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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. EA-2018-0202

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, 2018

P

TABLE OF CONTENTS

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OF

AJAY K. ARORA

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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

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

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 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 700 megawatts ("MW") to 800 MW of Company-owned wind

[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.

generation to meet those requirements, and the economics and customer benefits supporting the High Prairie 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 first in a series of wind generation projects required for RES compliance and is an essential part of the Company's overall RES compliance strategy. The Project is also the largest of any projects the Company will utilize for RES compliance.

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.

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.

4. The BTA arrangement is the best structure for capturing the entire value of the approximately $400 million in Production Tax Credits ("PTCs") the Project will generate and to provide all of the cost savings to Ameren Missouri customers.

5. The BTA contains an appropriate level of protections to ensure 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 400 MW[3] wind generation facility to be constructed in Schuyler and Adair Counties in northeast Missouri. When constructed and fully commissioned, it is expected to be the largest wind generation facility in Missouri. The Project developer is TG High Prairie Holdings, LLC, which is owned by Terra-Gen, LLC ("Terra-Gen").[4] Terra-Gen is a well-established renewable generation developer that has developed nearly one gigawatt of renewable generation over the past several years. Terra-Gen currently has an advanced development pipeline of more than 3,000 MW of wind and solar projects across the United States, including more than 300 MW of wind projects currently under construction. Terra-Gen developed, financed, and constructed the Alta Wind Energy Center, estimated to be the largest wind farm in the world, with an operating capacity of 1,546 MW in Kern County, California. Several members of the Terra-Gen leadership team have extensive experience developing renewable projects across the U.S. 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 will be deliverable to Ameren Missouri's

[3] As discussed later in my testimony, the Project could have a capacity of between *****___***** MW and 400 MW.
[4] Unless otherwise specified, references to "Terra-Gen" refer collectively to TG High Prairie Holdings, LLC and its parent, Terra-Gen, LLC.

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load via the Project's connection to the new 345-kV Mark Twain Transmission Line, for which a CCN was recently granted in File No. EA-2017-0345. 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 renewable energy credits ("RECs") obtained by the Company for RES compliance purposes.

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

A. While it is true that Terra-Gen 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 applies, even if by the letter of the statute it arguably may not apply.

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

A. Yes. The Project is being constructed under a "build transfer agreement." 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 Terra-Gen has achieved at this time, which will enable the Project to be completed by 2020.

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[5] discussed in the direct testimony of Ameren Missouri witness Steven Wills.

[5] Renewable Energy Standard Rate Adjustment Mechanism.

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 means 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 o f the equipment within a specified time period. As confirmed by ***____ _____*** and Ameren Missouri's external legal due diligence, Terra-Gen 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. To achieve Project completion in 2020, the land rights needed for the Project must be acquired and transmission agreements must be executed. Terra-Gen already has more than ***_____** of the land rights needed for the expected wind turbine locations for the Project and expects to obtain the remaining land rights shortly. Furthermore, Terra-Gen has secured a spot in the MISO queue that will allow transmission agreements to be put in place in time to meet the 2020 in-service deadline. We believe Terra-Gen has reached a stage of development of the Project that would allow the Project to be completed by the end of 2020 to realize the full value of the PTCs. Achievement of the 2020 deadline is a closing condition of the BTA. Failure to do so prevents Ameren Missouri from closing the transaction.

Q. What are some of the other advantages?

A. Developers such as Terra-Gen 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, Terra-Gen's expertise can be leveraged through its completion of this Project in a shorter time frame than the Company could achieve if it used a self-build approach; that is, by the approaching 2020 deadline to take full advantage of the PTCs.

Q. How valuable are the PTCs?

A. For the Project, the value of the PTCs is expected to be approximately $400 million over 10 years.

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

A. Under the BTA structure, the developer (Terra-Gen here) takes on the construction and schedule risk, including the risk that the Project is not constructed and transferred to the Company in time to qualify for the full PTC value. Terra-Gen is well suited to take on that risk because of advantages it possesses due to (a) having already built good community relations in the Project area, (b) having acquired **_____** the land rights needed for the Project, (c) having participated in the lengthy MISO transmission interconnection queue process, and (d) having acquired safe harbor wind generation equipment.

Q. Please outline the basic contractual arrangements between Ameren Missouri and Terra-Gen 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 TG High Prairie Holdings, LLC ("TG Holdings"). TG Holdings is the parent company of a special purpose limited

liability company, TG High Prairie, 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. More than **____** of the land rights for locations where the wind turbines are expected to be placed have already been acquired.
- Upon completion of the Project's construction (expected by **_____**, but no later than December 20, 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.
- 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.[6] This figure does not include transmission interconnection costs which are yet to be determined.[7] While we do not expect the transmission interconnection costs to be this high, under the BTA, the transaction will proceed so long as those transmission costs are ***____ _____*** or less. The ***_____*** cap was imposed through the BTA

[6] The base price will be reduced by ***_____*** per kilowatt ("kW") if the Project's capacity is less than 400 MW.
[7] Transmission interconnection costs will be estimated after the MISO interconnection study process is complete.

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to ensure the Project remains a cost-effective means of meeting the Company's RES obligations even in the unlikely event that transmission interconnection costs were to reach above that level.

- Terra-Gen is to commence construction after a number of conditions provided for in the BTA are satisfied, including:
  - Issuance by the Commission no later than January 31, 2019, of a final, un-appealable CCN and a RESRAM without any conditions or requirements that, in Ameren Missouri's sole discretion, are unacceptable;
  - The Federal Energy Regulatory Commission's ("FERC") approval, no later than January 31, 2019, to close the transaction under the BTA under Section 203 of the Federal Power Act;[8]
  - Completion of MISO interconnection studies by January 31, 2019, indicating that the interconnection costs associated with the Project will not exceed *****_____*****; and
  - Execution by the LLC by February 28, 2019, of a formal Interconnection Agreement with MISO and Ameren Transmission Company of Illinois, which owns the Mark Twain Transmission Line.
- The schedule for the Project estimates construction to commence by May 2019, but no later than October 2019, and for it to be completed by ****_____****, but calls for the Project to be completed no later than December 20, 2020 so that full advantage of available federal PTCs can be taken.

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

- There are certain provisions of the BTA that address the situation where the Project capacity is less than 400 MW, but at least ***_____***, and options if the Project's capacity is less than ***_____***, which I will discuss further below.
- The BTA includes a number of provisions that protect Ameren Missouri and, ultimately, its customers, including:
  - ***_____
    _____
  - _____
    _____
  - _____
    _____
    _____
  - _____
    _____
    _____***

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 PTC for wind generation at the end of 2020. Consequently, we have outlined a schedule that is designed to ensure that the Company is able to meet the RES portfolio requirement using wind from the

Project (and other projects for which we expect to file CCN applications soon), and that can take maximum advantage of the PTCs, which results in lower RES compliance costs and therefore lowers rates for our customers.

Q. Why does the schedule estimate completion of the Project and closing by **_____ when the full PTC is available so long as the Project is in-service by the end of 2020, and the RES portfolio requirement does not increase to 15% until 2021?**

A. There are two primary reasons. First, there is always the potential for delay due to unforeseen construction conditions or events outside the control of the developer that is associated with any large, complex construction project. We would not want to pursue a schedule that is so "tight" that we run a material risk of it not being placed in service by the end of 2020. Missing that date would cause us to potentially lose the huge benefits the PTCs provide, which as earlier noted, total approximately $400 million. Second, once construction is done but before we close (acquire the LLC interests), Terra-Gen has to satisfy *******_____*******, and it needs some time to do so. The schedule will provide time for *******_____******* to be completed.

IV. THE REQUEST FOR PROPOSALS PROCESS

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

A. In December 2015, Ameren Missouri issued a 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.

Q. What responses were received?

A. In January 2016, the Company received responses from seven bidders, including Terra-Gen, 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; ******* *******.

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

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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 significantly lower price of approximately ***_____*** (without any transmission upgrade costs), reflecting an almost 16% to 20% decline in price from other Missouri wind projects offered in the initial RFP.

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, but the Project only meets 400 MW of that need, we are continuing to negotiate for other projects and plan to seek CCNs for additional projects for RES compliance in the near future.

Q. Before the Company finalized its selection of Terra-Gen 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 were 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 hundreds of millions of dollars in net customer benefits over the life of the Project.

It is also important to note that because the Project will connect to the new Mark Twain Transmission Line, which itself is within or near Ameren Missouri's load, the market price differentials of wind energy from the Project in relation to market prices for Ameren Missouri's retail load caused by transmission losses or constraints are expected to be negligible. This means that the market prices realized for the Project's energy as a result of connection to the Mark

Twain Transmission Line are expected to be among the highest in Missouri, which provides further benefit to customers by lowering the Project's revenue requirement.

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 the Project as well. The main risks associated with this Project are as follows:

1. Transmission system interconnection;
2. Land control;
3. PTC value qualification;
4. Construction and PTC value retention; and
5. Conservation of endangered species.

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

A. Transmission system interconnection costs (here, from MISO) 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. MISO has a detailed and defined process to determine the transmission system interconnection costs through various phases of transmission studies in the MISO queue process. The transmission interconnection costs are a function of the MISO queue that a project is placed in, which also includes all the other projects in the MISO 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.

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

A. The MISO queue process has three phases before the final generation interconnection costs are known. The Project is currently in the early stages of the first phase. As each phase is completed, additional study deposits must be paid – and after the second phase, on a non-refundable basis. After the second phase is completed, which for the Project is expected by early fall of this year, a non-refundable guarantee payment to MISO equal to 20% of the then-expected transmission interconnection costs is due to cover further study costs and to prove the developer is serious about continuing to pursue the Project. This sum is non-refundable and it must be timely paid; otherwise, the Project will lose its place in the MISO queue and the developer will lose any realistic chance of completing the Project on time to capture the full value of the PTCs. The final estimated costs are known after completion of the third phase, after which the GIA is tendered. Therefore, typically for a wind project, transmission interconnection costs become known before project construction starts and when the GIA is signed. We expect the third phase to be completed in early 2019.

Q. How has the Company mitigated the risks relating to transmission interconnection in the BTA?

A. *******

_____

_____

_____

_____

_____

_____

_____***

Q. What do you expect both of these non-refundable payments and the ultimate interconnection costs for the Project to be?

A. As I mentioned, we cannot know for sure, but 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 indicate that even if the transmission interconnection costs were as high as ***_____***, the Project remains cost-effective for customers. While we do not expect the costs to approach the ***_____ _____*** figure as outlined in Mr. Michels' testimony, RES compliance costs are not expected to exceed the 1% cap for RES compliance even when we stress the financial assumptions for the Project to reflect such an amount for transmission interconnection costs.

Q. With the Commission's approval of the Mark Twain Transmission Line, why would transmission interconnection costs potentially be as high as ***_____***?**

A. Again, we do not believe they will be, but we set a ***_____*** limit in the BTA because the sensitivity analysis results indicated that the Project is worth doing even if the costs were that high. In response to your specific question, it is important to note that transmission interconnection costs may consist of costs that are not strictly "interconnection"

costs in the sense of needing to upgrade the transmission line to which the wind project physically connects. We do not expect any upgrade costs will be required for the Mark Twain Transmission Line. However, the interconnection of generation at any point within the MISO footprint can cause impacts elsewhere on either the MISO's system or on a neighboring transmission system. This could necessitate upgrade costs elsewhere. Such costs also fall within the "interconnection cost" category.

Q. I understand that you expect the interconnection costs to be much less than ***_____*, but what happens if they exceed ***_____***?**

A. Ameren Missouri can choose at that time whether or not to proceed with the Project. Consequently, the BTA protects Ameren Missouri in the unlikely circumstance that interconnection costs are so high that a different means of complying with the RES may be appropriate.

Q. Please address the risks associated with land control.

A. Land control is an essential component of developing the optimized site layout for a wind generation project. Until land control is complete, it is not possible to finalize the optimal layout and configuration of the towers, nor can each tower be "micro-sited" in a manner to optimize each turbine's energy production and capacity factor.

Q. How has the Company mitigated that risk?

A. As part of the selection of the portfolio of projects chosen for compliance with the Missouri RES, the Company has only chosen projects that are expected to have substantial land control complete before the CCN is filed or, at the latest, by the time the CCN is approved. In the case of the Project, Terra-Gen has already acquired more than approximately **____** of the land rights needed for expected wind turbine locations for the Project. The rest of the land rights

acquisition is expected to be completed shortly after the CCN filing. Once land control is complete, a normal part of the development process is to reconfirm the locations of all wind turbines (i.e., micro-site them) to fully optimize the site layout consistent with any requirements in the applicable agreements. Moreover, under the BTA, Terra-Gen cannot achieve Project completion and Ameren Missouri does not have to close if Terra-Gen does not have all of the necessary land rights. ***

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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 of receiving 100% of the PTC value is that the Project must be commercially operational and placed in service by December 31, 2020.

Q. How has the Company mitigated that risk?

A. 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, that law firm must have been able to issue a legal opinion confirming that Terra-Gen 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 land owners, 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 Internal Revenue Service 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 commercially operational 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 Terra-Gen. The Project must have a capacity of at least *****_____***[9]** 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 no obligation to buy them.

Q. I thought the Project was for 400 MW. Are you saying it might be a ***_____* project instead?**

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

A. The Project specifications are to construct a 400 MW wind farm. However, the BTA's terms provide that if by the project completion deadline ***_____*** or more of generation are built according to the specifications, 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 operable 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. This is why we are asking the Commission, in its order in this case, to include permission to buy those additional WTGs if they become compliant by the ***_____*** deadline.

Q. Please address the risks associated with conservation studies.

A. Part of the development of a wind generation project is a conservation study of the impact of the project on endangered species. Based on the results of the study, the wind generation owner and operator may need to take certain measures to minimize the impact of the wind farm operations on endangered species.

Q. How has the Company mitigated that risk?

A. Terra-Gen is already working with the U.S. Fish and Wildlife Service ("USFWS") and state agencies (such as the Missouri Department of Conservation) that are included in the USFWS process to determine if any mitigation measures may be required, and what those measures might be. Ameren Missouri will also cooperate and provide input to Terra-Gen as it works through these regulatory processes. In addition, as outlined in the BTA, the majority of the cost of any such measures would be borne by Terra-Gen.

Q. Are any permits needed with respect to endangered species in order to construct the Project?

A. No. The Project can be constructed without any such permits.

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 TG Holdings. 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 Terra-Gen or to any of its affiliates. Moreover, under the terms of the BTA, the 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 causing 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. The merger 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 400 MW project, but that the Company needs approximately 700 MW to 800 MW for RES compliance once the RES portfolio requirement increases to 15% in 2021. How will the remaining capacity be obtained?

A. As discussed earlier, we are continuing to negotiate with developers for additional projects arising from the RFP process and presently expect to file one or two additional CCN applications in the near future.

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 400 high-quality construction jobs will be created while the Project is being constructed. After construction is complete, approximately 15-20 permanent jobs will be required to operate the Project. In addition, landowners in Schuyler and Adair counties 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 (a) the need to pay, by early fall 2018, a non-refundable deposit to MISO relating to transmission interconnection studies, and (b) the need to be able to satisfy a condition precedent to proceeding as reflected in the BTA relating to obtaining the requested CCN and RESRAM in time for construction to proceed on a schedule to be sure the full PTC value can be captured. In those filings, the Company proposes shortened response 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 Authorizing it to Construct a Wind Generation Facility.	)))))	File No. EA-2018-0202

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 26 pages and Schedule(s) AKA-D1 and AKA-D2, 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 21st day of May, 2018.

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