIGN OF TRANSMISSION AND SUBSTATION FACILITIES

The standards contained in this section are to be used to mitigate potential siting impacts of transmission facilities in the City of Albuquerque and Bernalillo County, and especially on areas and structures with significant historic and cultural value. Siting constraints and siting impacts are defined in Section VII, Glossary of Technical Terms. Examples of these areas and structures include those designated by the City of Albuquerque, State and National Registers, or local landmarks or historic zones; sensitive environmental areas (the Rio Grande State Park); areas of great scenic value (Petroglyph National Monument, the Rio Grande State Park and the U.S. Forest Service lands). Where overhead lines are necessary in these areas, a corridor route and facility design shall be chosen based on siting constraints, maximizing environmental compatibility, electric service reliability and economic constraints.

Generally, right-of-way corridor widths for new transmission lines built after the adoption of the 2005 update of this Plan are as follows: 40 kV (50 feet); 115 kV (75 feet); 230 kV (125 feet); 345 kV (150 feet); 500 kV (200 feet). Widths, however, may vary depending on electric transmission structure configuration, the number of circuits on an electric transmission structure, whether or not street right-of-way is used, and a number of other factors.

All transmission corridors are important to the electrical network; therefore, all corridors must be carefully protected because of their strategic location and to safeguard present and future electric service (Figure 2). A representative of the impacted electric utility will consider unobtrusive encroachments within electric utility protected corridors for approval on a case-by-case basis. Development shall not encroach on transmission rights-of-way, unless written permission for such encroachments is obtained from the impacted electric utility.

A. Location Standards

1. Where practical, future transmission lines shall avoid traversing residential land.

2. There are three levels of preference for the location of transmission lines in the City of Albuquerque and Bernalillo County.

   In order of preference they are as follows:
   a. Interstate highways and arterial streets are particularly appropriate corridors for transmission lines; some major drainage channels may also be appropriate.
   b. Collector streets, especially nonresidential collector streets, are appropriate in some cases for transmission lines.
   c. Other potential corridors will be evaluated where appropriate.

3. Existing transmission routes satisfying criteria in this section should be used in preference to establishing new routes.

4. Wherever practical, shared rights-of-way for the placement of aboveground utility corridors such as telecommunication facilities, telephone and cable television shall be encouraged.

5. In this 2010-2020 Plan, transmission facilities are planned as above ground. If underground transmission lines are desired for a particular project or area, the requesting entity should examine the mechanisms available to fund underground installation of transmission facilities consistent with the requirements of any applicable rules of the electric utility on file with the New Mexico Public Regulation Commission (PRC) or successor agency. Installation of underground facilities would be contingent upon (i) the agreement of the electric utility that undergrounding is appropriate and that any underground system will be technically and operationally equivalent to the above ground system that would otherwise be constructed; and (ii) the availability of funding for the differential costs associated with underground construction.

6. Transmission facilities should be sited on the basis of electric utility system studies, their electric demand projections, and official City of Albuquerque and Bernalillo County plans and forecasts.

7. Existing transmission facilities can be relocated if the impacted electric utility, the City of Albuquerque and/or Bernalillo County agree to such relocation. Relocation of electric facilities must not adversely affect the electric utility's ability to provide reliable service. The Albuquerque City Council or Bernalillo County Board of County Commissioners, following written justification, may request relocation on public rights-of-way where such relocation is critical to the attainment of adopted public policies. Cost incurred in relocating facilities within private easements shall be paid for by those entities making the request.

8. New lines over 115 kV may occur in the metropolitan area designated as Central Urban, Established Urban, Developing Urban, Semi-Urban, Rural and Open Space by the *Albuquerque/Bernalillo County Comprehensive Plan*. As the metropolitan area continues to grow, additional power lines will have to be added to the transmission system, and future transmission lines at a voltage greater than 115 kV may be needed.

9. In siting new transmission and station facilities, the following siting constraints shall be considered:
    a. Exclusion Area -- Resource factors or land use values that preclude siting electric facilities due to officially stated or approved safety restrictions, plans or policies such as FAA-regulated areas at airports.

    b. Environmental Considerations -- Resource factors or land use values where the presence of electric facilities may conflict with that resource or land use value. Environmental sensitivities do not preclude development of an overhead transmission line, but because of their conflict potential, are given special consideration in designating the alignment, substation location, and facility design and construction.

c. FEMA Special Flood Hazard Areas -- Due to their conflict potential, these areas are given special consideration at the early stages in the designation of the line alignment, substation location, and facility design and construction.

10. In siting new transmission line alignments, siting impacts shall be minimized.

    a. Visual -- New transmission corridor alignments shall be located to take advantage of existing topographic features to minimize visual impacts of transmission structures. A reasonable attempt shall be made to avoid lines and structures being the high points in the visual plane.

    b. Ecological -- Where possible in siting new transmission lines, a route shall be chosen which minimizes the disturbances to and/or alteration of the natural environment. For example, alignments could avoid crossing hills at right angles to the contours and could cross wooded hills and mountains at an oblique angle to minimize the focus of attention on the alignment.

    c. Land Use -- In siting new transmission line alignments, consideration shall be given to minimizing disruption of existing land use patterns. Corridor alignments can parallel existing roads, fence lines, windbreaks, or other major patterns in the area. Particular attention in siting should be given to the Balloon Fiesta Park and Albuquerque International Sunport Airport.

B. Design Standards

The application of the following standards is intended to minimize the impacts when constructing new and/or upgrading overhead transmission facilities:

1. Placement of transmission facilities within public rights-of-way shall conform with the provisions of the National Electric Safety Code (NESC), the Americans with Disabilities Act (ADA) and the American Association of State Highway and Transportation Officials (AASHTO) requirements and guidelines, and all applicable City of Albuquerque codes and ordinances and shall comply with the Bernalillo County Code and all applicable Bernalillo County ordinances and regulations.

2. Installation of new traffic signals and streetlights in road right-of-way may require modification to existing electric transmission structures to maintain NESC clearances.

3. On a case-by-case basis, new facilities outside of street right-of-way but adjacent to right-of-way, should meet clear roadside clearances as nearly as possible or be protected if substantially under clearance requirements.

4. Intersection and driveway visibility and existing property lines should be considered in locating individual electric transmission structures.

5. Angles in lines shall be avoided or minimized wherever possible to avoid installing guy wires and/or larger diameter electric transmission structures.

6. Placement of electric transmission structures directly in front of residentially zoned lots shall be avoided unless no feasible alternatives exist. Application of environ-

mentally compatible concepts and attention to electric transmission structure design shall be considered in these cases.

7. Placement of electric transmission structures and guy wires in sidewalks or planned sidewalk locations should be avoided. Where this must occur, the utility will work with the City or County to minimize above-grade foundations and related attachments on a case-by-case basis.

8. Wherever possible, the height of lines and the size and number of electric transmission structures shall be addressed when considering land use and visual impacts.

9. Generally, the height of transmission structures is as follows: 40 kV (50 to 80 feet); 115 kV (80 to 100 feet); 230 kV (100 to 130 feet); 345 kV (110 to 130 feet); 500 kV (120 to 150 feet). New transmission facilities shall be designed and/or selected to minimize visual impacts. The material, color, texture and shape of transmission structures should be compatible with the surrounding environment.

10. Transmission lines crossing other transmission lines shall be minimized.

11. The noise level of new substation facilities shall not exceed guidelines set by the National Electrical Manufacturers Association (NEMA) in Appendix E. Electric facilities shall be located and screened to minimize sound impacts to the surrounding environment.

12. When physically and economically feasible, new substations shall be located immediately adjacent to transmission corridors to preclude the extension of new lines.

13. Substations should be located to take advantage of available topography and vegetation to minimize their visual impact. Screening shall be provided by the appropriate electric utility according to the standards set out in Appendix C as appropriate.

14. Station profile and size should be as unimposing as possible. Sample station plans are shown in Appendix B.

15. All new and expanded substations will be standard PNM design, surrounded by a 12-foot wall and landscaped as approved through the site development plan approval process. If located in the City of Albuquerque, they shall be landscaped pursuant to Section 14-16-3-10 (Landscaping regulations applicable to apartment and nonresidential development) of the *City of Albuquerque Zoning Code* and the *Water Conservation Landscaping and Water Waste Ordinance*. If located outside the City of Albuquerque, in Bernalillo County, they shall be landscaped pursuant to the *Comprehensive Zoning Ordinance of Bernalillo County, New Mexico, Ordinance No. 213, Section 19, Landscaping and Buffer Landscaping Regulations* and *the Bernalillo County Water Conservation Ordinance, Sec. 30-241 through 30-250*. All existing substations that undergo expansion shall meet the design standards for new substations. All facilities shall be maintained free of graffiti.

16. Joint uses and coordination of uses within transmission line easement rights-of-way and station sites shall be encouraged where appropriate.

17. All new transmission facilities, and upgrades of existing facilities, shall be, as much as possible, designed and constructed to minimize maintenance of the corridor grounds. When new development encroaches upon existing facilities, ownership and maintenance of the utility corridor shall be explicitly identified. Where possible, maintenance by the public sector shall be minimized as much as possible except where the corridor is identified for public uses.

IV. IMPLEMENTATION AND ADMINISTRATION OF TRANSMISSION, SUBSTATION AND GENERATION FACILITIES AND APPROVAL PROCESSES

A. General

The Plan requires that the electric utilities' system expansion plans be consistent with the *Albuquerque/Bernalillo County Comprehensive Plan*. Therefore, a representative of the investor-owned electric utilities will be asked to serve in an advisory capacity or will be given the opportunity to provide verbal and written input on revisions to the *Albuquerque/Bernalillo County Comprehensive Plan,* on all area plans, sector plans, and facility plans that address streets and drainage.

To ensure implementation of the Plan, the City of Albuquerque and Bernalillo County shall consider the provisions of sites for electric facilities when reviewing plans and plats submitted for approval. Additionally, all area and sector plans shall show the location of present and future transmission corridors and facilities. Tables 1, 2, 3 and 4 identify approval processes for the City of Albuquerque and Bernalillo County respectively.

Preferred and alternative alignments as outlined on the following pages are provisional and are subject to revision. Proposed alignments and station locations are based on the electric utility's best current knowledge. Changes in land use, inability to obtain right-of-way, a change in the location of load centers, and a variety of other factors may require future changes in proposed alignments or station sites.

New lines are planned primarily to increase system reliability and serve new stations. New stations and lines are planned to serve load growth in developing areas. In addition, some existing substations will be expanded to serve additional load growth in developed areas. Some sites, however, may not be large enough to accommodate the expansion, requiring selection of a new site in the vicinity. When a station facility is abandoned and not reused, the electric utility shall completely remove the structures, clean and remediate or restore the site as necessary.

Line reconductoring projects involve replacing existing conductors with larger sized conductors while operating the line at the same voltage, allowing larger loads to be served. Some existing lines could be upgraded to a higher voltage to allow more loads to be served. In some cases, larger wood or steel electric transmission structures may be erected and the existing electric transmission structures removed. Wherever possible, the existing easement will be used. In other cases, due to restrictions written into the existing easement and/or system limitations, new alignments will be developed to accommodate the larger capacity facilities.

B. Planning Jurisdiction

The following procedures relate to whichever governmental entity has jurisdiction over the geographic area of amendment or approval as regulated by state legislation. The City and

County are separate jurisdictions and have separate procedures for permitting, although there are some similarities between the two.

1. *Plan Approval Processes*
   The Plan is subject to a review process by the staffs of the electric utilities, the City of Albuquerque and Bernalillo County when either agency or the utility determines that changes are necessary.

2. *Siting Processes*
   As the electric utilities initiate location siting for any transmission corridor or facility, an initial conference will be held with representatives from City of Albuquerque and/or Bernalillo County planning staff, electric utility representatives, and any other City of Albuquerque or Bernalillo County agencies which planning staff deems appropriate.

   The purpose of this conference is twofold: 1) to notify the City of Albuquerque and/or Bernalillo County of alternative locations and/or alignments being considered by the electric utilities for transmission corridors and substations consistent with the Plan standards and maps, and 2) to notify the electric utilities of City of Albuquerque and/or Bernalillo County staff concerns regarding specific corridor alignments and/or locations of stations. The discussion is to be held for informational purposes only.

   During this corridor or facility siting process, electric utility staff should continue to meet periodically with the planning staff identified in the initial conference as project plans become more specific and the preferred station location and/or corridor alignments are identified.

3. *Project Review Processes*
   Location and site plans for proposed electric transmission facility projects must be submitted in conformance with the processes described in the *City of Albuquerque Development Process Manual, Volume 1: Procedure*, or the *Comprehensive Zoning Ordinance of Bernalillo County, New Mexico, Ordinance No. 213 Section 18, Special Use Permit Regulations* depending on the location of the proposed projects.

The electric utility's application will include the following information:

A. A siting study for transmission corridor alignments or station sites (Appendix A).

B. Station site plan as described in the *City of Albuquerque Development: Process Manual Volume 1; Procedure, Chapter 3, (Required Plans and Elements)* or the *Comprehensive Zoning Ordinance of Bernalillo County New Mexico Ordinance No. 213, Section 22, Supplementary Height and Area Regulations and Section 18. C. 5, Site Plan requirements*. Sample station plans are shown in Appendix B; typical electric transmission structures are shown in Appendix D.

C. Station landscaping plan (Appendix C for station landscape design standards).

D. After final approval from Bernalillo County and/or the City of Albuquerque and prior to construction of any transmission facility, the electric utility will apply for the appropriate permits and follow the appropriate procedures for an approved project, as described in the *City of Albuquerque Development Process Manual, Volume 1; Procedure* and/or the *Comprehensive Zoning Ordinance of Bernalillo County, New Mexico Ordinance No. 213.*

E. Siting of new electric facilities shall follow prudent avoidance methods for EMFs as identified in Section V of this Plan.

C. Approval Processes

Actions considered part of normal business operations, including but not limited to, routine maintenance and repair, such as replacing similar size conductor and replacing similar structures, are not subject to approval. Tables 1, 2, 3 and 4, Approval Processes, describe the various approval paths.

1. Insignificant: an action that results in the structure, material or condition change; the Plan essentially remaining the same. Insignificant actions include: replacing eight or fewer structures in the same locations within the same easement with structures of different size and/or material; government or developer initiated projects that have gone through a public involvement process and approved by the Development Review Board (DRB), or the County Development Review Authority (CDRA), or the County Planning Commission (CPC), or the Environmental Planning Commission (EPC); changing the timing and/or preliminary location of any proposed project described in Table 5, Description of Proposed Electric Facility Projects for 2010-2020, page 24, before application is made for project approval.

2. Minor: an action that results in a small change to the structure, material, condition or Plan. Minor actions include: upgrading conductor size on an existing power line where structure replacement is required; expanding an existing station; replacing more than eight structures on an existing line with structures of a different type; adding a project to the Project List in the County or in the City not described in the Plan.

   Generation: In the City of Albuquerque, ground-mounted solar and ground-mounted wind generation facilities or installations on sites less than 5 acres in size, as noted in Table 2, page 21.

3. Major: an action that results in a large change to the structure, material, condition or Plan. Major actions include: addition of projects to the Project List, 2 or more in the City of Albuquerque, 3 or more in Bernalillo County; amending the Standards for the Location and Design of Transmission Facilities; amending the procedures relating to implementation and administration.

   Generation: In the City of Albuquerque, ground-mounted solar and ground-mounted wind generation facilities or installations on sites 5 acres or greater in size, as noted in Table 2, page 21.

4. Proposed Electric Facility Project Approval: an action which results in submittal of a specific project for approval from Table 1 on page 20 and Table 3 on page 22.

   In Bernalillo County, this category (public hearing process) applies to proposed utility-owned and privately-owned generation facilities (e.g., power plants) where electric generation will be for commercial use and will be the principal use on the property, as noted in Table 4, page 23.

5. Plan Adoption: the ten-year, periodic revision and updating of the Plan, which then supersedes the previous version of the Plan.

V. PROPOSED UTILITY-OWNED ELECTRIC FACILITIES: 2010-2020

A. General

Proposed facilities for the investor-owned electric utility serving the City of Albuquerque and Bernalillo County are planned to meet the electric utility's forecast requirements for load growth and system reliability through 2020. Projected requirements are reviewed by the electric utility on an annual basis to determine whether current assumptions remain valid. Because of these evaluations, revisions to the present scope of projects may be necessary. These revisions may take the form of a major or minor action; see Tables 1, 2, 3 or 4.

Table 5 identifies the proposed projects in the City of Albuquerque and Bernalillo County to 2020. At least every five years, PNM will provide to the City of Albuquerque and Bernalillo County an updated project list. The project list in Table 5 is provided for informational purposes. Planned projects are four types: new transmission lines; new substations or switching stations; substation expansion; and line upgrades. Maps showing the general location of these proposed projects and existing facilities are shown in Figures 2, 3, 4, 5 and 6. Investor-owned utility generation facility projects can also be considered planned projects.

Approval of this Plan does not constitute blanket approval by the City of Albuquerque or Bernalillo County of the alignments or station sites outlined herein; nor does approval bind the electric utilities to these alignments or station sites. A project location as identified in Figures 4 and 6 may be changed by the electric utilities at the time application is made for project approval.

El Paso Electric Company has indicated that there are no plans to alter their existing transmission line in Bernalillo County (Appendix I).

B. Economic Development

Economic Development: Economic development continues to be promoted in the Albuquerque metropolitan area. Albuquerque Economic Development (AED) and State of New Mexico Economic Development (NMEDD) are actively recruiting companies to relocate to the area. New manufacturing and commercial developments may require expansion of the transmission system and new station(s). These facilities are not anticipated in the Project List, Table 5. The City of Albuquerque, Bernalillo County, and PNM support the economic development efforts of AED and NMEDD.

Electric system expansion to support identified economic development projects is not required to be shown in the Plan but must follow the standards established herein. The City of Albuquerque and Bernalillo County recognize the many benefits of economic development and will strive to assure electric system expansions are approved and permitted in a timely fashion to allow adequate time for construction.

Redevelopment/Revitalization: According to the Comprehensive Plan, the City of Albuquerque and Bernalillo County support redevelopment and revitalization efforts, which typically occur in older areas such as historic districts. These projects are not identified in the Project List. Electric system expansion to support these efforts is not expected to be shown in the Plan but must follow the standards established herein.

The City of Albuquerque and Bernalillo County recognize the many benefits of redevelopment and revitalization and will strive to ensure that electric system expansions are approved and permitted in a timely fashion to allow adequate time for construction. The City and County

should allocate additional resources for these redevelopment/revitalization efforts to implement site improvements at the electric substations, such as landscaping.

C. Prudent Avoidance

Electric and Magnetic Fields (EMFs) shall be considered when locating new transmission corridors. The City of Albuquerque and Bernalillo County land use planning policy is to adopt measures that will minimize EMF exposures to the public when it is reasonable, practical and low cost. When siting facilities, the utility shall consider schools, child care centers, and residential areas.

Worldwide studies on the health effects of EMFs are ongoing. Consequently, the electric utilities and the City of Albuquerque and Bernalillo County shall continue to monitor these studies as well as EMF legislative actions and evaluate the results. All parties shall review any substantial changes in the information or substantial new findings relative to the Plan (Appendix F).

VI. GENERATION

This generation section allows for new generation facilities and installations in the city of Albuquerque and Bernalillo County and describes procedures for approval. The investor-owned utility plans are for new generation, which is important in order to provide for adequate, reliable electric service for the community. Private installations are a result of individual investment, not utility planning.

Emergency and privately-owned generation installations located at the host site are not currently reviewed through a land development approval process other than acquiring a building permit. Investor-owned and privately-owned generation facilities follow the applicable procedures identified in Appendix G (Generation Submittal Procedures). Descriptions of electric generation technologies are presented in Appendix H.

The state of New Mexico mandates that by 2015, 15 percent of power consumed will be produced from renewable sources (NMSA 1978, §62-16-4). As a result, generation facility projects using renewables and other technologies will appear in the City of Albuquerque and Bernalillo County. In order to provide for an orderly, consistent process for this type of development, approval processes for generation facility development are presented in Tables 2 and 4, and submittal procedures are described in Appendix G.

1. *Generation Facility Sites*
   PNM owns generation facility sites in the City of Albuquerque and in Bernalillo County at Reeves Station and Person Station. Reeves and Person Stations are older generating facilities in the system. PNM has preliminary plans to re-power Reeves and Person using newer technology as well as the consideration of renewable generation technologies at all electric facility sites.

2. *Generation Facilities Interconnection to the Electric Grid*
   It is understood that PNM complies with state NM PRC Interconnection Rules 568 (up to and including 10 mW) and 569 (greater than 10mW) and Federal Energy Regulatory Commission (FERC) requirements concerning the interconnection of non-PNM owned generation to the PNM system.

3. *Emergency Generators*
   Emergency generators are in place at host sites to serve critical facilities in the event of

an electrical power loss. They operate independently from the electric transmission or distribution system.

4. *Privately-Owned Generation*
   Privately-owned solar and other renewable generation installations are becoming more common in the City of Albuquerque and Bernalillo County. These installations interconnect to the electric grid using NM PRC Rules 568 and 569 and must comply with these and other applicable NM PRC Rules.

   In January 2010, the New Mexico State Legislature amended the Public Utility Act (NMSA 1978, § 62-3-4.2). The amendments addressed, among other things, generation owners and operators who are not public utilities. The PRC amendment notes that there is privately-owned generation that connects to the electric grid and sells power back into the electric system.

Appendix H of the Plan provides a description of the different generation technologies. Appendix G describes applicable procedures for submittals for approval of the generation facilities. Both privately and utility-owned electric generation must follow the applicable procedures in Appendix G.

VII. GLOSSARY OF TECHNICAL TERMS

This glossary of technical terms applies to the Electric Facility Plan; it provides the definitions for specific terms used within the Electric Facility Plan.

-A-

ANSI – American National Standards Institute is a private, non-profit organization 501 (c) 3 that administers and coordinates the U.S. voluntary standardization and conformity assessment system.

-B-

Bulk Power – The supply of electric power at the rate at which it is being produced or consumed at a specific instant in time. 345,000 volt lines are often referred to as bulk power lines. A bulk power station is a 345,000 volt station.

-C-

Capacity – The real power output of a generator or system, typically in megawatts, measured on an instantaneous basis. The amount of electric power delivered or required for which a generator, turbine, transformer, transmission circuit, station, or system is rated by the manufacturer. The maximum power that can be produced by a generating resource at specified times under specified conditions.

Circuit – A conductor or a system of conductors through which electric current flows.

Conductor – A material substance, usually in the form of a wire, cable, or busbar, that allows an easy flow of current of electricity to pass continuously along it.

Current (Electric) – A flow of electrons in an electrical conductor and the rate is measured in amperes. The current in a line varies as determined by the devices connected to it. The current is zero if all devices are off, and is at its maximum value when all devices are at maximum output.

-D-

Demand – Rate at which electric energy is delivered at a given instant or averaged over a designated period, usually expressed in kilowatts (kW) or megawatts (mW).

Distribution – The system of lines, transformers, and switches that connect between the transmission network and customer load. The transport of electricity to ultimate use points such as homes and businesses. That portion of an electric system that is dedicated to delivering electric energy to an end user at relatively low voltages.

Distribution System – Includes all lines under 40 kV which transport power from the transmission system to a customer.

-E-

Electric Service – Electric power supplied by a utility either conveyed by overhead or underground facilities.

Electric System – The generation, transmission, distribution, and other facilities operated as an electric utility or a portion thereof.

Electric Power System – How power is transmitted from the generating source to the end user. An illustration of a typical electric power system is included at the end of the Glossary.

Electric Transmission Structure – Is a supporting structure to which insulators and conductors, or other electrical devices such as switches or lightning arrestors are attached. A structure may consist of a single pole or groups of poles with associated arms, braces and other attachment hardware or lattice configurations. These structures are typically made from wood, steel or concrete components. Structures may be self-supporting or may include guy wires. Structures may have concrete foundations while others may be directly embedded in the soil.

Electric Utility (ies) - Refers to any and all investor-owned electric utilities that operate and/or maintain electric transmission facilities within the City of Albuquerque and/or Bernalillo County including PNM (Public Service Company of New Mexico) and El Paso Electric Company.

Electric and Magnetic Fields (EMF) – The generation, delivery, and use of electricity produce electric and magnetic fields. Electric fields are produced by voltage, the electric "pressure" that causes current to flow in a wire, while magnetic fields are produced by current, the movement of electric charge. Electric and magnetic fields can be imagined as invisible lines of force diminishing in strength with distance from their source.

Emergency Generator – A supplemental system on site to provide electric service during loss of grid-provided electric service.

Energy – Is the electrical work produced. It is measured in kilowatt-hours.

-F-

Facility – An existing or planned development at which equipment for converting electric energy for distribution to the electric grid are situated or will be situated. A development that may contain the equipment used for the generation, transmission and distribution of electricity.

Forecast – Prediction of demand for electricity.

Frequency – The oscillatory rate in Hertz (cycles per second) of the alternating current electric service. Nominally 60 Hertz (Hz) in the United States and 50 Hz in Europe.

-G-

Generation – The process of producing electric energy by transforming other forms of energy such as steam, heat, wind, or falling water. Also, the amount of electric energy produced, expressed in kilowatt hours (kWh) or megawatt hours (mWh).

Generation Facility – A component or plant that produces electricity for sale or distribution to a utility.

Generation, Privately-Owned –Generation installations located on the site of a “host” who is a customer of a public utility and integrated into the electricity provided by the investor-owned utility and are not “public utilities” as defined by the New Mexico Public Utilities Act. An example includes an individual who installs solar panels on the roof of a residence for their own use and sell back to the grid.

Generation, Utility-Owned – Generation facilities of an investor-owned utility that are "public utilities" as defined by the New Mexico Public Utilities Act. See Utility, Investor-owned.

Generating Source –The location of the generation being produced.

Grid – The layout of the electric transmission system or a synchronized transmission network.

Guy Wires – Wires which support transmission or distribution structures; they are attached to the structure and anchored in the ground.

-H-
Host - A customer of a public utility who uses the electric energy produced by a renewable energy generation facility or installation and occupies the site upon which the renewable energy generation facility or installation is located.

-I-
Independent Power Producer – A non-utility power-generating entity, defined by the 1978 Public Utility Regulatory Policies Act, that typically sells the power it generates to electric utilities at wholesale prices.

Installation – Equipment located on the site of a "host" who is a customer of a public utility but is not a public utility as defined by the New Mexico Public Utilities Act.

Insulator – Is material, which stops the flow of current. Air provides the insulation on an overhead line. Polyethylene or rubber are some materials that provide the insulation on an underground distribution line.

-J-
Joint Use Facility – A facility that is used in common by two or more entities. An example of this is a cellular antenna tower on an electric transmission structure.

-K-
kV – kilovolts (1000 volts).

kW – One kilowatt equals 1,000 watts.

-L-
Load – The amount of electric power delivered or required at any specific point or points on a system. The requirement originates at the energy-consuming equipment of the consumers. The load of an electric utility system is affected by many factors and changes on a daily, seasonal, and annual basis, typically following a pattern. Electric system load is usually measured in megawatts (mW).

-M-
Megawatt (mW) – One thousand kilowatts.

-N-
National Electric Safety Code (NESC) – Is the industry-accepted safety standard for overhead and underground electric utility and communications utility installations.

Network – An interconnected system of electric transmission lines, transformers, switches, and other equipment connected together in such a way as to provide reliable transmission of electrical power from multiple generators to multiple load centers. A network implies redundancy provided through the use of multiple parallel flow paths.

NM PRC - Public Regulation Commission – An elected body of officials representing districts around the State of New Mexico that, among other things, regulates utilities.

-O-

Outage – Periods, both planned and unexpected, during which power system facilities (generating unit, transmission line, or other facilities) cease to provide generation, transmission, or the distribution of power.

-P-

Pole - Steel, wood or other material structure with associated arms, insulators, braces and other attachment hardware carrying distribution circuit.

Power – A term usually meant to imply both capacity and energy. The rate at which energy is transferred. It is the product of voltage and current and is measured in watts. One watt = one volt times one amp. And one kilowatt = 1000 watts. One horsepower = 746 watts.

Protected Corridors – Rights-of-way and/or easements containing transmission lines that form a network within the City of Albuquerque or Bernalillo County. Or the identified and designated new corridors for the development of new transmission lines. All transmission lines feeding power into the network are protected corridors. Because of their location and function, preservation of these corridors and protection from encroachment is particularly critical for continued reliable electric service in the area. The protected corridors are preferred pathways to provide electric capacity for current and future needs.

Prudent Avoidance – The practice or methods of avoiding areas of public concern that minimize EMF exposure to the public when they are reasonable, practical and low cost.

-Q-

-R-

Reconductoring – Increasing the capacity of a line by removing the existing conductor and replacing it with a larger size conductor and operating the line at the same voltage.

Reliability – The degree to which the performance of the elements of a system results in power being delivered to consumers within accepted standards and in the amount desired. The degree of reliability may be measured by the frequency, duration, and magnitude of adverse effects on consumer service.

-S-

Siting Constraints- Resource factors or land use values, which determine the suitability or compatibility of an area for transmission facilities siting and construction. The magnitude of an impact is dependent upon the environmental considerations of the resources affected. Resource considerations are defined as follows:

1. Exclusion Area: Resource factors or land use values that preclude siting electric facilities due to officially stated or approved restrictions, plans or policies such as FAA-regulated areas at airports.

2. Environmental Considerations: Resource factors or land use values with which the presence of electric facilities may conflict. Environmental sensitivities do not preclude development of an overhead transmission line, but because of their conflict potential are given special consideration in designating the alignment, substation location, and facility design and construction.

Siting Impacts - Modifications or changes to the natural and/or built environment such as visual resources or land use patterns, resulting from the introduction of transmission facilities. Siting impacts are of varying types and are classified as follows:

1. Visual Impact: A modification or change that could affect the scale, form, texture or color of the existing natural or built landscape.

2. Ecological Impact; A modification or change in the existing natural environment that could result in the disruption and/or loss of wildlife habitat, vegetation, air quality, soil and water resources and/or an increase in ambient noise levels.

3. Land Use Impact: A modification or change that could affect existing land use patterns or approved land use plans.

Station -

Substation – An electric station served by transmission lines stepped down to distribution voltage which transports electricity on distribution lines to ultimate use points such as homes and businesses.

Switching Station – Facility equipment that switches, changes, or regulates electric voltage. An electric power station that serves as a control and transfer point on an electric transmission system. This facility routes and controls electrical power flow, transforms voltage levels, and serves as delivery points to industrial customers. The switches are selectively arranged to permit a circuit to be disconnected, or to change the electric connection between the circuits.

Substation Expansion – The expansion of the wall or fence of the existing substation to accommodate additional electrical equipment. This may require acquiring additional property rights.

System – A combination of generation, transmission, and distribution components comprising an electric utility or group of utilities.

-T-

Transformer – An electrical device for changing the voltage level, while keeping the power output nearly the same as the power input. A substation transformer changes the voltage from a transmission level to a distribution level (usually 115,000 volts to 12,470 volts). A distribution transformer changes the voltage from the distribution level to a service voltage (usually 12,470 to 120/240 volts).

Transmission – The network of high-voltage lines, transformers, and switches used to move electrical power from generators to the distribution system. Also used to interconnect different utility systems and independent power producers together into a synchronized network. Transmission is considered to end when the energy is transformed for distribution to the customer.

Transmission System - Extends from the generating source and bulk power stations to distribution substations. The transmission system consists of distribution substations and 40 kV to 115 kV lines that transport power from bulk power stations to distribution substations or which transport power between distribution substations.

Transmission Voltage – Voltage levels used for bulk transmission systems; generally above 40 kilovolts to 750 kilovolts alternating or direct current. In the City of Albuquerque and Bernalillo County, the transmission voltages are 46 kV, 115 kV, 230 kV, and 345 kV; however, there are also 500 kV transmission lines located in New Mexico.

-U-

Upgrade – To rebuild, improve, or increase the voltage class or current carrying capability of an electric transmission line, switching station, or substation.

Utility, Investor-owned – An electric utility whose stock is publicly traded. It is regulated by the state. Also known as a Public Utility.

Utility, Public – A private business organization, subject to governmental regulation, that provides an essential commodity or service to the public, such as electricity.

-V-

Volt – The unit of measurement of electromotive force. It is equivalent to the force required to produce a current of one ampere through a resistance of 1 ohm. The unit of measure for electrical potential. Generally measured in kilovolts (kV). Typical transmission level voltages are 46 kV, 115 kV, 230 kV and 345 kV.

Voltage – Is the force (pressure) that moves electrons. It is measured in volts. The voltage supplied to most residents is 120 and 240 volts. Commercial buildings are usually supplied with 120/208 or 277/480 volts. Most of PNM's distribution lines operate at 12,470 volts. Transmission lines are typically 115,000 or 345,000 volts. The voltage a line operates at determines how much insulation is needed.

-W-

Watt – The standard unit of electric power in the United States.

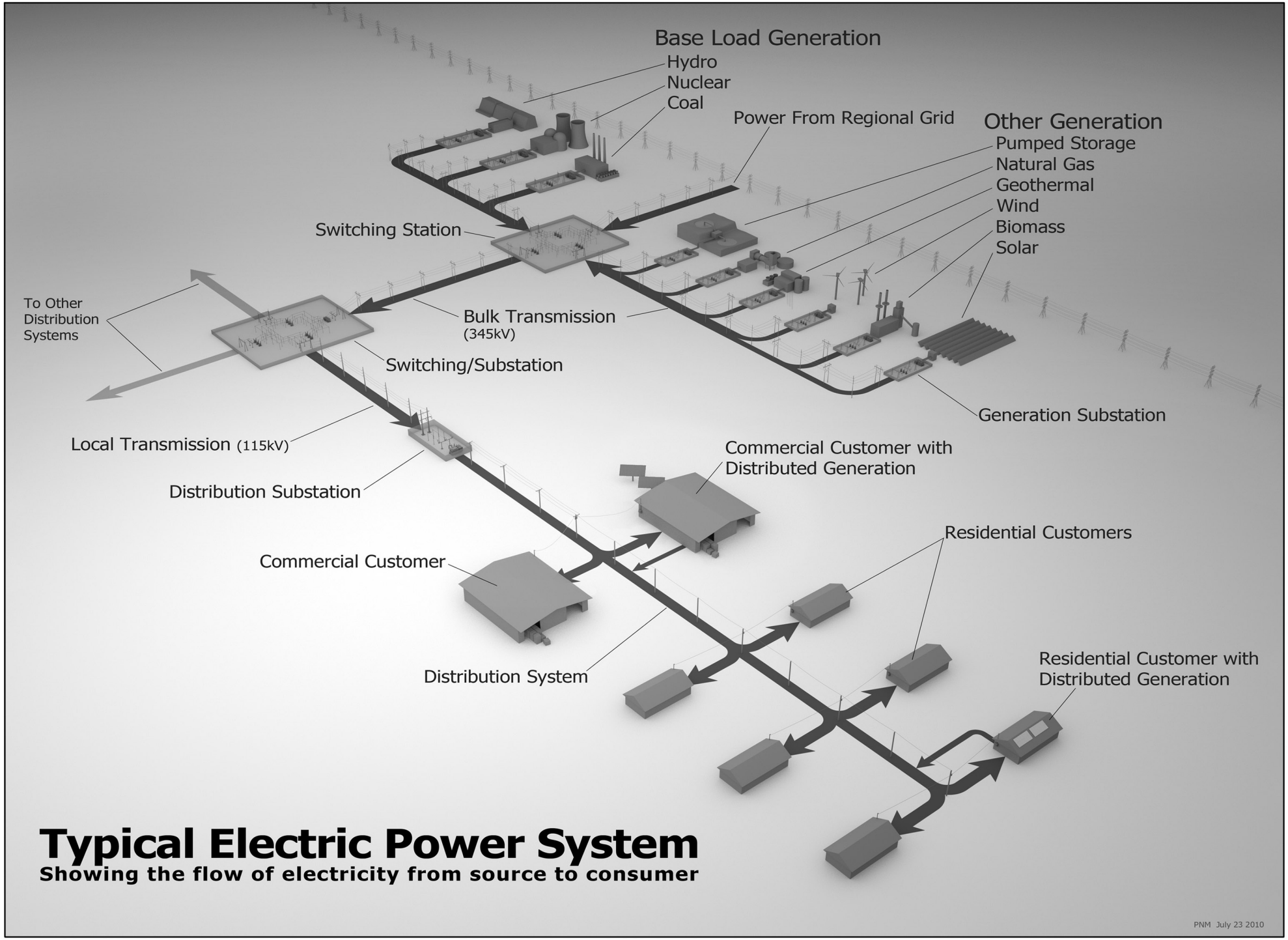
Base Load Generation
Hydro
Nuclear
Coal
Power From Regional Grid
Other Generation
Pumped Storage
Natural Gas
Geothermal
Wind
Biomass
Solar
Switching Station
To Other Distribution Systems
Bulk Transmission (345kV)
Switching/Substation
Generation Substation
Local Transmission (115kV)
Distribution Substation
Commercial Customer with Distributed Generation
Residential Customers
Commercial Customer
Distribution System
Residential Customer with Distributed Generation
Typical Electric Power System
Showing the flow of electricity from source to consumer
PNM July 23 2010

FIGURE 1

Table 1
APPROVAL PROCESS FOR ELECTRIC TRANSMISSION AND SUBSTATION FACILITIES - CITY OF ALBUQUERQUE

Action Type & Definition	Examples	City of Albuquerque Approval Process
Transmission and Station Facilities		
Insignificant Action: An action that results in a structure, material, condition change. The Plan remains essentially the same.	Insignificant actions include: replacing eight or fewer structures in the same locations within the same easement with structures of a different size and/or material; government or developer initiated projects that have gone through a public involvement process and approved by the DRB, and/or EPC; changing the timing and/or preliminary location of any proposed project described in Section V of the Plan before application is made for project approval.	Approved administratively by the City of Albuquerque Planning Director or designee.
Minor Action: An action that results in a small change to the structure, material, condition or Plan.	Minor actions include: upgrading conductor size on an existing power line where structure replacement is required; expansion of an existing substation; replacing more than eight structures on an existing line with structures of a different type; addition of a project to the Project List in the City of Albuquerque not described in the Plan.	Development Review Board (DRB)
Major Action: An action that results in a large change to the structure, material, condition or Plan.	Major actions include: addition of 2 or more projects to the Project List; amending the Standards for the Location and Design of Transmission and Substation Facilities (see Section III); amending the procedures relating to Implementation and Administration of Transmission and Substation facilities (see Section IV).	Environmental Planning Commission (EPC)
Proposed Electric Facility Project Approval: An action which results in submittal of a specific project for approval.	Those specific projects listed in Table 5 of the Plan submitted for project approval.	Environmental Planning Commission (EPC)
Plan Adoption: The ten-year, periodic revision and updating of the Plan, which then supersedes the previous version of the Plan.	The *Plan for Electric Service in Albuquerque 1971* was superseded in 1985 by *the Facility Plan: Electric Service Transmission and Subtransmission Facilities (1985-1995).*	Albuquerque City Council

Table 2
APPROVAL PROCESS FOR ELECTRIC GENERATION FACILITIES - CITY OF ALBUQUERQUE

Project Type & Definition	Examples	City of Albuquerque Approval Process
Generation Type		
Rooftop Solar	Solar panels (film, traditional or other type) mounted on the roof of a building.	Zoning Front Counter Staff. International Residential Code (IRC) Plan Check Staff will determine if a building permit is needed.
Ground-Mounted Solar	Solar electric generation installations or facilities mounted on the ground, such as a "sunflower", panel or other type. SU-1 zoned sites are reviewed by the EPC.	Zoning Front Counter Staff for sites less than 2 acres. Development Review Board (DRB) for sites between 2.1 and 4.9 acres.
Ground-Mounted Solar	Solar electric generation installations or facilities mounted on the ground, such as a field of "sunflowers" or a farm of panels. Sites are 5 acres or greater.	Environmental Planning Commission (EPC)
Ground-Mounted Wind	Wind electric generation installations or facilities mounted on the ground, such as a wind turbine (blade, rotator or other type). SU-1 zoned sites are reviewed by the EPC.	Zoning Front Counter Staff for sites less than 1 acre. Development Review Board (DRB) for sites between 1.1 and 4.9 acres.
Ground-Mounted Wind	Wind electric generation installations or facilities mounted on the ground, such as a field of wind turbines (blade, rotator or other type). Sites are 5 acres or greater.	Environmental Planning Commission (EPC)
Rooftop Wind	Wind electric generation installations or facilities (blade, rotator or other type) mounted on the roof of a building.	Zoning Front Counter Staff. International Residential Code (IRC) Plan Check Staff will determine if a building permit is needed.
Other Generation Technologies Not Identified Above	Existing and/or emerging technologies that could be used in the future (i.e., wall-mounted solar).	Same procedure as for Wind technologies.

* Note: The Zoning Hearing Examiner (ZHE) will decide any Special Exception needed pursuant to §14-16-4-2 as part of any of the above requests.

Table 3
APPROVAL PROCESS FOR ELECTRIC TRANSMISSION AND SUBSTATION FACILITIES - BERNALILLO COUNTY

Action Type & Definition	Examples	Unincorporated Bernalillo County Approval Process
Insignificant Action: An action that results in a structure, material, condition change. The Plan remains essentially the same.	Insignificant actions include: replacing eight or fewer structures in the same locations within the same easement with structures of a different size and/or material; government or developer initiated projects that have gone through a public involvement process and approved by the CDRA and/or CPC; changing the timing and/or preliminary location of any proposed project described in Section V of the Plan before application is made for project approval.	Approved administratively by the Bernalillo County Director of Zoning, Planning & Building or designee.
Minor Action: An action that results in a small change to the structure, material, condition or Plan.	Minor actions include: upgrading conductor size on an existing power line where structure replacement is required; expansion of an existing substation; replacing eight or more structures on an existing line with structures of a different type; No more than two changes to the Project List per calendar year in unincorporated Bernalillo County not described in the Plan.	The County Development Review Authority (CDRA)
Major Action: An action that results in a large change to the structure, material, condition or Plan.	Major actions include: addition of 3 or more projects to the Project List; amending the Standards for the Location and Design of Transmission and Substation Facilities (see Section III); amending the procedures relating to Implementation and Administration of Transmission and Substation Facilities (see Section IV).	The County Planning Commission (CPC) review and The Bernalillo County Board of County Commissioners (BCC) consent
Proposed Electric Facility Project Approval: An action which results in submittal of a specific project for approval.	Those specific projects listed in Table 5 of the Plan submitted for project approval including proposed transmission and substation projects.	The County Planning Commission (CPC) review and The Bernalillo County Board of County Commissioners (BCC) consent
Plan Adoption: The ten-year, periodic revision and updating of the Plan, which then supersedes and replaces the previous version of the Plan.	The *1971 Plan for Electric Service in Albuquerque* was superseded in 1985 by *the Facility Plan: Electric Service Transmission and Subtransmission Facilities (1985-1995)*.	The Bernalillo County Board of County Commissioners (BCC)

Table 4
APPROVAL PROCESS FOR ELECTRIC GENERATION FACILITIES – BERNALILLO COUNTY

Action Type & Definition	Examples	Unincorporated Bernalillo County Approval Process
Proposed Electric Facility Project Approval: An action which results in submittal of a specific project for approval.	This category applies to public utility facilities, power plants and those specific projects listed in Table 5. Those projects must submit an application for a special use permit, See Appendix G.*	The County Planning Commission (CPC) review and The Bernalillo County Board of County Commissioners (BCC) consent

* Proposed privately-owned generation installations located on 'host' properties are incidental to a principal use (e.g., residential) and require building permits from the Zoning, Building, Planning, and Environmental Health Department,

TABLE 5
DESCRIPTION OF PROPOSED ELECTRIC FACILITY PROJECTS FOR 2010-2020

Project Number	Description	Proposed Action	In-service Year	Purpose/Function of Facility	Location: CoA/BC*
1	Southwest Mesa Substation	Build a new substation on the southwest mesa to serve area development	2012	Provide substation capacity for area growth and back up support to S. Coors and Central Substations	CoA
2	Journal Center Substation	Build a new substation to serve area development	2013	Provide substation capacity to support growth in the Journal Center area	CoA
3	Scenic Substation	Build a new substation to serve area development	2013	Provide substation capacity for area load growth and back-up support to Black Ranch and Mariposa Substations	CoA
4	98th/I-40 Substation	Build a new substation near 98th and I-40 under the PM and PW 115kV lines	2013	Provide substation capacity for area growth and backup support to Central, St. Joseph, and Volcano Substations	CoA
5	Paradise Hills Substation Unit II	Expand substation to acccommodate additional equipment	2013	Provide capacity for existing and new load	BC
6	Tramway Substation Unit II	Expand substation to accommodate additional equipment	2013	Provide transformer and feeder capacity needed to serve load growth in far northeast area of Albuquerque	CoA
7	PN 115 kV line Reconfiguration	Build a portion of new 115 kV line and reconfigure the existing PN 115 kV line	2014	Improve transmission capacity in the central area of Albuquerque	CoA
8	Paseo del Volcan Substation	Build a new substation to serve area development	2016	Provide substation capacity to serve Tempur-Pedic Mattress Plant and other growth in the area of I-40 and Paseo del Volcan	BC
9	NW 115kV Line Upgrade	Upgrade the NW 115 kV line between West Mesa and Mariposa	2016	Mitigate overloads on this line section for loss of the WP 115 kV line from West Mesa to Prager	CoA
10	Beverly Wood Substation Expansion	Expand existing substation to accommodate needed future equipment	2016	Increase substation capacity to serve Uptown development and other area growth	CoA
11	La Cueva Substation 115kV Line	Build a 115 kV line from Eubank and San Antonio NE to La Cueva Substation	2017	Serve proposed new distribution subtstations and improve the reliability of the Northeast Albuquerque area	CoA/BC
12	La Cueva Substation	Build a new substation to serve area development	2017	Provide substation capacity to serve the residential and commercial growth in the area surrounding Paseo del Norte and San Pedro/Wyoming	BC
13	Third Street Substation	Build a new substation in the area of 3rd Street and Constitution Ave to serve area development	2017	Increase substation capacity and provide back up support to Lomas and Prager Substations	CoA
14	Arenal Substation and 115kV Line	Build a new substation and 115 kV line from the PM line	2017	Provide substation capacity for area load growth and backup support to Central, Volcano, South Coors and Wesmeco Substations	CoA
15	Downtown Substation	Build a new substation to serve area development	2018	Provide substation capacity for a planned voltage conversion and backup	CoA
16	Image Substation	Build a new substation located within the Mesa del Sol development	2018	Support future growth within the Mesa del Sol development	CoA
17	Mesa del Sol Industrial Substation	Build a new substation located within the Mesa del Sol development	2019	Support future demand within Mesa del Sol development	CoA

TABLE 5
DESCRIPTION OF PROPOSED ELECTRIC FACILITY PROJECTS FOR 2010-2020

Project Number	Description	Proposed Action	In-service Year	Purpose/Function of Facility	Location: CoA/BC*
18	Laguna Substation (Mesita Negra)	Build a new substation to serve the area development	2020	Provide substation capacity to serve Laguna Pueblo development in the Rio Puerco area	BC
19	Quail Ranch Substation	Build a new substation in the Quail Ranch subdivision adjacent to the KM 115 kV line to serve area development	2020	Provide substation capacity for area growth and back up support for Black Ranch Substation	CoA
20	KM Line Switching Station	Build a new 115kV switching station on the KM 115 kV transmission line in northwest Albuquerque	2020	Establish a transmission source into the Northwest Albuquerque area	CoA
21	KM - Rio Puerco 115kV Line	Build a 115kV transmission line between Rio Puerco Switching Station and the new KM Line Switching Station west of Albuquerque	2020	Provide a strong 115kV transmission source into the western Albuquerque area	CoA/BC
22	Pajarito to Prosperity 115kV Line	Build new 115 kV transmission line between the new Pajarito and new Prosperity switching stations	2020	Establish a new source into the southern Albuquerque area	CoA/BC
23	WB 115kV Line Rebuild West Mesa - Pajarito	Upgrade the WB 115 kV transmission line between West Mesa and Pajarito	2020	Increase contingency capacity in the southern Albuquerque area	CoA/BC
24	Carlisle Switching Station	Build new 115kV switching station to increase transmission capacity through the center of Albuquerque	2020	Increase reliability for the central section of Albuquerque	CoA
25	Prosperity Station	Build new 115kV switching station on the PS 115kV transmission line east of I-25 and south of Person station near the Mesa del Sol development	2020	Support growth within Mesa del Sol and improve reliability by interconnecting with the existing system	BC
26	Parajito Station	Build a new 345 kV & 115 kV switching station	2020	Support growth on the southwest mesa and improve reliability by interconnecting with the existing system	BC
27	AT Line 115kV Switching Station	Build a new 115kV switching station on the AT 115 kV transmission line on the southwest corner of the Mesa del Sol development	2020	Establish a second transmission source into the Mesa del Sol development	CoA
28	Mesa del Sol 115kV Line II	Build a second 115 kV-looped transmission line through the east side of the Mesa del Sol development	2020	Establish a second transmission source through the Mesa del Sol development	CoA
29	PS 115kV Line Upgrade	Upgrade the PS 115 kV line between Prosperity and KAFB	2020	Increase the capacity of the PS/KS lines that connect the existing Person and the proposed Prosperity stations to Sandia Station	CoA/BC
30	Watson Substation	Build a new substation to serve future demand of Mesa del Sol	2020	Provide transformer and feeder capacity needed to serve the Schott Solar manufacturing facility	CoA
31	BW Line Switching Station	Build a new 115kV switching station along the BW 115 kV transmission line	2020	Provide capacity to serve development in the western Albuquerque area	BC
32	Rio Puerco - BW 115kV Line	Build a 115kV transmission line between Rio Puerco Switching Station and the BW line west of Albuquerque	2020	Provide a strong 115 kV transmission source into the western Albuquerque area from Rio Puerco	BC
33	NE Albuquerque 115kV Transmission Line	Build new 115kV transmission source to Northeast Albuquerque from La Cueva Substation to Tramway Substation along Paseo del Norte	2020	Provide a 115 kV source for new substations and improve reliability	CoA/BC

TABLE 5
DESCRIPTION OF PROPOSED ELECTRIC FACILITY PROJECTS FOR 2010-2020

Project Number	Description	Proposed Action	In-service Year	Purpose/Function of Facility	Location: CoA/BC*
34	East Mountain 115 kV line	Build a new 115 kV line from Sandia Station to Tijeras Substation	2020	Increase transmission capacity and improve reliability	CoA/BC
35	Double Eagle Substation	Build a new substation to serve area development	2020	Provide substation capacity to support the proposed Eclipse Aircraft Manufacturing facility and other development at Double Eagle Airport	CoA
36	PL 115 kV line rebuild	Build a new 115 kV line between the existing Lomas Substation and the Person Station	2020	Improve reliability and increase transmission capacity	CoA/BC
37	SP 115kV Line Extension to Prosperity	Build new 115kV transmission line extension of the SP line from Person Station to the new Prosperity 115 kV switching station	2020	Move the termination of the SP line from Person Station to the new Prosperity Station	BC
G-1	Repowering using newer technology at Reeves Generating Station	Install new generation at existing Reeves Generation Station	2015	Additional generation would reduce the burden on the transmission system	CoA
G-2	Repowering using newer technology at Person Generating Station	Install new generation at existing Person Generation Station	2015	Additional generation would reduce the burden on the transmission system	BC
CoA/BC* City of Albuquerque and/or Bernalillo County					

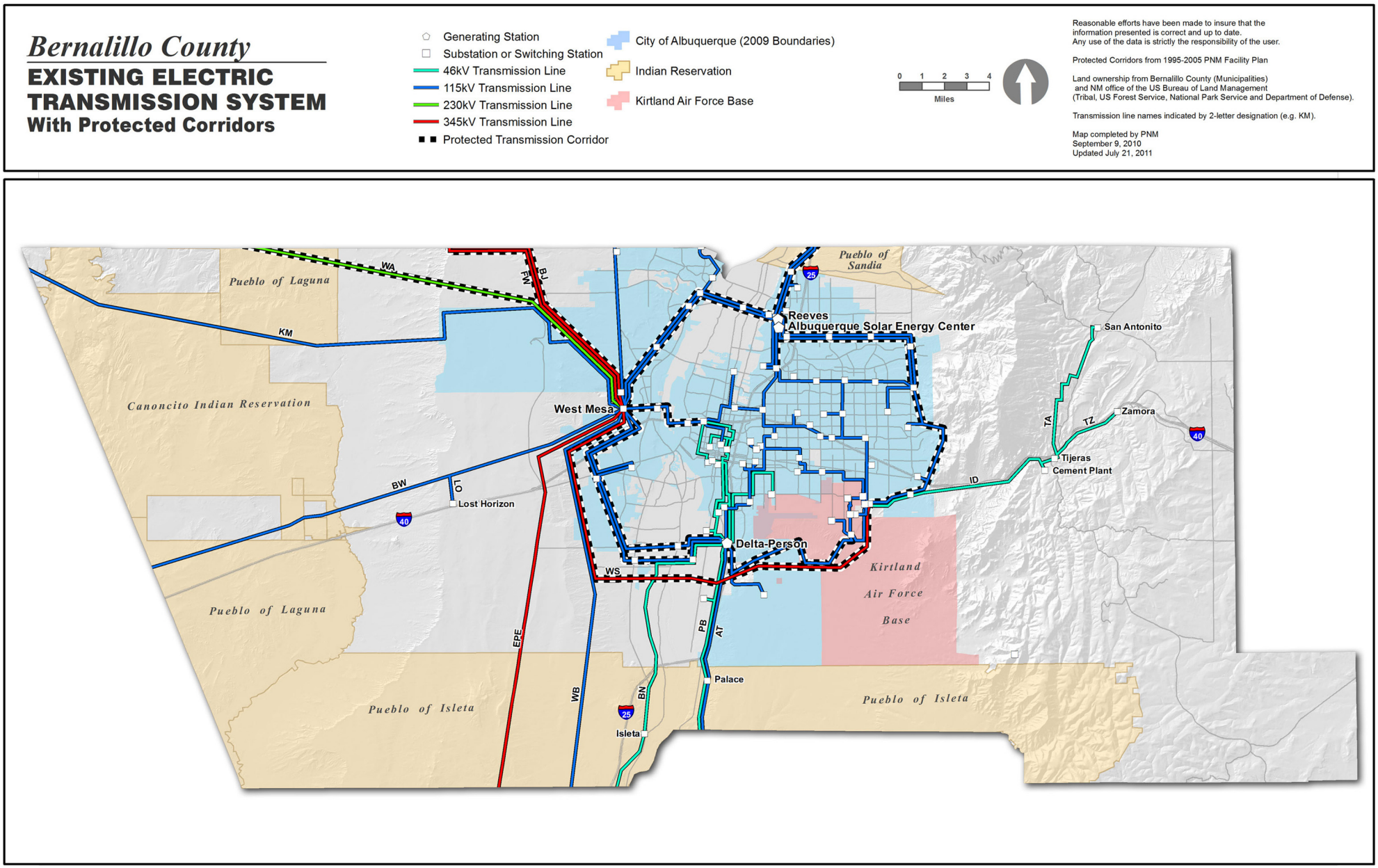
Bernalillo County
EXISTING ELECTRIC TRANSMISSION SYSTEM
With Protected Corridors
Generating Station
Substation or Switching Station
46kV Transmission Line
115kV Transmission Line
230kV Transmission Line
345kV Transmission Line
Protected Transmission Corridor
City of Albuquerque (2009 Boundaries)
Indian Reservation
Kirtland Air Force Base
0 1 2 3 4
Miles
Reasonable efforts have been made to insure that the information presented is correct and up to date. Any use of the data is strictly the responsibility of the user.
Protected Corridors from 1995-2005 PNM Facility Plan
Land ownership from Bernalillo County (Municipalities) and NM office of the US Bureau of Land Management (Tribal, US Forest Service, National Park Service and Department of Defense).
Transmission line names indicated by 2-letter designation (e.g. KM).
Map completed by PNM
September 9, 2010
Updated July 21, 2011
Pueblo of Laguna
Canoncito Indian Reservation
Pueblo of Sandia
Reeves
Albuquerque Solar Energy Center
West Mesa
San Antonio
Zamora
Tijeras
Cement Plant
Lost Horizon
Delta-Person
Kirtland Air Force Base
Palace
Isleta
Pueblo of Isleta
WA
KM
FN
BJ
BW
LO
WS
EPE
WB
BN
PB
AT
TA
TZ
ID
25
40

FIGURE 2

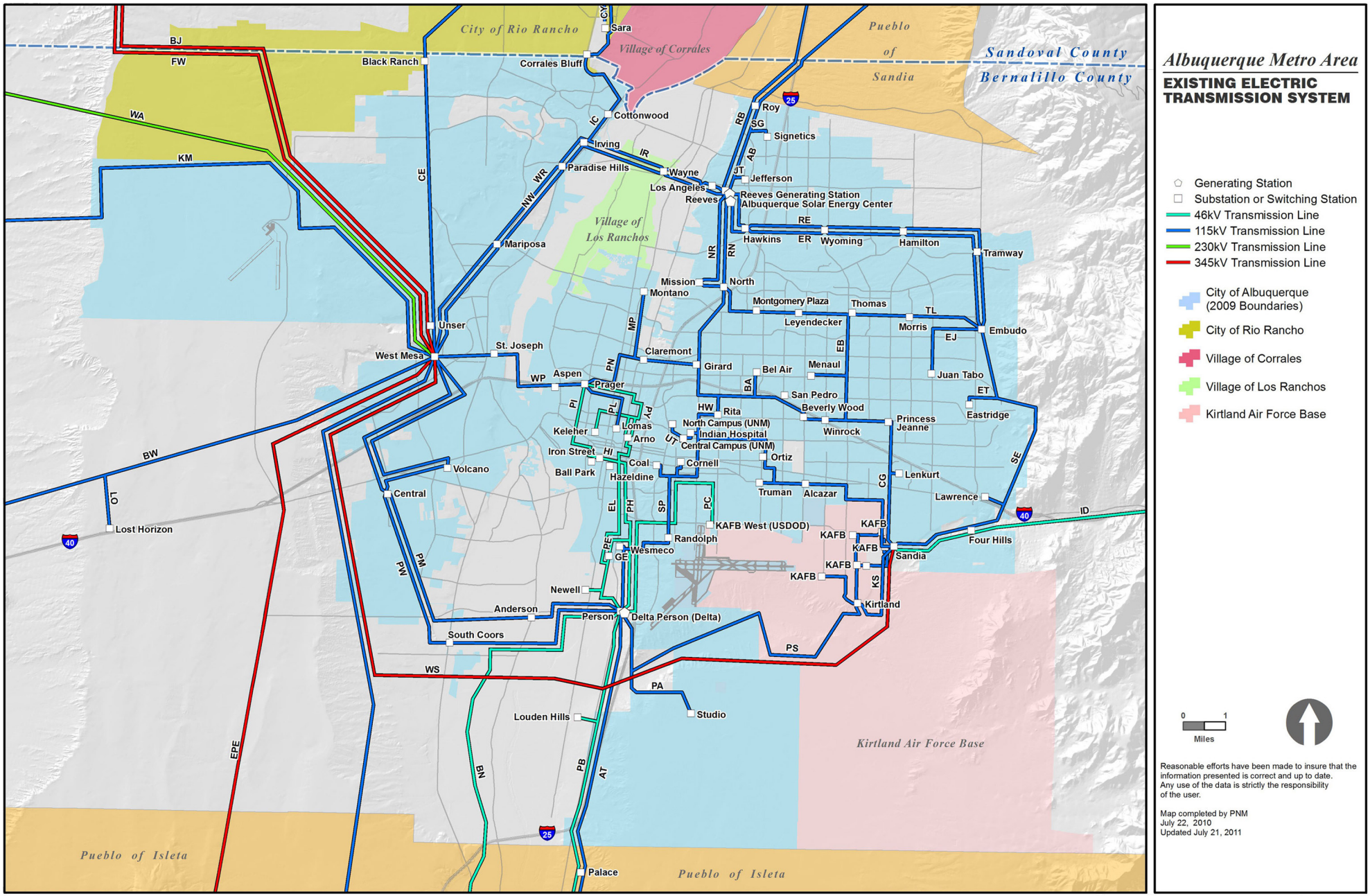
City of Rio Rancho
Village of Corrales
Pueblo of Sandia
Sandoval County
Bernalillo County
Village of Los Ranchos
Kirtland Air Force Base
Pueblo of Isleta
Pueblo of Isleta
Albuquerque Metro Area
EXISTING ELECTRIC TRANSMISSION SYSTEM
Generating Station
Substation or Switching Station
46kV Transmission Line
115kV Transmission Line
230kV Transmission Line
345kV Transmission Line
City of Albuquerque (2009 Boundaries)
City of Rio Rancho
Village of Corrales
Village of Los Ranchos
Kirtland Air Force Base
Miles
Reasonable efforts have been made to insure that the information presented is correct and up to date. Any use of the data is strictly the responsibility of the user.
Map completed by PNM
July 22, 2010
Updated July 21, 2011
Sara
Black Ranch
Corrales Bluff
Cottonwood
Irving
Paradise Hills
Wayne
Los Angeles
Reeves
Reeves Generating Station
Albuquerque Solar Energy Center
Roy
Signetics
Jefferson
Hawkins
Wyoming
Hamilton
Tramway
Embudo
Juan Tabo
Eastridge
Princess Jeanne
Winrock
Beverly Wood
San Pedro
Menaul
Bel Air
Girard
Claremont
Montgomery Plaza
Thomas
Morris
Leyendecker
Mission
Montano
North
Mariposa
Unser
West Mesa
St. Joseph
Aspen
Prager
Rita
North Campus (UNM)
Indian Hospital
Central Campus (UNM)
Lomas
Arno
Keleher
Iron Street
Ball Park
Coal
Hazeldine
Cornell
Ortiz
Truman
Alcazar
Lenkurt
Lawrence
Four Hills
Sandia
Kirtland
Volcano
Central
Lost Horizon
Randolph
Wesmeco
KAFB West (USDOD)
KAFB
Newell
Anderson
Person
Delta Person (Delta)
South Coors
Louden Hills
Studio
Palace
25
40
CE
WA
BJ
FW
KM
WR
NW
IC
IR
RB
SG
AB
JT
RE
ER
NR
RN
MP
PN
WP
BA
EB
EJ
ET
TL
HW
HI
UT
PI
PJ
PY
EL
PH
SP
PC
PE
GE
PM
PW
BW
LO
EPE
BN
PB
AT
WS
PA
PS
CG
SE
KS
ID

FIGURE 3

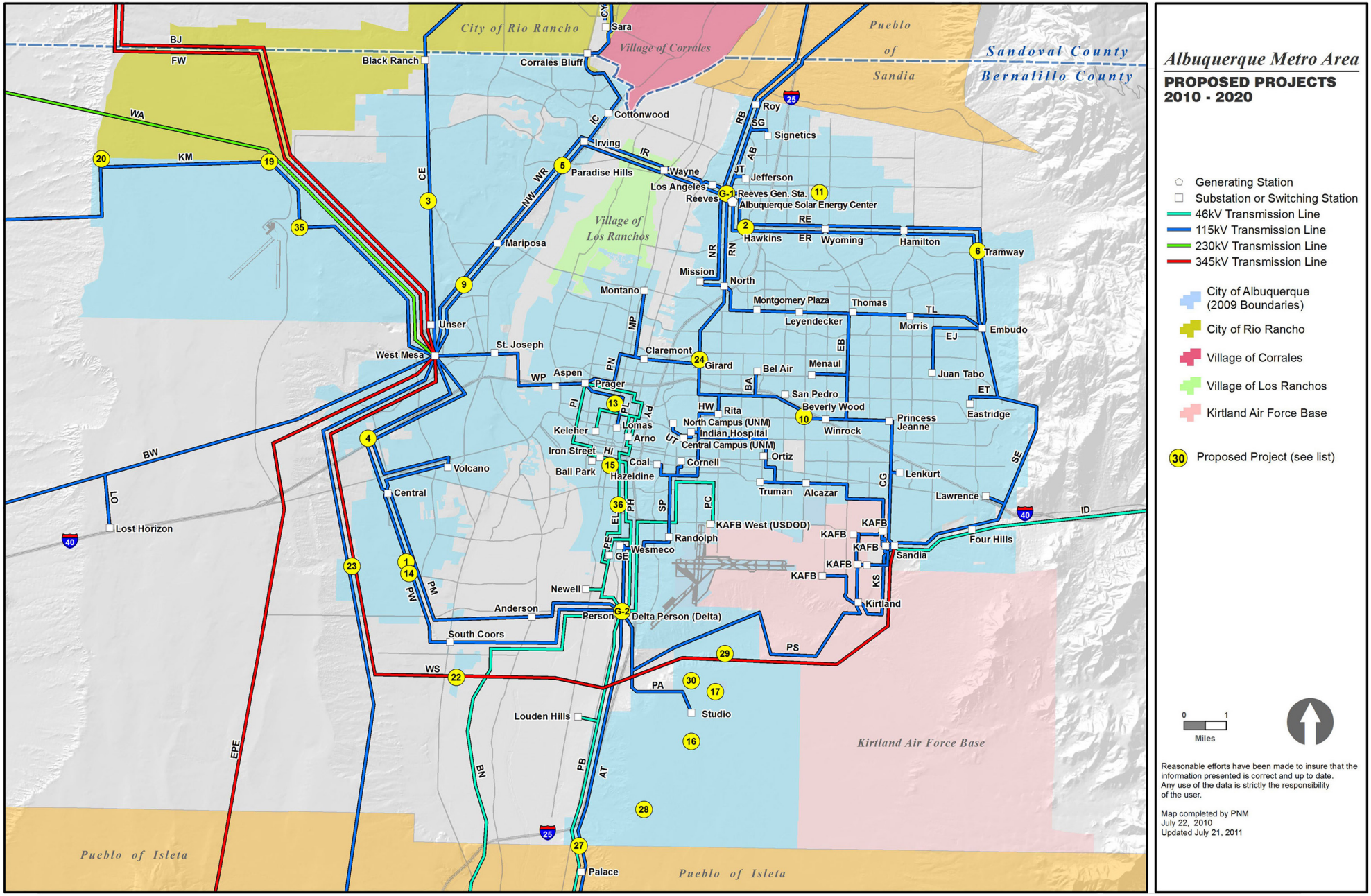
City of Rio Rancho
Village of Corrales
Pueblo of Sandia
Sandoval County
Bernalillo County
Village of Los Ranchos
Kirtland Air Force Base
Pueblo of Isleta
Pueblo of Isleta
Albuquerque Metro Area
PROPOSED PROJECTS
2010 - 2020
Generating Station
Substation or Switching Station
46kV Transmission Line
115kV Transmission Line
230kV Transmission Line
345kV Transmission Line
City of Albuquerque (2009 Boundaries)
City of Rio Rancho
Village of Corrales
Village of Los Ranchos
Kirtland Air Force Base
30 Proposed Project (see list)
0
1
Miles
Reasonable efforts have been made to insure that the information presented is correct and up to date. Any use of the data is strictly the responsibility of the user.
Map completed by PNM
July 22, 2010
Updated July 21, 2011
Sara
Black Ranch
Corrales Bluff
Cottonwood
Irving
Paradise Hills
Wayne
Jefferson
Los Angeles
Reeves
Reeves Gen. Sta.
Albuquerque Solar Energy Center
Roy
Signetics
Hawkins
Wyoming
Hamilton
Tramway
Mariposa
Mission
North
Montano
Montgomery Plaza
Thomas
Leyendecker
Morris
Embudo
Unser
West Mesa
St. Joseph
Claremont
Girard
Bel Air
Menaul
Juan Tabo
Aspen
Prager
San Pedro
Beverly Wood
Eastridge
Rita
North Campus (UNM)
Indian Hospital
Central Campus (UNM)
Princess Jeanne
Winrock
Keleher
Lomas
Arno
Iron Street
Ball Park
Coal
Hazeldine
Cornell
Ortiz
Volcano
Central
Truman
Alcazar
Lenkurt
Lawrence
Lost Horizon
KAFB West (USDOD)
Randolph
Four Hills
Wesmeco
Sandia
Newell
Kirtland
Anderson
Person
Delta Person (Delta)
South Coors
Louden Hills
Studio
Palace
BJ
FW
WA
KM
BW
LO
EPE
CE
WR
NW
IC
IR
RB
SG
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FIGURE 4

Bernalillo County
EXISTING ELECTRIC TRANSMISSION SYSTEM

Generating Station
Substation or Switching Station
46kV Transmission Line
115kV Transmission Line
230kV Transmission Line
345kV Transmission Line
City of Albuquerque (2009 Boundaries)
Indian Reservation
Kirtland Air Force Base

0 1 2 3 4
Miles

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Land ownership from Bernalillo County (Municipalities) and NM office of the US Bureau of Land Management (Tribal, US Forest Service, National Park Service and Department of Defense).

Transmission line names indicated by 2-letter designation (e.g. KM).

Map completed by PNM
July 22, 2010
Updated July 21, 2011

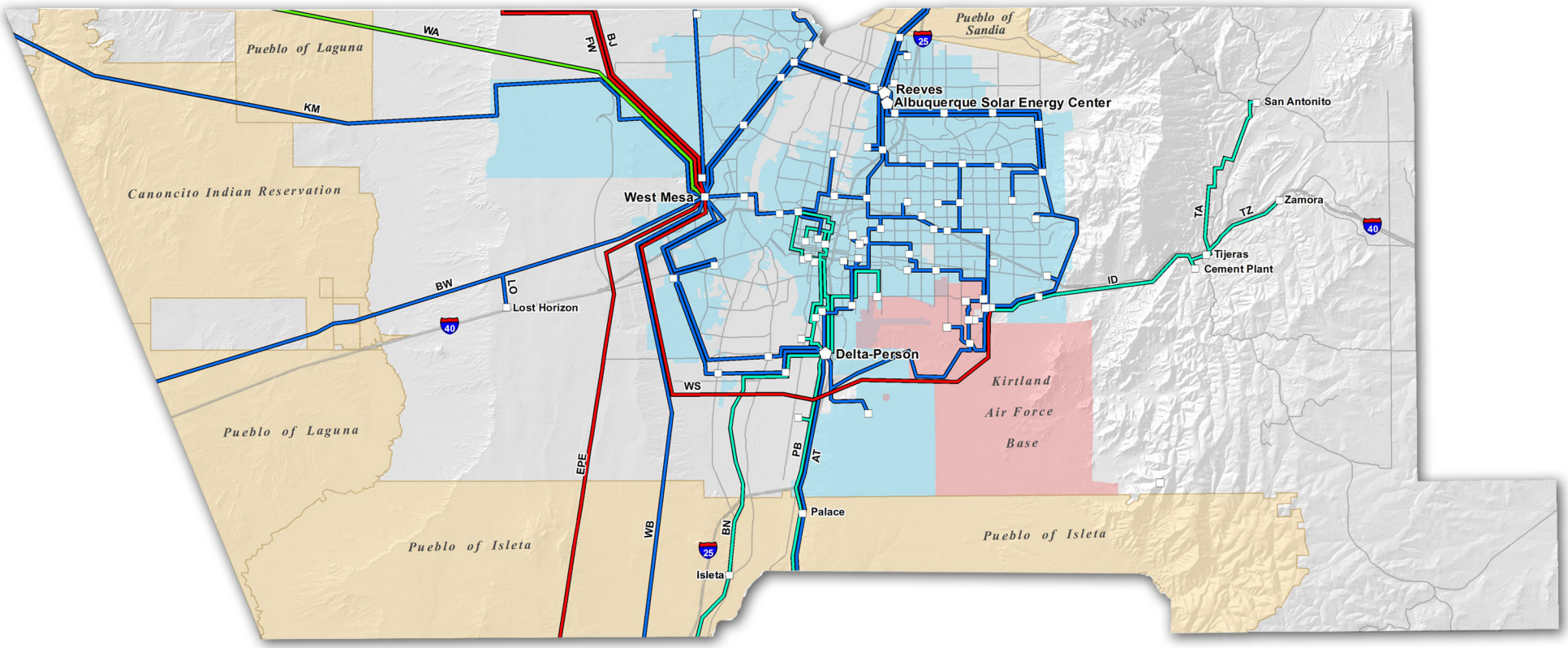

FIGURE 5

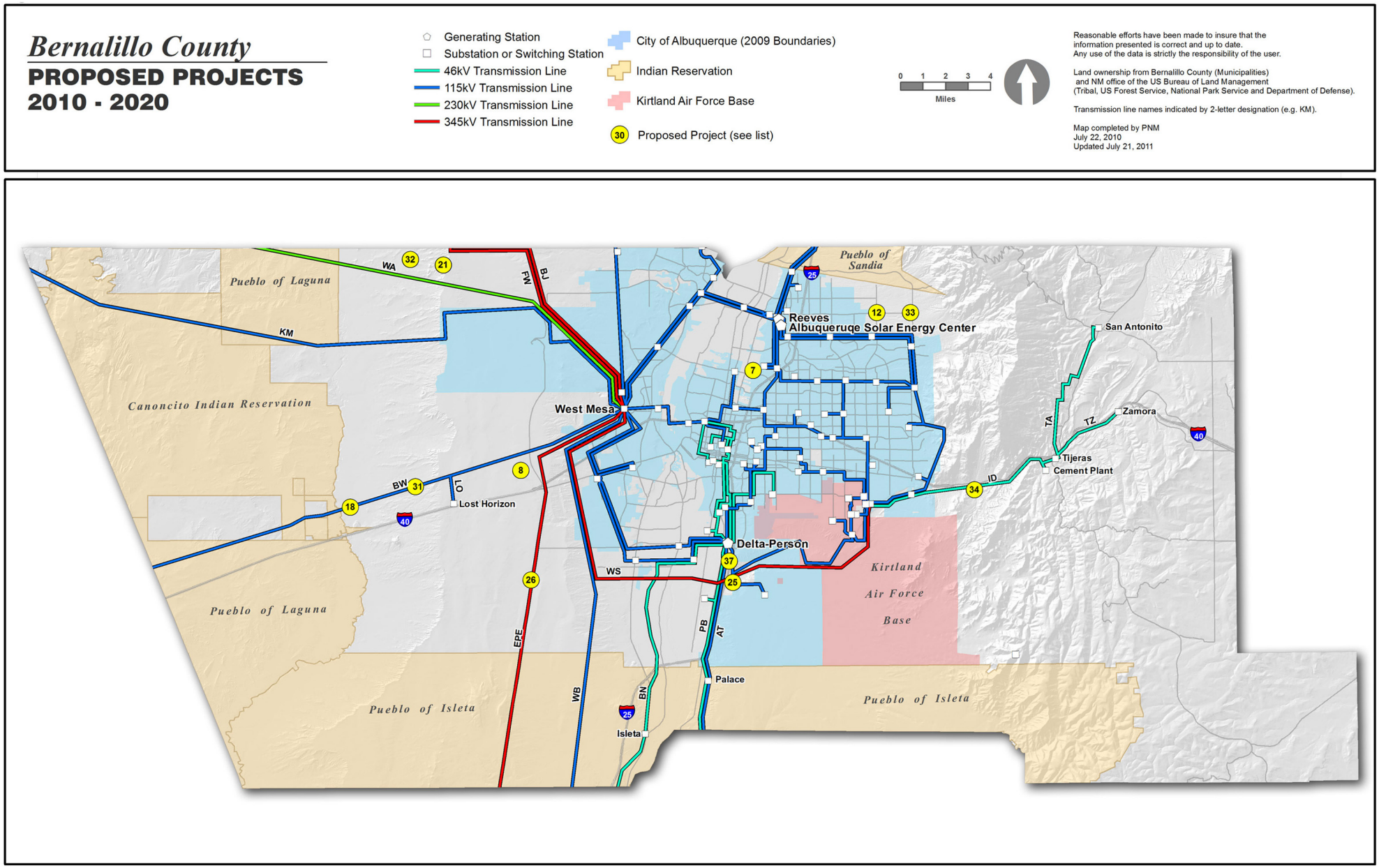
Bernalillo County
PROPOSED PROJECTS
2010 - 2020
Generating Station
Substation or Switching Station
46kV Transmission Line
115kV Transmission Line
230kV Transmission Line
345kV Transmission Line
City of Albuquerque (2009 Boundaries)
Indian Reservation
Kirtland Air Force Base
30 Proposed Project (see list)
0 1 2 3 4
Miles
Reasonable efforts have been made to insure that the information presented is correct and up to date.
Any use of the data is strictly the responsibility of the user.
Land ownership from Bernalillo County (Municipalities) and NM office of the US Bureau of Land Management (Tribal, US Forest Service, National Park Service and Department of Defense).
Transmission line names indicated by 2-letter designation (e.g. KM).
Map completed by PNM
July 22, 2010
Updated July 21, 2011
Pueblo of Laguna
Canoncito Indian Reservation
Pueblo of Sandia
Pueblo of Isleta
Kirtland Air Force Base
West Mesa
Reeves
Albuquerque Solar Energy Center
Delta-Person
Lost Horizon
Palace
Isleta
San Antonio
Zamora
Tijeras
Cement Plant
WA
KM
FN
BJ
BW
LO
WS
EPE
WB
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FIGURE 6

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APPENDIX A

OUTLINE FOR A TYPICAL SITING STUDY

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APPENDIX A
OUTLINE FOR A TYPICAL SITING STUDY

Transmission Facility

Executive Summary

A. Project Description and Area to Be Served
B. Alternative Corridors Examined
C. Preferred Alternative

I. Introduction

A. Project Description and a Summary of Alternative Corridors Examined
B. Purpose and Need for the Project
C. Project Location Map and Aerial Photo
D. Details of Typical Structures (height and finish)
E. Existing Overhead Utilities
F. Projected In-Service Date

II. Identification of Siting Considerations, Impacts and Mitigation

A. Study Area Description and Identification of Exclusion Areas and/or Environmental Considerations for Proposed Action

1. Visual Resources
    a. Visual Considerations and General Appearance
    b. Visual Simulations
    c. Topography

2. Ecological

3. Land Use
    a. Land Use and Zoning Along the Corridor
    b. Location of Streets and Functional Classifications
    c. FEMA Special Flood Hazard Zone

B. Options for Construction

1. Approximate Line Length
2. Average Structure Height
3. Approximate Number of Structures
4. Average Span Length
5. Estimated Installed Costs - Above Ground and Underground

C. Project Costs

Substation Facility

Executive Summary

A. Project Description and Area to Be Served
B. Alternative Station Sites Examined
C. Preferred Alternative

I. Introduction

A. Project Description and a Summary of Alternative Substation Sites Examined
B. Purpose and Need for the Project
C. Project Location map and Aerial Photo
D. Details of Typical Station
E. Evidence of Property Control or Intent to Purchase the Property
F. Existing Overhead Utilities
G. Projected In-Service Date

II. Identification of Siting Considerations, Impacts and Mitigation

A. Study Area Description and Identification of Exclusion Areas and/or Environmental Considerations for Proposed Action

1. Visual
    a. Visual Considerations and General Appearance
    b. Visual Simulations
    c. Topography

2. Ecological

3. Land Use
    a. Land Use and Zoning
    b. Location of Streets and Traffic Counts
    c. Land Use Map
    d. FEMA Special Flood Hazard Zone

B. Project Costs

APPENDIX B

SAMPLE STATION PLANS

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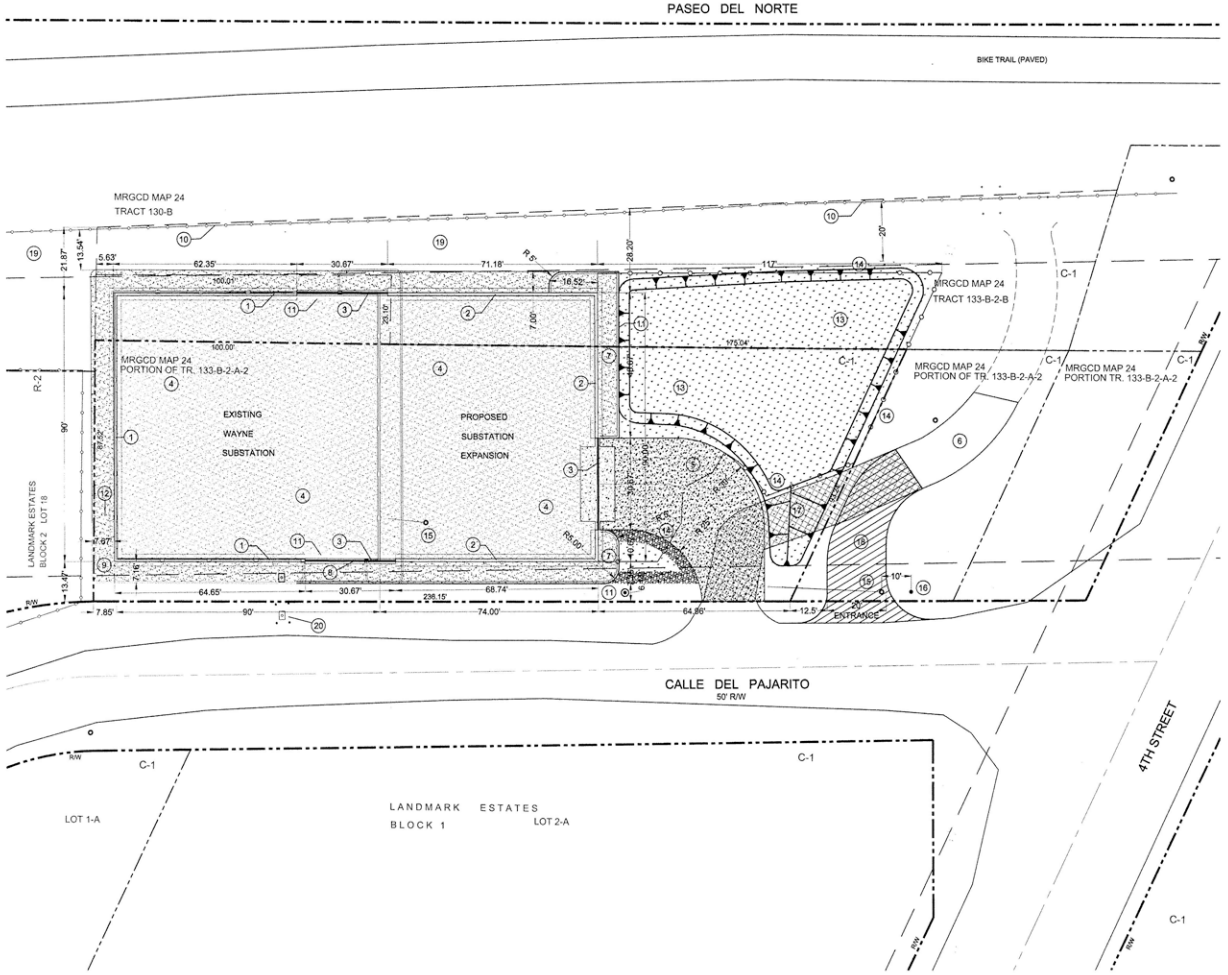
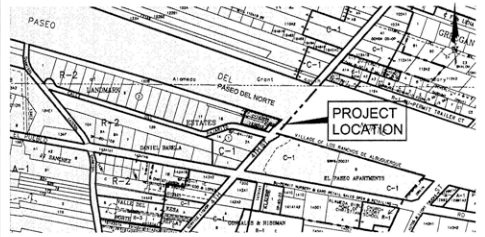
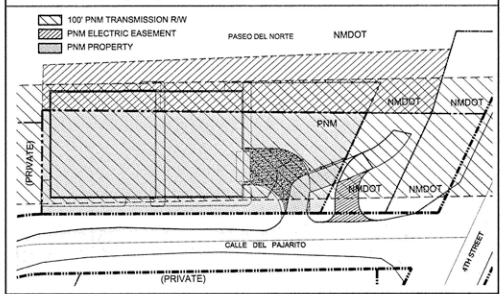




LOCATION MAP (C-15) SCALE: 1" = 450'



PROPERTY OWNERSHIP SCALE: 1" = 50'

KEYED NOTES

1. EXISTING 12' CMU WALL (TO BE DEMOLISHED)
2. NEW 12' CMU WALL (FTG. SHOWN FOR REFERENCE)
3. GATE / GRILL W. CONC. APRON
4. 4" GRAVEL SURFACE
5. NEW DRIVE ENTRANCE (BASE COURSE)
6. EXIST.BIKE TRAIL ACCESS DRIVE (PORTION TO REMAIN)
7. AREA TO BE LANDSCAPED
8. EXISTING GATE TO BE REPLACED WITH GRILL
9. EXISTING LANDSCAPING
10. EXISTING WIRE FENCE
11. NEW 8" HEADER CURB
12. EXISTING HEADER CURB
13. NEW STORM WATER RETENTION POND
14. NEW FENCE
15. EXISTING POWER POLE AND GUYS TO BE REMOVED
16. NEW POWER POLE
17. EXIST. BIKE TRAIL ACCESS DRIVE (PORTION TO BE REMOVED)
18. NEW ASPHALT BIKE TRAIL ACCESS DRIVE ENTRANCE
19. CORRIDOR USED AS ALLEY BACK YARD ACCESS BY RESIDENTS OF LANDMARK SUBDIVISION (NO EASEMENT OR R/W OF RECORD)
20. EXISTING WATER METER (TO BE RELOCATED TO 13' NORTH)

LEGEND

- EXIST.CONTOUR / ELEV.
- EXIST. SPOT ELEV.
- TOP OF CONCRETE ELEV.
- TOP OF SUBGRADE ELEV.
- FLOWLINE ELEV.
- PROPOSED CONT. / ELEV.
- RIGHT-OF-WAY
- PROPERTY LINE
- EASEMENT
- PROPOSED SPOT ELEV.
- DIRECTION OF FLOW
- DRAINAGE SWALE
- DRAINAGE BASIN DIVIDE
- EXIST. POLE (/GUY)
- EXISTING WATER METER
- EXISTING FIRE HYDRANT
- EXIST. FENCE
- UNPAVED ROAD
- GRAVEL SURFACE
- CONCRETE SURFACE
- LANDSCAPED AREA
- EXIST. PAV. TO BE REMOVED
- NEW PAVING

PROJECT DATA

PROPERTY DESCRIPTION:
MRGCD MAP 24
PORTION OF TRACT 133-B-2-A-2;
PORTIONS OF TRACTS 133-B-2-B, AND 130-B

PROPERTY ADDRESS:
8609 FOURTH STREET NW

BENCHMARK:
CITY CONTROL STATION 4-C15A
ACS ALUMINUM DISK, 2ND ORDER
TOP CONC. TRAFFIC SIGNAL FOUNDATION
SE CORNER 4TH AND EL PUEBLO
ELEV. = 4994.27' MSL, NAVD 88

MAPPING:
TOPOGRAPHIC MAPPING FROM
FIELD MEASUREMENTS BY
BRASHER & LORENZ, INC.
DATED FEBRUARY, 2005

DRAWING INDEX

BRASHER & LORENZ
CONSULTING ENGINEERS
2201 San Pedro NE Building 1 Suite 130
Albuquerque, New Mexico 87110
Ph: 505-855-8200 Fax: 505-855-8199

REVISION

NO.	DATE	BY	
1	03/24/05	PB	COMBINED TWO RET. PONDS INTO ONE POND
			ADD. CH. LK. FENCE EAST SIDE
2	04/20/05	PB	ENLARGED POND
			ADD NEW DRIVE FOR BIKE PATH
3	04/20/05	PB	SHOW EXIST WALL TO BE DEMOLISHED
			REVISE WALL AND FOOTINGS TO SHOW 12" CMU W/ 4' WIDE FTG.
			REVISE LANDSCAPING PLAN
			SHOW RELOC. WATER METER
4	05/16/05	PB	MODIFY LANDSCAPING PLAN
			MODIFY YARD FENCE

1" = 20'

PAUL T. BRASHER
NEW MEXICO
7282
REGISTERED PROFESSIONAL ENGINEER
5-16-05

ASSOCIATED LAYERS

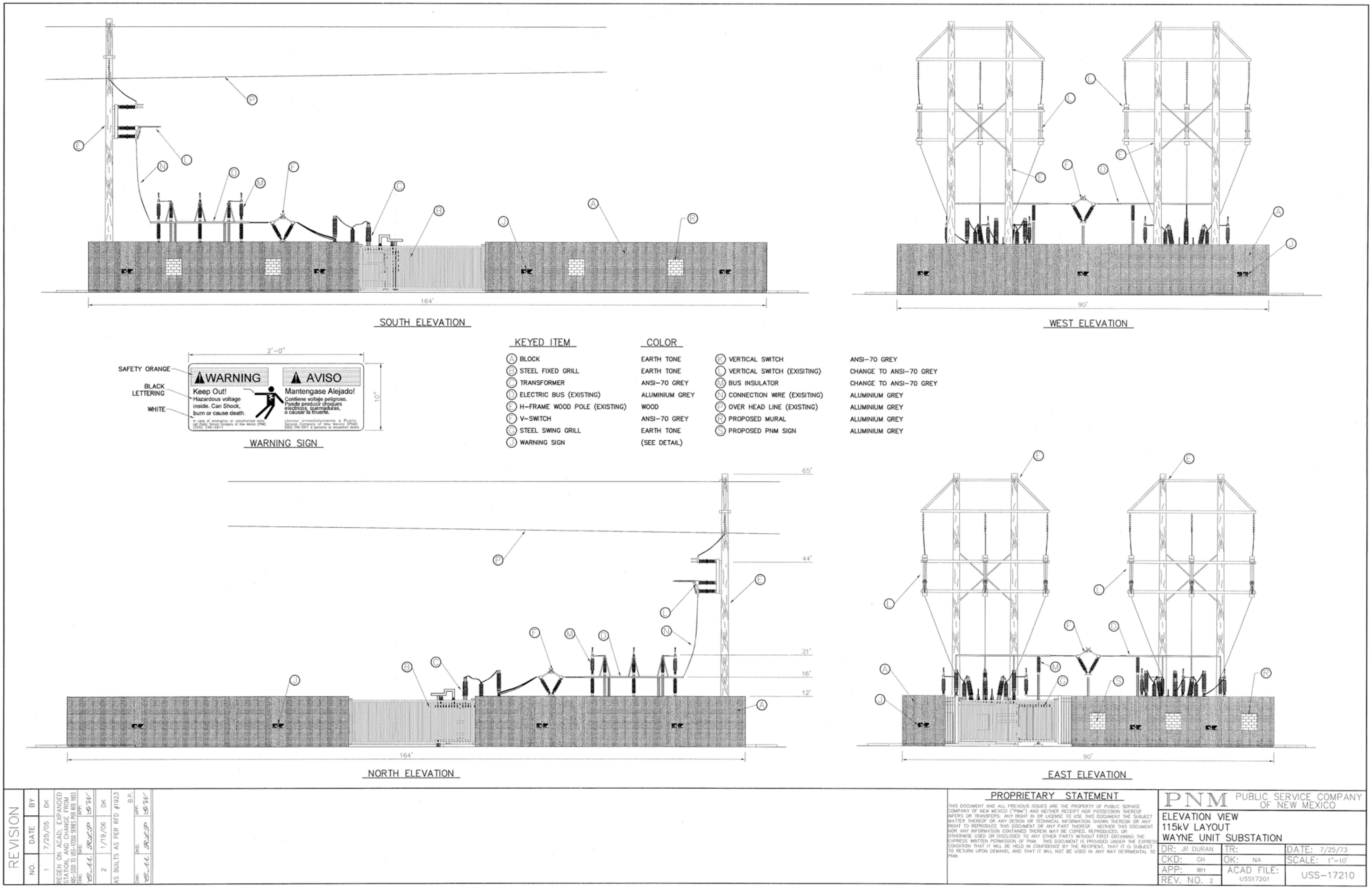
LAYER NAME	DESCRIPTION
0	STANDARD
TBBL	TITLE BLOCK
DRAW	LINE WORK
TEXT	ALL TEXT

PNM PUBLIC SERVICE COMPANY OF NEW MEXICO

WAYNE SUBSTATION EXPANSION
SITE PLAN
SHT: 1 OF 5

DRW: R.M	TR:	DATE: 05/16/05
CKD: P.T.B	OK:	SCALE: 1"=20'
APP:	ACAD FILE: PNM/WAYNE	USS - 17202
REV. NO.		

SUBSTATION SITE PLAN



SUBSTATION ELEVATIONS

APPENDIX C

STATION LANDSCAPE DESIGN STANDARDS

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APPENDIX C
Station Landscape Design Standards

1. Substation facilities should be surrounded by a minimum 10-foot landscaped buffer zone as approved through the site plan approval process. If located within the City of Albuquerque, they shall be landscaped as per Section 14-16-3-10 (Landscaping regulations applicable to apartment and nonresidential development) of the City of Albuquerque Zoning Code and the Water Conservation Landscaping and Water Waste Ordinance. If located outside of the City of Albuquerque, within Bernalillo County, they shall be landscaped as per the *Comprehensive Zoning Ordinance of Bernalillo County, New Mexico Ordinance No. 213, Section 19, Landscaping and Buffer Landscaping Regulations* and *Bernalillo County Water Conservation Ordinance,* Sec. 30-241 through 30-250. This buffer zone should not limit adequate substation access for maintenance vehicles and special equipment. In addition, landscaping shall comply with safety and maintenance requirements for substations.

2. The setback of the substation will be equal to the setback requirements of adjacent properties. Where the site faces or is contiguous to two or more different zones, the more restrictive setback requirements shall apply. Deviation from setback requirements is possible if compliance with the more restrictive setback requirements would cause practical difficulties.

3. The buffer zone area should be planted with sufficient vegetation which, when mature, will assist in visually screening the substation walls and structures from all adjacent land uses and from the public right-of-way. Linear and clustered planting arrangement height limitation is dependent on specific safety and site conditions. Only medium and low water use plants from the *How-To Guide to Xeriscaping* by the Albuquerque/Bernalillo County Water Utility Authority will be used for landscaping.

4. Where possible and appropriate, existing trees, shrubs, fences, walls, and landforms shall be incorporated into landscape plans and gravel will be used in the buffer zone for safety purposes. The landscape design shall be compatible with the surrounding environment where appropriate and the plant materials shall complement those found in the surrounding neighborhood or environment, if possible.

5. If water is available, irrigation will be installed for landscaped areas. Generally, an underground system is encouraged. Irrigation systems should be designed so as to comply with the provisions of the *Albuquerque Water Conservation Landscaping and Water Waste Ordinance* if located within the City of Albuquerque or with the *Bernalillo County Water Conservation Ordinance Sec. 30-249* if located in Bernalillo County.

6. Street trees are required for the portion of the substation lot that is adjacent to a major street in accordance with existing regulations. Street trees will not be planted if they would result in a safety hazard to the public.

7. Existing substation sites which do not meet the landscaping standard contained in this Plan shall be addressed on an individual basis as warranted.

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APPENDIX D

TYPICAL ELECTRIC TRANSMISSION STRUCTURES

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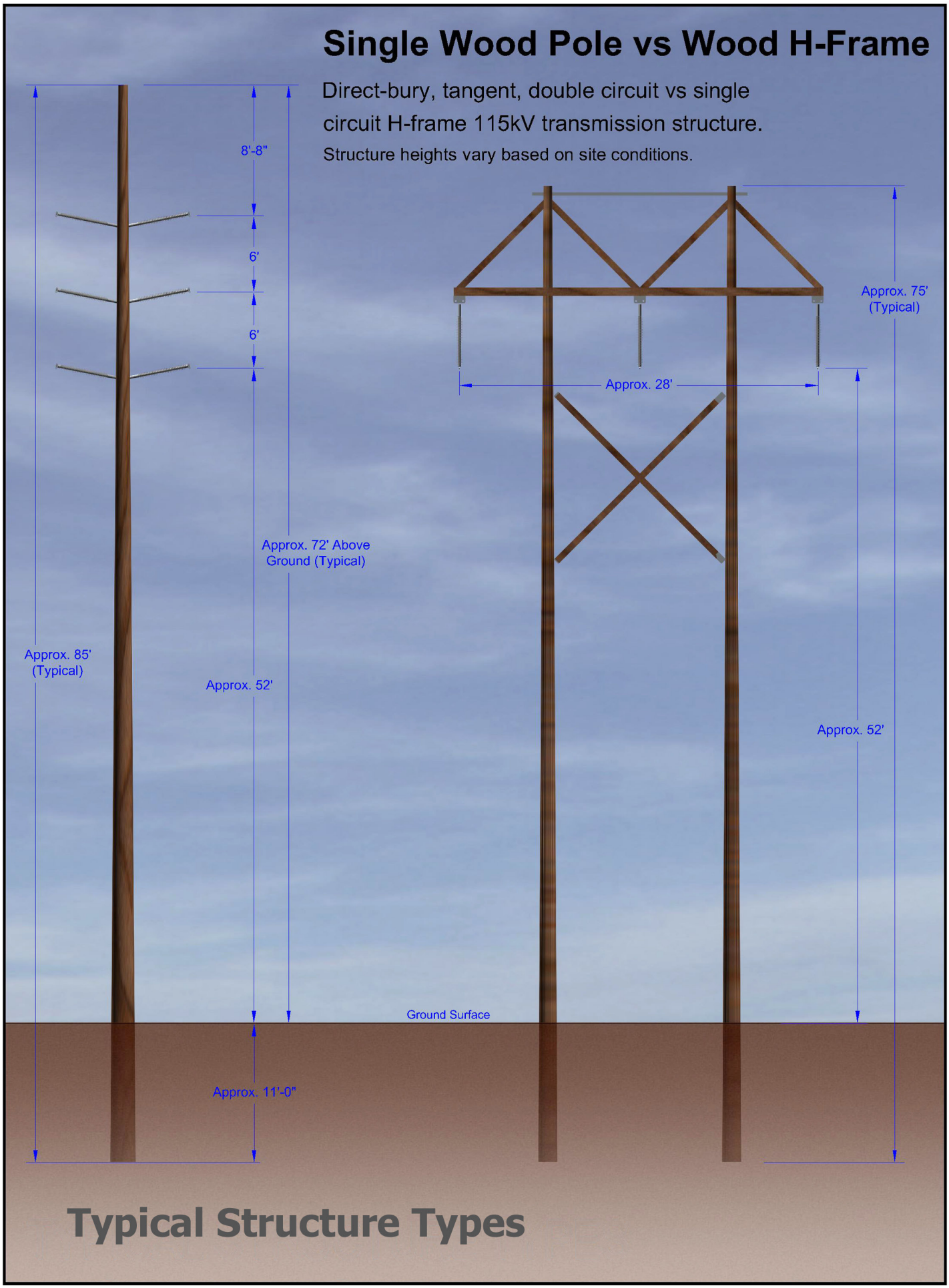
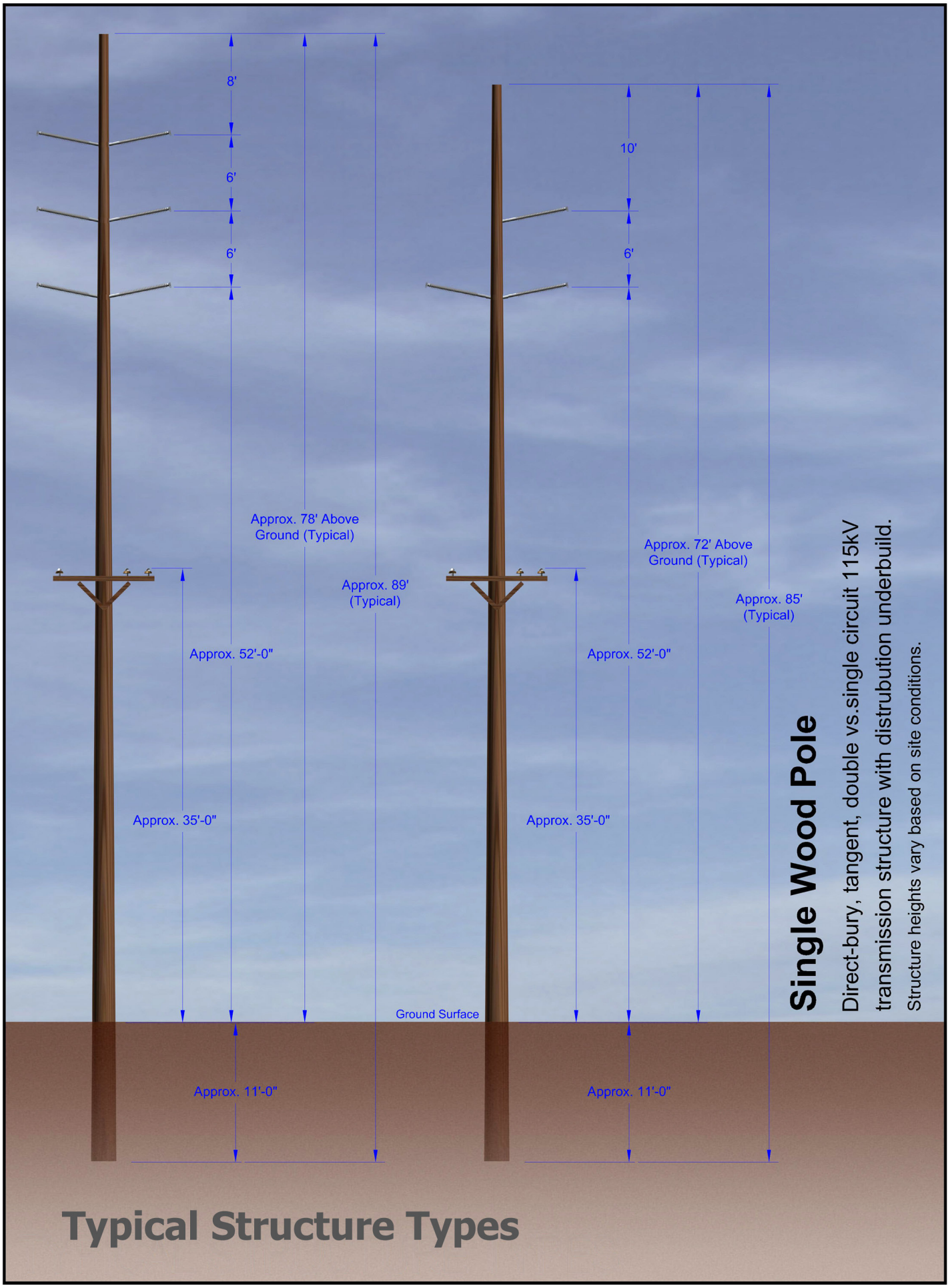
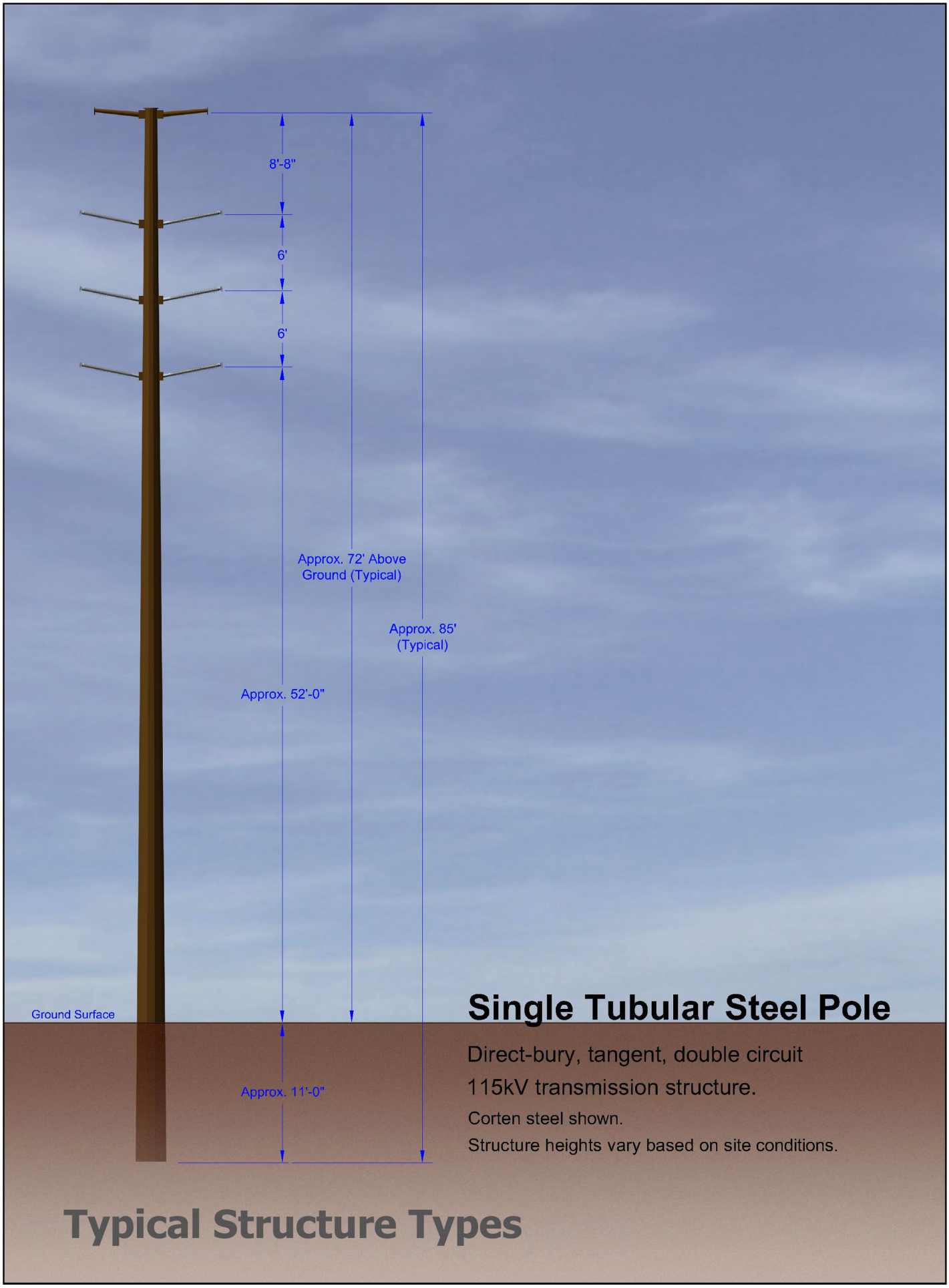

Single Wood Pole vs Wood H-Frame
Direct-bury, tangent, double circuit vs single circuit H-frame 115kV transmission structure.
Structure heights vary based on site conditions.
8'-8"
6'
6'
Approx. 72' Above Ground (Typical)
Approx. 85' (Typical)
Approx. 52'
Approx. 11'-0"
Ground Surface
Approx. 75' (Typical)
Approx. 28'
Approx. 52'
Typical Structure Types


8'
6'
6'
Approx. 78' Above Ground (Typical)
Approx. 89' (Typical)
Approx. 52'-0"
Approx. 35'-0"
Approx. 11'-0"
10'
6'
Approx. 72' Above Ground (Typical)
Approx. 85' (Typical)
Approx. 52'-0"
Approx. 35'-0"
Approx. 11'-0"
Ground Surface
Single Wood Pole
Direct-bury, tangent, double vs.single circuit 115kV transmission structure with distrubution underbuild.
Structure heights vary based on site conditions.
Typical Structure Types



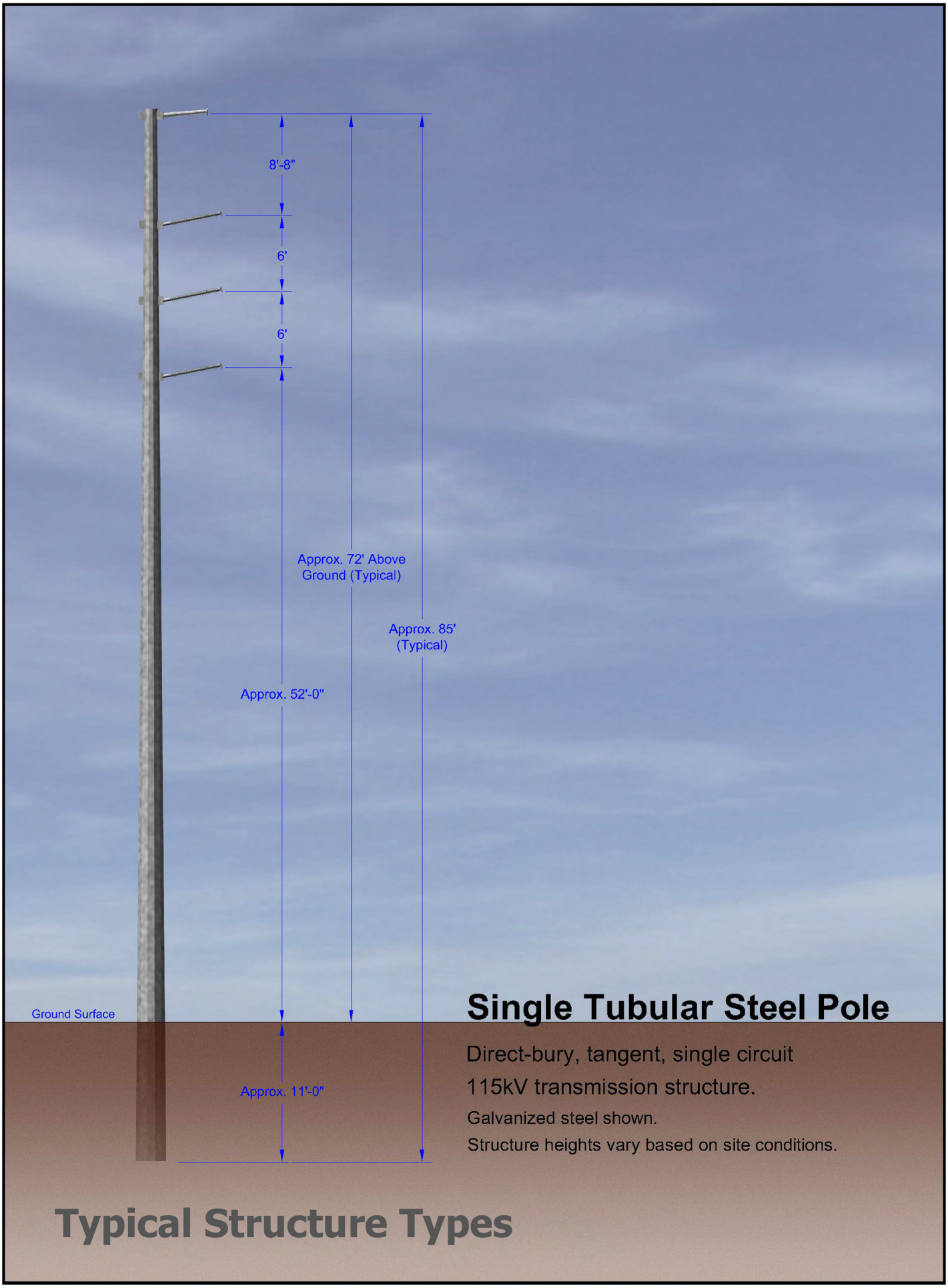
Single Tubular Steel Pole

Direct-bury, tangent, double circuit 115kV transmission structure.

Corten steel shown.

Structure heights vary based on site conditions.

Typical Structure Types



Single Tubular Steel Pole

Direct-bury, tangent, single circuit 115kV transmission structure.

Galvanized steel shown.

Structure heights vary based on site conditions.

Typical Structure Types

APPENDIX E

NATIONAL ELECTRIC MANUFACTURERS ASSOCIATION (NEMA) STANDARDS

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APPENDIX E
NEMA STANDARDS PUBLICATION NO. TR1-1993
TRANSFORMERS, REGULATORS, AND REACTORS

TR 1.0.05 AUDIBLE SOUND LEVELS

Transformers shall be so designed that the average sound level will not exceed the values given in Table 0-2 when measured at the factory in accordance with the conditions outlined in ANSI/IEEE C57.12.90-1993. Rectifier, railway, furnace, grounding, mobile and mobile unit substation transformers are not covered by the tables. The tables do not apply during the time that power switches are operating in load-tap-changing transformers and in transformers with integral power switches. NEMA Standard TR-1, 1993 (R2000).

AUDIBLE SOUND LEVELS FOR OIL-IMMERSED POWER TRANSFORMERS FROM TABLE 0-2, NEMA STANDARD TR-1, 1993 (R2000)

Column 1 - Class* OA, OW and FOW Ratings
Column 2 - Class* FA and FOA First-stage Auxiliary Cooling**†
Column 3 - Straight FOA* Ratings, TA* FOA* Second-stage Auxiliary Cooling*†

	Equivalent To-winding Rating▲																	
average sound level††	350kV BIL and below			450, 550, 650kV BIL			750 and 825kV BIL			900 and 1050kV BIL			1175kV BIL			1300kV BIL and above		
decibels	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
57	700	···	···	···	···	···	···	···	···	···	···	···	···	···	···	···	···	···
58	1000	···	···	···	···	···	···	···	···	···	···	···	···	···	···	···	···	···
59	···	···	···	700	···	···	···	···	···	···	···	···	···	···	···	···	···	···
60	1500	···	···	1000	···	···	···	···	···	···	···	···	···	···	···	···	···	···
61	2000	···	···	···	···	···	···	···	···	···	···	···	···	···	···	···	···	···
62	2500	···	···	1500	···	···	···	···	···	···	···	···	···	···	···	···	···	···
63	3000	···	···	2000	···	···	···	···	···	···	···	···	···	···	···	···	···	···
64	4000	···	···	2500	···	···	···	···	···	···	···	···	···	···	···	···	···	···
65	5000	···	···	3000	···	···	···	···	···	···	···	···	···	···	···	···	···	···
66	6000	···	···	4000	···	···	3000	···	···	···	···	···	···	···	···	···	···	···
67	7500	6250▲▲	···	5000	3750▲▲	···	4000	3125▲▲	···	···	···	···	···	···	···	···	···	···
68	10000	7500	···	6000	5000	···	5000	3750	···	···	···	···	···	···	···	···	···	···
69	12500	9375	···	7500	6250	···	6000	5000	···	···	···	···	···	···	···	···	···	···
70	15000	12500	···	10000	7500	···	7500	6250	···	···	···	···	···	···	···	···	···	···
71	20000	16667	···	12500	9375	···	10000	7500	···	···	···	···	···	···	···	···	···	···
72	25000	20000	20800	15000	12500	···	12500	9375	···	···	···	···	···	···	···	···	···	···
73	30000	26667	25000	20000	16667	···	15000	12500	···	12500	···	···	···	···	···	···	···	···
74	40000	33333	33333	25000	20000	20800	20000	16667	···	15000	···	···	12500	···	···	···	···	···
75	50000	40000	41667	30000	26667	25000	25000	20000	20800	20000	16667	···	15000	···	···	12500	···	···
76	60000	53333	50000	40000	33333	33333	30000	26667	25000	25000	20000	20800	20000	16667	···	15000	···	···
																		···
77	80000	66676	66667	50000	40000	41667	40000	33333	33333	30000	26667	25000	25000	20000	20800	20000	16667	···
78	100000	80000	83333	60000	53333	50000	50000	40000	41667	40000	33333	33333	30000	26667	25000	25000	20000	20800
79	···	106667	100000	80000	66667	66667	60000	53333	50000	50000	40000	41667	40000	33333	33333	30000	26667	25000
80	···	133333	133333	100000	80000	83333	80000	66667	66667	60000	53333	50000	50000	40000	41667	40000	33333	33333
81	···	···	166667	···	106667	100000	100000	80000	83333	80000	66667	66667	60000	53333	50000	50000	40000	41667
82	···	···	200000	···	133333	133333	···	106667	100000	100000	80000	83333	80000	66667	66667	60000	53333	50000
83	···	···	250000	···	···	166667	···	133333	133333	···	106667	100000	100000	80000	83333	80000	66667	66667
84	···	···	300000	···	···	200000	···	···	166667	···	133333	133333	···	10667	100000	100000	80000	83333
85	···	···	400000	···	···	250000	···	···	200000	···	···	166667	···	133333	133333	···	106667	100000
86	···	···	···	···	···	300000	···	···	250000	···	···	200000	···	···	166667	···	133333	133333
87	···	···	···	···	···	400000	···	···	300000	···	···	250000	···	···	200000	···	···	166667
88	···	···	···	···	···	···	···	···	400000	···	···	300000	···	···	250000	···	···	200000
89	···	···	···	···	···	···	···	···	···	···	···	400000	···	···	300000	···	···	250000
90	···	···	···	···	···	···	···	···	···	···	···	···	···	···	400000	···	···	300000
91	···	···	···	···	···	···	···	···	···	···	···	···	···	···	···	···	···	400000

* Classes of cooling (see 2.6.1 of American National Standard C57.12.00-1988).

** First and second stage auxiliary cooling (see TR 1.0.02).

† For column 2 and 3 ratings, the sound levels are with the auxiliary cooling equipment in operation.

†† For column 2 and 3 ratings, the sound levels are with the auxiliary cooling equipment in operation.

▲ The equivalent two-winding 55°C or 65°C rating is defined as one-half the sum of the kVA rating of all windings.

▲▲ Sixty-seven decibels for all kVA ratings equal to this or smaller.

APPENDIX F

ELECTRIC AND MAGNETIC FIELDS

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APPENDIX F
ELECTRIC AND MAGNETIC FIELDS

Hundreds of scientific studies have been completed regarding exposure to 60 cycle electric and magnetic fields (EMF) and human health issues over the last thirty years. These fields are present wherever 60 cycle AC (alternating current) power is used i.e., PNM lines, house wiring, and use of electric appliances. While research still continues, to date, it has not been established that exposure to low level 60 cycle magnetic fields is the cause of any adverse human health effects.

Exposure to EMF is an existing circumstance typical in urban communities. The electric utility should apply the prudent avoidance measures suggested by the National Institute of Environmental Health Sciences (NIEHS) in reference to the design of electrical facilities. Some level of public concern will persist regarding the EMF issue; however, the electric utility should do what is reasonably possible to develop station layouts and transmission line configurations that are intended to reduce electric and magnetic field levels at the edge of station property lines and at the edge of transmission line rights-of-way. When siting new facilities, the utility shall consider, to the greatest extent practical and feasible, not siting near schools and daycare centers.

Electric fields are produced in electrical lines because of the amount of voltage applied to a conductor. Electric field strength falls off dramatically with distance, and many objects, including trees and houses, shield electric fields from individual exposure. The predominant amount of residential exposure to electric fields is a result of common household appliance use.

Magnetic fields are a result of the strength of the movement of electricity (current) through a conductor. As with electric fields, magnetic field decreases dramatically with distance from the source; this is especially true with appliances. Unlike electric fields, objects such as trees, buildings, or the ground do not shield magnetic fields. Magnetic fields may be higher at the surface directly above an underground transmission line than at ground level directly beneath an overhead line, as a result from being much closer to the lines.

Whether fields originate from appliances or high voltage transmission lines, public and scientific concerns exist regarding exposure and the potential for health effects. Considerable worldwide research has been and is being conducted regarding whether exposure to EMF may produce adverse health effects. In a final report to Congress as required by the 1992 Energy policy Act (PL 102-486, Section 2118), the NIEHS makes the following recommendations:

> "The NIEHS suggests that the level and strength of evidence supporting ELF-EMF exposure as a human health hazard are insufficient to warrant aggressive regulatory action; thus we do not recommend actions such as stringent standards on electric appliances and a national program to bury all transmission and distribution lines. Instead, the evidence suggests passive measures such as continued emphasis on educating both the public and the regulated community on means aimed at reducing exposures. NIEHS suggests that the power industry continue its current practice of siting power lines to reduce exposures and continue to explore ways to reduce the creation of magnetic fields around transmission and distribution lines without creating new hazards." (NIEHS Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields", PP 37-38).

For more information, refer to the National Institute of Environmental Health Sciences (NIEHS) - National Institutes of Health (NIH) website:
(*http://www.niehs.nih.gov/health/topics/agents/emf/index.cfm*).

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APPENDIX G

GENERATION SUBMITTAL PROCEDURES

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APPENDIX G

GENERATION SUBMITTAL PROCEDURES

City of Albuquerque

The following information provides guidance regarding submittal requirements for generation development for investor-owned utility facilities and privately-owned utility facilities in the City of Albuquerque. Electric generation facility projects are required to have a siting study. The guidance and standards are consistent with the language added as an amendment to the New Mexico Public Utility Act in January 2010, Section 16.16.5.

Submittals will follow the Site Development Plan and Building Permit requirements as specified by the City of Albuquerque. A siting study will be comprised of, but not limited to the following elements:

- Survey
- Agreement with interconnection
- Project description of preferred alternative and a summary of sites examined including acreage and size
- Project location map and aerial photo
- Details of proposed facility (information regarding number of panels, height and configuration, plan view and elevations)
- Evidence of property control
- Projected in-service date
- Visual considerations and general appearance
- Visual simulation(s)
- Topography
- Ecological considerations
- Zoning (include Zone Atlas page and Land Use map showing the subject property and adjacent property)

See Table 2 for a description of the approval process for generation facilities or installations in the City of Albuquerque.

Bernalillo County

Generation Facility

Proposed investor-owned or privately-owned generation facilities which will produce electric power primarily for sale or distribution to a utility in unincorporated Bernalillo County must obtain a Special Use Permit for a Power Plant or Public Utility Facility, as listed in Section 18.B.24 (Special Use Permits) of the Bernalillo County Zoning Ordinance. The requirements for applying for a Special Use Permit are listed in Section 18.C.5 of the Zoning Ordinance.

Applications for Special Use Permits are filed with the County Zoning, Building, Planning, and Environmental Health Department for review by County staff and other agencies and then considered at public hearings before the County Planning Commission and the Board of County Commissioners. It is recommended that the applicant consult with County Zoning or Planning staff prior to filing an application for a Special Use Permit.

Proposed privately-owned generation installations located on ‘host’ properties that are incidental to a principal use (e.g., residential) require building permits from the Zoning, Building, Planning, and Environmental Health Department.

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APPENDIX H

GENERATION TECHNOLOGIES

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APPENDIX H

GENERATION TECHNOLOGIES

The following list describes currently available and emerging electric generation technologies. Some of these are available to be used in the City of Albuquerque or Bernalillo County for the production of electric energy and would be expected to follow procedures in Appendix G. Photos of the generation technologies are provided as examples.

Battery Storage

Batteries store electricity for use at another time. Batteries are generally expensive, have high maintenance and have limited life spans. This technology supports solar and wind generation which is unpredictable.

Biofuel Generation

The term applies to renewable material derived from plants or animals, used to generate electricity either though biogas or biomass facilities.

Biogas - A power plant designed to burn gas produced by the biological breakdown of organic matter in the absence of oxygen. Large landfills and commercial dairies produce methane that can be collected ot processed. Once the gas is processed, it can be combined with natural gas and burned in steam generators, gas turbines or internal combustion engine-generators.

Biomass - A power plant designed to burn biomass materials such as forestry or agricultural residues include wood chips, corn cobs and wheat straw. These materials can be burned directly in steam-electric power plants.

Coal Fired

A power plant designed to burn coal to heat water to create steam to turn turbines to generate electricity. After the steam passes through the turbine it is condensed and recycled to where it was originally heated. This is typically designed as baseload generation which operates continuously. Baseload is the minimum amount of power that a utility must make available to its customers.

Cogeneration

Cogeneration is the simultaneous production of electric energy and useful thermal energy for industrial, commercial heating or cooling purposes. It is one of the most common forms of energy recycling. This is considered a conventional technology.

Distributed Generation

Small scale power generation technologies, typically installation of solar panels on roofs of buildings or small wind turbines. See Solar Power Generation Facility and Wind Energy System.

Fuel Cells

Fuel cells combine substances chemically to generate electricity. Fuel cells are powered by a continuous flow of fuel. Fuel cells typically have been expensive to make and not well suited to large installations. Landfill gas may also be used in fuel cell technologies and are more efficient than combustion turbines.

Geothermal Energy
A technology that uses either steam under pressure that emerges from the ground and drives a turbine or a low boiling liquid to create vapor to drive a turbine. The heat available underground is seen when geysers erupt, sending steam and hot water into the air.

Hydroelectric
A technology that uses gravitational force of falling water or flowing water to generate electricity.

Natural Gas Fueled Generation
A plant which burns natural gas used to power a generator. Natural gas technologies are often used to provide peak load power, although combined cycle facilities are becoming more commonly used for baseload generation. Peak load generation facilities are available to assist in meeting that portion of peak load that is above baseload. These units are usually low-efficiency, quick response steam units, gas turbines, diesels or pumped-storage hydroelectric equipment. "Peakers" are characterized by quick starts and generally high operating costs, but low capital costs. Peak load is the maximum power requirement of a system at a given time, or the amount of power required to supply customers at times when need is greatest. This is typically considered conventional technology; however, some solar and wind generation can be credited with peak load capacity (not specifically pictured):

> **Natural Gas Fired Steam Generation –** An electric generation technology where natural gas is used to heat water to create steam to turn turbines to generate electricity. After the steam passes through the turbine, it is repeatedly condensed, cooled then reheated back to steam.
> **Natural Gas Turbine (Simple Cycle Gas Turbine) –** An electric generation technology where compressed natural gas is burned to produce hot combustion gases that pass directly through a turbine, spinning the turbine's blades to generate electricity. Gas turbines are commonly used when electric utility usage is in high demand.
> **Combined Cycle Natural Gas -** An electric generating technology in which electricity is produced from otherwise lost waste heat exiting from one or more natural gas turbines and is used in a heat recovery steam generator. This process increases the efficiency of the electrical generating unit.

Nuclear Energy
Nuclear power plants are thermal plants that make electricity by generating steam by using the heat of atomic fission rather than by burning coal, oil, or gas. The steam then turns a generator to produce electricity. Nuclear plants do not use large amounts of fuel and do not refuel often.

Pumped Storage
This generation technology method stores water which is pumped from a lower elevation reservoir to a higher elevation reservoir. Low-cost off-peak electric power is used to run the pumps. During periods of high electrical demand, the stored water is released through hydro-electric generators which produce electricity.

Solar Energy Generation

A plant where energy is generated by the sun. Photovoltaic cells are devices that produce electricity directly from sunlight. Many photovoltaic cells arranged together form a solar array.

Solar Photovoltaic Yard, Utility Facility – a ground-mounted type of solar generation project owned by a utility serving the area for benefit of their customers.

Solar Photovoltaic Yard, Installation – ground-mounted solar panels installations to serve the host site and can sell excess power to the utility.

Solar Photovoltaic Roof-Mounted Energy Installation – solar panels installed on the roof of a building that serve the host site and can sell excess power to the utility.

Solar Photovoltaic Ground-Mounted Facility – solar panels placed on poles that can be fixed in position or can be a tracking system can be either an installation serving the host site or a utility facility.

Concentrating Solar Facility - The use of lenses or mirrors or tracking systems to focus sunlight onto a receiver into a small beam to generate a high temperature working fluid. Unlike solar photovoltaic cells which use light to produce electricity, concentrating solar power systems generate electricity with heat. The concentrated high temperature working fluid is then used as a heat source for a conventional power plant turbine to produce electricity. One way to classify concentrating solar power technologies is by how the various systems collect solar energy. There are the three main technology systems:

- Linear Concentrator Systems
- Dish/Engine Systems
- Power Tower Systems

Wind Energy Generation

Wind turbines generate electricity from naturally occurring wind. There are a limited number of suitable locations where the wind blows predictably. Even at such sites, turbines often have to be designed with special gearing so that the rotor will turn at a constant speed in spite of variable wind speeds. Wind turbines are not windmills that traditionally are used to pump water from wells or to grind a material by reducing a solid or coarse substance into pulp or minute grains, by crushing, grinding, or pressing.

Wind Generation Facility, Utility Facility – a generation facility powered by turbines that is driven by the wind. Utility wind facilities are typically called wind farms and are connected to the electric power transmission grid.

Wind Generation Facility, Installation - a generation installation driven by wind typically used to generate and provide electricity to a specific location; with the capacity to produce up to 50 kW of electrical power, typically found in rural communities or areas.

Wind Farm – See Wind Generation Facility, Utility Facility.

GENERATION TECHNOLOGIES

Battery Storage

Biogas (Landfill) Facility

Biogas (Commercial Dairy Byproduct) Facility

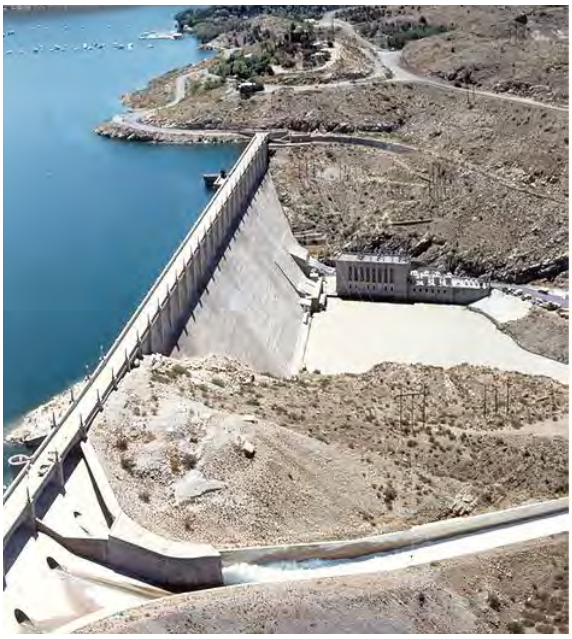
Biomass Facility

Coal-Fired Generating Station

Cogeneration

Fuel Cell Facility

Geothermal



Hydroelectric Generating Station

Natural Gas-Fired Steam Turbine Generating Station

Simple-Cycle Gas Turbine Generating Station

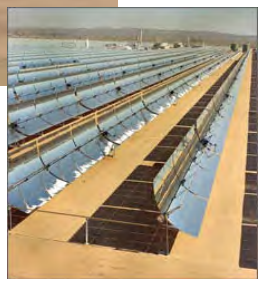
Combined-Cycle Natural Gas Generating Station

Nuclear

Solar Photovoltaic Yard Utility Facility

Solar Photovoltaic Roof-Mounted Installation

Solar Photovoltaic Ground-Mounted Installation or Utility Facility



Concentrating Solar Linear Concentrating System Array Powering a Traditional Steam Turbine Generating Station

Stirling Concentrating Solar Dish/Engine Facility

Concentrating Solar Tower Facility

Wind Generation Facility

Wind Generation Installation

Building-Mounted Wind Installation

Roof-Mounted Wind Installation

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APPENDIX I

EL PASO ELECTRIC COMPANY CORRESPONDENCE

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El Paso Electric

P.O. Box 982
El Paso, Texas
79960-0982
(915) 543-5711

January 28, 2010

Catalina Lehner
City of Albuquerque Planning Department
600 Second Street NW, 3rd Floor
Albuquerque, NM 87102

Dear Ms. Lehner:

I am in receipt of your e-mail dated January 28, 2010 requesting a letter from El Paso Electric Company (EPE) regarding its plans to expand EPE's existing transmission facilities in Bernalillo County, New Mexico.

EPE has sole ownership in the 345 kV transmission line and related facilities from West Mesa Substation in Bernalillo County to Arroyo Substation near Las Cruces, New Mexico. Other than normal repair and maintenance of the line and facilities, EPE presently has no plans to expand the existing transmission plant or construct additional transmission plant in the future.

If you have any questions, please feel free to call me at (915) 543-5757.

Sincerely,

Dennis H. Malone
Manager, System Planning

cc.: Jose G. Nevarez, EPE, AVP, System Operations
Randy Harlas, EPE, Manager, Substations and Relaying
Darwin Jensen, EPE, Manager, Transmission Line Design

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TECHNICAL TEAM

City of Albuquerque

Catalina Lehner, AICP, Current Planning
Carmen Marrone, Manager, Current Planning Section
Russell Brito, Manager, Urban Design and Development Division
Richard Dourte, City Engineer/Division Manager of Development Review Services
Juanita Garcia, Assistant Planning Manager, Code Enforcement

Bernalillo County

Catherine VerEecke, Planning
Nano Chavez, Planning and Land Use Manager
Christie Tanner, Public Works

Electrical Utilities

Laurie W. Moye, Coordinator, PNM Regulatory Project and Public Participation
Emilie Dohleman, Director, PNM System Engineering and Land Services
Blake Forbes, Manager, PNM Station and Line Engineering Design
Manuel R. Sanchez, Manager, PNM Distribution Planning
Judy Suiter, Zephyr Design

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