



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

21 **PU-14-852** Filed: 3/26/2015 Pages: 13
Exhibit 1

Basin Electric Power Cooperative

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?**

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.