



IN THE MATTER OF THE
APPLICATION OF PUBLIC SERVICE
COMPANY OF COLORADO FOR A
CERTIFICATE OF PUBLIC
CONVENIENCE AND NECESSITY
FOR THE SAN LUIS VALLEY –
CALUMET – COMANCHE
TRANSMISSION PROJECT

DIRECT TESTIMONY AND
EXHIBITS OF

GERALD M. STELLERN

**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. 09A-____E
FOR THE SAN LUIS VALLEY - CALUMET -)
COMANCHE TRANSMISSION PROJECT)**

DIRECT TESTIMONY OF GERRY STELLERN

1 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 A. My name is Gerry Stellern. My business address is 550 15th Street, Denver,
3 Colorado 80202.

4 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

5 A. I am employed by Public Service Company of Colorado (“Public Service” or
6 “Company”). My title is Manager of Transmission Assessment Management.

7 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS DOCKET?**

8 A. I am testifying on behalf of Public Service. However, I understand that my
9 testimony may also be used in support of the Tri-State Generation and
10 Transmission Association, Inc. companion Certificate of Public Convenience
11 and Necessity (“CPCN”) application for the joint project that is the subject of
12 this application.

13 **Q. HAVE YOU PREPARED A STATEMENT OF YOUR EXPERIENCE AND**
14 **QUALIFICATIONS?**

1 A. Yes. That statement is included as Attachment A to my testimony.

2 **Q. WHAT IS PUBLIC SERVICE REQUESTING IN THIS APPLICATION?**

3 A. As described in more detail below, Public Service has agreed with Tri-State
4 Generation and Transmission Association, Inc. ("Tri-State") to jointly develop
5 the San Luis Valley – Calumet - Comanche Transmission Project ("Project").
6 The Project will establish a new high-voltage transmission path between the
7 geographical region in south-central Colorado commonly referred to as the
8 San Luis Valley, and Pueblo, Colorado.

9 In its application, Public Service is also requesting that the
10 Commission make specific findings that projected Electromagnetic Fields
11 ("EMF") and projected noise from the Project are reasonable.

12 **Q. IS TRI-STATE A JOINT APPLICANT?**

13 A. No. Primarily because the San Luis - Calumet segment is at a further stage
14 of development due to Tri-State's prior efforts, Public Service and Tri-State
15 agreed that they would coordinate and simultaneously file their requests for
16 CPCNs for the overall Project. While Public Service and Tri-State are not
17 filing a joint CPCN application, the companies do anticipate exploring with the
18 Commission the merits of consolidating the two applications in the event the
19 Commission deems an evidentiary hearing necessary. Further, while each
20 entity's ownership and operation interests vary by segment of the Project,
21 each company requests CPCN rights for the entire undivided Project. To the
22 extent necessary or convenient to the Commission, Public Service and Tri-
23 State both assent to Commission consideration of the applications (and

1 hearings) simultaneously in a joint manner to provide for coordinated and
2 common rulings regarding the CPCN filings.

3 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

4 A. In my testimony, I will:

- 5 • Introduce the Company's other witnesses who are submitting direct
6 testimony in support of the Project. I will also identify Tri-State's
7 witnesses who are also submitting testimony for the Project;
- 8 • Briefly describe the overall Project and its components;
- 9 • Describe the purpose of the Project, and how it is being proposed
10 consistent with Senate Bill 07-100 ("SB07-100");
- 11 • Describe the Company's present arrangements with Tri-State for the
12 joint ownership and development of the Project;
- 13 • Explain why the Parties are seeking specific findings regarding
14 projected EMF and noise; and
- 15 • Discuss the project schedule and estimated costs of the Project and
16 Public Service's expected share.

17 **Q. WHO HAS FILED DIRECT TESTIMONY AS PART OF THE APPLICATION?**

18 A. Public Service is sponsoring the direct testimony of four additional Public
19 Service witnesses, and five Tri-State witnesses.

20 Joseph Taylor, Manager, Transmission Access with Xcel Energy
21 Services Inc., describes the affected Energy Resource Zones ("ERZs" or
22 "Zones") that the Company has designated as part of the transmission plan it

1 previously filed under C.R.S. § 40-2-126. He also presents testimony
2 addressing how the Project aligns with Public Service's 2007 Resource Plan.

3 Thomas Green, Transmission Planning Engineer of Transmission
4 Asset Management for Public Service, describes the Project in detail,
5 explains the need for the Project, discusses the criteria used to evaluate
6 system alternatives, and presents the analyses and evaluation of the system
7 alternatives considered.

8 Danny Pearson, Principal Transmission Design Engineer with Public
9 Service, describes the configuration and construction techniques that will be
10 used for the third segment of the Project, which will be a double-circuit 345 kV
11 line between Calumet and Comanche. Mr. Pearson also discusses the
12 prudent avoidance measures that the Company proposes to mitigate
13 projected EMF, presents analysis of the projected noise impacts of that
14 portion of the Project, and the prudent measures the Company proposes to
15 minimize noise levels.

16 Rick Thompson, Supervisor, Siting and Permitting with Xcel Energy
17 Services Inc., describes the processes that the Company will employ to
18 obtain the land rights and local permits necessary to construct the third
19 segment of the Project.

20 Public Service is also relying on the testimony of five Tri-State
21 witnesses.

22 Joel Bladow, Tri-State's Senior Vice President for Transmission
23 describes Tri-State and its operations, the purpose of and need for the Project,

1 Tri-State's cooperation with Public Service in connection with the Project,
2 Project timing, and Tri-State's estimated costs.

3 Stephen Mundorff, Tri-State's Senior Manager for Transmission
4 Engineering, describes in detail the technical aspects of the Project, including
5 the general design of the San Luis Valley – Calumet 230 kV and the Calumet –
6 Walsenburg 115/230 kV segments of the Project, the materials and techniques
7 that Tri-State will use in construction, and the Project schedule and estimated
8 costs.

9 Mark Murray, Tri-State's Permitting and Land Rights Manager, describes
10 the siting, permitting, and land rights status for the San Luis Valley – Calumet
11 and Calumet – Walsenburg 230 kV segments of the Project.

12 Robert Pearson, a consultant retained by Tri-State to provide analysis
13 concerning EMF and noise issues, addresses the prudent avoidance
14 techniques that will be employed to minimize EMF levels associated with the
15 Project's San Luis Valley – Calumet and Calumet – Walsenburg transmission
16 line segments and the techniques that will be used to mitigate audible noise
17 from these segments.

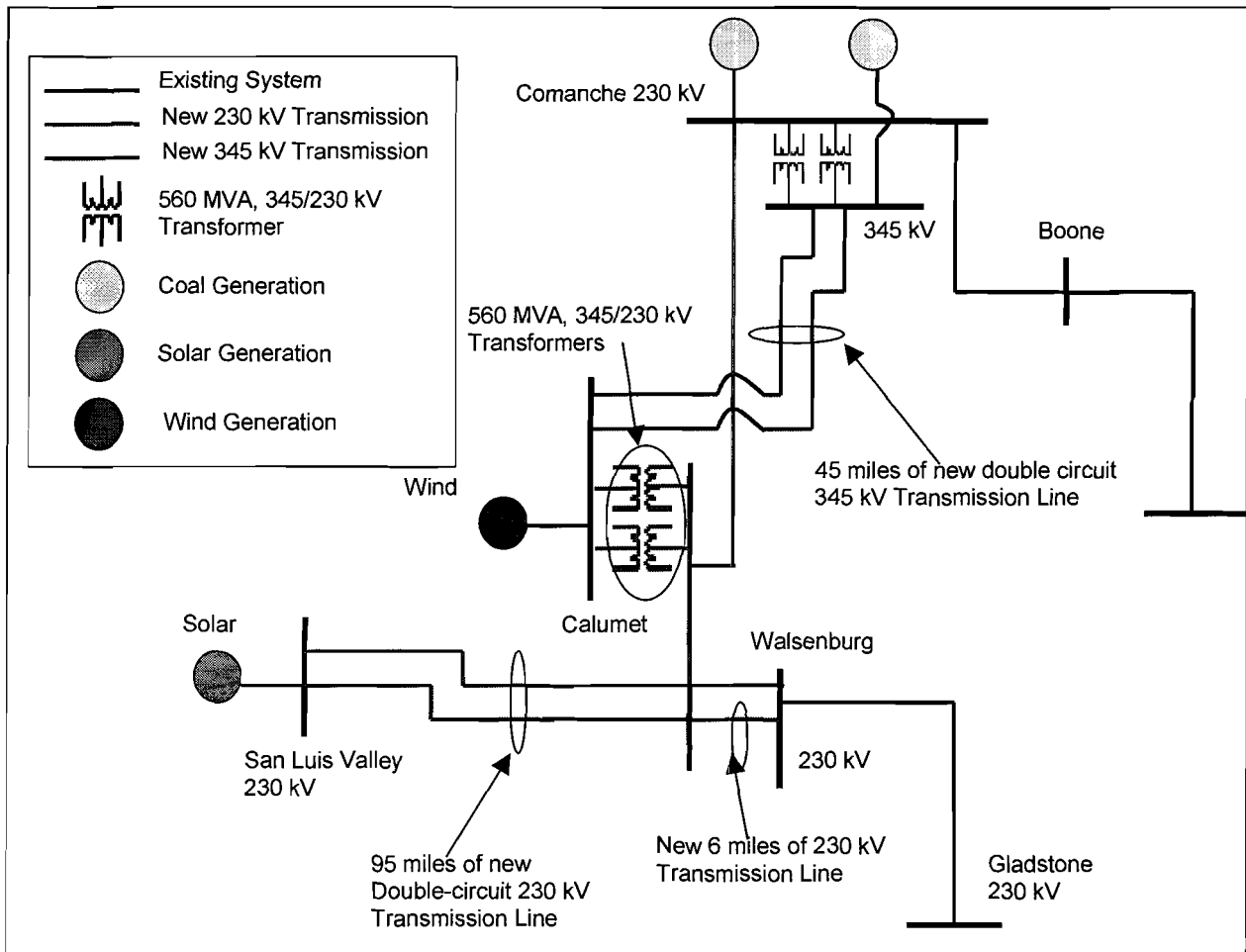
18 Andrew Leoni, Tri-State's Senior Manager, Power System Planning,
19 discusses the purpose and need for the Project. He also describes the
20 components of the Project and how the Project addresses two of Tri-State's
21 previously planned reliability and load serving projects. Mr. Leoni also
22 describes the system studies that have been performed and the evaluation of
23 system alternatives.

1 **Q. PLEASE DESCRIBE THE SAN LUIS VALLEY – CALUMET – COMANCHE**
2 **TRANSMISSION PROJECT.**

3 A. As the name implies, the Project consists of establishing new transmission
4 between the San Luis Valley and Comanche Substations, and connecting to a
5 new Calumet Substation in between. Although we view this transmission
6 Project as a single project, it is comprised of four major components:

- 7 1. The San Luis – Calumet Transmission Segment consists of approximately
8 95 miles of new double-circuit 230 kV transmission between the San Luis
9 Valley Substation and the new Calumet Substation.
- 10 2. The Calumet – Comanche Transmission Segment consists of
11 approximately 45 miles of new double-circuit 345 kV transmission
12 between the Calumet Substation and the existing Comanche Substation,
13 near Pueblo Colorado.
- 14 3. The Calumet Substation is planned to be located near Walsenburg,
15 Colorado and the existing Walsenburg Substation. Original transmission
16 plans called for transmission into the existing Walsenburg Substation.
17 However, due to space limitations at Walsenburg Substation, a new
18 substation will be required. The Calumet Substation will be located
19 approximately six miles north of Walsenburg Substation and include
20 345/230 kV transformation and transmission line termination equipment. It
21 will be constructed so that it can accommodate potential generation
22 interconnections in the future.
- 23 4. The Calumet – Walsenburg Transmission Segment consists of a new six-
24 mile 230 kV transmission line between Calumet Substation and the
25 Walsenburg Substation.

26 Mr. Green describes these components in more detail. Below is a graphic
27 depiction of the existing transmission system and the proposed Project:



1 **Q. DO YOU HAVE AN EXHIBIT THAT SHOWS THE DETAILS OF THE SAN**
 2 **LUIS VALLEY - CALUMET - COMANCHE TRANSMISSION PROJECT?**

3 **A.** Yes. Exhibit No. GMS-1 is a map of the Colorado transmission network and
 4 provides perspective of the Project in relation to the overall bulk power
 5 transmission system.

1 **Q. HOW DOES THE SAN LUIS VALLEY – CALUMET - COMANCHE**
2 **TRANSMISSION PROJECT FIT IN WITH PUBLIC SERVICE’S PLANNING**
3 **VISION?**

4 A. The Project is consistent with our vision of creating a transmission highway
5 for delivering cost-effective and environmentally-friendly energy resources to
6 Colorado consumers. ERZs 4 and 5 have been identified as having
7 significant potential for the development of wind and solar resources in
8 particular. The Company has also identified the Project as a high priority
9 project among those identified in the November 24, 2008 informational filing¹.
10 Any significant development of new electric generation capacity in ERZs 4
11 and 5 requires the expansion of transmission capacity between southern
12 Colorado and the Denver metro area. Thus, the Project is essential to
13 tapping solar resources from ERZs 4 and 5 consistent with the 2007 Colorado
14 Resource Plan.

15 **Q. WHY HAS PUBLIC SERVICE CHOSEN THE SAN LUIS VALLEY -**
16 **CALUMET - COMANCHE PROJECT AS A HIGH PRIORITY FOR FILING**
17 **SB07-100 CPCN APPLICATIONS?**

18 A. There are several reasons why the San Luis Valley – Calumet – Comanche
19 Transmission Project is considered a high priority for both Public Service and
20 Tri-State. The Project meets the SB07-100 criteria to alleviate transmission
21 constraints to ERZs 4 and 5, and it will allow generation resource additions to
22 meet Public Service’s and Tri-State’s resource needs.

¹ See Docket No. 08M-521E.

1 The Project also improves system reliability and load serving capability
2 for both Tri-State and Public Service customers. Under N-1 conditions, the
3 Project is critical to maintaining reliable service to the loads in the San Luis
4 Valley. Currently, only two radial transmission lines, a 230 kV line and a 115
5 kV line, feed the San Luis Valley customer loads. When the 230 kV line is out
6 of service, Public Service and Tri-State cannot serve all the customers in the
7 area. When the 230 kV line is lost, Tri-State will immediately drop service to
8 their customers. With such an event Public Service customers are also at risk,
9 since voltage in the region would drop to unacceptable levels. Electric
10 service can be restored once the line comes back into service or Public
11 Service starts up its gas turbine generation at Alamosa. However, such local
12 generation is very costly and is only used in emergency situations such as
13 this.

14 Because Tri-State had already been looking to develop a transmission
15 project in the San Luis Valley area, Public Service teamed up with Tri-State in
16 order to realize cost efficiencies for the benefit of its customers. These
17 efficiencies helped make the proposed Project one of high priority, as the
18 timing of Tri-State's needs for the Project coincide nicely with those of Public
19 Service.

20 **Q. HOW DOES THE PROJECT MEET SB07-100 REQUIREMENTS AND**
21 **LONG TERM GOALS?**

22 A. The Project provides the means to alleviate transmission constraints and
23 accommodate potential resource development in ERZs 4 and 5. The San

1 Luis Valley region, which lies within ERZ 4, has been identified to have great
2 promise for solar energy development. The Calumet Substation will enable
3 interconnections from potential wind, solar and other beneficial resource
4 additions in ERZ 5. Based on the Transmission Study Report, described by
5 Thomas Green, the Project alleviates transmission constraints and can
6 accommodate approximately 1500 MW of new generation in ERZs 4 and 5.
7 This project along with the other proposed SB07-100 transmission plans will
8 allow adequate resources to meet Public Service resource requirements for
9 the long-term planning horizon.

10 Public Service's long-term transmission plan currently consists of the
11 eight SB07-100 projects as illustrated in Exhibit No. GMS-2. These projects
12 are capable of importing approximately 2700-4100 MW of resources (see
13 Exhibit No. GMS-3). In addition, the currently studied High Plains Express
14 project could import approximately 3000 MW of renewable resources to
15 Colorado Customers. These projects will accommodate the new resources
16 required for Colorado electric customers for the long-term planning horizon.

17 **Q. WHAT PROCESS DID YOU FOLLOW FOR THE SB07-100**
18 **TRANSMISSION PLANNING?**

19 A. PSCo has worked very hard to have an open and transparent transmission
20 planning process for planned projects associated with the SB07-100 process.
21 Public Service has held numerous meetings, workshops and technical
22 sessions to plan the SB07-100 projects by communicating the information to
23 all stakeholders. The result of that work was five Energy Resource Zones

1 and eight SB07-100 projects that were presented to the Commission on
2 November 24, 2008 in an information filing. These ERZs and projects are
3 illustrated in Exhibit Nos. GMS-2 and GMS-3. Public Service has identified
4 transmission expansion plans that will increase transfer capability in or
5 around all five of the ERZs, including the Project proposed in the instant
6 CPCN filing.

7 **Q. HOW DID PUBLIC SERVICE WORK WITH TRI-STATE AND OTHERS TO**
8 **DEVELOP THIS PROJECT?**

9 A. Public Service has a long-standing relationship with Tri-State, and open
10 forums, such as the Colorado Coordinated Planning Group have resulted in
11 coordinated planning for many transmission projects. Following FERC Rule
12 890, Public Service has opened up its planning even further, and, as a result,
13 SB07-100 studies have been performed in a coordinated, open, and
14 transparent manner with participation from not only Tri-State, but other
15 Transmission Providers and Stakeholders in the region.

16 When Public Service and Tri-State identified its joint interests in the
17 San Luis Valley area, the two companies coordinated their planning efforts
18 over several months, which have resulted in the instant application for the
19 proposed Project.

20 **Q. HOW WILL THE CONSTRUCTION, OWNERSHIP AND OPERATION OF**
21 **THE PROJECT BE SHARED BETWEEN PUBLIC SERVICE AND TRI-**
22 **STATE?**

1 A. Once Public Service and Tri-State agreed to pursue the project jointly, many
2 discussions and joint planning sessions were held to explore how the parties
3 might share in the development of the project. Tri-State and Public Service
4 have agreed to a Memorandum of Understanding (“MOU”), including a Term
5 Sheet (see Exhibit No. GMS-4) specifying the allocation of ownership, costs,
6 capacity rights, and maintenance and replacement obligations between Public
7 Service and Tri-State with respect to the Project. In general, the allocation of
8 ownership and costs is based on the relative benefits of the overall Project to
9 Public Service and Tri-State.

10 Under the MOU, Public Service will have 60% of the capacity rights in
11 the new San Luis Valley - Calumet Segment, and Tri-State will have 40% of the
12 capacity rights. Therefore, Public Service will pay 60% of the costs and have
13 60% ownership of this Segment while Tri-State will pay 40% of the costs and
14 have 40% of the ownership. However, because Tri-State has done
15 considerable siting and environmental work it will take the lead in developing the
16 San Luis Valley - Calumet Segment of the overall Project, Tri-State will be
17 responsible for the design and engineering work, will supervise construction, will
18 take the lead in acquiring permits and land rights as well as siting the line, and it
19 will ultimately operate and maintain this Segment. Public Service and Tri-State
20 will have the same 60/40 capacity split in the Calumet - Comanche Segment of
21 the Project; however, Public Service will take the lead with respect to
22 engineering and design, land rights, and ongoing maintenance costs. Tri-State
23 will have an 80% share of the capacity in the Calumet - Walsenburg Segment of

1 the Project, while Public Service will have 20%. With this larger share, Tri-State
2 will accordingly be principally responsible for the design and engineering,
3 construction, and maintenance of this Segment of the Project.

4 The Project as a whole will be jointly owned and operated, similar to
5 the agreements reached by Tri-State and Public Service regarding operating
6 facilities the two companies acquired as a result of the Colorado Ute
7 bankruptcy in the early 1990s.

8 **Q. DO THE MOU AND TERM SHEET REPRESENT THE FINAL WORD ON**
9 **ALLOCATION OF RIGHTS AND RESPONSIBILITIES FOR THE PROJECT**
10 **BETWEEN PUBLIC SERVICE AND TRI-STATE?**

11 A. No. The ownership rights and responsibilities will be set forth in definitive
12 project agreements that have yet to be negotiated. Public Service and Tri-
13 state believed it premature to expend the considerable effort and associated
14 expense to negotiate those agreements prior to obtaining the necessary
15 CPCNs for the project. This is why both Public Service and Tri-State are
16 requesting that the Public Utilities Commission authorize transfer of
17 ownership interests in components of the Project as necessary to achieve the
18 ownership shares of the different components of the project contemplated by
19 the MOU. Because Tri-State and Public Service have not worked out the
20 definitive agreements, the mechanisms for achieving the joint ownership of
21 facilities have not yet been established. It is possible that it may be
22 necessary for Public Service (and Tri-State) to transfer an ownership interest

1 in facilities that are part of the project to achieve the contemplated ownership
2 arrangements.

3 **Q. HOW HAS PUBLIC SERVICE ADDRESSED THE PROJECTED**
4 **ELECTROMAGNETIC FIELD AND NOISE IMPACTS OF THE PROPOSED**
5 **PROJECT?**

6 A. Company witness, Mr. Danny Pearson, describes the proposed prudent steps
7 to minimize the impacts of projected EMF and noise associated with the
8 Calumet – Comanche Segment of the Project.

9 **Q. IN ITS APPLICATION, PUBLIC SERVICE IS REQUESTING THE**
10 **COMMISSION TO MAKE SPECIFIC FINDINGS OF REASONABLENESS**
11 **WITH RESPECT TO EMF AND NOISE. PLEASE EXPLAIN WHY PUBLIC**
12 **SERVICE IS MAKING THIS REQUEST.**

13 A. As set forth in the Application, Public Service believes that the Project is
14 required for the public convenience and necessity to ensure electric
15 customers get the most cost effective solution to providing adequate and
16 reliable electric supply for their needs. In 2004, the Colorado General
17 Assembly passed House Bill 04-1348, codified at C.R.S. §25-12-103(12),
18 addressing transmission line noise. This statutory provision authorizes the
19 Public Utilities Commission to determine, when reviewing utility applications
20 for CPCNs for electric transmission facilities, whether projected noise levels
21 for electric transmission facilities are reasonable. The statute allows the
22 Commission to determine the permissible noise levels for electric
23 transmission facilities notwithstanding the maximum permissible noise levels

1 established elsewhere in the noise abatement law. Public Service is
2 specifically requesting that the Commission make specific findings that the
3 projected noise levels of the Calumet - Comanche Segment of the Project, as
4 set forth in the testimony and exhibits of Mr. Danny Pearson, are reasonable.

5 Public Service has complied with the Commission's rules by using
6 prudent avoidance techniques to limit EMF exposure. Nevertheless, to avoid
7 future civil litigation "public nuisance" claims that this Project should not have
8 been constructed or operated as assumed in this Application due to noise or
9 EMF impacts, Public Service requests that the Commission make specific
10 findings in the grant of the CPCN that the projected levels of noise and EMF
11 are reasonable. Such a determination of reasonableness by the Commission
12 is required to avoid civil action claims under the reasoning by the Colorado
13 Supreme Court in *Public Service Company of Colorado v. Van Wyk*, 27 P.3d
14 377 (2001). If the Commission finds that the projected noise and EMF levels
15 are reasonable, Public Service should be shielded from noise and EMF
16 claims so long as Public Service constructs and operates the Project in the
17 manner proposed by this Application.

18 **Q. WHAT IS THE ESTIMATED COST OF THE SAN LUIS VALLEY –**
19 **CALUMET - COMANCHE PROJECT?**

20 A. The Project is estimated to cost \$180 million. This breaks out to
21 approximately \$105 million for Public Service's responsibilities and
22 approximately \$75 million for Tri-State's responsibilities. These estimates
23 were developed in late 2008 and are escalated for a planned 2013 completion

1 date. A breakdown of costs by individual components as well as the cost
2 responsibility of Public Service and Tri-State is shown in Exhibit No. GMS-5.
3 The estimates are based on cost per mile indicators of past projects, average
4 unit material and equipment costs, and 2008 overhead and labor rates. At
5 this stage of the project, these are high level, scoping estimates. In Public
6 Service's experience, the final project costs, when completed and in-service,
7 could be within an accuracy of +/-30% of this estimated cost.

8 **Q. WHAT IS THE SCHEDULE FOR THE SAN LUIS VALLEY – CALUMET -**
9 **COMANCHE PROJECT?**

10 A. Our analysis indicates that the project can be in-service by May 31, 2013.
11 Public Service anticipates the following:

- 12 • CPCN approval by late 2009, at which time the Company will
13 begin/continue local permitting activities;
- 14 • Permitting of all transmission lines, new easements executed and
15 substation land acquired and completed by December 31, 2010;
- 16 • Substation Design and Engineering by December 31, 2011;
- 17 • Substation Construction May 31, 2013;
- 18 • Transmission Material Equipment procurement June 30, 2012; and
- 19 • Final 345 kV transmission line connections and substation
20 commissioning and energization complete by May 31, 2013.

21 Exhibit No. GMS-6 sets out the overall schedule.

22 **Q. CAN YOU SUMMARIZE WHAT PUBLIC SERVICE IS REQUESTING IN THIS**
23 **APPLICATION?**

1 A. Yes. Public Service requests the Commission grant it a certificate of public
2 convenience and necessity for the San Luis Valley – Calumet - Comanche
3 Transmission Project and that the Commission make specific findings with
4 respect to the reasonableness of the projected noise and EMF levels for the
5 Project, and allow for transfer of ownership interests prior to the in-service date
6 of the Project. Public Service also requests that this transmission docket be
7 considered on an expedited basis, as stated in the application pleading.

8 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

9 A. Yes.

Attachment A
Statement of Qualifications
Gerry Stellern

I started my career at Public Service Company of Colorado (“Public Service”) in 1974. My career started in the Electric Planning and Analysis group where I worked for approximately 15 years working as a Transmission Planning Engineer, and later as the Supervisor of Loads and Resources Planning. My job function was primarily to produce a customer demand load forecast and to acquire adequate resources to meet that customer demand. I received my Professional Engineer’s license from the State of Colorado in 1978.

In 1990 my career directed me to Operations and the Operations Control Center. I worked as Senior Operations Engineer, Manager of the Transmission and Substation desk, Operations Manager, and Manager of the Real Time Engineering group. In this capacity, I performed all functions related to managing and operating the Transmission assets of Public Service and the interconnected Transmission system.

In 2005, I became the Manager of Transmission Assessment management for Public Service, in which I have responsibility for the capital transmission budget as well as planning the Transmission system of Public Service to meet the growing needs of our customers and to ensure reliability. I am also responsible performing an annual assessment of the transmission assets to verify they are compliant with the NERC reliability standards. Additions to the Public Service capital budget are related to the NERC reliability assessment and additional generation to serve Public Service electric customers. The Transmission Asset Management is also responsible for the Transmission plans under SB-100 and for performing Feasibility Studies and System Impact studies for generation interconnection requests under the FERC LGIA process.