BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO

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IN THE MATTER OF THE APPLICATION OF PUBLIC SERVICE COMPANY OF COLORADO (A) FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE PAWNEE TO DANIELS PARK 345 KV TRANSMISSION PROJECT, AND (B) FOR SPECIFIC FINDINGS WITH RESPECT TO EMF AND NOISE

DOCKET NO. 14A-___E

APPLICATION OF PUBLIC SERVICE COMPANY OF COLORADO

In accordance with Rules 3102 and 3206 of the Commission's Rules Regulating Electric Utilities, Public Service Company of Colorado ("Public Service" or "Company") hereby requests that the Colorado Public Utilities Commission ("Commission") grant us a certificate of public convenience and necessity ("CPCN") to construct the Pawnee-Daniels Park 345 kV Transmission Project ("Project" or "Pawnee – Daniels Park Project"). The Pawnee – Daniels Park 345 kV Project will result in the construction of approximately 115 miles of new 345 kV transmission, originating at the Pawnee Station, near Brush, Colorado, and terminating at the Daniels Park Substation, north of Castle Pines, Colorado. The Project will also include a new Smoky Hill – Daniels Park 345 kV circuit and a new Harvest Mile substation. Effectively, the Project will expand the Pawnee – Smokey Hill 345 kV Transmission Project, which went into service in 2013, and will complete the Company's 345 kV backbone transmission running along the Front Range from the Pawnee to Comanche generating stations. The Project will satisfy a current need to

increase the reliability of the existing transmission system and a future need to add capacity for future growth in a region where there is a substantial possibility that there will in fact be new generators interconnecting to our system. This Project meets the objectives of Senate Bill 07-100 by allowing us to reach a proven resource zone and has been listed in our Senate Bill 07-100 Reports since 2008. However, we do not seek expedited treatment under § 40-2-126(4), C.R.S., for this project. In addition to granting us a CPCN, we request that the Commission make specific findings with respect to the reasonableness of the noise and magnetic field levels that the Company estimates will result from operating the Project.

In further support of our request, we state as follows:

I. <u>REQUEST FOR A CPCN</u>

A. Information Provided in Support of Request

 The Pawnee – Daniels Park Project has been a part of the Company's long-range transmission plans since 2007. It has been presented and documented in numerous forums and reports, including:

- The testimony and exhibits of the Pawnee Smoky Hill 345 kV Transmission Project approved by the Commission on February 26, 2009 by Decision No. C09-0048 in Docket No. 07A-421E;
- Public Service SB07-100 "Designation of Energy Resource Zones and Transmission Planning Reports" since 2008;
- Commission Rule 3627 10-Year Transmission Plans for the State of Colorado, first filed on February 1, 2012¹, and the last of which was filed

¹ The Commission determined that the Company's 10-Year Transmission Plan was adequate in Decision R12-1431 in Docket No. 12M-102E

on February 3, 2014 in Docket No. 14M-0110E and is currently pending before the Commission;

- The Company's annual Commission Rule 3206 Reports for Proposed Construction or Extension of Transmission Facilities, since 2008;
- The WestConnect Annual Ten-Year Transmission Plans;
- The Colorado Coordinated Planning Group ("CCPG"); and
- FERC Order No. 890 Stakeholder Meetings for Transmission Planning;

2) In support of its request for a CPCN for the Project, Public Service is providing the following information in this Application and accompanying direct testimony and exhibits:

- A description of the Project and an information demonstrating that it is required for the public convenience and necessity;
- The anticipated construction time frame and in-service date for the transmission line;
- The estimated cost of the proposed transmission line;
- Maps showing the general area of the line, population centers, major highways, and county and state boundaries;
- Electrical diagrams of the proposed transmission line;
- Information on alternatives studied and the criteria used to rank such alternatives;
- Information regarding prudent avoidance measures relating to exposure to Magnetic Fields associated with the proposed transmission line as well as

information concerning projected audible noise levels associated with the transmission line and cost-effective mitigation measures; and

• Transmission line siting considerations and public involvement.

 Public Service includes with this application the pre-filed direct testimony and accompanying exhibits of the following five witnesses:

Mr. Daniel Kline, Director, Strategic Transmission Initiatives of Xcel Energy Services Inc. ("XES"), supports the Company's application by providing a general description of the project and the benefits that it is expected to provide – namely, how the Project will alleviate a constraint on the existing Pawnee – Smokey Hill line and how it will accommodate new generation In the northeast portion of Colorado In this context, Mr. Kline explains how the Project is one that the Company has identified in its annual reports to the Commission under Senate Bill 07-100 and also the Company's 10-Year Transmission Plan filed pursuant to Commission Rule 3627. Mr. Kline discusses why this is the right transmission project to pursue now, instead of other projects. He explains how the Company's planning for the project comports with Commission Rule 3627, including the stakeholder outreach requirements. Mr. Kline discusses the schedule for the Project and its estimated costs.

Mr. James F. Hill, Director of Resource Planning and Bidding of XES, supports the need for the Project from a generation planning perspective. Mr. Hill will discuss the Company's latest projected need for additional generation capacity, the type of generation technology we expect will best fill this need,

and how the Project will be well suited to allow this type of generation technology to be developed cost-effectively.

Mr. Thomas Green, Transmission Planning Engineer with Public Service, describes the Project in detail, presents and explains the transmission studies that were performed to evaluate the Project, system alternatives that were investigated, and the Company's analysis and conclusions regarding the system studies performed. Mr. Green's testimony establishes that the Project is needed from a reliability perspective.

Mr. Danny Pearson, Principal Transmission Design Engineer with Public Service, addresses the transmission line design criteria associated with the Project, including structures, right-of-way corridor, magnetic fields, audible noise, and prudent avoidance measures. Mr. Pearson also identifies the specific reasonableness findings regarding magnetic field and audible noise levels that the Company is requesting.

Ms. Keary Hallack, Manager of Siting and Land Rights, describes the permitting and land rights acquisition activities associated with the Project. Ms. Hallack will explain the expedited timing necessary to conduct State and local land use permitting activities.

B. Information Required by Commission Rule 3002

 <u>The Name and Address of Applicant</u>. Public Service is an operating public utility subject to the jurisdiction of this Commission, engaged, inter alia, in the transmission, distribution and purchase of electricity and gas in various areas in the State of Colorado. The name and address of the Applicant is:

Public Service Company of Colorado 1800 Larimer Street, Suite 1400 Denver, CO 80202-5533

2. Name Under Which Applicant Provides Service in Colorado. All operations

conducted by the Company in Colorado are conducted under the name of Public

Service Company of Colorado, under the trade name of Xcel Energy.

3. <u>Representatives to Whom Inquiries Concerning the Applicant Should be made</u>.

Please send copies of all inquiries, notices, pleadings, correspondence, and

other documents regarding this filing to:

Robin Kittel Director, Regulatory Administration Xcel Energy Services Inc. 1800 Larimer Street, Suite 1400 Denver, Colorado 80202 Tel: 303-294-2242 Fax: 303-294-2329 Email: robin.kittel@xcelenergy.com

and

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Marjorie Green Case Specialist Xcel Energy Services Inc. 1800 Larimer Street, Suite 1400 Denver, Colorado 80202 Tel: 303-571-7392 Fax: 612-318-4389 Email: <u>marjorie.green@xcelenergy.com</u>

- 4. <u>Agreement to Comply with 4 CCR 723-3002(b)(IV)-(IV)</u>. Public Service agrees to answer all questions propounded by the Commission or its Staff concerning this Application. The Commission or any member of its Staff may inspect Public Service's books and records as part of the investigation into this Application. Public Service understands that if any portion of this Application is found to be false or to contain material misrepresentations, any authorities granted pursuant to the Application may be revoked upon Commission order.
- <u>Description of Existing Operations and General Colorado Service Area</u>. Public Service's existing operations and general service areas in Colorado are set forth in the Company's tariffs on file with the Commission.
- <u>Location of Hearing</u>. Public Service believes that this Application could be granted without hearing. However, if a hearing is held, Public Service requests that it be held in Denver, Colorado.
- Acknowledgement. Public Service acknowledges that the Company has read and agrees to abide by the provisions of Rule 3002(b)(XI)(A) through (C).
- 8. <u>Statement Under Oath</u>. Robin L. Kittel, Director, Regulatory Administration, states under penalty of perjury that the contents of the Application are true,

accurate, and correct to the best of her knowledge. Her affidavit is attached to this Application.

- Information Required by Rule 3002(c). Pursuant to 3002(c) of the Commission's Electric Rules, Public Service hereby incorporates by reference the following information, which is on file with the Commission in Docket No. 06M-525EG:
 - 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 March 17, 2014;
 - c. The names and addresses of affiliated companies that conduct business with Public Service, which was last filed on March 17, 2014;
 - 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 March 17, 2014.

C. Information Required by Commission Rule 3102(b)(II)-(X)

1) The Company has both has both a current and future need for the Project. This project will complete the 345 kV backbone transmission along the front range from Pawnee to Comanche. This Project will improve reliability by alleviating the constraints that exist in large part to the increase in wind generation on the system and allow additional resources to be added from northeast Colorado for delivery to loads in the Denver metro area. The existing transmission system is does not have

adequate capacity for moving the existing and planned generation to the Front Range if all of the generation in the Project area is being operated at maximum. The Project is also needed to create transmission capacity in a constrained region where there is a substantial possibility that there will in fact be new generators (or expanded existing generation) interconnecting to our system. By summer 2024, only a few years after the Pawnee-Daniels project would become operational, we are projecting a need for over 500 MW of additional generation capacity. This projection climbs to approximately 600 MW by summer 2025. Furthermore, the 500-600 MW projections assume levels of DSM achievement that are higher than what the Company is currently proposing in Docket No. 13A-0686EG.² If the Commission approves the lower level of DSM being proposed in that docket, we project a capacity need of nearly 700 MW by summer 2022 and over 1,200 MW by summer 2024. Until there is additional transmission capacity from the Pawnee area into Denver, it is unlikely that the Company will be able to consider acquiring power from wind and gas-fired generation projects in future ERPs in this area to the extent they are bid in again. We also believe this Project meets the objectives of Senate Bill 07-100 in allowing us to reach a proven resource zone and has been listed in our SB07-100 Reports since 2008. We do not seek any expedited treatment under § 40-2-126(4) C. R.S.

2) As proposed, the Project will be approximately 115 miles long using two1272 kcmil conductor strung on 345 kV double circuit structures in a combination

² The 500-600 MW projection includes DSM levels initially ordered by the Commission in Docket No, 10A-554EG and later reaffirmed in Decision No. C13-0094 in Docket No. 11A-869E. These levels were referred to as "100% of Commission Goals".

of new and existing right-of-way ("ROW") corridors. The Project consists of the

following five primary components:

- Section 1: Pawnee Missile Site. This 51-mile section has already been fully constructed as part of the Pawnee Smoky Hill 345 kV Transmission Project. This section was built as a new double-circuit transmission line with 345 kV capability, and the conductors have been installed for both circuits. Presently, one circuit is used for the Pawnee Smoky Hill 345 kV line. The second circuit will become the first section of the Pawnee Daniels 345 kV project. This circuit is presently being operated at 230 kV but after completion of the Project will be operated at 345 kV.
- Section 2: Pawnee Smoky Hill 345kV project transmission was constructed similarly to section 1 by using new double-circuit transmission towers. However, at present, only one of the circuits has been installed for the Pawnee – Smoky Hill project. For the Pawnee – Daniels Park project, the second circuit will be installed by modifying the towers and adding conductors.
- Section 3: Byers Transition Smoky Hill. This section is approximately 29miles long. In this section, an existing 230kV wood-pole transmission line will be rebuilt to double-circuit, 345kV-capable steel-pole transmission. In this section, there will then be two double-circuit 345kV capable transmission lines. Two circuits will be operated at 230kV and include sections of the two 230kV circuits that run between Pawnee and Smoky Hill and between Pawnee and Daniels Park. The remaining two circuits will be operated at 345kV. One of the circuits is a section of the Pawnee – Smoky Hill 345kV line. The other will be the third section of the Pawnee – Daniels Park 345kV Project.
- Section 4: Smoky Hill Daniels Park. In this approximately 21-mile section, new double-circuit 345kV transmission will be built. One of the circuits will be the final section of the Pawnee Daniels Park Project. The other circuit creates a new Smoky Hill Daniels Park 345kV line.
- Harvest Mile: The Harvest Mile Substation is an expansion of the existing Smoky Hill Substation. The Smoky Hill Substation has been expanded to the point where there is not enough space to accommodate additional transmission equipment. Harvest Mile Substation will be initially constructed to include a 345/230 kV autotransformer and some line termination equipment. It has been designed to allow for future 345 kV line terminations and other equipment as necessary.

3) Public Service estimates that the construction of the Project using the preferred approach will cost approximately \$178 million³. An itemized breakdown of these costs into categories for land costs, substation costs, and transmission line costs is found in the Direct Testimony of Mr. Kline.

4) The Project has been included in the Company's capital budget for the 2014–2019 timeframe. The Project is expected to have an in-service date of May of 2019. Mr. Kline provides a more detailed timeline of the Project in his testimony.

5) Maps of the general area and/or actual locations where facilities will be constructed, population centers, major highways, and county and state boundaries can be found attached to the testimonies of Mr. Kline, Mr. Green and Ms. Hallack. A one-line diagram of the Project can be found attached to the testimony of Mr. Green.

6) In developing the Project, the Company looked at numerous types of alternatives. They were:

a) SB07100 - Alternatives to the Project were (1) proceeding with a different project identified in our SB07-100 reports, or (2) not pursuing the Project or any other project at this time. Given the focus on expanding the grid in Colorado and potential for new generation interconnections, we do not believe that the latter is the best alternative to pursue at this time among the projects we have identified in our SB07-100 report. Expansion of Pawnee – Daniels Park provides a large increase in transmission capacity with the

³ The level of accuracy for the cost estimates in this study is considered to be \pm 30%, which is typical for a project at this budgetary stage in the process. This estimate is based on cost indicators of past projects, average unit costs, and 2014 overhead and labor rates. This estimate is in 2014-year dollars, and it includes all appropriate overheads including AFUDC. At this stage of the project, these are high level, scoping estimates, which are the best estimates that the Company is able to provide prior to detailed engineering of the Transmission Project.

flexibility to access multiple types of beneficial generation resources at a relatively attractive cost when compared to alternatives such as the Lamar – Front Range project, which has also been identified in our SB07-100 reports. It completes backbone transmission infrastructure along the Front Range.

b) Technical Transmission Alternatives - The Transmission Study Report supported by Mr. Green describes the analysis that was performed and the various configurations that were evaluated. The Study identifies the Project as the preferred transmission alternative to serve the projected load growth in the Pawnee to Daniels Park area. The transmission network, customer loads, and generation resources were taken into account. There were other modeling assumptions made for regional generation dispatch and transmission path flows to stress the transmission system between Pawnee and the Denver-metro area for study purposes. Sensitivity studies showed that the Project should be tied into the Missile Site Substation for better performance and to allow flexibility with generation interconnections in the region. Study alternatives that terminate at Smoky Hill rather than Daniels Park do not provide any additional capability for resource injections. The Study also showed the Harvest Mile Substation should be included in the Project to improve system performance, expand the performance of the Smoky Hill substation, and allow for future expansion of the 345 kV network.

c) Transmission Routing Alternatives - Most local land use regulations state a preference for a new transmission line to follow established corridors to minimize the proliferation of multiple corridors in the landscape. The

Company conducted initial screenings of existing and planned land uses, ownership patterns and environmental conditions in the area, and believes that alternative corridors may be infeasible due to the absence of a continuous path of open land of sufficient width. Nevertheless, Public Service will further analyze the feasibility of alternative routes and compare the impacts and costs of any alternatives routes to the propose project in the siting process.

7) The Company also seeks a finding of reasonableness for noise and magnetic field mitigation based on our prudent avoidance measures. The line will be built to meet Commission requirements for noise and magnetic fields specified in sections (e) and (f) of Rule 3206. Public Service has employed prudent avoidance measures by arranging the phasing on the existing Project lines and the new Project lines to have optimal magnetic fields and audible noise combinations. The Company has modeled numerous scenarios. Audible noise issues are also addressed through the proper handling of conductor and hardware to avoid abrasions or damage that may cause corona noise. Extra ground clearance will also be used to reduce magnetic fields to meet Commission requirements and will be within the standards used by the Commission on other projects. Mr. Pearson discusses the prudent avoidance measures the Company will use on the Project in detail.

D. Siting, Permitting and Outreach

1) Most of the Project will be constructed in existing right-of-ways. Because of the new transmission structures, land use permits will be required between the proposed Harvest Mile substations to Daniels Park substations. Permits must be

acquired in Arapahoe and Douglas Counties as well as the City of Aurora and the Town of Parker. Public Service currently owns the majority of the 20 mile right-ofway between the Smoky Hill and Daniels Park Substations. Because the design is not complete, there is a possibility that small easements could be required outside of the existing right-of-way.

2) A new segment of right-of way will be required between the Harvest Mile and Smoky Hill Substations. The Harvest Mile Substation will also require siting, permitting and land acquisition activities. Additionally, rebuilding 29 miles of 230kV to 345kV will require local approval. Therefore, the Company will submit an Areas & Activities of State Interest (1041) Permit to Arapahoe County for the above stated activities.

3) Public Service did notify all affected local governments of its plans for the Pawnee-Daniels Park Transmission Project prior to filing. Public Service also has conducted several open house meetings with affected communities near the line to obtain public input, even though it was not required to do so.

4) Public meetings were conducted the week of March 17, 2014 in the project area. Invitations were sent to over 7,000 landowners and stakeholders. The meetings were posted in the local papers and listed on the Xcel Energy website (http://sb100transmission.com/projects/pawnee-daniels-park). The public will also have opportunities to review and comment on the overall project during the local jurisdictions' land use review processes.

III. CONCLUSION

Wherefore, Public Service Company of Colorado respectfully requests that the Commission grant this Application and approve:

- the construction of the Pawnee-Daniels Park 345 kV Transmission Project together with the proposed Project costs and timeline, as described herein; and
- a finding of reasonableness with respect to the noise and magnetic field levels that the Company estimates will result from operating the Project.

Dated this 28th day of March 2014.

Respectfully submitted,

By: /s/ William Dudley_

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