

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

IN THE MATTER OF THE VERIFIED )  
APPLICATION OF TRI-STATE GENERATION AND )  
TRANSMISSION ASSOCIATION, INC. FOR ) PROCEEDING NO. 20A-\_\_\_\_  
APPROVAL OF THE RETIREMENT OF THE )  
NUCLA STATION, AND REQUEST FOR WAIVER )  
OF RULE 3103(d) )

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**DIRECT TESTIMONY AND ATTACHMENTS OF  
TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION, INC. WITNESS  
CHRISTOPHER E. PINK**

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1 I. **INTRODUCTION AND QUALIFICATIONS**

2 **Q: PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A: My name is Christopher E. Pink. My business address is 1100 West 116th  
4 Avenue, Westminster, CO 80234.

5 **Q: BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

6 A: I am employed by Tri-State Generation and Transmission Association, Inc. ("Tri-  
7 State") as Manager, Technical Services/Bulk System Planning.

8 **Q: ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS DOCKET?**

9 A: I am testifying on behalf of Tri-State.

10 **Q: HAVE YOU PREPARED A STATEMENT OF YOUR EXPERIENCE AND**  
11 **QUALIFICATIONS?**

12 A: Yes. A statement of my experience and qualifications is attached to my testimony  
13 as **Attachment CEP-1**.

14 **Q: PLEASE DESCRIBE BRIEFLY YOUR BACKGROUND AND EXPERIENCE IN**  
15 **THE ELECTRIC UTILITY INDUSTRY.**

16 A: I have 17 years of experience in the electric utility industry. In my present  
17 position, I am responsible for planning, coordinating, directing, and providing  
18 engineering support for the development of Tri-State's transmission network  
19 utilizing my knowledge of bulk power systems. Prior to joining Tri-State, I worked  
20 as a system engineer at a distribution cooperative, a research engineer at a  
21 national lab, and an electrical engineer at a consulting firm. I have undergraduate  
22 and master's degrees in engineering from the Colorado School of Mines. I am a  
23 registered Professional Engineer in the State of Colorado.

1 **II. PURPOSE OF TESTIMONY**

2 **Q: WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

3 A: My testimony discusses the Nucla Station's retirement from a transmission  
4 planning perspective. I will explain how the Nucla Station was interconnected to  
5 the Colorado transmission system, and the effect of the plant's retirement on  
6 transmission system operations and reliability.

7 **III. TRANSMISSION PLANNING IMPLICATIONS OF NUCLA STATION**  
8 **RETIREMENT**

9 **Q: PLEASE EXPLAIN THE TRANSMISSION FACILITIES ASSOCIATED WITH**  
10 **THE NUCLA STATION.**

11 A: The Nucla Station includes a substation that contains four generator step-up  
12 transformers with associated breakers and switches, a 115:69:12.5 kV  
13 transformer with associated breakers and switches, and a five breaker 115 kV  
14 main and transfer bus.

15 **Q: WILL ALL OF THESE FACILITIES BE DISMANTLED AS PART OF THE**  
16 **RETIREMENT AND DECOMMISSIONING OF THE NUCLA STATION?**

17 A: Yes.

18 **Q: WHAT ROLE DID THE NUCLA STATION PLAY IN TERMS OF THE**  
19 **OPERATION AND RELIABILITY OF THE COLORADO TRANSMISSION**  
20 **SYSTEM?**

21 A: Nucla Station was used primarily to serve load in southwest Colorado. In some  
22 respects, Nucla Station improved reliability in southwest Colorado as it provided  
23 strong, dynamic voltage support. In other respects, it increased the potential for

1 overloading some of the area’s transmission lines as those lines were rated for  
2 less than the capacity of the generation plant. To mitigate this, Tri-State  
3 implemented a local area protection scheme. Nucla Station played a significant  
4 role in maintaining reliability during the early phases of the Montrose – Nucla –  
5 Cahone Transmission Project.

6 **Q: WHAT IS THE MONTROSE-NUCLA-CAHONE TRANSMISSION**  
7 **IMPROVEMENT PROJECT?**

8 A: The Montrose-Nucla-Cahone Transmission Improvement Project (the “Project”)  
9 is a current Tri-State transmission project to replace certain existing transmission  
10 infrastructure located in western Colorado. The existing Montrose-Nucla-Cahone  
11 115 kV transmission line was built in 1958 with 336.4 kcmil ACSR “Linnet”  
12 conductor, TH-1A structures and a 50°C conductor design temperature. A  
13 significant concern of Tri-State is the age and condition of this line and its 50°C  
14 conductor design limitation. Loading on the line has reached the maximum  
15 conductor thermal rating of the Linnet conductor (76 MVA). Due to the 50°C  
16 conductor design rating, this line is a limiting element in Tri-State’s load-serving  
17 path to its member systems in southwest Colorado. Tri-State has received  
18 formal requests for additional load from its members that cannot be  
19 accommodated with the existing transmission system. The Project will rebuild  
20 the existing 115 kV Montrose-Nucla-Cahone transmission line to be capable of  
21 230 kV operation (631 MVA), however, the new line will be operated at 115 kV  
22 for the foreseeable future.

1 Tri-State received a Certificate of Public Convenience and Necessity for the  
2 Project in 2013 (Commission Decision No. C13-0893). Construction of the  
3 Project began in 2016, and the Project is expected to be completed and in  
4 service by the fourth quarter of 2020.

5 **Q: WHAT IS THE RELATIONSHIP BETWEEN THE PROJECT AND THE NUCLA**  
6 **STATION?**

7 A: In its early phases, the Project required several prolonged line outages to  
8 facilitate crews working safely on the Project. Given the relatively few  
9 transmission lines in southwestern Colorado, the necessary outages impacted  
10 the ability of the remaining transmission lines to operate satisfactorily. Tri-State  
11 conducted project constructability studies to identify problems and propose a  
12 construction sequence that ensured a reliable transmission grid while the lines  
13 were being rebuilt. The analysis showed that having Nucla available during  
14 certain outages of the southwest Colorado 345 kV lines would increase the  
15 reliability and robustness of the system. After the 345 kV outages, the system  
16 was found to perform adequately without Nucla generation.

17 **Q: HAS THE RETIREMENT OF THE NUCLA STATION AND ITS POTENTIAL**  
18 **EFFECT ON THE COLORADO TRANSMISSION SYSTEM BEEN**  
19 **CONSIDERED IN ANY COORDINATED TRANSMISSION PLANNING**  
20 **FORUM?**

21 A: Yes. Since its announced retirement, Tri-State has omitted Nucla Station from  
22 the applicable planning models shared with all the other Colorado Coordinated  
23 Planning Group (“CCPG”) utilities. Thus, all studies conducted by users of those

1 models would have omitted Nucla Station and any possible ramifications would  
2 have been identified.

3 **Q: WILL THE RETIREMENT OF THE NUCLA STATION ADVERSELY EFFECT**  
4 **THE OPERATION AND RELIABILITY OF COLORADO TRANSMISSION**  
5 **SYSTEM?**

6 A: While there are effects associated with decommissioning any synchronous  
7 generator given its spinning mass and instantaneous dynamic response, retiring  
8 Nucla Station did not uniquely adversely affect the operation and reliability of the  
9 Colorado Transmission System. This will be especially true once the Montrose –  
10 Nucla – Cahone Project is completed.

11 **Q: WILL THE RETIREMENT OF THE NUCLA STATION ADVERSELY EFFECT**  
12 **TRI-STATE’S ABILITY TO SERVE IT COLORADO MEMBER SYSTEMS?**

13 A: No.

14 **Q. DOES THAT CONCLUDE YOUR DIRECT TESTIMONY?**

15 A. Yes.

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**VERIFICATION OF CHRISTOPHER E. PINK**

STATE OF COLORADO )  
 )  
COUNTY OF ADAMS ) ss:

I, Christopher E. Pink, being duly sworn, do hereby depose and state that I am the Manager, Technical Services/Bulk System Planning for Tri-State Generation and Transmission Association, Inc., I have read the foregoing direct testimony, and the facts set forth therein are true and correct to the best of my knowledge, information, and belief.

Signed this 11 day of February, 2020, at Westminster, Colorado.

  
\_\_\_\_\_  
Christopher E. Pink  
Manager, Technical Services/Bulk System  
Planning  
Tri-State Generation and Transmission  
Association, Inc.

Subscribed and sworn to before me this 11<sup>th</sup> day of February, 2020.

Witness my hand and official seal.

  
\_\_\_\_\_

**KIMBERLY M. STRASBURGER  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 20134072316  
MY COMMISSION EXPIRES 11/21/2021**

My Commission expires: 11/21/2021