

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF COLORADO**

**IN THE MATTER OF THE APPLICATION OF )  
PUBLIC SERVICE COMPANY OF )  
COLORADO FOR A CERTIFICATE OF )  
PUBLIC CONVENIENCE AND NECESSITY ) DOCKET NO.  
FOR THE PAWNEE – SMOKY HILL 345KV )  
TRANSMISSION PROJECT )**

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**VERIFIED APPLICATION OF PUBLIC SERVICE COMPANY OF COLORADO  
FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY  
WITH SPECIFIC FINDINGS WITH RESPECT TO  
ELECTROMAGNETIC FIELDS AND NOISE**

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Pursuant to C.R.S. §§ 40-2-126 and 40-5-101, and Rules 3002(a)(III) and 3102 of the Commission’s Rules Regulating Electric Utilities, 4 CCR 723-3, Public Service Company of Colorado (“Public Service” or the “Company”), hereby respectfully requests a certificate of public convenience and necessity (“CPCN”) authorizing it to construct the Pawnee – Smoky Hill 345kV Transmission Project (“Pawnee – Smoky Hill Project” or the “Project”). The Company seeks authority to establish a 345kV transmission circuit from Pawnee Substation to Smoky Hill Substation in order to meet Colorado’s Renewable Energy Standard (§ 40-2-124, C.R.S.), and to alleviate a transmission constraint and accommodate expected new generation that will interconnect with the Company’s bulk transmission system near the Pawnee Substation.

This is the first CPCN application made pursuant to Senate Bill 07-100 (“SB07-100”), codified, in relevant part, at § 40-2-126, C.R.S. SB07-100 calls for utilities to submit proposed transmission plans, designations of Energy Resource

Zones, and applications for certificates of public convenience and necessity to the commission for simultaneous review on October 31, 2007 and in odd-number years thereafter. Contemporaneous with this application, the Company is making a companion filing to the Commission with its designation of Energy Resource Zones and transmission plans.

The proposed Project consists of two major sections and one small section. The first major section (Section 1) consists of approximately 79 miles of new transmission that will be constructed in new right-of-way. It will be constructed as a new double circuit capable 345 kV line with only one circuit constructed. The second major section (Section 2) consists of approximately 15 miles of rebuilt transmission utilizing an existing PSCo corridor. Section 2 will entail replacing an existing 230 kV line with a double circuit 345 kV capable line. One of the circuits of this new double-circuit transmission line will be the proposed Pawnee – Smoky Hills 345 kV circuit. The other circuit will be the pre-existing Pawnee – Smoky Hills 230 kV circuit. The last section (Section 3) is approximately one mile in length, just east of the Smoky Hill Substation. This will also require new transmission line to be built, but will utilize an existing PSCo corridor. It will be constructed as a new double circuit-capable 345 kV line with only one circuit constructed.

For the reasons expressed in this Application, Public Service further requests that in granting the CPCN, the Commission make specific findings with respect to the reasonableness of the projected Electromagnetic Fields (“EMF”) and the reasonableness of the projected noise levels that the Company estimates will result from operation of the Pawnee - Smoky Hill Project.

## DIRECT TESTIMONY AND EXHIBITS

Public Service is submitting, with this Application, testimony and exhibits from the following witnesses:

Doug Jaeger, Vice President of Transmission, Xcel Energy Services Inc.<sup>1</sup>, addresses the effects of new legislation, including SB07-100 and House Bill 07-1281 (codified at § 40-2-124, C.R.S.), on this CPCN application. He explains generally how the Pawnee – Smoky Hill Project will serve the twin goals of SB07-100 of ensuring reliable delivery of electricity to Colorado customers and helping Public Service to meet the new renewable energy standard set forth in § 40-2-124, C.R.S. Mr. Jaeger also explains the process used by the Company to evaluate the transmission necessary to accommodate potential new generation from Northeastern Colorado.

Joe Taylor, Manager, Transmission Access for Xcel Energy Services Inc., discusses the Pawnee – Smoky Hill Transmission Line Project as it relates to SB07-100, which encourages utilities to invest in transmission facilities to serve expected electric generation resources. Specifically, Mr. Taylor describes the filing Public Service is making contemporaneously with this CPCN application, including designation of four Energy Resource Zones in Colorado, and why the Pawnee – Smoky Hill Project is an adequate first step to access Zone 1 and further the goals of SB07-100.

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<sup>1</sup> Xcel Energy Services Inc. is the service company subsidiary of Xcel Energy Inc., which is the registered public utility holding company parent of Public Service.

Gerry Stellern, Manager of Transmission Reliability and Assessment for Public Service, describes the Pawnee-Smoky Hill Project in detail, explains the need for the Project, discusses the criteria used to evaluate system alternatives, presents Public Service's analysis and evaluation of the system alternatives considered, and explains why the Company is seeking specific findings regarding projected EMF and noise.

Danny Pearson, Principal Transmission Design Engineer with Public Service, describes the construction techniques that will be used for the Project. Mr. Pearson also discusses the prudent avoidance measures that the Company proposes to mitigate projected EMF and presents analysis of the projected noise impacts of the Pawnee – Smoky Hill Project and the prudent measures the Company proposes to minimize noise levels. In addition, Mr. Pearson explains the proposed configuration of the Pawnee – Smoky Hill Project.

Rick Thompson, Supervisor, Siting and Permitting with Public Service, describes the processes that the Company will employ to obtain the land rights and local permits necessary to construct the Project.

**INFORMATION REQUIRED BY RULE 3002(b) AND (c)**

1. **Name and Address of Applicant.** The Applicant is Public Service Company of Colorado. Public Service's principal office is located at 1225 Seventeenth Street, Suite 1000, Denver, Colorado 80202. Public Service is a Colorado corporation.

2. **Name Under Which Applicant will Provide Service in Colorado.** All operations conducted by Public Service under the CPCN sought by this Application shall be conducted under the name of Public Service Company of Colorado.

3. **Representatives to Whom Inquiries Concerning the Application Should be Made.** Copies of all notices, other correspondence, and all inquiries concerning this Application should be sent to:

Ron Darnell, Director, Regulatory Administration  
Xcel Energy Services Inc.  
1225 Seventeenth Street  
Suite 1000  
Denver, Colorado 80202  
(303) 294-2180

and

Ann E. Hopfenbeck  
Ducker, Montgomery, Aronstein & Bess, P.C.  
C/o Xcel Energy Services, Inc.  
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[ahopfenbeck@duckerlaw.com](mailto:ahopfenbeck@duckerlaw.com)

4. **Agreement to Comply with 4 CCR 723-3002(b)(IV)-(VI).** Public Service has read, and agrees to abide by, the provisions of 4 CCR 723-3002(b)(IV)-(VI), 4002(b)(IV-VI), 8002(b)(IV)-(VI).

5. **Description of Existing Operations and General Colorado Service Area.** Public Service provides electric and gas public utility service in numerous areas throughout the State of Colorado. The Company also provides steam utility service within the downtown area of Denver. A full listing of Public Service's existing

operations and service area is set forth in Public Service's tariffs on file with the Commission.

6. **Location of Hearing.** If a hearing is held on this Application, Public Service prefers that the hearing be held at the Commission's offices in Denver, Colorado.

7. **Acknowledgment.** Public Service has read and agrees to abide by the provisions of 4 CCR 723-3002(b)(XI)(A)-(C), 4002(b)(XI)(A)-(C), and 8002(b)(XI)(A)-(C).

8. **Statement Under Oath.** An affidavit signed by an agent of the Company verifying that the contents of the Application are true, accurate, and correct is attached hereto as Exhibit 1. Exhibit 1 contains the name, title and the complete address of the affiant, as required by Commission rules.

9. **Information Required by Rule 3002(b)(IX) and (c).** Public Service hereby incorporates by reference the following information, which is on file with the Commission in Docket No. 06M-525EG:

a. A copy of Public Service's Amended Articles of Incorporation, which was last filed on October 3, 2006;

b. The name, business address and title of each of Public Service's officers and directors, which was last filed on April 24, 2007;

c. The names and addresses of affiliated companies that conduct business with Public Service, which was last filed on March 5, 2007;

d. The name and address of Public Service's agent for service of process, which was last filed on October 3, 2006.

e. A copy of Public Service's most recent audited balance sheet, income statement, and statement of retained earnings was last filed on April 2, 2007.

### **INFORMATION REQUIRED BY RULE 3102**

10. **Facts Relied Upon to Show the Public Convenience and Necessity Require Granting this Application.** The Pawnee – Smoky Hill Project is being proposed under the recently enacted SB07-100, codified at § 40-2-126, C.R.S. The Project is a critical component of a comprehensive long-term transmission plan for relieving transmission constraints that hinder the development of new generation resources in northeastern Colorado, particularly renewable resources.

Colorado Revised Statutes § 40-2-126(3) sets forth a new standard for approval of a CPCN for the construction or expansion of transmission facilities necessary to deliver electric power consistent with the timing of the development of beneficial energy resources located in or near designated Energy Resource Zones. The Commission shall approve a CPCN filed pursuant to C.R.S. § 40-2-126(2)(b) if it finds that:

(a) The construction or expansion is required to ensure the reliable delivery of electricity to Colorado consumers or to enable the utility to meet the renewable energy standards set forth in section 40-2-124; and

(b) That the present or future public convenience and necessity require such construction or expansion.

Public Service views these provisions as the Colorado legislature's recognition of the need for transmission planning to move out in front of the development of generation resources in order to ensure successful development of new renewable generation in Colorado. The new legislation affords the Company

greater flexibility to seek CPCN approval for transmission projects that must be commenced now to serve expected generation capacity in the future. The Pawnee – Smoky Hill Project addresses both Public Service’s need to satisfy section 40-2-124, C.R.S. (the Renewable Energy Standard (RES)) and to reliably deliver electricity associated with existing and additional generation resources in northeast Colorado.

Transmission Planning studies demonstrate that the Pawnee Region is a constraint transmission area. There are only three existing 230kV lines that can deliver generation resources from the Pawnee Substation to loads in and around the Denver-metro area. When the regional transmission system is heavily utilized, those three 230kV lines cannot reliably accommodate all the existing generation resources simultaneously.

Compounding the problem, Transmission Reliability and Assessment has received numerous generator interconnection requests in the area around Pawnee. Many of these requests are for resources that can be built in a short period of time (within 2-3 years), such as a wind generation resource. Indeed, as part of meeting the RES obligation, Public Service will be proposing to incrementally add wind generation resources to the resource mix over the next few years. However, major transmission projects, such as the one being proposed, can take up to 5 to 6 years to implement. Therefore, it is prudent to recommend proceeding with the Pawnee – Smoky Hill 345 kV Project now, to enable the accommodation of future potential resources. The project aligns well with the requirements set forth in SB07-100, and would allow for the development of approximately 500 MW of new generation

resources, including renewable resources, in Zone 1 on or after 2013, that will enable Public Service and Colorado regional utilities to meet the RES set forth in § 40-2-124, C.R.S.

Public Service compared the Pawnee – Smoky Hill 345kV Transmission Project with alternative projects, and determined that it has the lowest cost and incremental injection capacity that can be achieved at the Pawnee Substation. Significant transmission projects currently underway make this proposed Project a reality and together enhance the reliability of the transmission system while delivering generation resources to Denver-metro area loads.

11. **Description of the Proposed Facilities to Be Constructed.** The Pawnee – Smoky Hill Project can be described in three basic sections:

- Section 1 (“East Section”) consists of approximately 79 miles of new 345kV transmission. The transmission would be built to allow for double-circuit capability when conditions warrant.
- Section 2 (“West Section”) consists of rebuilding approximately 15 miles of existing 230kV wood-pole transmission to double-circuit, 345kV-capable steel-pole transmission. One side of the double-circuit towers would carry the existing 230 kV circuit (that runs from Pawnee to Smoky Hill). The other side would carry the newly created Pawnee – Smoky Hill 345 kV circuit.
- Section 3 is the last mile of transmission into the Smoky Hill Substation, and consists of approximately one mile of new 345kV transmission. This section would also be built to allow for double-circuit 345kV capability, but only one circuit would be utilized until system conditions warrant.
- The Pawnee – Smoky Hill 345kV transmission will connect to the Pawnee and Smoky Hill substations using two (2) 560MVA 345/230kV autotransformers at the Pawnee Substation and one (1) 750MVA 345/230kV autotransformer at the Smoky Hill Substation.

More details regarding the proposed Project are set forth in the Company's testimony and exhibits that are being filed contemporaneously with this Application.

12. **Project Cost.** The Project is currently estimated to cost approximately \$120 million. The Company's estimate is expressed in 2007 dollars and is a high-level scoping estimate; the Company anticipates that final costs will be within +/- 30% of this estimate.

13. **Schedule for Construction.** Public Service has developed a time schedule to construct the Project to have it in-service by May 2013. The detailed time schedule is set forth in the Direct Testimony of Gerry Stellern.

14. **Maps and Electric One-Line Diagrams.** Maps showing the location where the facilities will be constructed, population centers, major highways and county and state boundaries are attached to the Direct Testimony of Rick Thompson as Exhibit Nos. RT-1 and RT-2, and electric one-line diagrams are part of the Direct Testimony of Gerry Stellern.

15. **Alternatives Studied.** The Transmission Study Report submitted as Exhibit No. GMS-1 to the Direct Testimony of Gerry Stellern describes Public Service's evaluation of the system alternatives for accommodating the generation in northeastern Colorado.

16. **Prudent Avoidance of EMF and Mitigation of Audible Noise.** Public Service respectfully requests that in granting the CPCN the Commission make specific findings as to the reasonableness of the noise and EMF levels that the Company projects will result from the operation of the Pawnee - Smoky Hill Project. In his Direct Testimony and Exhibits, Mr. Pearson projects the noise and EMF levels

that can be expected from the proposed Project design as well as other design alternatives. He discusses the cost-effective techniques the Company proposes to mitigate noise and the prudent avoidance techniques to minimize the levels of EMF associated with this Project.

Specifically, for Public Service's preferred design, Mr. Pearson shows in his Exhibit Nos. DJP-7a, 9a & 11a that, when the lines are not wet, the predicted audible noise levels are well below the most stringent limits set for residential zone use. When the lines are saturated with moisture, as shown in Exhibit Nos. DJP-9b & 11b, the lines in Section 2 and Section 3 of the Project will temporarily be noisier than the most stringent limits (50 dB(A)) set for residential zone use, but the audible noise will diminish as the lines dry. When the lines in Section 1 (Exhibit No. DJP-7b) are saturated with moisture, the audible noise will be below the most stringent limits (50 dB(A)) set for residential zone use.

Although the most stringent residential noise limits (50 dB(A)) could be met for Sections 2 and 3 with an alternative design, this would cause the magnetic fields to be 3 to 4 times higher than the preferred design. Since most residences next to these Sections are located at least 100 feet or more from the edge of the existing right-of-way, and the audible noise level for wet conductors is for relatively short periods of time, Public Service's preference is for the design with lower magnetic fields. The Company seeks a finding consistent with the Commission's ruling in Docket No. 05A-072E and Docket No. 07A-156E establishing a reasonableness level of 150 mG EMF for the Project.

Public Service makes this request for specific findings because of two relatively recent legal developments. The first development is a law enacted in 2004 and codified as C.R.S. §25-12-103(12). This law allows the Commission to determine, when reviewing utility applications for certificates of public convenience and necessity, whether projected noise levels for electric transmission lines are reasonable, notwithstanding the maximum permissible noise levels otherwise established under Colorado law for various “zones.” The General Assembly authorized the Commission to make this determination because, as set forth in the legislative declaration of the statute, “electric transmission facilities are linear and may pass through several local jurisdictions and zoning districts including residential, commercial, light industrial and industrial.” The General Assembly expressed concern that there was “considerable uncertainty” as to how the noise abatement levels would apply to such a linear facility, and expressed concern that there was a need to “have an adequate, reliable, and cost-effective electricity infrastructure to serve the needs of the people of Colorado for their homes, businesses, and industries.” Further, to avoid inconsistent local laws addressing noise, the General Assembly found that “statewide noise standards need to be determined and applied to electric transmission facilities” by this Commission. Commission determinations under this statute preempt more restrictive local laws and civil actions based upon transmission line noise.

In other words, the General Assembly has charged this Commission, and not local governments or the courts, with making the public interest determination as to how transmission lines should be designed and how much money should be spent

to mitigate projected noise levels. Public Service needs the certainty of a Commission determination of reasonable noise levels before finalizing the design and undertaking the construction of the Project.

In order for the Commission to have before it the evidence it requires to make the determination of reasonable noise levels, Public Service is presenting testimony and exhibits of Mr. Pearson providing all of the information regarding noise levels and actions and techniques employed to mitigate noise that is required by Rule 3102(c) of the Commission's Rules Regulating Electric Utilities. Mr. Pearson presents alternative design cases for the Project. He explains why the Company's preferred design is the most cost effective solution and why the noise levels should be determined by the Commission to be reasonable.

The second legal development that led to Public Service's request for specific findings with respect to the reasonableness of both the projected EMF and the projected noise levels from the Pawnee - Smoky Hill Project is the ruling by the Colorado Supreme Court in the case of Public Service Company of Colorado v. Van Wyk, 27 P.3d 377, 393 (Colo. 2001). In that case, the Court ruled that the plaintiffs could maintain a claim against Public Service for intentional nuisance as a result of EMF and noise from the continued operation of a 230kV transmission line that is adjacent to their property, despite the fact that the Commission had granted Public Service a CPCN for the construction and operation of the transmission line. The Court found that the intentional nuisance action could be maintained because there had been no finding of fact by the Commission, in granting the CPCN, quantifying

the reasonable level of EMF and noise expected in connection with operation of the transmission line.

Public Service does not wish to intentionally create a nuisance in constructing or operating its transmission facilities. Nor does the Company want to construct a transmission line that will subject the Company to future lawsuits that complain of nuisance. In order to create an intentional nuisance, the Company must take an act that is unreasonable in relation to the property owner's use and enjoyment of the land. The Colorado Supreme Court ruled in the Van Wyk case that the PUC could determine the reasonableness of the Company's actions, if the Commission would quantify the level of EMF and noise that the Commission considers to be reasonable in connection with the proposed transmission line.

In sum, the Company requests that the Commission review the evidence presented by Mr. Pearson and find that the EMF and noise levels quantified in his testimony and exhibits are reasonable. Public Service requests that the Commission specifically find that the public convenience and necessity require the construction and operation of the Pawnee - Smoky Hill Project as proposed by the Company with these EMF and noise levels.

The Commission has made findings that the projected EMF and noise levels were reasonable for Public Service transmission facilities in the following dockets: Denver Terminal-Dakota-Arapahoe 230kV Transmission Line, Docket No. 03A-265E; the Chambers 230/115kV Transmission Intertie Project, Docket No. 03A-329E; Pawnee-Daniels Park Transmission Rebuild Project, Docket No. 03A-276E;

Comanche – Daniels Park Transmission Project, Docket No. 05A-072E; and Midway – Waterton 345kV Transmission Project, Docket No. 07A-156E.

### **CONCLUSION**

18. As demonstrated by the Company's direct testimony and exhibits, the Company's proposed Project is the lowest cost transmission system alternative that meets all of the Company's objectives, including fully accommodating existing generation in northeastern Colorado; not interfering with existing electric systems of other utilities; making practical use of existing transmission facilities and corridors, thereby minimizing environmental impacts; emitting reasonable levels of EMF and noise; and providing for additional capacity and flexibility in northeastern Colorado that will accommodate longer range planning needs. For all these reasons, the Company's proposed Project is the most cost-effective transmission alternative available to the Company.

### **Request That Application Be Granted Without Hearing if Not Contested**

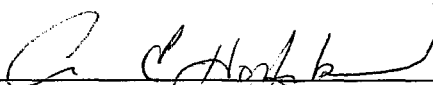
Public Service respectfully requests, if this Application is not contested, that it be granted without hearing, under the Commission's modified procedure under Rule 1403. Whether the Application is granted with or without hearing, Public Service requests that the specific findings with respect to EMF and noise be included in the Commission's order granting the CPCN.

WHEREFORE, Public Service Company of Colorado respectfully requests that the Commission to grant it a certificate of public convenience and necessity for the Pawnee - Smoky Hill 345kV Transmission Project and that the Commission

make specific findings with respect to the reasonableness of the projected noise and EMF levels for this Project.

Dated this 31st day of October, 2007.

Respectfully submitted,

By: 

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ATTORNEYS FOR PUBLIC SERVICE COMPANY  
OF COLORADO

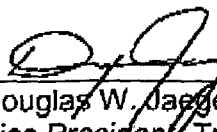
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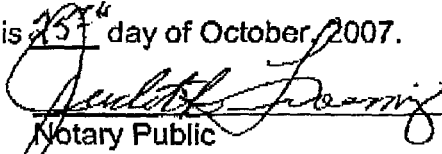
STATE OF COLORADO            )  
  ) ss.  
CITY AND COUNTY OF DENVER )

**VERIFICATION**

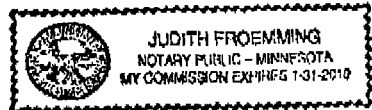
The undersigned, being under oath, says that he is Vice President of Transmission, of Xcel Energy Services, Inc., the service company subsidiary of Xcel Energy Inc., the registered public utility holding company of Public Service Company of Colorado. The undersigned further says that he has reviewed the Application and the supporting documentation and has knowledge of the factual matters set forth herein. Under penalty of perjury the undersigned declares that all statements made in the Application and supporting documents are true and complete to the best of his knowledge. The undersigned understands that any statement made in violation of this oath shall constitute grounds for dismissal of the application or revocation of any authority granted.

  
\_\_\_\_\_  
Douglas W. Jaeger  
Vice President, Transmission  
Xcel Energy Services Inc.  
414 Nicollet Mall, MP 8  
Minneapolis, Minnesota 55401  
(612) 330-7608

Subscribed and sworn to before me this 25<sup>th</sup> day of October, 2007.

  
\_\_\_\_\_  
Notary Public

My Commission expires 1-31-10



## CERTIFICATE OF SERVICE

I hereby certify that on this, the 31<sup>st</sup> day of October 2007, the original and ten (10) copies of the foregoing **VERIFIED APPLICATION OF PUBLIC SERVICE COMPANY OF COLORADO FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY WITH SPECIFIC FINDINGS WITH RESPECT TO ELECTROMAGNETIC FIELDS AND NOISE** were served via hand delivery on:

Doug Dean, Director  
Colorado Public Utilities Commission  
1560 Broadway, Ste 250  
Denver, CO 80202

and

James Greenwood, Director  
Office of Consumer Counsel  
1560 Broadway, Ste 200  
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[james.greenwood@dora.state.co.us](mailto:james.greenwood@dora.state.co.us)

and a copy was delivered via U.S. Mail  
to:

Bill Vidal  
Manager of Public Works  
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