

August 24, 2015

The following table shows the Staff Data Request 1 items for EL15-020 along with Wind Quarry Operations, LLC’s responses. These data requests were from the South Dakota Public Utilities Commission (PUC) as submitted to Wind Quarry on July 24, 2015.

SDPUC COMMENT	RESPONSE
<p>1- Section 6 of the Application identifies that the Dakota’s load growth is projected to be 2100 MWs over the next ten years. Please explain where that projection was derived from and how the capacity of Willow Creek Wind Farm will help meet this load growth if built. (ARSD 20:10:22:10).</p>	<p>1. Dave Raatz, Vice President of Cooperative Planning, Basin Electric Article Title: <i>Building in the Bakken</i> - Dakota Gasification Company - April 4, 2014 http://www.dakotagas.com/News_Center/Publications/Feature_Articles/building-in-the-bakken.html</p> <p>2. Basin Electric Board of Directors load Forecast April 2014 <i>Basin Today</i> May - June 2014 Article Title: <i>Come What May</i> by Chris Gessele http://www.dakotagas.com/Miscellaneous/pdf/Basin_Today/2014-0506-Come-what-may.pdf</p> <p>The Willow Creek Wind Energy Facility (Project) is located in Butte County, SD and the power generated will potentially provide a portion of the projected load growth in the Dakotas.</p>
<p>2- Will the capacity, energy, and renewable energy credits associated with the wind farm remain in the State of South Dakota, or will they be exported from the state? (ARSD 20:10:22:10)</p>	<p>The capacity and energy from the wind farm may remain in South Dakota or be exported depending on the location of the entity that purchases the power through a long term Power Purchase Agreement (PPA). The Renewable Energy Credits are legally owned by the generator. Although there are rare instances where the credits are separated from the power purchase, it is most likely that credits will go to the off-taker. Therefore, the renewable energy credits may or may not remain in South Dakota depending on location of the power purchaser.</p>
<p>3- Will the energy from the wind farm be bid into the SPP market or is there a long term buyer for the energy? (ARSD 20:10:22:10)</p>	<p>There is no long-term off-taker identified yet. Wind quarry, LLC is working to secure a PPA at the present time, which may or may not be within the SPP footprint.</p>
<p>4- Please explain what customers will be directly served by the proposed wind farm. (ARSD</p>	<p>The customers served by the Project will be those who obtain power from the utility, cooperative, entity, etc. that signs a PPA for the Project.</p>

20:10:22:10)	
5- Per ARSD 20:10:22:10, please provide a statement on the consequences of delay or termination of the construction of the facility.	<p>A delay in the construction of the facility will have several adverse effects. First and foremost, it will delay the addition of clean renewable energy onto the electrical grid. Secondly, a delay could jeopardize securing tax credits under the Production Tax Credit (PTC) program if the US Congress renews said program under the Tax Extenders Package in 2015, making it more difficult to secure a PPA. Finally, a delay would result in additional development and construction costs, increased pre-construction landowner payments, and lost revenues.</p> <p>Termination of the construction of the facility would result in a loss of additional renewable energy to meet the projected load growth in the region, and would also result in a complete financial loss of the investment in the development process to date.</p>
6- In Section 26.3 of the Application, it is identified that potential sites in Wyoming were also examined. Please provide an evaluation of these alternative sites and explain why the proposed site was chosen over the alternative sites in Wyoming. Further, please identify the advantages of the proposed site over the alternatives considered. (ARSD 20:10:22:12).	<p>Wind Quarry, LLC did extensive reconnaissance throughout Southeastern Wyoming during 2008 and 2009. The Company secured a wind right-of-way on 2.5 sections (1600 acres) of Public Lands managed by the Bureau of Land Management (BLM) approximately 7 miles northeast of the city of Laramie. Problems with that location included a lack of public access, proximity to the city of Laramie, and difficult terrain.</p> <p>The proposed location for the Willow Creek Wind Energy Facility has many advantages over the Wyoming site. First, US Highway 212, which is located at the site, provides excellent access for construction, operations, and monitoring without the need to construct new paved roads. Second, there is a Western Area Power Administration (Western) 115 kV transmission line on-site to interconnect the facility to the grid without building a new transmission line. Only minor upgrades to the existing system at nearby substations will be required. Third, the site is 26 miles from Bear Butte, and will be almost imperceptible to Native Americans attending or performing ceremonies at that sacred site. Fourth, there are no large population centers in the vicinity.</p>
7- Per ARSD 20:10:22:15(2), please identify on Figure 10 any current planned water uses by communities, agriculture, recreation, fish, and wildlife which may be affected by the location of the proposed facility and a summary of those effects.	<p>The only planned water use for this project is domestic water use in the O&M facility. The source of this water is anticipated to be from an existing well. Therefore, no impacts are anticipated to any other users.</p>

<p>If no effects are expected to these planned water uses, please identify such.</p>	
<p>8- Per ARSD 20:10:22:15(4), if an aquifer will be used to supply potable water to the O&M facility, please provide specifications of the aquifer(s) to be used and definition of its characteristics that include the capacity of the aquifer to yield water, the estimated recharge rate, and the quality of ground water.</p>	<p>Wind Quarry expects to purchase an abandoned building with connections to an existing water well, refurbish the building, and use it as the O&M office. The well is likely fed by the Deadwood Formation, Fox Hills Sandstone, and Winnipeg Formation Aquifers, depending on depth. The quality of this water is commonly fresh. Wind Quarry will work with SD Department of Environment and Natural Resources (DENR) to obtain the necessary water right permit. Additional information concerning this well will be supplemented as it becomes available.</p>
<p>9- If an on-site well will be used to supply potable water to the O&M facility, please identify whether or not a water appropriations permit would be needed from the SD DENR for the well.</p>	<p>Wind Quarry expects to purchase an abandoned building with connections to a water well. Wind Quarry has consulted SD DENR and is advised that it will need a water right permit for the maintenance building. Alternatively, transfer of an existing water right permit may be possible.</p>
<p>10- 1-10)Per ARSD 20:10:22:16, please provide an analysis on the impact of construction and operation of the proposed facility that discusses breeding times.</p>	<p>Wildlife breeding activity, both during construction and operation of wind power facilities, can be affected through displacement in time, displacement in place, or through impacts that cause organisms to forgo breeding activities at all. Much of the level of impact of both construction and operation is related to both the temporal and spatial scales at which the disturbance occurs and such impact can be broadly construed as either direct or indirect. Direct impacts are immediate and include habitat disturbance (and loss), wildlife disturbance, and direct injury or mortality experienced by wildlife. Indirect impacts may result from factors associated with construction activities and/or facility operation but whose impact may be transferred through other players in the ecological community. For example, species may be affected through avoidance of construction activities and/or facilities due to noise, fugitive dust contamination, exposure to contaminants, introduction of invasive species, erosion, sedimentation, or other biotic or</p>

	<p>abiotic pathways (WAPA 2015).</p> <p>General and specific aspects of project construction and operation in relation to breeding time of wildlife are covered in PEIS (WAPA 2015). For this project, breeding activities of grassland birds may be negatively affected during construction but these effects would likely be temporary. Breeding activity by larger birds such as Ferruginous Hawks (BLM Sensitive Species) can be strongly impaired by human activities, resulting in territory abandonment. Set back distances of at least 1.6 km from active Ferruginous Hawk nests may reduce potential of abandonment as well as an application of a seasonal buffer extending from 15 Mar-1 Aug within occupied territories (USFWS 2008). This species is likely the most sensitive to human disturbance of any species inhabiting the project area.</p> <p>Certain species may avoid turbines during operation and would be spatially displaced if not temporally so. In the Project Area, small grassland birds such as Grasshopper Sparrows and Chestnut-collared Longspurs have been recently shown to be displaced from turbines at distances to 300m two to five years following construction, but repopulate the area thereafter (Shaffer and Buhl 2015). Both temporal and spatial avoidance behaviors will be taken into account during construction and siting of turbines to minimize impacts to wildlife where possible.</p> <p>Shaffer, J. A. and Buhl, D. A. (2015), Effects of wind-energy facilities on breeding grassland bird distributions. Conservation Biology. doi: 10.1111/cobi.12569 USFWS. 2008. Guidelines for raptor conservation in the western United States. U.S. Fish and Wildlife Service, Region 9. Division of Migratory Bird Management, Washington DC. 140 pp. + appendices.</p>
<p>11- Per ARSD 20:10:22:17, please include a discussion on the aquatic fauna and flora that could be potentially affected by the project.</p>	<p>Permanently inundated wetlands are rare in the project and generally of anthropogenic origin exemplified by stockponds. Representative shorelines are often barren of vegetation and pock-marked by cattle. That said, however, some areas of emergent vegetation are present in certain areas. For example, common spikerush (<i>Eleocharis palustris</i>) communities emarginate seasonally inundated areas of some ponds and the broken reaches of South Fork Double R Creek. Some ponds host emergent hardstem bulrush (<i>Schoenoplectus acutus</i>) and broadleaf cattail (<i>Typha latifolia</i>) communities but these are rare within the Project Area and are associated with water permanence. Ephemeral wetlands occur within the Project Area, often in association with the margins of more permanent water bodies, and are characterized by foxtail barley (<i>Hordeum jubatum</i>) and curly dock (<i>Rumex crispus</i>). Faunal assemblages associated with these hydric communities show low diversity and abundance. Aerial insectivores such as Common Nighthawks and Barn Swallows forage largely upon dipterans (i.e., <i>Tabanidae</i>, <i>Culicidae</i>, and <i>Ceratopogonidae</i>) above, whereas dabbling ducks including Mallards and Northern Pintails forage within</p>

	<p>the aquatic habitats, breeding in the uplands. Migratory shorebirds (<i>Scolopacidae</i>) use the exposed muddy banks and shallow waters during southward migration but abundance is not high. Shorebirds such as American Avocets, Killdeer, and Wilson's Phalaropes breed locally. Reptile and amphibian diversity is low in the Project Area, with Boreal Chorus Frogs, Great Plains Toads, Plains Spadefoots, and Blotched Tiger Salamanders inhabiting mesic habitats. Northern Leopard Frogs have been documented adjacent to the Project Area (North Fork Double R Creek). Invertebrates, such as various odonates (<i>Libellulidae</i> and <i>Aeshnidae</i>), calico crayfish, and dipterans breed in these wetlands.</p>
<p>12- Referring to section 15.4.2 of the Application, are there any expected long-term impacts to hunting in Walk in Areas? Can hunters still use the walk in areas beneath operating wind turbines?</p>	<p>South Dakota's Walk In Areas allow public hunting on private lands. Lands enrolled in the program do not require permission for private individuals to hunt on the land, and landowners receive lease payments from South Dakota Game Fish and Parks as compensation. Our Engineering contractor, DNV-GL, has experience with other projects in South Dakota where walk in hunting designation has not been impacted by construction of a wind project.</p> <p>The Lease and Easement Agreement used for the Project has no restrictions on Lessor's hunting or fishing activities. Wind Quarry will coordinate with SD GFP on access issues.</p>
<p>13- Per ARSD 20:10:22:18(1), please provide a land use map of the wind energy site, drawn to scale, that uses the classification system as set forth in the rule. If any of the land use classifications do not exist within the project area, please identify such.</p>	<p>Please see attached land use map (Figure A), which identifies the following land use classifications that exist within the Project Area: land used primarily for row and non-row crops in rotation; pasturelands and rangelands; haylands; undisturbed native grasslands; rural residences and farmsteads, family farms, and ranches; and noise sensitive land uses. The following land use classifications were not identified within the Project Area: irrigated lands; existing and potential extractive nonrenewable resources; other major industries; residential; public, commercial, and institutional use; or municipal water supply and water sources for organized rural water systems.</p>
<p>14- Per ARSD 20:10:22:18(3), please provide an analysis of the compatibility of the proposed facility with present land use of the surrounding area, with special attention paid to the effects on rural life and the</p>	<p>Land use within the Project Area is agricultural (predominantly rangeland). The effects on agriculture (i.e., rural life and farming) are described in Section 20.2.3 of the Willow Creek Wind Energy Facility Application and copied here for reference:</p> <p>Minimal existing agricultural land would be taken out of crop and forage production by the proposed Project, primarily the area around wind turbine foundations, access roads, and electric collection and interconnection facilities. Landowners would be compensated by the Applicant for losses to crop production during construction. Agricultural activities can occur up to the edge of access roads and turbine</p>

<p>business of farming.</p>	<p>pads. The buried underground collection system would not alter agricultural activities.</p> <p>Approximately 331 acres of agricultural land (including rangeland and cropland) would be temporarily impacted by Project construction. It is estimated that approximately 109 acres of agricultural land would be permanently impacted, which constitutes less than 1 percent of the total land within the Project Area. Areas disturbed due to construction that will not host permanent Project facilities would be re-vegetated with vegetation types matching the surrounding agricultural landscape.</p>
<p>15- Per ARSD 20:10:22:18(4), please provide a general analysis of the effects of the proposed facility and associated facilities on land uses and the planned measures to ameliorate adverse impacts.</p>	<p>Land use effects, including displacement, recreational impacts, noise, aesthetics, and electromagnetic interference, are described in Section 15.4 of the Willow Creek Wind Energy Facility Application. Western Area Power Administration (Western) is currently preparing an Environmental Assessment (EA) for the Project that will tier off of the analysis conducted in the <i>Upper Great Plains Wind Energy Programmatic Environmental Impact Statement</i> (PEIS), prepared jointly by Western and the U.S. Fish and Wildlife Service. Wind Quarry will implement the appropriate Best Management Practices (BMPs) and mitigation measures identified in Section 5.1.2 of the PEIS to avoid or minimize potential Project-related impacts on land use.</p>
<p>16- Is there a back-up power system planned for the Wind Farm's control systems. If so, will the back-up power system be a generator or batteries?</p>	<p>The back-up power supply for the Willow Creek will be a battery bank capable of providing power to operate communications, relaying, and control systems for an extended period of time, typically up to a week.</p>
<p>17- If the back-up power system is a generator, please explain any air quality impacts expected from operation of the generator, identify if it falls under any regulations, and identify if any permits would be required to operate the generator.</p>	<p>N/A</p>
<p>18- Per ARSD 20:10:22:23(2), please provide a forecast of the immediate and long-range impact of property and other taxes of the affected taxing</p>	<p>For all new wind generation facilities in South Dakota there is a production tax that goes directly to the local area. 50% goes to the School District, 35% to the County, and 15% to the Townships. The tax is \$.000475 per KWH.</p> <p>Assuming a capacity factor of 45% on a 103 MW plant, then:</p>

jurisdictions. The forecast should include the estimated dollar amount of property and other taxes to paid during the life of the project.

365 Days X 24 Hours X 103,000 KW X \$0.000475 X 45% = \$192,862 per year, for a total of \$4,821,559 over 25 years.

Estimated Taxes Paid		
Rate	Annual	Cumulative (25 Years)
\$ 0.000475	\$ 192,862	\$ 4,821,559
Distribution		
Entity	Annual	Cumulative
School District	\$ 96,431	\$ 2,410,779
County	\$ 67,502	\$ 1,687,546
Townships	\$ 28,929	\$ 723,234

South Dakota also has a 4% sales tax (rebate variable by need), a nameplate tax (by turbine capacity rating), and a contractor excise tax, all of which goes directly to the state.

19- Per ARSD 20:10:22:23(6), please provide the applicants plans to coordinate with local and state office of disaster services in the event of accidental release of contaminants from the proposed facility.

Wind Quarry has already consulted SD DENR concerning its planned use of oil and other chemicals such as equipment lubricants, truck maintenance fluids, and cleaners. Wind Quarry will consult with SD DENR concerning the proper storage and disposal of all potentially hazardous materials and will notify SD DENR and Butte County Emergency Management in the event of an accidental release.

20- Per ARSD 20:10:22:24, please provide plans of the applicant for utilization and training of the available labor force in South Dakota by categories of special skills required.

It is anticipated that construction of the facility will be completed under an Engineering, Procurement, and Construction (EPC) contract awarded through a Request for Proposal (RFP) process. Therefore, the EPC contractor will hire the subcontractors and personnel to engineer and construct the facility. It is likely that a significant percentage of subcontracting, such as excavation, concrete, cranes, etc., will be done locally with South Dakota based personnel.

For operations and maintenance, it is anticipated that the facility will advertise locally for qualified wind

	facility personnel.
21- Please provide a forecast of decommissioning costs for the project.	The net decommissioning value is determined from the difference of 1) the sum of the disassembly and removal cost and 2) the sum of the salvage value and resale. The net decommissioning cost is estimated to be approximately \$15,000 to \$35,000 per turbine, assuming a salvage value of the material and a partial resale of the major components.
22- Per ARSD 20:10:22:33.02(7), please provide the proposed wind energy site and major alternatives as depicted on overhead photographs and land use culture maps.	See #13 above Response: Please see attached overhead photograph map (Figure B) and land use culture map (Figure A).
23- When does Wind Quarry, LLC expect the Environmental Assessment to be completed?	No later than 12/31/2015
24- Please provide any official correspondences with South Dakota State Historical Society, South Dakota Department of Environment and Natural Resources, South Dakota Game Fish and Parks, South Dakota Department of Transportation (roads and aviation), Tribal Historic Preservation Offices, Federal Aviation Administration, and U.S. Fish and Wildlife Service.	<ol style="list-style-type: none"> 1. South Dakota State Historical Society <ol style="list-style-type: none"> a. The Cultural Resource contractor, Quality Services, Inc. of Rapid City, has been in contact with the SD State Historic Preservation Office (SHPO) concerning the Project development since 2011. All site evaluations are being done in conjunction with the SHPO, working with the Review & Compliance Coordinator, Paige Olson. 2. Tribal Historic Preservation Office <ol style="list-style-type: none"> a. Wind Quarry personnel presented a Project overview to fourteen Native American Tribal Leaders during the BLM Intertribal Workshop at the Wapka Sica Reconciliation Place in Ft. Pierre, SD on March 27, 2012. Participant list attached. b. Western is the Lead Federal Agency for the Environmental Impact Statement (EIS). Western is conducting all Nation to Nation consultations with involved Tribal Leaders, including compliance with Section 106 of the National Historic Preservation Act of 1966. c. Quality Services has utilized a Tribal Liaison throughout the fieldwork for the Cultural Resources Inventory, and included two tribal monitors in the site survey. Additional tribal representatives may be visiting the site to evaluate potential Native American artifacts discovered during the survey. 3. DENR <ol style="list-style-type: none"> a. Wind Quarry LLC's legal counsel, Jason Smiley of Gunderson, Palmer, Nelson, and Ashmore, LLP of Rapid City, has consulted with Kent R. Woodmancy, P.E. of the DENR One Stop Permitting office about the proposed Project. Mr. Smiley will continue to consult

	<p>with the DENR as the Project moves forward. A summary letter of the DENR's recommendations is attached.</p> <ol style="list-style-type: none"> 4. Federal Aviation Administration <ol style="list-style-type: none"> a. The FAA has completed an aeronautical study, 2015-WTE-3936-OE, under the provisions of 49 U.S.C., Section 44718 of the Code of Federal Regulations, Part 77 for each of the 45 proposed turbines. A Determination of No Hazard to Air Navigation was determined for all turbine locations. A copy of a determination letter is attached. 5. Department of Defense <ol style="list-style-type: none"> a. The DoD Siting Clearinghouse has reviewed the Project for hazards to military operations. Rhiannon Scanlon, Contracts Support, confirmed in an email dated August 14, 2015 that the Clearinghouse gave a Non Objection to all 45 turbines. A copy of the email is attached. 6. Department of Transportation <ol style="list-style-type: none"> a. Wind Quarry has communicated by phone and email with Jason E. Engbrecht, of the South Dakota Office of Aeronautics. Mr. Engbrecht advised us to complete the FAA determination of hazard and submit the results to the DOT for evaluation. This will be completed in August 2015. 7. US Fish and Wildlife Service <ol style="list-style-type: none"> a. Wind Quarry has been working with USFWS since the inception of the Project in an effort to minimize potential impacts to wildlife. Wind Quarry personnel contacted Natalie Gates of the USFWS in 2010 prior to selection of the current Project Site. All wildlife evaluations have been done according to <i>Land-Based Wind Energy Guidelines</i> (USFWS 2012) and <i>Eagle Conservation Plan Guidance Module 1 – Land-based Wind Energy Version 2</i> (USFWS 2013). Multiple phone calls and email correspondences have been held over the last three years between Natalie Gates and Eric Atkinson, the wildlife biologist who conducted the wildlife surveys, to coordinate data collection and analysis. An interim report was completed on February 9, 2014 and submitted to USFWS and SDGFP. <p>On July 9, 2015 a Project site tour was held with Ms. Gates, Trenton Haffley of South Dakota Game, Fish and Parks, the Project Manager and Biologist from Western, Eric Atkinson, and several consultants involved with the Project. Western is reviewing input from USFWS for the EIS. Recommendations from USFWS will be incorporated into the development, construction, and operation of the Project in order to mitigate potential impact to wildlife.</p> 8. SD Game Fish and Parks
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	<p>a. Wind Quarry has coordinated wildlife surveys and reviews with Silka Kempema, Wildlife Biologist, SD GFP. Ms. Kempema participated in multiple conference calls since 2012 with Natalie Gates, Eric Atkinson, and Wind Quarry in an effort to optimize coordination of the wildlife inventories with all involved agencies. Wind Quarry also invited SD GFP personnel to participate in aerial raptor nest surveys in 2013 and 2014 with Eric Atkinson.</p>
<p>25- In Section 1.0 of the Application it is identified that the collector system will be buried at a depth of 6 feet, however in Section 8.10.1.1 of the Application it is identified the collector system will be buried at a minimum depth of 4 feet. Please resolve this discrepancy.</p>	<p>The collector system will be buried to a minimum depth of four feet. The depth may depend on drainage tiling, if applicable, and could be up to six feet in certain areas.</p>
<p>26- In Section 23.0 of the Application it is identified that wind turbine foundations will be removed to not less than 2 feet below grade. Please explain how this will not cause interference with normal farming practices after decommissioning.</p>	<p>Following decommissioning it is anticipated that the land will return to rangeland/grasslands. In this case, the removal of foundations to a minimum depth of two feet is believed to be sufficient to avoid interference with land use activities.</p>