

**BASIN ELECTRIC
POWER COOPERATIVE**

1717 EAST INTERSTATE AVENUE
BISMARCK, NORTH DAKOTA 58503
PHONE: 701-223-0441 FAX: 701-557-5336



March 19, 2015



Mr. Darrell Nitschke, Executive Director
North Dakota Public Service Commission
600 East Boulevard Avenue, Dept. 408
Bismarck, North Dakota 58505

Re: Lonesome Creek Station Phase III Project
Case No. PU-14-852

Dear Mr. Nitschke:

Enclosed please find five copies of the pre-filed testimonies of Josh Rossow, Becky Kern and Cris Miller in the above captioned matter.

If you have any questions, please feel free to contact me at alambert@bepc.com or (701) 557-5080.

Sincerely,

Anine Lambert
Attorney

al/ds
enclosures

cc: Brian Schmidt, Smith, Bakke, Porsborg & Schweigert Attorneys at Law (via e-mail)
Wade C. Mann, Office of Administrative Hearings (via e-mail)

Before the Public Service Commission of
The State of North Dakota

In the Matter of the Application of
BASIN ELECTRIC POWER COOPERATIVE
For a Certificate of Site Compatibility for the
Lonesome Creek Generation Station Phase III Project

Case No. PU-14-852

Pre-filed Testimony
of
Josh Rossow

1 Q. **What is your name, business address and your occupation?**

2

3 A. My name is Josh Rossow. I am employed as a Project Manager for Basin Electric
4 Power Cooperative, 1717 East Interstate Avenue, Bismarck, North Dakota.

5

6 Q. **Please describe your employment history.**

7

8 A. I have been employed with Basin Electric for over eight years, holding the positions of
9 Performance Engineer, Environmental Coordinator and Project Manager. Prior to
10 working at Basin Electric, I was employed with LAS International as a mechanical
11 engineer.

12

13 Q. **Please state your educational background.**

14

15 A. I received a Bachelor of Science degree in Mechanical Engineering from South Dakota
16 School of Mines & Technology, and I have been a Registered Professional Engineer in
17 the State of North Dakota since 2011.

18

19 Q. **What have been your responsibilities in connection with the Lonesome Creek
20 Station Phase III Project?**

21

22 A. I am the Project Manager of the Lonesome Creek Station Phase III Project. This is the
23 third phase of development at the Lonesome Creek Station (LCS), located 14 miles west
24 of Watford City, ND.

25

26 As Project Manager, I am responsible for management and coordination of all aspects of
27 the proposed Project including; technology selection, siting, permitting, finance,
28 engineering design, construction and start-up. My responsibilities also include
29 coordinating utility interconnects such as water, natural gas and transmission.

30

31 Q. **What is the purpose of your testimony in this proceeding?**

32

33 A. The purpose of my testimony is to provide a description of Basin Electric Power
34 Cooperative, a description of the proposed Project, and to describe Basin Electric's

1 position with respect to the PSC Site Compatibility Policy Criteria, as presented in the
2 Application to the Public Service Commission.

3
4 **Q. Please describe Basin Electric.**

5
6 A. Basin Electric is a regional wholesale electric generation and transmission cooperative
7 organized under the laws of the State of North Dakota, and headquartered in Bismarck,
8 North Dakota. Basin Electric provides power to 138 member cooperatives serving more
9 than 2.8 million consumers in nine states, including North Dakota. Basin Electric has
10 two "Class A" members that serve the Williston Basin where the oil and gas
11 development is occurring. The Cooperatives are Central Power Electric Cooperative,
12 headquartered in Minot, ND and Upper Missouri G&T, headquartered in Sidney, MT.

13
14 **Q. You testified that this is the third Phase of development at the Lonesome Creek
15 Station. Please describe Phases I & II.**

16
17 A. LCS was designed and constructed in two phases. In LCS Phase I, one 45 megawatt
18 simple cycle combustion turbine and associated balance of plant equipment were
19 constructed, including: an operations & maintenance building, natural gas
20 interconnections, water interconnects and a 115 kilovolt (kV) transmission line. Phase I
21 began commercial operation in December 2013.

22
23 Phase II consisted of two additional 45 megawatt simple cycle combustion turbines and
24 associated balance of plant equipment. These combustion turbines were designated
25 LCS Unit 2 and LCS Unit 3. LCS Units 2 and 3 began commercial operation in January
26 2015.

27
28 **Q. Please describe the proposed Lonesome Creek Station Phase III Project.**

29
30 A. The LCS Phase III project is the addition of three nominal 45 megawatt simple cycle
31 natural gas combustion turbines and associated balance of plant equipment to the
32 existing Lonesome Creek Station. The three additional turbines will be designated as
33 LCS Unit 4, LCS Unit 5 and LCS Unit 6. Like LCS Units 1, 2 and 3, the additional units
34 will be General Electric brand (GE) aero derivative LM6000-PF SPRINT models. The

1 design also includes a power control module to house the electrical switchgear and a
2 generator step-up transformer to increase the voltage from 13.8kV to 115 kV for each
3 unit. A 2.8 acre, 115 kV switchyard will be constructed to connect all six units to the
4 electrical grid.

5
6 **Q. Where is the proposed Project located?**

7
8 A. This facility is located approximately 14 miles west of Watford City on the existing
9 Lonesome Creek Station site. The site is located in Township 150, Range 101, Section
10 23 in McKenzie County and is electrically tied to McKenzie Electric Cooperative's 115 kV
11 transmission system.

12
13 **Q. Where will Phase III be located relative to the existing units?**

14
15 A. The Phase III units will be located directly east of the existing units. The 115 kV
16 switchyard will be located southwest of the existing units.

17
18 **Q. Please describe the design of the proposed Project.**

19
20 A. As mentioned earlier, the additional units will be General Electric (GE) aero derivative
21 LM6000-PF SPRINT models. Aero derivative gas turbines are the same general design
22 as the turbines used on modern airplanes. Special metals are used to allow the
23 machines to run at higher pressures and temperatures. This translates into turbines that
24 are more efficient and can be cycled on and off more often to accommodate variable
25 generation needs.

26
27 The LM6000-PF SPRINT turbine output rating is a nominal 45 MW with an approximate
28 heat rate of 9400 Btu/KwHr. These units utilize dry low NOx burner technology, along
29 with a Selective Catalytic Reduction (SCR) system for NOx control. The SCR utilizes
30 anhydrous ammonia as the reagent. Also included will be a Catalytic Oxidation
31 Reduction (COR) to minimize carbon monoxide emissions. Following the SCR, each
32 unit's flue gas will be released to the atmosphere through individual 80 foot stacks. The
33 COR, SCR, and stack are located just to the right of the turbine.

1 A 115 kV switchyard will be constructed to connect all six units to three McKenzie
2 Electric Cooperative 115 kV transmission lines. A switchyard increases system reliability
3 by allowing the generation to continue operating if one of the transmission lines
4 becomes unavailable. Major components of a switchyard include a small control
5 building, switches, breakers, electrical conductors and structural steel. A switchyard was
6 not required for Phases I and II because all three units were connected to a single
7 transmission line.

8
9 **Q. How did the infrastructure in place for Phase I & II contribute to Basin Electric**
10 **selecting the location of the proposed Project?**

11
12 **A.** The Phase III units were designed to make substantial use of existing systems
13 constructed in Phase I & II. The compressed air and anhydrous ammonia systems can
14 be utilized without any upgrades. No additional anhydrous ammonia or water storage
15 tanks are required. The service water and demineralized water systems will require
16 minor upgrades to the supply pumps. The proposed Phase III units will be controlled
17 from the existing control room.

18
19 **Q. What is the schedule of the proposed Project?**

20
21 **A.** If all the necessary permits and approvals are in place, Basin Electric intends to start
22 construction in May 2015. Units 4 and 5 are expected to be available for commercial
23 operation by June 2016. Unit 6 is expected to be commercially available one year later
24 in June 2017.

25
26 **Q. What is the estimated cost of the proposed Project?**

27
28 **A.** The estimated cost for Units 4 and 5 is \$99.3 million. Unit 6 is expected to cost \$49.65
29 million.

30
31 **Q. How much water would the proposed Project consume and where does the supply**
32 **come from?**

33

1 A. These units will only require water in the summer time. Usage is dependent on ambient
2 conditions and range up to 25 gpm/unit. Potable water is supplied to LCS from the
3 McKenzie County Water Resources District (MCWRD) distribution system and will be
4 placed into the existing 125,000 gallon service water storage tank. The potable water is
5 further treated through the utilization of a portable demineralizer trailer and placed into
6 the 220,000 gallon demineralizer water storage tank. The demineralizer trailer is
7 provided by an outside contractor. When required, the demineralizer trailer is
8 re-generated off-site. The rural water interconnection along with the water treatment
9 system and on-site water storage completed in LCS Phase I can accommodate the
10 additional units with minor modifications.

11

12 Q. **Will the water consumption rate for Lonesome Creek Station impact other**
13 **customers of McKenzie County Water Resources District?**

14

15 A. No. Basin Electric works with the MCWRD to ensure other customers are not impacted.
16 In fact, Basin Electric's need and payment for the water supply assisted in the expansion
17 of the Rural Water System from Williston to Watford City.

18

19 Q. **What is the natural gas fuel supply for the proposed Project?**

20

21 A. Natural gas is supplied to LCS from the 42" Northern Border Pipeline that runs across
22 the northeast corner of Basin Electric's property. This pipeline interconnection is able to
23 accommodate Phase III with minor modifications to the gas meter. Basin Electric will be
24 working with a gas broker to purchase the natural gas needed for this Project.

25

26 Q. **Is any new electrical transmission needed for the proposed Project?**

27

28 A. As previously stated, a new electrical switchyard will be constructed on the LCS property
29 to deliver power from all six units to the electrical grid. An approximately 1500 foot long
30 115 kV transmission line between LCS Units 4, 5 and 6 and the switchyard will be
31 constructed. The existing 115 kV transmission line between LCS Units 1, 2 and 3 and
32 the McKenzie Electric Cooperative (MEC) Hay Butte Substation will be re-directed into
33 the new LCS switchyard. It is our understanding that MEC will extend their 115 kV
34 distribution infrastructure to the LCS Switchyard for delivery into their local grid.

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Q. How would Basin Electric ensure underground public utilities are not damaged during construction of the proposed Project?

A. Basin Electric requires its contractors and sub-contractors to use the North Dakota One Call system to locate underground utilities at least 48 hours in advance of excavations. Contractors and sub-contractors are also required to hand dig or use vacuum excavation when excavating near underground utilities.

Q. Are you aware of any actual or potential hazards to humans, animal life or the environment posed by the Project?

A. No.

Q. Are there any state/federal/county laws/rules that require Basin Electric to have an Emergency Response Plan for this Project?

A. Yes. An Emergency Response Plan is required by Federal OSHA regulations. Also, because LCS Phases I & II require storage of anhydrous ammonia in excess of 10,000 pounds, EPA regulations require Basin Electric to have an Emergency Response Plan and collaborate with the Local Emergency Planning Committee.

Q. Does Basin Electric have an Emergency Response Plan in place for Lonesome Creek Station Phases I, II & III?

A. Yes.

Q. Please describe the Emergency Response Plan.

A. The plan was designed to protect life, health, safety, the environment and property in the event of an emergency. The plan identifies each emergency responder group with contact information and describes response procedures based on the emergency event. Basin Electric has established a comprehensive orientation, technical, safety, emergency and on the job training for its employees.

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Q. What efforts has Basin Electric taken to make emergency responders aware of the proposed Project?

A. On an annual basis, Basin Electric invites emergency responders, including first responders and local fire departments to the Project site for a tour and meeting to discuss how the facility operates and procedures should they be called to respond to an emergency at the Station. Emergency response meetings were held in July 2013 and December 2014.

Q. Please describe the sequence of construction for the proposed Project.

A. The first construction activities will be earthwork and excavations for foundations and underground utilities. Once the excavations are open, the contractor will then begin pouring equipment foundations and install underground utilities. Soon after the equipment foundations have been poured the contractor will install the 115 kV transmission structures and begin to place equipment such as the generator step-up transformer and the combustion turbine and generator. Once the major equipment has been installed on its foundation, the contractor will then focus on the equipment assembly and the installation of above ground pipe, electrical, instrumentation, and controls. As the Project reaches mechanical completion, the equipment will go through a testing and commissioning phase. During the commissioning phase, the contractor, equipment suppliers, and Basin Electric will begin the start-up of equipment. Once all the equipment has successfully completed the commissioning and start-up phase, the station will be ready to generate power. During construction, Basin Electric will maintain a deficiency list for items that need corrective action. Upon completion of the Project, Basin Electric will verify that all deficiencies have been corrected and release the contractor from further responsibility.

Q. Please describe the workforce needed to construct the proposed Project.

A. The construction labor force will peak at approximately 150 employees. The workforce will be made up of electricians, pipefitters, millwrights and other skilled trade workers. Local labor will be used to the extent practicable. Because of the tight labor market in the

1 region and low unemployment rate, it is anticipated the majority of the construction
2 workforce will come from outside the region.

3
4 **Q. What housing provisions are required for this type of work force?**

5
6 A. It is expected a large percentage of the work force will obtain housing in hotels,
7 apartments, or crew camps in and around the Watford City area. A few workers may
8 bring travel trailers and place them in trailer or RV parks in towns in the area. Some
9 workers will be local hires who live in the general vicinity and will commute from their
10 current residence.

11
12 **Q. How will construction equipment and material deliveries be made to the proposed
13 Project?**

14
15 A. It is estimated the equipment and material deliveries will require approximately 500
16 truckloads. The contractors will use federal, state and county highways and other
17 township roads throughout the Project Area. The proposed Project will have a negligible
18 impact on traffic volume in and around Watford City.

19
20 **Q. Please describe the method Basin Electric uses to select their contractors. How
21 does Basin Electric ensure these contractors are committed to safety?**

22
23 A. Basin Electric pre-qualifies prospective contractors by examining their safety history.
24 Only contractors that meet Basin's safety standards are allowed to bid on the work. The
25 selected contractor is required to become a member of the Energy Coalition for
26 Contractor Safety which is administered by the North Dakota Safety Council. The North
27 Dakota Safety Council reviews the contractor's safety programs for compliance with
28 Federal OSHA regulations. Once on site, regular safety inspections by Basin Electric
29 would ensure the contractor is using safe work practices.

30
31 **Q. The following series of questions relate to the North Dakota Public Service
32 Commission's Site Policy Criteria.**

1 **What is Basin Electric's policy with respect to maximizing potential benefits**
2 **through location, process and design of its facilities?**

- 3
4 A. Basin Electric performs studies to identify facilities that are needed to ensure a reliable
5 transmission and generation system. The location and output of these facilities is
6 determined by planning experts to maximize the benefits of these projects.

7
8 Q. **What is Basin Electric's policy concerning the training and utilization of available**
9 **labor in North Dakota for the general and specialized skills required?**

- 10
11 A. Basin Electric has a long-standing policy of recruiting and training workers from North
12 Dakota. Basin Electric has developed a partnership with Bismarck State College to
13 provide the coursework for our apprenticeship programs in both our Transmission
14 System Maintenance Division and power plant maintenance areas. Basin Electric works
15 with the University of North Dakota, North Dakota State University, University of Mary,
16 Bismarck State College and North Dakota State College of Science to fill internship
17 positions as well as full-time vocation/technical and professional positions.

18
19 Through a partnership with Bismarck State College, Basin Electric recently started a
20 "Grow Your Own Program" in which students enrolled in the power plant Technician
21 Associate Degree program may apply for opportunities to work at our power plants as
22 interns. Basin Electric hires up to five students from the program at each of our power
23 plants. As full-time positions become available, the students who have completed these
24 internships may apply. If selected, Basin Electric will reimburse 50% of the cost of tuition
25 and books (15% upon hire, 15% after completing one year of employment and 20% after
26 completing two years of employment). Basin Electric staff members also sit on Advisory
27 Boards for various programs at Bismarck State College.

28
29 It is Basin Electric's practice to hire qualified North Dakota workers. Basin Electric
30 includes qualified North Dakota companies on its bidder lists for materials and
31 construction work. The selected contractor hires the workforce used in Basin Electric's
32 construction projects. The labor force used on our construction projects is hired by the
33 contractors. The construction personnel are highly trained in this specialized area of
34 construction. For portions of the construction process that do not require specially

1 trained construction workers, Basin Electric anticipates the contractor will hire local
2 people.

3
4 **Q. Will the proposed Project make use of a primary energy source or raw material**
5 **located within the state?**

6
7 A. Yes, natural gas utilized by this Project would come from Northern Border Pipeline. In
8 addition to transporting natural gas from Canada, this pipeline transports processed
9 North Dakota natural gas to out of state markets. While it is uncertain where the natural
10 gas comes from once in the pipeline, it is probable that a percentage of the gas comes
11 from North Dakota.

12
13 **Q. Will the Project require any relocation of residents?**

14
15 A. No.

16
17 **Q. What efforts has Basin Electric made to economize the costs of construction and**
18 **operation of this Project?**

19
20 A. Basin Electric has an obligation to its member cooperatives to construct facilities at the
21 least cost while maintaining reliability and safety. By selecting the existing LCS site for
22 this Project, the cost of infrastructure and interconnections was avoided, minimizing the
23 total Project cost.

24
25 In addition when possible, all materials and services will be competitively bid by qualified
26 suppliers and Basin Electric will combine purchases with other projects to take
27 advantage of volume pricing.

28
29 Basin Electric will share operations and maintenance personnel from other Basin Electric
30 projects in the area, including the Pioneer Generation Station located northwest of
31 Williston and the Culbertson Generation Station in Montana, minimizing operational cost.

32
33 **Q. How many full-time positions will be created by this Project?**

1 A. Two additional full-time operation technicians will be assigned to operate LCS; however,
2 the units are designed to be remotely operated from Basin Electric headquarters in
3 Bismarck.

4

5 **Q. Has Basin Electric involved local government entities and citizens in the planning**
6 **process?**

7

8 A. Basin Electric initiates and maintains close contact with all pertinent federal, state, and
9 local agencies prior to construction of a facility. For this Project, Basin Electric will meet
10 with county and township planning and zoning boards. Mr. Miller will elaborate on this
11 further.

12

13 **Q. Would you please tell the Commission what type of commitment Basin Electric**
14 **has to North Dakota consumers regarding their electric power supply?**

15

16 A. Basin Electric is contractually committed to meet all of the additional power
17 requirements, above their allocation from Western Area Power Administration, for the 14
18 North Dakota rural electric cooperatives that are our members.

19

20 **Q. Will a portion of the energy produced by this Project be used in this state?**

21

22 A. Yes.

23

24 **Q. What is Basin Electric's policy regarding labor relations?**

25

26 A. Basin Electric management has always maintained an equitable, fair, and harmonious
27 relationship with labor. Basin Electric uses both union and non-union contractors.

28

29 **Q. What is Basin Electric's policy and what efforts has the Cooperative made in the**
30 **coordination of facilities?**

31

32 A. Basin Electric works closely with Western Area Power Administration, Montana Dakota
33 Utilities (MDU), and our member systems to share facilities and avoid duplication. For
34 the past five years, Basin Electric has been meeting with MDU, Western, and our

1 members on a monthly basis to discuss western North Dakota transmission and
2 generation issues.

3
4 Q. **What is Basin Electric's position on the monitoring of environmental impacts?**

5
6 A. Basin Electric's policy is that environmental impacts should be monitored and steps
7 taken to mitigate and alleviate those impacts which have adverse effects. Once a power
8 plant is commercial, a continuing program of maintenance begins. Basin Electric will
9 monitor and correct any problems for the life of these facilities.

10
11 Q. **Based on your knowledge of the Project, do you believe the location,
12 construction, and operation of the proposed Project produce minimal adverse
13 effects on the environment and upon the welfare of the citizens of North Dakota?**

14
15 A. Yes.

16
17 Q. **Is the proposed Project compatible with environmental preservation and the
18 efficient use of resources?**

19
20 A. Yes.

21
22 Q. **Will the proposed Project minimize adverse human and environmental impacts
23 while ensuring continuing system reliability and integrity and ensuring that
24 energy needs are met and fulfilled in an orderly and timely fashion?**

25
26 A. Yes.

27
28 Q. **Does this complete your testimony?**

29
30 A. Yes.

**Before the Public Service Commission of
The State of North Dakota**

**In the Matter of the Application of
BASIN ELECTRIC POWER COOPERATIVE
For a Certificate of Site Compatibility for the
Lonesome Creek Generation Station Phase III Project**

Case No. PU-14-852

**Pre-filed Testimony
of
Becky Kern**

1 Q. **What is your name, business address and your occupation?**

2

3 A. My name is Becky Kern. My business address is 1717 East Interstate Avenue,
4 Bismarck, North Dakota. I am the Director of Utility Planning for Basin Electric Power
5 Cooperative. I have worked for Basin Electric for twelve years.

6

7 I oversee the development of the long term load forecasting for Basin Electric and its
8 members and the long term power supply planning activities which includes the
9 development of Basin Electric's Integrated Resource Plan.

10

11 Q. **Please describe your educational background.**

12

13 A. I received a Bachelor of Science degree in Electrical Engineering from the North
14 Dakota State University in 2002.

15

16 Q. **Please describe your responsibilities in connection with the proposed
17 Lonesome Creek Station Phase III Project?**

18

19 A. Basin Electric identified the need for additional natural gas generation to meet the
20 growing load obligations of our membership through the load forecasting process and
21 subsequent evaluation of Basin Electric's ability to meet that load obligation through
22 the development of an Integrated Resource Plan.

23

24 Q. **How are load forecasts conducted?**

25

26 A. The load forecasts are performed either every other year or every three years with
27 annual updates and are prepared in accordance with the Rural Utilities Services
28 criteria. The Load Forecast represents a joint effort by the distribution cooperatives,
29 the G&T cooperatives, and Basin Electric. In order to ensure all segments of the
30 cooperative's structure are involved, a Load Forecast Technical Committee was
31 established. This committee consists of representatives from the distribution
32 cooperatives, the G&T cooperatives and Basin Electric. The Load Forecast is
33 prepared on a distribution cooperative basis.

1 The RUS criteria define a Load Forecast as a thorough study of a cooperative's
2 electric loads and the factors that affect those loads in order to determine as
3 accurately and as practical the cooperative's future requirements for energy and
4 capacity. The basis for econometric modeling is to identify factors in the economy that
5 have historically affected electrical consumption. This is accomplished by using
6 regression analysis software that establishes a mathematical relationship between
7 the economic factors and power usage. The mathematical relationship, which is in the
8 form of algebraic equations, represents the econometric model. Different models are
9 developed for each member, depending on the type of load they serve. Examples of
10 these models include residential, oil related, coal related, ethanol and biodiesel
11 related forecasts.

12
13 There are certain instances where a mathematical equation cannot be developed to
14 predict the future. In these cases judgmental forecasts are created with the help of
15 the distribution cooperatives serving the loads because of their local knowledge and
16 expertise. These results of the Load Forecasts are then translated into a model that
17 represents the Basin Electric system on a delivery point basis. This allows the
18 planning of infrastructure improvements to be made where needed. The Load
19 Forecast is then monitored on a monthly basis to ensure that the forecast is
20 performing as expected. Due to the detailed information available from the large
21 commercial sector, individual projects can be monitored to ensure that they are
22 proceeding as planned. If the load deviates significantly from the forecast,
23 modifications can be made for future load forecasts.

24
25 **Q. Please describe Basin Electric's Integrated Resource Plan.**

26
27 **A.** The Integrated Resource Plan is a review of Basin Electric's forecasted member load
28 obligations, current operating system and provides for the framework for future
29 expansion, including both supply-side and demand-side resource expansion. Basin
30 Electric reviews resources that are available in meeting the forecasted obligations
31 and utilizes both a capacity expansion model and a production cost model to
32 determine what mix of resources can most effectively meet our member obligations.
33 As previously stated, these resources can be both supply-side and demand-side, and
34 the supply-side resources are not limited to Basin Electric's self-build options. Basin

1 Electric issued a Power Supply Request for Proposal in the summer of 2013 and
2 sought power supply alternatives that could be evaluated within our Integrated
3 Resource Plan. This plan will typically identify a five year action plan to meet the
4 forecasted load growth of our member systems, with a general sense of what
5 additional power supply may be needed beyond five years.
6

7 **Q. Would you please describe the results of the 2014 load forecast?**

8
9 A. The 2014 Load Forecast was approved by the members' Board of Directors as well
10 as Basin Electric's Board of Directors in the Spring of 2014. This forecast showed that
11 Basin Electric's entire membership was anticipated to grow almost 1,900 MW from
12 2014 through 2035. The load forecast process and results are discussed in greater
13 detail in section 1.3 of the application.
14

15 **Q. Why and when did Basin Electric elect to construct Phase III of the Lonesome
16 Creek Station?**

17
18 A. Basin Electric is forecasted to be short of generation capacity within our eastern
19 system starting in 2016. In July 2014, the Basin Electric Board of Directors made the
20 decision that the need would be best supplied by developing additional peaking
21 generation at the Pioneer Generation Station and the Lonesome Creek Station. In
22 doing so, Basin Electric will receive the generation capacity it requires to reliably
23 serve its member load obligations.
24

25 **Q. As part of your duties as Director of Utility Planning, are you familiar with the
26 dispatch of generation?**

27
28 A. In general yes; however, I am responsible for long term power supply planning, which
29 is beyond the next 12 -18 months. Short term power supply planning activities, for the
30 next 12 months, are performed by Basin Electric's Marketing & Asset Management
31 Department.
32

33 **Q. What will the process be for dispatching of this unit and the timeframe on that
34 dispatch?**

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A. These units will be dispatched based on market conditions and local area reliability needs to support the Bakken area. The plant will be notified that the units are needed to operate and provided a time for when they need to be at a specified generation level. These units are capable of being online and generating electricity within about 10 - 15 minutes.

Q. How does the proposed Project affect the reliability of the electrical system in northwestern North Dakota and Eastern Montana?

A. This Project, as well as the Culbertson Generation Station and Pioneer Generation Station, will provide local generation in the event of transmission line outages or for local area support as necessary.

Q. Besides the proposed Project, what else is Basin Electric doing to meet electrical demand throughout Basin Electric's footprint?

A. Basin Electric is also developing phase 3 of the Pioneer Generation Station to be in-service in 2016. Basin Electric has also entered into several power purchase agreements for additional wind generation to be online in 2015 and 2016. These additional wind power purchase agreements will bring Basin Electric's wind generation portfolio to almost 1,400 MW when all completed. Basin Electric has also entered into a number of power purchase agreements to provide additional capacity and energy to meet our growing obligations as we continue to monitor the load growth on our system, as well as evaluate the need for additional generation within our service territory in the next three to seven years.

Q. Does the proposed Project ensure that the energy needs of the area will be fulfilled in an orderly and timely fashion?

A. Yes

Q. Will the proposed Project benefit the area through which Basin Electric is proposing to construct?

1

2 A. Yes. The proposed Project will provide a direct benefit for service into the area
3 allowing reliable service to area consumers as well as provide the needed capacity to
4 meet Basin Electric's entire membership obligations.

5

6 Q. **Are there any plans for expansion of the proposed Project?**

7

8 A. There are no plans for expansion of this particular Project.

9

10 Q. **Does this conclude your testimony?**

11

12 A. Yes.

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Case No. PU-14-852

**Pre-filed Testimony
of
Cris Miller**

1 Q. **Please state your name, address and occupation.**

2

3 A. My name is Cris Miller. My business address is 1717 East Interstate Avenue,
4 Bismarck, North Dakota. I am employed by Basin Electric Power Cooperative as a
5 Senior Environmental Project Administrator. I am responsible for the preparation of
6 environmental studies and permit applications for transmission and generation
7 projects Basin Electric is currently planning.

8

9 Q. **Please describe your educational background and professional experience.**

10

11 A. I earned a Bachelor of Science degree from the North Dakota State University, Fargo,
12 North Dakota in 1982 with a major in Civil Engineering. I have been employed with
13 Basin Electric since 1991. I am a Professional Engineer, Registered in the State of
14 North Dakota.

15

16 Q. **What are your responsibilities in connection with the proposed Lonesome
17 Creek Generation Station Phase III Project?**

18

19 A. I am responsible for the overall coordination of the environmental analysis of the
20 proposed Project. This involves working with an interdisciplinary consultant team,
21 contacting and meeting with public officials, coordinating activities with other Basin
22 Electric departments and reviewing and coordinating the various reports that have
23 been submitted to the North Dakota Public Service Commission and other interested
24 agencies.

25

26 Q. **What is the purpose of your testimony in this proceeding?**

27

28 A. I will describe the practices used to demonstrate that with respect to environmental
29 considerations. The proposed site is in accordance with the North Dakota Energy
30 Conversion Facility Siting Act and the North Dakota Public Service Commission Siting
31 rules.

32

33

34

1 Q. **Please provide a general description of the land use of the proposed site.**

2

3 A. The existing Lonesome Creek Station, which I will refer to as LCS in my testimony,
4 includes the three generating units and associated infrastructure that is surrounded by
5 a security fence and is approximately seven acres in size. The LCS Phase III Project
6 consists of three additional generating units within an additional five acre fenced
7 parcel and a 2.8 acre switchyard site as shown on Figure 3.3 of the Application. The
8 Commission approved the northern 48.4 acre parcel for use as an energy conversion
9 facility in 2012, identified as LCS Phase II (PU-12-790). With the additional area
10 required to support the switchyard, Basin Electric has identified the northern 66.7 acre
11 parcel for consideration here today for siting. This extension represents an additional
12 300 feet southward across the parcel from the previous southern boundary of the
13 Energy Conversion Site that is required to accommodate the switchyard area. The
14 entire 160 acre parcel that Basin Electric purchased is zoned industrial. The land use
15 around the site area is predominately agricultural and commercial. There are also
16 scattered oil and gas pads and commercial enterprises surrounding LCS. There are
17 commercial areas, workforce housing, asphalt batch plant, aggregate stockpile and oil
18 infrastructure located near the proposed Project.

19

20 Q. **Was there any Federal Nexus for the proposed Project that required compliance**
21 **with the National Environmental Policy Act?**

22

23 A. There were no federal nexuses for the proposed LCS Phase III Project.

24

25 Q. **Will the proposed Project impact any threatened or endangered species?**

26

27 A. There will be no effects to any federally listed species or candidate species.

28

29 Q. **In addition to the siting permit from the PSC, what other permits are necessary**
30 **for Basin Electric to obtain for the proposed Project? Please provide the status**
31 **of these permits.**

32

33 A. The proposed Project was required to obtain an Air Pollution Control Prevention of
34 Significant Deterioration Permit to Construct from the North Dakota Department of

1 Health. That Permit application was submitted in October of 2014. It is currently
2 under review and consideration from the North Dakota Department of Health. The
3 Alex Township approved the proposed Project at their February 19, 2015 Planning
4 and Zoning Meeting. A Conditional Use Permit application was submitted to McKenzie
5 County in March 2015 and is currently under review and consideration. Basin Electric
6 anticipates the proposed Project will be on the agenda at the April 13, 2015 meeting
7 of the McKenzie County Planning and Zoning Board. Basin Electric acquired a
8 National Discharge Pollutant Discharge Elimination System Permit from the North
9 Dakota Department of Health for the LCS site. The Permit will be revised to
10 incorporate the expansion of the storage stormwater volume necessary for the
11 additional contributing eight acres of surface area from the generation units and the
12 switchyard.
13

14 **Q. The North Dakota Public Service Commission Rules at North Dakota**
15 **Administrative Code, Chapter 69-06-01 discusses avoidance and exclusion**
16 **areas. Does the plant site contain any avoidance or exclusion areas?**
17

18 **A. No.**
19

20 **Q. Did Basin Electric incorporate public input in the site selection process of the**
21 **LCS Phase III Project?**
22

23 **A. Yes.** Basin Electric notified Federal and State Agencies through a Project mailing.
24 Responses were received from the U.S. Fish and Wildlife Service, North Dakota
25 Department of Health, National Resource Conservation Service, Department of
26 Defense and the U.S. Army Corps of Engineers, North Dakota Game and Fish
27 Department, North Dakota State Water Commission North Dakota State Historical
28 Society, North Dakota Department of Transportation and McKenzie County Board of
29 Commissioners.
30

31 **Q. Did any of these agencies express concerns about the proposed Project that**
32 **Basin Electric had not already addressed?**
33

1 A. No, all concerns about the proposed Project were addressed by Basin Electric. All the
2 agency responses are listed in Appendix G of the Application.

3

4 Q. **The following questions refer to the PSC Site Selection Criteria.**
5 **How does the proposed site demonstrate that significant adverse effects, if any,**
6 **upon agriculture will be kept to an acceptable minimum? Please address this**
7 **issue in terms of farmsteads, crop land, and interference with irrigation.**

8

9 A. There are no farmsteads on the 66.7 acre Energy Conversion Site nor within the
10 approximately 160 acre parcel of cropland that Basin Electric purchased.

11

12 > There is no irrigation within the 66.7 acre parcel.

13

14 > Farmsteads are scattered throughout the proposed Project Area. The
15 area to the northwest of the proposed Project holds multiple
16 commercial, industrial and oil-related support facilities including a man-
17 camp facility.

18

19 > Agriculture and oil development related infrastructure dominate the land
20 use in the proposed Project's vicinity. The existing seven acres of LCS
21 is currently a developed industrial facility. The addition of five additional
22 acres for the fenced LCS Phase III site and the 2.8 acre fenced
23 switchyard sites incorporates approximately 15 acres in total. The
24 remaining 145 acres of the area owned by Basin Electric will remain in
25 predominately agricultural use.

26

27 Q. **Is there any anticipated impact on the surface drainage patterns or ground**
28 **water flow patterns on the LCS plant site?**

29

30 A. Precipitation that falls within the plant and switchyard areas, as well as the air-cooling
31 reject water, will be directed to the water retention pond. These waters will be
32 released when they meet the criteria of the Plants Discharge Permit. The precipitation
33 that falls outside of the Plant site will follow the natural flow patterns that currently
34 exist. No impacts are anticipated to occur to either surface or groundwater flow
35 patterns.

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Q. Do you anticipate any significant adverse effect on noise sensitive land uses resulting from the location, construction, and maintenance of the proposed Project?

A. No significant adverse effect is anticipated; sensitive noise receptors within the area include farmsteads and commercial businesses located along U.S. Hwy. 85 and on lands located to the northwest of the proposed Project. There would be a short term increase in noise during construction of the proposed Project. The nearest residences are located approximately ¾ mile from the proposed Project.

Q. Were any studies done to assess the noise levels that can be expected from the operation of the proposed Project?

A. An Operational Noise Assessment Study was performed by Basin Electric's consultant Burns and McDonnell, included as Appendix C of the Application. The maximum noise level modeled at a commercial receptor due to the operation of the LCS with all six units operating was determined to be L_{dn} of 48.6 dBA. The highest noise level modeled at a rural residence was an L_{dn} of 44.6 dBA. Both of these maximums are below the EPA guideline of 55 dBA.

Q. Will the proposed Project have any visual impacts to the adjacent areas?

A. Visual resources surrounding the proposed Project site consist of broad expanses of cultivated fields, rangeland, and grasslands. The landscape has been altered due to recent commercial and industrial development including oil and gas exploration and production infrastructure. Because of the gently rolling terrain in the immediate vicinity, the proposed Project will be visible in the general area but the overall character of the landscape would not be significantly changed.

Q. Do you anticipate any significant impacts on areas of extractive or storage resources?

1 A. No. While there is significant oil and gas activity in the area, it would not conflict with
2 the proposed Project.

3

4 Q. **Are there any impacts on wetlands, woodlands or wood areas?**

5

6 A. There are no wetlands, woodlands, and wooded areas on the Project site.

7

8 Q. **Does the construction, operation and maintenance of the proposed Project
9 require Basin Electric to remove any trees or shrubs?**

10

11 A. No.

12

13 Q. **Will there be any impacts on radio and television reception, or other
14 communication or electronically controlled devices by the operation,
15 construction and maintenance of the proposed Project?**

16

17 A. No.

18

19 Q. **Do you expect any significant adverse effect on human and animal health and
20 safety or plant life?**

21

22 A. No significant adverse effects are anticipated for the Project. No additional
23 anhydrous ammonia storage is required for LCS Phase III beyond what is currently
24 provided for. Anhydrous ammonia is used as a reagent for the control of oxides of
25 nitrogen for the Project. Anhydrous ammonia is stored in two 10,000 pound capacity
26 storage tanks. The actual volume stored in each tank is equivalent to 1,700 gallons of
27 liquid. To understand and minimize the risk to human, animal and plant health and
28 safety, a Risk Management Plan specific to anhydrous ammonia was developed. To
29 aide in the perspective of the quantity of 10,000 pounds of anhydrous ammonia, I will
30 point out that the anhydrous ammonia tanks that are utilized in typical farming
31 operations have trailers with 1,000 to 1,450 gallon tanks installed. The Federal
32 Department of Transportation has a specific limit of 3,000 gallons per individual trailer
33 that can be utilized on a public roadway. The North Dakota Department of Agriculture
34 regulates Anhydrous Ammonia Facilities and the Department's threshold for

1 regulation for bulk storage tanks of anhydrous ammonia are tanks in excess of 6,000
2 gallons. Therefore, LCS is not a regulated bulk storage facility. Mr. Rossow, the
3 Project Manager, previously testified as to the efforts undertaken to coordinate
4 operational activities of LCS with the Local Emergency Planning Committee.
5

6 Q. **Will it be possible to locate the site so as not to violate any local or county**
7 **zoning ordinance?**

8
9 A. Yes. Basin Electric secured zoning approvals for LCS and associated facilities from
10 the Alexander Township in 2012. At that time, McKenzie County did not have
11 Planning and Zoning Regulations in place. A Conditional Use Permit for LCS Phase II
12 was received from the McKenzie County Planning and Zoning Board and McKenzie
13 County Commission January, 2014. As for LCS Phase III Project, the Alex Township
14 Planning and Zoning board approved the LCS Phase III Project in February 2015. A
15 Conditional Use Permit was submitted to McKenzie County for the LCS Phase III
16 Project and is currently under review and consideration.
17

18 Q. **Does the proposed Project encroach on any designated or registered state wild,**
19 **scenic, or recreational rivers, game refuges, game management areas, forests,**
20 **forest management lands, or grasslands?**

21
22 A. No.
23

24 Q. **Does the proposed Project encroach on any areas of historical, archaeological**
25 **or paleontological significance not designated as exclusion or avoidance**
26 **areas?**

27
28 A. The proposed Project is within an area that a previous Class III cultural resource
29 survey was performed. No prehistoric and historic sites were identified during the
30 Class III surveys. It is unlikely paleontological resources would be affected by the
31 proposed Project, since there is little or no bedrock exposed on the plant site. No
32 paleontological resources have been identified within the proposed Project
33 boundaries.
34

1 Q. **Are there any geologically unstable areas within the Project Site?**

2

3 A. No.

4

5 Q. **Does this conclude your testimony?**

6

7 A. Yes.

8

9