

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF COLORADO

DOCKET NO. 03A-329E

RE: IN THE MATTER OF THE APPLICATION OF PUBLIC SERVICE COMPANY OF COLORADO FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY FOR THE CHAMBERS 230/115KV TRANSMISSION INTERTIE PROJECT.

**COMMISSION ORDER GRANTING A
CERTIFICATE OF PUBLIC CONVENIENCE AND
NECESSITY FOR THE CHAMBERS 230/115KV
TRANSMISSION INTERTIE PROJECT**

Mailed Date: September 19, 2003
Adopted Date: September 17, 2003

I. BY THE COMMISSION

A. Statement

1. On July 28, 2003, Public Service Company of Colorado (Public Service or the Company) filed an application with the Commission pursuant to § 40-5-101, C.R.S., and 4 *Code of Colorado Regulations* (CCR) 723-1-55. In this application, Public Service requests a certificate of public convenience and necessity (CPCN) to construct the Chambers 230/115kV Transmission Intertie Project (Chambers 230/115kV Transmission Intertie Project or the Project), with specific findings regarding the reasonableness of the projected Electromagnetic Fields (EMF) and noise levels that the Company estimates will result from operation of the Project.

2. Public Service submitted sworn, direct testimony, and exhibits of four witnesses in support of its application. Sandra Johnson, Manager, Transmission Planning, Xcel Energy Services Inc. (XES), testifies regarding the criteria used by the Company to evaluate the system alternatives for the Chambers 230/115kV Transmission Intertie Project. She also discusses the Project costs and the timeline for the Project. Thomas Green, Principal Transmission Planning

Engineer, XES, explains the need for the Project, and identifies the system alternatives and the selection criteria and objectives used by the Company to evaluate the system alternatives. Rick Thompson, Team Lead, Siting and Land Rights, addresses the siting, permitting, and right-of-way and public input considerations that led Public Service to identify the preferred substation site and transmission line corridors for the Project and explains why alternative sites and corridors were rejected. Andrew Schaller, Manager of Transmission Engineering, XES, describes the prudent avoidance measures selected by the Company to mitigate EMF and presents the resulting projected EMF profile. Mr. Schaller describes the proposed transmission line structure height and design choice. Mr. Schaller also provides the Company's estimates of the noise impacts of the Project and describes the measures the Company will employ to minimize noise levels. Lastly, Mr. Schaller explains why it is not feasible to construct the subject transmission line underground.

3. On July 31, 2003, the Commission issued notice of this application.

4. No interventions have been filed in this proceeding and the matter is not contested. As such, the Commission may determine this matter without hearing on the basis of the filed sworn testimony and exhibits under the Commission's modified procedure under 4 CCR 723-1-24.

B. Discussion

5. Public Service seeks a CPCN to construct the Chambers 230/115kV Transmission Intertie Project. This project will interconnect the 230kV outer-belt bulk transmission system to the Denver 115kV load serving transmission system. The Project entails constructing a new 230kV double circuit overhead transmission line and a new substation that includes a 230/115kV autotransformer. This new substation is referred to as the Chambers Substation. The

Chambers Substation will tie into the existing 115kV transmission system between the existing Havana and East Substations. Both of these existing double circuit transmission lines will be sectionalized at the Chambers Substation. A single 230/115kV autotransformer rated at 280MVA will connect the two voltages and provide for power transfer between the two transmission networks. The 230kV lines serving the Chambers Substation will be an in-and-out tap of the existing 230kV double circuit transmission circuits beginning near the existing Piccadilly Substation site that is between the existing Spruce Switching Station and the Tower Substation.

6. Public Service asserts that the Project is needed to provide for the final phase of the Northeast Metro Projects Plan. Between 2003 and 2004, about 1000MW of generation will be integrated into the Public Service system to the north and east of the Metro Denver Area. That region is referred to as the Northeast Metro, or Northeast region. New transmission is required to accommodate the planned generation while maintaining the electrical system reliability. This Project will improve the reliability and power carrying capabilities of the regional transmission system and will provide a third source of power to the 115kV load-serving transmission system.

7. No party has contested the Company's assertions regarding the need for the Project.

8. The Commission has reviewed the application and the accompanying testimony and exhibits filed by the Company and finds that construction of the Chambers 230/115kV Transmission Intertie Project is required in order to accommodate the planned generation while maintaining the electrical system reliability. This Project will improve the reliability and power carrying capabilities of the regional transmission system and will provide a third source of power

to the 115kV load-serving transmission system. Accordingly, the Commission finds that the public convenience and necessity will be served by and requires construction of the Chambers 230/115kV Transmission Intertie Project.

9. The Company also seeks specific findings regarding the reasonableness of the EMF and noise levels that the Company estimates will result from operation of the Project.

10. Exhibit No. AS-2 attached to Mr. Schaller's Direct Testimony quantifies the level of EMF the Company expects to result from operation of the Project during daily peaks in the near future. Mr. Schaller explains that the load used to calculate the transmission line magnetic fields is developed from projected system normal and intact load flows. The Company asserts that higher currents could occur when the system is abnormal creating temporarily higher EMF levels.

11. The Company asserts that it has employed prudent avoidance measures to minimize the EMF levels from the Project. This is consistent with Commission rules that require the Company to employ prudent avoidance techniques to minimize EMF levels whenever possible. Specifically, in this case the Company has designed the structures of the Project with a minimum buffer of three to five feet of additional ground clearance to provide a minor reduction in the EMF levels. The Company will also employ reverse phasing wherever feasible to minimize the EMF levels in those areas where the new line parallels an existing line. If reverse phasing is applied to parallel transmission lines, the magnetic field of one line will have a canceling effect on the field of the adjacent line.

12. Public Service's witness, Mr. Schaller, also estimates the noise levels expected to result from operation of the Project. Exhibit No. AS-3 reflects the Company's noise level

projections under both fair and damp weather conditions. These projections were developed using an industry recognized sound-modeling program that uses the specific Project characteristics to empirically project noise levels, but actual readings in the field may vary, due to the numerous environmental factors noted by Mr. Schaller that are beyond the Company's control. As Mr. Schaller explains in his testimony, noise levels can increase by as much as 25 dB(A) over the level that exists under fair weather conditions when there is moisture on the line. Mr. Schaller also testifies that the level of corona-generated audible noise will be substantially higher at higher altitudes, increasing by about 1 dB(A) for every 1,000 feet in elevation gain. Therefore, a transmission line constructed in the Denver area will have corona noise about 6 dB(A) higher than a similarly constructed line at sea level.

13. The Company asserts that it has no means of preventing the transmission line from becoming wet and emitting noise at substantially higher levels than exist under fair weather conditions. However, it will use industry-recognized prudent avoidance techniques to reduce the levels of corona-generated noise. Specifically, the Company plans to use large sized high quality conductors (1272 acsr kcmil). The Company will take steps to ensure that the conductor is handled and packaged properly so as not to damage it. The phases will be spaced adequately so as to avoid creating an excessive voltage gradient resulting in excessive corona.

14. Further, the preferred right-of-way corridor is located primarily adjacent to existing railroad tracks, existing roads, and some private property. The area is predominantly light industrial, thus reducing any potential noise intrusion to residential customers.

15. No party has contested the Company's assertions regarding EMF and noise levels estimated to result from operation of the Project.

C. Findings of Fact

16. The Commission has reviewed the application and the accompanying testimony and exhibits and finds that the EMF and noise levels estimated by Public Service's witness, Mr. Schaller, in Exhibit Nos. AS-2 and AS-3 are reasonable. The Commission finds further that, given the public convenience and necessity requiring construction of the Chambers 230/115kV Transmission Intertie Project, the imprecision in industry-recognized noise modeling, and the numerous factors that can contribute to noise as described by Mr. Schaller, the noise levels resulting from operation of the Project would still be reasonable even if they vary from the Company's modeling projections so long as Public Service has employed the prudent avoidance techniques described by Mr. Schaller.

II. ORDER**A. The Commission Orders That:**

1. The application of Public Service Company of Colorado for a certificate of public convenience and necessity to construct the Chambers 230/115kV Transmission Intertie Project is granted.

2. Consistent with the above discussion, the prudent avoidance measures proposed by Public Service Company of Colorado to minimize the effects of Electromagnetic Fields and noise are reasonable.

3. The Electromagnetic Fields and noise levels projected by Public Service Company of Colorado to result from operation of the Chambers 230/115kV Transmission Intertie Project are reasonable and would continue to be reasonable in the event they vary from Public Service Company of Colorado's projections, so long as Public Service Company of Colorado employs the prudent avoidance techniques described in its testimony accompanying the

Application, given the public convenience and necessity that requires construction of the Chambers 230/115kV Transmission Intertie Project.

4. The 20-day period provided for in § 40-6-114, C.R.S., within which to file applications for rehearing, reargument, or reconsideration begins on the first day following the effective date of this Order.

5. This Order is effective on its Mailed Date.

**B. ADOPTED IN COMMISSIONERS' WEEKLY MEETING
September 17, 2003.**

(S E A L)



ATTEST: A TRUE COPY

Bruce N. Smith

Bruce N. Smith
Director

THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF COLORADO

POLLY PAGE

JIM DYER

Commissioners

CHAIRMAN GREGORY E. SOPKIN
RECUSED HIMSELF.