Exhibit No.:	
Issue(s):	CCN for Outlaw Wind Project
Witness:	Ajay K. Arora
Type of Exhibit:	Direct Testimony
Sponsoring Party:	Union Electric Company
File No.:	EA-2019-0181
Date Testimony Prepared:	May 15, 2019

MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. EA-2019-0181

DIRECT TESTIMONY

OF

AJAY K. ARORA

ON

BEHALF OF

UNION ELECTRIC COMPANY

d/b/a AMEREN MISSOURI

*****DENOTES HIGHLY CONFIDENTIAL INFORMATION*****

****DENOTES CONFIDENTIAL INFORMATION****

St. Louis, Missouri
May, 2019

P

TABLE OF CONTENTS

DIRECT TESTIMONY

OF

AJAY K. ARORA

FILE NO. EA-2019-0181

I. INTRODUCTION

Q. Please state your name and business address.

A. Ajay K. Arora, Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri" or "Company"), One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri 63103.

Q. What is your position with Ameren Missouri?

A. I am the Vice President of Power Operations and Energy Management.

Q. Please describe your educational background and employment experience.

A. I received my Bachelor of Science Degree in Chemical Engineering from Panjab University (India) in May 1992. I received my Master of Business Administration degree from Tulane University in May 1998. I joined former Ameren Corporation subsidiary, Ameren Energy, in June 1998 and held trading and structuring positions in Ameren Energy before supervising the group that priced structured energy products for former Ameren Corporation subsidiary Ameren Energy Marketing Company's wholesale and retail customers from 2002 to 2004. From 2004 to 2007, I was responsible for the analytical group supporting Ameren Missouri's transition into the Midwest Independent Transmission System Operator, Inc. ("MISO"), including reviewing specific market design

issues in MISO.[1] In 2007, I led the Ameren Missouri Regional Transmission Organization cost-benefit study that was filed with the Missouri Public Service Commission ("Commission") in File No. EO-2008-0134, and I assumed responsibility for the Quantitative Analysis, Integrated Resource Planning, Load Analysis, and Operations Analysis groups. In January 2008, as part of my role as Director of Corporate Planning, I assumed the additional responsibility for the Asset and Trading Optimization group supporting Ameren Missouri. In November 2011, I assumed additional responsibilities for the corporate Project Management Oversight and Market Risk Management groups. These groups oversee large utility capital projects and commodity risk management. In November 2014, I assumed responsibility for the Environmental Services Department as Vice President of Environmental Services and Generation Resource Planning. The Environmental Services Department develops environmental policy and provides environmental compliance support, which includes the areas of energy delivery, generation, and transmission. In March 2018, I assumed leadership responsibility for Ameren Missouri's entire non-nuclear generation operations and energy management function in my current role as Vice President of Power Operations and Energy Management.

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

A. The purpose of my direct testimony is to support the Company's Application for a Certificate of Convenience and Necessity ("CCN") for a wind generation project that is necessary to comply with the renewable energy portfolio requirements contained in the

[1] MISO is now known as the Midcontinent Independent System Operator, Inc.

Missouri Renewable Energy Standard ("RES").[2] My direct testimony addresses the details of one of the projects being undertaken by the Company to meet those requirements. Ameren Missouri witness Matt Michels is filing direct testimony outlining the applicable RES requirements, Ameren Missouri's need for at least 700 megawatts ("MW") to 800 MW of Company-owned wind generation to meet those requirements, and the economics and customer benefits supporting the Outlaw Wind Project (the "Project") that is the subject of this case as the means to meet those RES requirements. My testimony describes the request for proposal ("RFP") process that was utilized to obtain the needed resources. I also outline the need for an overall portfolio of wind generation projects required for compliance with the RES, which includes the Project, and address how the Project is an essential part of that portfolio. Last, I discuss the specifics of the Project, the contractual agreement structure used to acquire the Project, and the Ameren Missouri customer protections and value inherent in the Project structure.

Q. Please summarize the key conclusions in your testimony.

A. 1. The Project is the third (and last) in a series of wind generation projects required to meet the increase in RES portfolio requirements that occurs in 2021 and is an essential part of the Company's overall RES compliance strategy.

2. The Project is a cost-effective means of meeting a part of the RES requirements and provides long-term benefits to Ameren Missouri customers.

[2] As addressed further below and in the Company's Application in this case, the Company is also seeking certain other approvals, including merger approval, due to the commercial structure of the project.

3. The build transfer agreement ("BTA") structure allows Ameren Missouri to leverage the developer's expertise with wind generation construction and acquire a late-stage wind project in Missouri and is the same structure the Commission recently approved for Ameren Missouri's other two RES compliance projects, the High Prairie and Brickyard Hills wind facilities (File Nos. EA-2018-0202 and EA-2019-0021).
4. The BTA arrangement is the best structure for capturing the entire value of the approximately $300 million in Production Tax Credits ("PTCs")[3] the Project will generate and to provide all the cost savings to Ameren Missouri customers.
5. The BTA ensures that the significant benefits of wind generation are obtained for Ameren Missouri customers while including customer protections to address the risks inherent in wind construction.
6. If approved, the Project will provide substantial economic development benefits to the State of Missouri.

II. PROJECT OVERVIEW

Q. Please provide an overview of the Project.

A. The Project is an approximately 299 MW[4] wind generation facility to be constructed in northwest Missouri, with all of the turbines to be constructed in Atchison County. Certain generation tie ("gen-tie") facilities that are part of the wind generation

[3] As addressed below, there are scenarios where the Project has a capacity of less than approximately 299 MW in which case the PTCs would be less, as would the Project cost.
[4] As discussed later in my testimony, the Project could have a capacity of between *****__***** MW and 299 MW.

P

facility are expected to be located in Holt County.[5] The Project was developed by Tradewind Energy, Inc. ("Tradewind") through a special purpose entity now known as Enel Kansas, LLC ("Enel"). Tradewind is a well-established renewable generation developer with nearly 5.6 gigawatts of U.S. wind and solar projects under operation, construction or under contract, across 39 projects. These projects represent $8.6 billion of capital investments. Tradewind was acquired by Enel Green Power North America, Inc. in March 2019.[6] Enel Green Power North America, Inc. is also a well-established renewable generation developer. Both the Tradewind and Enel leadership teams have extensive experience developing renewable projects across the United States. I should also note that Enel has reached agreement with **_____** ("**_____**") under which **_____** will acquire the Project (by acquiring 100% of the membership interests in Enel Kansas, LLC, i.e., in the Project company that owns the Project assets) prior to the commencement of construction, which is expected to start in October of this year. Like Tradewind and Enel, **_____** is a well-established and experienced renewable project developer that, together with its affiliates, has developed more than **_____ ** MW of projects that are in operation, construction, or contracted, including wind, solar, natural gas-fueled power generation and energy storage projects. Each member of **_____** executive leadership team also has twenty (20) or more years of experience in energy generation. In addition, **_____**

[5] As I address in more detail below, under certain transmission interconnection options, the gen-tie line would be located in Atchison County.
[6] Unless otherwise specified, references to "Enel" refer collectively to Enel Kansas, LLC, and its parent, Enel Green Power North America, Inc.

has broad experience completing similar projects under the build transfer structure similar to this agreement with other utilities.[7]

Q. Was this Project selected in the same manner as the other two RES compliance projects for which Ameren Missouri has sought Commission approval over the past several months?

A. Yes. As addressed further below, the Project was selected by Ameren Missouri as an essential part of its RES compliance strategy after an extensive RFP process. The energy from the Project is expected to be sold into the energy markets in Missouri that are operated by the Southwest Power Pool ("SPP") via the Project's connection to a Transource Missouri, Inc. 345kV transmission line which is under SPP's functional control. As also discussed further below, while not expected, it is possible that a different connection to the transmission system under the functional control of the MISO could be used. Regardless of the means of interconnection to the transmission system, the energy produced by the Project will be sold into the relevant regional transmission organization energy market and the revenues derived therefrom will reduce net base energy costs reflected in base rates and actual net energy costs tracked in the Company's fuel adjustment clause. In addition, the renewable energy credits ("RECS") generated by the Project will be available for retirement to meet the Company's RES requirements. I would also note that since the Project is located in Missouri, the Company and its customers will benefit from the 1.25 multiplier applied to Missouri wind for purposes of determining the number of RECs obtained by the Company for RES compliance purposes.

[7] Assuming **_____** completes the acquisition, **_____** will then become obligated to perform all of the obligations Enel owes Ameren Missouri under the BTA.

P

Q. Why is Ameren Missouri seeking a CCN for the Project if Enel is constructing it?

A. Enel will be completing all Project development activities, including final design and engineering, obtaining permits, completing transmission studies, signing turbine supply, balance of plant and engineering and procurement agreements. Enel (or more likely, ****_____**** once it acquires the Project) will construct the project once Ameren Missouri provides notice to proceed with construction. While it is true that the developer will construct the Project and that it will then be immediately acquired by Ameren Missouri upon completion, functionally, the Project is in many respects no different than if Ameren Missouri had itself purchased the equipment from the vendors, purchased or leased the land and easements needed to construct, own, and operate the Project, and signed the contracts with the construction firms. Consequently, while I am not an attorney, it is my understanding that it is the Company's view that the spirit of the CCN statute's requirement that an electrical corporation obtain a CCN prior to construction could apply. It is also my understanding that under the Commission's recently amended CCN rules, a CCN is required before Ameren Missouri could operate the Project once Ameren Missouri acquires the Project company, even if it is the case that Ameren Missouri is not constructing the Project. Consequently, the revised CCN rules seem to imply that a CCN should be sought and obtained for the Project.

P

Q. Is there a name for a project of this type?

A. Yes. The Project is being constructed under a build transfer agreement ("BTA"). Under a BTA, a wind developer builds the project, but the ultimate owner has contractual rights both before and during construction to ensure that the project is built to the ultimate owner's specifications and will otherwise meet the ultimate owner's needs. Some might call this a "turnkey" project in that the developer will build it to the ultimate owner's requirements at a contractually agreed upon cost and completion schedule, assume many of the risks during construction, and then hand the keys to the ultimate owner with the project in fully-completed and operable condition.

III. PROJECT STRUCTURE

Q. Are there important advantages of the Company using the BTA structure for the Project for RES compliance?

A. Yes. The BTA approach currently carries with it certain important advantages for RES compliance for Ameren Missouri customers.

Q. What are some of those advantages?

A. The first advantage is that Ameren Missouri will be able to utilize the full value of the federal PTCs and pass the significant cost savings those PTCs will produce on to its customers. Ameren Missouri will be able to capture and pass those PTC benefits through to customers due to the stage in project development Enel has achieved at this time, which is expected to enable the Project to be completed by 2020 so long as the construction schedule can timely be maintained.

Q. Please elaborate.

A. In the current wind development environment in this country, a key part of the value of any wind generation project is its ability to take full advantage of the PTCs. As the name implies, PTCs are credits against the owner's tax liability arising from production of energy from the wind facility. In the case of Ameren Missouri, lower tax liability will manifest itself as lower costs for the Project (and for RES compliance). Those lower costs will then be passed through to Ameren Missouri's customers under the RESRAM[8] that is discussed in the direct testimony of Ameren Missouri witness Steven Wills in File No. EA-2018-0202, and which was approved by the Commission in that case.

To obtain the full value of the PTCs, a project must meet several important and time-critical milestones that a self-built project starting today would be unable to achieve. First, the project must have incurred, by the end of 2016, at least 5% of qualifying project costs to satisfy the PTC "safe harbor" rule. One way to meet this requirement is for the wind project developer to purchase PTC-qualified "safe harbor" equipment before the end of 2016 and to obtain title to and delivery of the equipment within a specified time period. As confirmed by Ameren Missouri's external legal due diligence, Enel successfully safe harbored equipment in 2016 and thus has met the 5% requirement for the Project.

Second, to fully qualify for the PTCs, the Project must be constructed, tested, and commissioned by the end of 2020.[9] To achieve Project completion in 2020, the land rights needed for the Project must be acquired and transmission agreements must be executed.

[8] Renewable Energy Standard Rate Adjustment Mechanism.

[9] As discussed elsewhere in my testimony, the BTA contains provisions that place the risk and financial impact of not completing all turbines in 2020, and thus not receiving PTCs (unless Enel can qualify for exceptions to the 2020 deadline that might be possible under Internal Revenue Service ["IRS"] rules that would allow for completion in 2021) on Enel.

Enel already has all the land rights needed for the expected wind turbine locations for the Project and expects to obtain the remaining land rights for the gen-tie line by September 30, 2019.[10] Furthermore, Enel has secured a spot in the SPP queue that will allow transmission agreements to be put in place in time to meet the 2020 in-service deadline. We believe Enel has reached a stage of development of the Project that would allow the Project to be completed by the end of 2020 to qualify for the safe harbor and realize the full value of the PTCs. Achievement of the 2020 deadline for a minimum project size is a closing condition of the BTA.

Q. What happens if the Project is not completed by the end of 2020?

A. There are provisions in the BTA that permit a closing if not all of the approximately 299 MW of turbines are complete. However, for each wind turbine that is purchased by the Company after December 31, 2020, Ameren Missouri's ultimate financial responsibility will be reduced equal to the PTCs and the RECs that could be lost as a result of the 2021 closing date. If the Company does acquire turbines in 2021, efforts will be made to qualify turbines completed in 2021 for the full PTC value (under certain criteria and exceptions provided by the IRS). However, the risk that such qualification cannot be achieved is on Enel. Moreover, in no event will Ameren Missouri purchase any turbines that are not completed by December 31, 2021, and if such partially-completed turbines exist, they will need to be segregated from the other completed turbines on the site or removed from the Project site all together.

[10] This statement assumes that the primary, and most likely, Project configuration is one where the Project will connect to the SPP transmission system, as discussed later in my testimony.

Q. What are some of the other advantages?

A. Developers such as Enel have developed and maintain expertise in executing the many steps needed to expeditiously and cost-effectively locate wind projects, obtain needed property rights, complete required environmental and transmission studies, and build, test, and place into operation projects of this type. This is expertise that Ameren Missouri intends to develop over time, but is not expertise that Ameren Missouri possesses today. As discussed above, the developer's expertise can be leveraged through completion of the Project in a shorter time frame than the Company may be able to achieve if it used a self-build approach. Moreover, Ameren Missouri does not carry the risk the approaching 2020 deadline presents in order to be eligible for the full PTCs in the event some turbines are not completed in 2020.

Q. How valuable are the PTCs?

A. For the Project at its full capacity connected to the SPP system, the value of the PTCs is expected to be approximately $300 million over 10 years.

Q. Please elaborate on how the BTA structure maximizes the probability of being able to capture that value.

A. As discussed above, under the BTA structure, the developers (Enel and in all likelihood ultimately **_____** here) take on the construction and schedule risk, including the risk that the Project is not constructed in time to qualify for the full 2020 PTC value. Enel is well suited to take on this risk because of advantages it possesses due to: (a) having already established good community relations in the Project area; (b) having acquired all of the land rights needed for the turbines for the Project; (c) having participated

P

in the lengthy SPP and MISO transmission interconnection queue processes; and (d) having acquired safe harbor wind generation equipment.

Q. Please outline the basic contractual arrangements between Ameren Missouri and Enel in more detail.

A. Attached to my testimony as Highly Confidential Schedule AKA-D1 is a summary of the build transfer agreement. The entire agreement is also attached as Highly Confidential Schedule AKA-D2. Key terms are as follows:

- The BTA is between Ameren Missouri and Enel Kansas, LLC. Enel is the parent company of a special purpose limited liability company, Outlaw Wind Project, LLC (the "LLC"), which is the owner of the Project.
- The LLC will ultimately acquire all of the property and other rights needed for the Project, including equipment, land rights, transmission agreements and permits needed for the construction and operation of the Project. 100% of the land rights for locations where the wind turbines are expected to be placed have already been acquired.
- Upon completion of no less than ***_____*** [11] of the Project (expected by December 2020), the ownership interests of the LLC will be acquired by Ameren Missouri. The LLC will then immediately be merged into Ameren Missouri and will, by operation of law, consequently cease to exist leaving Ameren Missouri as the owner of all rights and obligations of the Project.

[11] As discussed later in my testimony, there are circumstances where the Company could close on the Project if at least ***_____***

P

- The purchase price for 100% of the ownership interests in the LLC consists of a base price of ***_____ _____ _____ _____*** subject to certain adjustments outlined in the BTA, plus additional minimal project diligence, governance, quality assurance and oversight costs to ensure the Project is being built to Ameren Missouri's specifications for an asset life of 30 years or more.[12] This figure includes (i.e., Enel is responsible for) transmission interconnection costs of up to ***_____*** If the interconnection costs exceed that sum ("excess interconnection costs"), ***_____ _____ _____ _____ _____*** Mr. Michels has run scenarios on the project economics and the resulting analysis is included in his testimony.
- Enel is to commence construction after a number of conditions provided for in the BTA are satisfied, including:

[12] The base price would be ***_____*** if the Project is connected to the transmission system under MISO's functional control and the Project has the assumed capacity if it is connected in MISO of 244 MW. Note that the just mentioned per kW cost includes transmission interconnection costs which are the responsibility of the LLC up to ***_____*** Interconnection costs above ***_____*** would be excess interconnection costs with the same options as addressed earlier for an SPP project.

- Issuance by the Commission no later than October 31, 2019, of a final, un-appealable CCN without any conditions or requirements that, in Ameren Missouri's sole discretion, are unacceptable;[13]
- The Federal Energy Regulatory Commission's ("FERC") approval, no later than October 31, 2019, to close the transaction under the BTA under Section 203 of the Federal Power Act;[14] and
- Completion of SPP and MISO interconnection studies, indicating that the interconnection costs associated with the Project will not exceed the sums outlined above (for each of an SPP-connected or MISO-connected project) unless either party has given notice by October 31, 2019 that it will cover the excess.

- The schedule for the Project estimates construction to be completed by no later than ***_____*** so that full advantage of available federal PTCs can be taken without the need to seek exceptions from the IRS.
- There are certain provisions of the BTA that address the situation where the Project capacity is less than 299 MW,[15] but at least ***_____*** which I will discuss further below.
- The BTA includes a number of provisions that protect Ameren Missouri and, ultimately, its customers, including:

[13] As addressed in the Motion to Adopt Procedural Schedule filed by the Company in this docket, we are requesting issuance of an order no later than October 10, 2019 with a 10-day effective date to provide a small cushion between the effectiveness of the order and the final BTA deadline, and also to allow the developer to start construction as soon as possible given the time needed to construct and the importance of the 2020 deadline.

[14] Ameren Missouri must secure FERC approval pursuant to Section 203 of the Federal Power Act to purchase the assets and to merge or consolidate the facilities into Ameren Missouri.

[15] Or less than ***_____*** if it is to connect in MISO.

- ***
-
-
-
-
- ***

Q. What are the main drivers of the Project schedule?

A. The two main drivers are the increase in the RES portfolio requirements effective in 2021 (an increase from 10% to 15%) and the annual reduction in the value of the PTCs for wind generation at the end of 2020. Consequently, we have outlined a schedule that is designed to ensure that the Project can contribute to the Company's compliance with the RES portfolio requirement, and can take maximum advantage of the PTCs, which results in lower RES compliance costs and therefore lowers rates for our customers.

Q. With the possible completion date of the Project being * _____ _____ *** what happens if there are project delays?**

A. As briefly discussed above, the risk of project delays pushing completion beyond *** _____ *** is a risk that the developer has assumed. To mitigate this risk, we have provided the developer with the ability to complete a smaller project (a minimum of *** _____ ***). While the schedule is tight, we fully believe that with proper planning and adherence to the proposed construction schedule, there is sufficient time to construct all 299 MWs[16] on or before *** _____ _____ ***

IV. THE REQUEST FOR PROPOSALS PROCESS

Q. Please provide the background for the RFP process that led to selection of the Project.

A. As first outlined in my direct testimony submitted in File No. EA-2018-0202 in December 2015, Ameren Missouri issued an RFP for wind generation projects that could begin producing energy in the 2018-2020 timeframe. Because each megawatt-hour ("MWh") of Missouri wind counts as 1.25 MWh for RES compliance, the RFP stated a preference for Missouri-based wind projects and for projects that would be interconnected with the MISO system and deliverable to Ameren Missouri load without incurring additional "through and out" transmission charges. The RFP sought bids under which Ameren Missouri could acquire the wind project companies.

[16] 244 MW if a MISO project.

P

Q. What responses were received?

A. In January 2016, the Company received responses from seven bidders, including Tradewind, for the Project that is the subject of this case. The seven bidders proposed a total of 13 different projects, the aggregate capacity of which was in excess of 2,000 MW. The projects were located in Missouri, Illinois, and Iowa.

Q. How did the RFP process proceed after the bids were received?

A. From approximately January 2016 to April 2016, the Company examined the bids for the 13 projects for compliance with the RFP and engaged in a screening evaluation of each response using certain selection criteria.

Q. What were the selection criteria Ameren Missouri used in this initial screening evaluation of the bids?

A. In general, we evaluated and screened all 13 projects on technical, commercial, and economic criteria, including the following key project elements: site control, wind assessment, interconnection studies timeline, wind turbines offered in the project, environmental assessment, and developer experience. Later in my testimony, I provide a more detailed discussion of the specific criteria we used. As a result of this process, we narrowed our consideration to a total of six projects proposed by four different developers: Terra-Gen High Prairie, EDF Brickyard Hills, Tradewind Outlaw (i.e., the Project that is the subject of this case), ******* _____ _____ ******* Similar to the Terra-Gen High Prairie project, Outlaw was part of the original short list of projects.

P

Q. How did the RFP process proceed after you had narrowed the projects down from 13 to 6?

A. While evaluating the 13 projects and after narrowing the list to 6, we met with the shortlisted developers in the summer of 2016, and each of them made a detailed presentation of their project(s) and answered our questions.

In the fall of 2016, without Ameren Missouri's full due diligence and financial evaluation being complete, the BTA pricing for Missouri wind generation projects without transmission upgrade costs was generally in the range of ***_____ _____*** As earlier noted, the BTA for the Project is at a lower price of approximately ***_____ *** reflecting a decline in price from other Missouri wind projects offered in the initial RFP. It is also important to note that the price of ***_____ *** includes approximately ***_____ _____*** of transmission interconnection costs.

Q. What led to the price decline?

A. In order to fully maximize the value for Ameren Missouri customers, we continued to engage in an ongoing price discovery process through discussions with the four remaining bidders and with others, which included other wind developers that provided us with unsolicited proposals. Through these ongoing evaluations and discussions, by the second half of 2017, we were able to determine that significant declines in wind project development pricing were possible, particularly driven by lower wind turbine prices (wind turbines are a significant component of a wind project's cost). We

continued to discuss with the remaining bidders the need for them to revise and refine their bids in light of these lower costs.

Our ongoing analyses and discussions also led us to the conclusion, by the second half of 2017, that as a result of lower prices for wind generation, Ameren Missouri could utilize at least 700 MW of new Company-owned wind generation for RES compliance while also staying below the 1% rate cap contained in the RES.

Our ongoing RFP evaluation, detailed financial diligence, and advances in the development of wind turbine technology led us to conclude that a portfolio of at least 700 MW of new Company-owned wind generation would be a cost-effective means to comply with the RES requirements. Having quantified how much wind generation we would need, we proceeded to narrow our options, including by accounting for the 1.25 multiplier for renewable energy generated in Missouri (the multiplier is not available for projects outside Missouri, and without it, we would need more than 800 MW of new wind). As part of that process, it became apparent that the Project, in addition to being cost-effective on its own, would play an essential role in the larger RES compliance portfolio that we needed. Since we need at least 700 MW to 800 MW, the Project along with the Terra-Gen and Brickyard Hills projects will bring our wind RES compliance portfolio to 857 MW,[17] if all three of these projects are completed at their full, maximum capacities which, as discussed later, may or may not occur because of the construction risks associated with large wind projects.

[17] If the Project connects in MISO, the total would be ***_____***.

P

Q. Before the Company finalized its selection of Enel as the developer for this Project, were the major developers of wind projects in the United States afforded the opportunity to provide bids for other projects in Missouri, Illinois, and Iowa for Ameren Missouri's RES compliance?

A. Yes. Between the seven bidders who initially responded to the RFP and the additional developers who provided us with unsolicited proposals which I previously discussed, the major wind developers in the U.S. have had the opportunity to bid projects in Missouri, Illinois, and Iowa for RES compliance.

Q. You mentioned earlier that you applied certain specific criteria when evaluating the projects. What was the selection criteria that you used?

A. The complete list of the criteria we applied for in the selection of projects to be included in the RES compliance portfolio are project costs, PTC qualification and retention, status of participation in the MISO queue, status of acquisition of required land rights, status of environmental studies, wind conditions and expected capacity factor, turbine selection for reliability of generation for the project, operations and maintenance costs and expected locational market prices. As earlier noted, we applied all, or nearly all, of these to the 13 projects that were initially bid, but with regard to the subset of 6 projects that were selected as part of the initial screening process discussed earlier, we applied these criteria with more rigor. Since wind projects can be meaningfully different in terms to these criteria, it is important to consider and evaluate the impact on customers of all factors as an overall package resulting in an evaluation of the total net revenue requirement before a project is selected.

I should also note that while we looked at numerous factors as listed above, no one factor can be considered in isolation in the selection of a wind project, and the overall economics of a project has to be considered. The overall economics of a project is a function of the total cost of ownership over the asset life, expected generation, and market price of power as well as the net benefits of a project to the Company's customers (reflected in its revenue requirement), which are equal to the realized market price for the project's power, minus the project's revenue requirement net of the PTCs. As outlined in Mr. Michels' testimony, the Project is expected to result in tens of millions of dollars in net customer benefits over the life of the Project.

V. ADDITIONAL PROJECT RISKS, RISK MITIGATION, AND DETAILS

Q. Please outline the main risks associated with development and construction of wind projects and how Ameren Missouri customers are protected through the BTA structure for the Project.

A. All projects of this magnitude carry risks, and that is true of this Project as well. The main risks associated with this Project are as follows:

1. Transmission system interconnection;
2. Land control;
3. PTC value qualification; and
4. Construction and PTC value retention.

Q. Please explain the first risk relating to transmission system interconnection.

A. Transmission system interconnection costs (here, in all likelihood from SPP) are an unknown component of any wind generation project until the Generator

Interconnection Agreement ("GIA") is fully tendered to the project developer and the transmission owner. SPP (and as I have explained before, MISO) has a detailed and defined process to determine the transmission system interconnection costs through various phases of transmission studies in the SPP queue process. The transmission interconnection costs are a function of the SPP queue that a project is placed in, which also includes all the other projects in the SPP footprint that are seeking interconnection agreements. This includes other projects that are ahead of the project under consideration in the queue, as well as all the other projects that are in the queue behind the subject project. Ultimately, the transmission interconnection costs depend on how many projects in the queue process actually proceed to complete construction and commissioning. For all these reasons, interconnection costs remain an unknown cost even at this stage of developing the Project.

However, the Project has certain significant advantages that have mitigated transmission interconnection risk, including the fact that there are two options for connection both of which, based on interconnection studies to date, will most likely result in transmission interconnection costs at a level supportive of the Project economics. This is owing to the fact that Enel has already incurred the costs to place the Project in both the SPP and MISO queues at Enel's cost, including paying for the cost of the completion of the required SPP and MISO transmission studies and is taking additional transmission cost risk.

Q. From a practical perspective, what does this mean for the Project?

A. The SPP queue process has three phases before the final generation interconnection costs are known. The Project is currently in the mid to latter-stages of the process. Based on information known to-date, it appears likely that the interconnection

costs to the Transource line as described earlier will be within the level for which Enel has responsibility and that the Project will therefore connect to that line as earlier described and have a capacity of 299 MW.

Q. Most of your testimony so far has been focused on a project with a capacity of 299 MW and that connects to an SPP transmission line, but you have mentioned other scenarios. Please summarize the various possibilities.

A. The "base case" (and the most likely case) is for the Project to have a capacity of 299 MW and to be connected to the Transource line in SPP. Connecting to the SPP transmission line provides greater schedule certainty to complete the project by 2020 because it is likely that the connection to the Transource line will be via a gen-tie line that originally was part of the gen-tie line for another project that has already been developed by Enel and has been operational for over 18 months, the Rock Creek project. The BTA calls for the LLC to acquire a one-half undivided interest in this gen-tie line and that interest, along with the substation that is part of the Project and all of the other Project assets will ultimately be owned by Ameren Missouri once the merger of the LLC occurs on closing of the transaction provided for by the BTA. This scenario results in the price for the LLC interests of approximately *****_____***** as noted earlier for a 299 MW project.

If, however, the developer were to elect to connect the Project to a transmission line under MISO's functional control (this would be Mid-American Energy's transmission line – the same transmission line to which the Brickyard Hills project will connect), the cost will be the approximately *****_____***** as I earlier mentioned for a *****_____***** project. There are two other possibilities. If no force majeure or certain other events occur,

P

whether the Project connects to an SPP or a MISO line, Enel must complete a project with a capacity of at least ***_____*** and close on a sale of the LLC interest with the LLC owning that much capacity by December 31, 2020. If force majeure or certain other events did occur, the capacity at closing in December 2020 must be at least ***_____***. The cost per kW for either a ***_____*** or ***_____*** project, if it is an SPP project, is ***_____*** and if it is a MISO project, is ***_____***

As noted, the most likely scenario is a 299 MW SPP project completed in 2020.

Q. What do you expect the ultimate interconnection costs for the Project to be?

A. As I mentioned, we cannot know for sure, but I presently expect them to be within the sum for which Enel is responsible for the 299 MW SPP project case. Regardless, we have performed sensitivity studies to determine the range of transmission interconnection costs that are cost-effective for customers for Ameren Missouri RES compliance purposes. Those studies are included in Mr. Michels' testimony and show that RES compliance costs are not expected to exceed the 1% cap for RES compliance even when we stress the financial assumptions for the Project.

Q. Please address the risks associated with land control.

A. Land control is an essential component of developing the Project. As of today, Enel has acquired 100% of the land rights it needs for the turbine sites. However, it does not have all of the land rights the Company is requiring for the gen-tie line to be used for the Project for the primary SPP connection option.

Q. Please address the risks associated with PTC value qualification.

A. As mentioned earlier in my testimony, an important step to qualify for the full PTC value is to incur by no later than December 31, 2016, 5% of the qualified value of the Project, including through the purchase of wind generator components that will be used in the Project, and having title transferred and delivery within a specified time period. The other main aspect is qualifying for the safe harbor by ensuring the Project is placed in service by December 31, 2020. Qualifying for the safe harbor assures that the Project will be eligible for 100% of the PTCs.

Q. How has the Company mitigated that risk?

A. As earlier discussed, in addition to its internal due diligence, the Company has also hired a reputable external law firm to provide a legal opinion that the Project meets the requirements of qualification for the full PTC value including the timely purchase of 5% of the qualified project value in wind generator components. As a condition to the Company's entering the BTA, this law firm must have been able to issue a legal opinion confirming that Enel has completed all steps for the Project to qualify for the 5% safe harbor to receive full value for the PTCs. We have that legal opinion.

Q. Please address the risks associated with project construction and PTC value retention.

A. Wind generation is no longer a nascent industry in the United States given that approximately 89,000 MW of projects have already been constructed. The construction process is therefore well known. However, as with any large construction project, there are sometimes issues that need to be resolved. In the case of wind generation, these issues may include concerns from specific landowners, differences regarding scope of work, force

majeure, delay in transmission studies, permitting, negotiating project procurement and construction agreements, procurement of long lead time materials, etc. An important aspect of receiving full PTC value is that the Project must be completed by the end of 2020, unless certain events occur that are excusable under the IRS Code. The main difference in constructing a wind generation project in the normal course as compared to completing one by the end of 2020, is the schedule risk associated with ensuring that the Project is placed in service by the end of 2020.

Q. How has the Company mitigated that risk?

A. The BTA places the construction and schedule risk for completion of the Project by the end of 2020 on the developer. Unless certain events such as force majeure occur, the Project must have a capacity of at least *****_____***[18] of wind turbines placed in service for Ameren Missouri to close by buying the LLC interests. As for any wind turbine generators ("WTGs") that do not meet the BTA's requirements to achieve Project completion by that date, Ameren Missouri has the ability to buy them as long as it is expected that they should meet the ability to obtain 100% PTC because the delay of the wind turbines into 2021 is due to an excused construction event as described by the IRS guidelines. Note that with respect to turbines representing capacity between 299 MW and *****_____***** (or the capacity that is completed at closing), as earlier discussed *****___** _____ _____******* and will be providing a parent guarantee to back up its obligations relating to taking on that risk if the situation occurs.

[18] The BTA allows for the Project's aggregate nameplate capacity to be less than *****_____ _____***** in certain circumstances such as force majeure.

Q. The BTA addresses "WTG-IIs" and the Company's Application requests that the permission sought in this case include permission to acquire the WTG-IIs. Please explain.

A. The Project specifications are to construct a 299 MW wind farm. However, the BTA's terms provide that if by the project completion deadline of *****_____***, *****_____*****[19] or more of wind turbines are placed in service, Ameren Missouri will buy the LLC and close the transaction. However, Ameren Missouri will not pay for the remaining WTGs (i.e., the other *****_____*****) unless and until they too are placed in service, by *****_____***** If that happens, Ameren Missouri will release purchase price funds withheld at closing, *****_____***** and those additional WTGs (which will have then become "compliant") will be part of the larger wind farm and used for RES compliance.

Q. When you earlier described the contract, you stated that Ameren Missouri would acquire 100% of the ownership interest in the LLC and would then merge the LLC into Ameren Missouri. Does this approach pose any risks to Ameren Missouri or its customers?

A. No, it does not.

Q. Please explain.

A. As I stated earlier, the LLC is a special purpose entity owned solely by Enel. Its only assets and liabilities will be those acquired or incurred to construct and operate the Project. Consequently, it has no exposure to liabilities of any other project or to the operations of Enel or to any of its affiliates. Moreover, under the terms of the BTA, the

[19] Again, subject to certain exceptions such as force majeure so long as the capacity is at least *****____*****

LLC is contractually required not to acquire any asset that is not necessary or otherwise relevant for the construction, ownership, or operation of the Project. The LLC must have fully performed all of its obligations under the BTA, including satisfaction of a number of conditions precedent, before Ameren Missouri has an obligation to buy the LLC.

Q. Why wouldn't Ameren Missouri simply buy the assets that make up the wind generation project from the LLC?

A. Buying the assets would be far more cumbersome, would create a greater likelihood of making a mistake (overlooking assets, etc.) and cause potential delays, and would provide no advantages whatsoever. As noted, the LLC was formed solely to hold the Project assets and rights. By buying the ownership interests in the LLC, Ameren Missouri will, of necessity, acquire the entire Project via a straightforward and less risky process.

Q. Will merging the LLC into Ameren Missouri pose any regulatory issues?

A. No. This merger is the same as that recently approved for the High Prairie and Brickyard Hills projects, and is a rather simple "paper exercise" that will be accomplished by a standard agreement of a merger between the LLC (*after* Ameren Missouri has acquired it) and Ameren Missouri, coupled with appropriate filings with the Secretaries of State in Delaware and Missouri. Upon the making of those filings, the LLC will cease to exist and Ameren Missouri will own the LLC's assets (the Project) just as if Ameren Missouri had bought the assets, but without the more involved steps and risks an asset purchase can pose. Moreover, the book value of the assets on Ameren Missouri's books will be exactly the same as it would have been had Ameren Missouri simply bought

the assets. And the same property accounting records will also be available for audit during all regulatory and ratemaking proceedings.

Q. I note that the Project that is the subject of this case is an approximately 299 MW project, but that the Company needs at least approximately 700 MW to 800 MW for RES compliance once the RES portfolio requirement increases to 15% in 2021. Given that the High Prairie, Brickyard Hills, and this Project have a total aggregate capacity of 856 MW, please explain why Ameren Missouri is acquiring all three.

A. There are several reasons. First, until all three projects are built and in operation we cannot know with certainty how much capacity the Company will own. As outlined in my testimony in File No. EA-2018-0202, the High Prairie facility's capacity could be as low as ******* ******* and as I explained in File No. EA-2019-0021, the Brickyard Hills facility's capacity could be as low as ******* ******* If those were the capacities of those two projects and if this Project is completed at its maximum capacity of 299 MW capacity, the Company will have ******* ******* It's important to note that in the absence of force majeure, the minimum capacity of this project could be ******* ******* in which case if the other two projects are also completed at their minimum capacities, Ameren Missouri would be short of the capacity needed for compliance. In the event of force majeure the capacity could be even lower. The range of possible capacity for RES compliance from all three projects is 530 MW to 856 MW. Second, the RES compliance needs are based on a projection of sales as of 2021 and beyond. Those projections could be too low, which would require more than the estimated capacity

needed. Third, the RES establishes a minimum for compliance but does not cap the energy from renewable energy resources that can be obtained. Even if all three projects come in at the maximum capacity for each, and based on the load forecast that underlies the Company's most recent IRP, the percentage of renewable generation will only be *****___***** higher than the minimum of 15%.

VI. ECONOMIC DEVELOPMENT

Q. Does the Project represent an economic development opportunity for the State of Missouri?

A. Yes, the economic impact of the Project on the state will be substantial. We anticipate that over 300 high-quality construction jobs will be created while the Project is being constructed. After construction is complete, approximately 5 to 8 permanent jobs (in addition to jobs created by the Brickyard Hills facility) will be required to operate the Project. In addition, landowners in Atchison County will receive *****_____ _____***** in lease payments over the period of the Project's operation. And finally, tax collections by state and local governments will all increase as a result of the Project. In addition to these direct economic benefits, significant indirect benefits will be realized by restaurants, gas stations, hotels, stores and other businesses in the vicinity of the Project.

VII. TIMING AND SUMMARY OF RELIEF REQUESTED

Q. Please summarize the Company's request in this case.

A. The specific relief requested is set forth in the Company's Application filed concurrently with the filing of my direct testimony. In that Application and a separate Motion to Adopt Procedural Schedule, the Company proposes a schedule driven primarily

by the need for construction to start in October of this year to maximize the ability to capture the full PTC value. In those filings, the Company proposes shortened times for responding to discovery and other procedural milestones designed to facilitate understanding of the Project and Application by the parties and hopefully the ability to resolve this case without a contested hearing.

Q. Does this conclude your direct testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for Permission and Approval and a Certificate of Public Convenience and Necessity Under 4 CSR 240-3.105.	)))))	File No. EA-2019-0181

AFFIDAVIT OF AJAY K. ARORA

STATE OF MISSOURI)
) **ss**
CITY OF ST. LOUIS)

Ajay K. Arora, being first duly sworn on his oath, states:

1. My name is Ajay K. Arora. I work in the City of St. Louis, Missouri, and I am employed by Union Electric Company d/b/a Ameren Missouri as Vice President of Power Operations and Energy Management.

2. Attached hereto and made a part hereof for all purposes is my Direct Testimony on behalf of Union Electric Company d/b/a Ameren Missouri consisting of 31 pages and Schedule(s) AKA-D1 HIGHLY CONFIDENTIAL and AKA-D2 HIGHLY CONFIDENTIAL, all of which have been prepared in written form for introduction into evidence in the above-referenced docket.

3. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct.

AJAY K. ARORA

Subscribed and sworn to before me this 14th day of May, 2019.

Notary Public

My commission expires:

March 7, 2021

CATHLEEN A DEHNE
Notary Public - Notary Seal
St. Louis City - State of Missouri
Commission Number 17119727
My Commission Expires Mar 7, 2021

SCHEDULE AKA-D1

IS HIGHLY

CONFIDENTIAL IN

ITS ENTIRETY

SCHEDULE AKA-D2

IS HIGHLY

CONFIDENTIAL IN

ITS ENTIRETY