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Witness: Scott Wibbenmeyer
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File No.: EA-2023-0286
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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. EA-2023-0286

DIRECT TESTIMONY

OF

SCOTT WIBBENMEYER

ON

BEHALF OF

UNION ELECTRIC COMPANY

D/B/A AMEREN MISSOURI

St. Louis, Missouri
June, 2023

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DIRECT TESTIMONY

OF

SCOTT WIBBENMEYER

FILE NO. EA-2023-0286

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Scott Wibbenmeyer. and my business address is 1901 Chouteau Avenue, St. Louis, Missouri 63103.

Q. By whom are you employed and what is your position?

A. I am employed by Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri", or "Company") as Senior Director, Renewable Business Development and Acquisitions.

Q. Please describe your educational background and employment experience.

A. I hold a Bachelor of Science in Mechanical Engineering from the University of Missouri – Columbia. I also hold a Master of Business Administration from the University of Missouri – St. Louis. I joined Ameren Missouri in 1999. In my roles since first joining Ameren Missouri, I have served as a design engineer at the Callaway Energy Center managing projects to improve efficiency and reliability of plant equipment. Following my time at Callaway, my roles included engineering management responsibilities for maintenance, production, and turbine operations for Ameren Missouri's fossil generation fleet. I was then promoted to General Executive of Coal Operations where I managed coal rail supply contracts. In 2007, I transferred to the renewable development organization, where I led development teams for biomass, wind, and

solar for Ameren Missouri. In 2015, I transitioned to Insurance Risk Management where I was responsible for managing financial risk and insurance portfolios. In 2019, I returned to lead the Ameren Missouri renewables development and acquisitions organization.

Q. What are your responsibilities in your current position?

A. I am currently responsible for leading the development of renewable generation projects in support of three primary goals: (a) to comply with the Missouri Renewable Energy Standard; (b) to accomplish a reliable, resilient, and affordable transition of Ameren Missouri's generation portfolio to rely more on clean generation, while also using existing and planned dispatchable resources where appropriate; and (c) to support the development of customer renewable energy solutions such as the Company's Community Solar Program and the Renewable Solutions Program, Phase I of which was recently approved by the Commission in File No. EA-2022-0245.

I. PURPOSE OF TESTIMONY

Q. What is the purpose of your direct testimony?

A. The purpose of my direct testimony is to support the Company's Application for Certificates of Convenience and Necessity ("CCN") for four solar generation projects (individually, a "Project" and collectively, the "Solar Projects"), that Ameren Missouri is developing to support its transition to a generating fleet that relies less heavily on fossil-fueled generation and more heavily on clean, zero fuel cost generation resources. The 550 megawatts ("MW") of new solar generation the Company seeks authorization for in this proceeding represents just under 20% of the 2,800 MW of new renewable generation proposed to be installed by 2030 as outlined in the Company's 2022 Preferred Resource Plan. The Solar Projects which are the subject of this application are known as the Split Rail Solar, Cass

County Solar, Vandalia Solar, and Bowling Green Solar facilities. Figure 1 below depicts the approximate geographic location of each project.

Figure 1. Map of Solar Projects

The Company's transition plan, which was addressed in detail in File No. EA-2022-0245 (involving the Boomtown Solar Facility), is addressed in additional detail in the Direct Testimonies of Company witnesses Ajay K. Arora, Matt Michels, and Steve Wills filed in this docket. My direct testimony focuses on the details of each of the four Solar Projects and how they were selected to support the Company's overall generation transition plan. In addition, I outline the Company's overall approach to developing needed renewable energy resources, including the utilization of three distinct project acquisition and development structures: build-transfer, development-transfer, and self-development. The Projects

proposed in this docket were developed through a combination of these three approaches and all meet the needs discussed in greater detail by witnesses Michels and Arora.

Q. Please summarize your testimony.

A. The key takeaways from my testimony can be summarized as follows:

1. The Solar Projects are competitively procured resources priced in line with the regional solar market that will support Ameren Missouri's generation portfolio transition efforts. Each of the Solar Projects was selected from among several dozen candidate sites, and other projects proposed by developers.

2. The Solar Projects reflect three different development approaches and supporting project contract structures, allowing for a balance of benefits and risks for each Project. Utilizing a variety of contract structures allows Ameren Missouri to develop and leverage its own expertise while also leveraging the expertise of developers to acquire mature solar projects and developments.

3. Through the terms and conditions captured within each of the key Project contracts, the Company can effectively manage and mitigate key risks common to all the Solar Projects.

Q. Are you sponsoring any schedules?

A. Yes. I am sponsoring each of the Project agreements and agreement summaries as listed in the Table 1 below.

Table 1. Highly Confidential Schedules

	Agreement Executive Summaries	Agreements including Project Specifications
Split Rail	SW-D1	SW-D2
Cass County	SW-D3	SW-D4
Vandalia	SW-D5	SW-D6[1]
Bowling Green	SW-D7	SW-D8

II. OVERVIEW OF PROJECTS IN THIS CASE

Q. What are the key parameters for the Projects.

A. Table 2 below provides a high-level summary of the key parameters for the Solar Projects proposed in this case. I should note that while electrically there are four distinct projects at issue in this docket, two of them, Vandalia and Bowling Green, are effectively being developed together in that they are companion projects of almost the same size, are located near each other, use essentially the same design, and are being built by the Company using the same engineering, procurement, and construction ("EPC") contractor as a means to achieve efficiencies and synergies, which optimizes their combined costs similar to the cost we would have expected for a single roughly 100 MW project.

[1] Please note that Schedules DW-D6 and D8 are unexecuted versions, but they have been finally agreed to and are in the process of being signed with one exception: for Schedule SW-D8 the "Effective Date" shall be the date of formal approval by EDF's Board. The Company will supply fully signed copies to the parties when available.

Table 2. Summary of Solar Projects

	Split Rail Solar Project	Cass County Solar Project	Vandalia Solar Project	Bowling Green Solar Project
Agreement Date	May 2023	May 2023	September 2022	June 2023
Agreement Type	Build-transfer	Development-transfer	Self-development	Self-development
Developer	Invenergy Renewables, LLC	Savion, LLC	Ameren Missouri	Ameren Missouri
Facility Size *(nominal)*	300-MW_{AC}	150-MW_{AC}	50-MW_{AC}	50-MW_{AC}
Location	Central Missouri	Central Illinois	Northeastern Missouri	Northeastern Missouri
First Year Expected Annual Energy Production *(MWh)*	651,717	337,981	121,624	122,219
Tax Strategy[2]	ITC	ITC	ITC	ITC
Expected Tax Benefit[3]	30%	40%	30%	40%
Land Under Control	4,750 Acres	2,220 Acres	420 Acres	440 Acres
Interconnection Status[4]	MISO GIA[5] complete	MISO GIA complete	Ameren Missouri Distribution Interconnection	Ameren Missouri Distribution Interconnection
Interconnection Voltage	345-kV Transmission	138-kV Transmission	69-kV Sub-transmission	69-kV Sub-transmission

[2] As discussed by Company witness Steve Wills in his Direct Testimony, given some remaining uncertainty in how the IRS will ultimately address certain details of the Production Tax Credits ("PTCs") and Investment Tax Credits ("ITCs") available under the federal Inflation Reduction Act ("IRA"), it is possible the tax strategy could change, with to use of PTCs for one or more of the Projects or if needed, the use of a tax equity partner and the ITC to gain the maximum benefit for customers.

[3] The Cass County and Bowling Green Projects qualify to receive additional tax benefits from the IRA Energy Community Tax Credit Bonus based on tax diligence and the U.S. Department of Energy's publicly available energy community mapping tool posted by the U.D. Department of Energy at https://arcgis.netl.doe.gov/portal/apps/experiencebuilder/experience/?id=a2ce47d4721a477a8701bd0e08495e1d

[4] The interconnection network upgrade details can be found in Exhibit A (the Scope of Work) to Schedule SW-D2 (the Split Rail BTA), in Exhibit A (the Scope of Work) to Schedule SW-D4 (the Cass County PSA), in Exhibit 1 (the Owner's Specifications) to Schedule SW-6 (the Vandalia EPC agreement), and in Exhibit 1 (the Owner's Specifications) to Schedule SW-D8 (the Bowling Green EPC agreement).

[5] Generator Interconnection Agreement.

Expected Completion Date	Q2 2026	Q4 2024	Q4 2025	Q1 2026
Base Case Project Cost Estimate[6]	*** _____ ***	*** _____ ***	*** _____ ***	*** _____ ***

Q. Please describe each of the projects in greater detail.

A. 1. Split Rail

The Split Rail Solar Project is a 300 MW-AC solar energy project to be constructed within 4,750 acres located in Warren County, Missouri.[7] The project will consist of approximately 676,700 individual solar panels and is expected to generate approximately 651,700 megawatt-hours ("MWh") of electricity in the first year following its anticipated completion in the second half of 2026. The Project will interconnect to Ameren Missouri's Belleau – Montgomery 345kV transmission line which runs through the project site. The project will interconnect through a newly installed interconnection switching station to be installed by the transmission owner, which is also Ameren Missouri.

The Split Rail Solar Project is being developed by a wholly owned subsidiary of Invenergy Renewables LLC and will be acquired by Ameren Missouri through a build-transfer agreement ("BTA"). As detailed in the BTA, the Project is being developed by Split Rail Solar Holdings LLC ("Invenergy") through a special purpose entity known as Split Rail Solar Energy, LLC. Upon completion of the Project, Invenergy will sell it's 100% interest of Split Rail Solar Energy LLC to which will vest to the completed Project and all its assets in Ameren Missouri. Invenergy is a well-established renewable generation developer with over 24 gigawatts ("GW") of wind and solar

[6] Values shown reflect base case estimated cost, prior to the impact of any tax incentives. Available investment tax credits are expected to reduce the cost of each project by approximately 30-40%.

[7] For the Split Rail project and each of the other projects discussed below, the acreage provided corresponds to the land presently leased or acquired for the project based on preliminary site design. Final acreage required may vary based on final site design.

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projects under operation, construction, or contract, and is also the developer of the Boomtown Project the Commission approved in April of this year. The BTA for Split Rail is similar to the BTA for the Boomtown Project.

2. Cass County

The Cass County Solar Project is a 150 MW-AC solar energy project to be constructed within approximately 2,220 acres located in Cass County, Illinois. The Project will consist of approximately 331,000 individual solar panels and is expected to generate approximately 338,000 MWh of electricity in the first year following its anticipated completion at the end of 2024. The project will interconnect to the Ameren Illinois transmission system operated by MISO via a 0.1-mile 138kv lead-line to the Flanigan switching station in Cass County, Illinois. [8]

The Cass County Solar Project is being acquired through a development-transfer structure pursuant to a purchase and sale agreement ("PSA") with Savion, LLC ("Savion"). As discussed in more detail later in my testimony. Ameren Missouri will purchase Savion's, 100% ownership interest in Cass County Solar, LLC, prior to Project completion, thereby acquiring all Project assets including Savion's rights and obligations under an executed EPC contract, executed Module Supply and Main Power Transformer Agreements, and Project real property agreements by which Savion secured the land rights necessary for its construction. By acquiring the Project at the construction stage, Ameren Missouri will benefit from Savion's extensive solar project development expertise, including Savion's purchase of the Project's Modules and Main Power Transformer under its existing, negotiated Supply Agreements. Savion has operated, constructed, contracted for, or developed over 10 GW of energy projects and is a subsidiary of Shell Oil Company which itself has significant global renewable energy resource development experience.

[8] The interconnection is designated as Midcontinent Independent System Operator ("MISO") project J976.

3. Vandalia

The Vandalia Solar Project is a self-developed 50 MW-AC solar generation facility to be located on approximately 418 acres of land presently owned by Ameren Missouri in Audrain County, Missouri. The Project will consist of approximately 113,000 individual solar panels and is expected to generate approximately 122,000 megawatt-hours (MWh) of electricity in the first year upon its anticipated completion in the second half of 2025. The facility will be located two miles south of Vandalia, Missouri city limits and will interconnect on Ameren Missouri's 69-kV sub-transmission system between the Vandalia and the Wellsville substations – eliminating the cost, schedule and interconnection risk associated with the MISO transmission interconnection process.

The Vandalia Solar Project was developed by Ameren Missouri in a manner similar to other solar projects completed by the Company, including the O'Fallon Renewable Energy Center, Montgomery Community Solar Center, and the Lambert Community Solar Center, among others. The Vandalia Solar Project will be constructed under a single Engineering, Procurement and Construction ("EPC") contract with EDF Renewables Distributed Solutions ("EDF"). Utilizing EDF will enable Ameren Missouri to minimize risk and capitalize on the vast experience and equipment purchasing power EDF has amassed from years of developing, constructing, and operating more than 16 GW of renewable energy projects.

4. Bowling Green

The Bowling Green Solar Project is a self-developed 50 MW-AC solar energy project to be located on approximately 440 acres of land presently owned by Ameren Missouri in Pike County, Missouri. The Project will consist of approximately 102,000 individual solar panels and is expected to generate approximately 122,000 megawatt-hours (MWh) of electricity the first year

upon its anticipated completion in early 2026. The facility will be located approximately 2 miles northwest of Bowling Green, MO, adjacent to Ameren Missouri's Peno Creek CTG Energy Center. The project will interconnect on the Ameren Missouri 69-kV system at the Pike substation – eliminating the cost, schedule and interconnection risk associated with the MISO transmission interconnection process.

The Bowling Green Solar Project was developed by Ameren Missouri as a companion project to the Vandalia Solar Project. Both Vandalia and Bowling Green are nominally the same size, are located near each other, use essentially the same design, and are both are being built by the Company using the same EPC contractor (EDF), which optimizes their combined costs similar to the cost expected for a single roughly 100 MW project.

Q. What is the expected cost of the Solar Projects?

A. The Solar Projects each have an estimated capital cost as shown in Table 2 above. These costs include transmission interconnection costs, land purchases where applicable, and some minimal additional project diligence, governance, quality assurance, and oversight costs to ensure each Project is being built to Ameren Missouri's specifications for an asset life of 30 years or more. The costs in Table 2 are base case estimates that include minimal contingency and are subject to certain adjustments outlined in each key Project contract. Several of these key risks are identified and discussed later in my testimony, and overall project economics modeling and results are presented in the direct testimony of Company witness Michels.

III. RENEWABLE RESOURCE DEVELOPMENT

Q. What is Ameren Missouri's approach to securing renewable energy resources?

A. As discussed in the direct testimonies of Company Witnesses Arora and Michels, Ameren Missouri has a clear need to transition to a least-cost mix of low- and zero-carbon generation resources now – and to sustain that transition consistently over time – to replace the energy being lost as aging coal-fired generation resources retire, and to mitigate myriad risks associated with its existing heavy reliance on fossil-fueled generation. This transition will require completing many complex projects over the next two decades, including implementing new technologies that may still be in development today. It is important for the Company to pursue a wide range of options when selecting and contracting for projects that balance project maturity, project attractiveness, opportunity, timing, risks, developers' strategic advantages, and its own internal capabilities. As discussed in further detail below, the Company has and will continue to utilize a multitude of methods to identify and select projects that can be executed with confidence and provide value for customers using several common contract structures within the industry.

In general, the Company has three development pathways through which it can pursue new solar and wind projects, all three of which have been utilized to develop the Solar Projects at issue in this case:

Build-Transfer:

In its simplest form, a build-transfer can be considered a "turn-key" approach to project development, whereby a developer secures the land rights, permits, project contracts, and completes other necessary actions to develop and construct the project. Upon completion of the project, Ameren Missouri purchases the completed projects from the developer per the terms of

the Build-Transfer Agreement. A build-transfer structure has many advantages for the Company, in that it can purchase a project that is complete, thereby transferring much of the development and construction risks to the developer and improving the speed of project execution and overall value to customers. Furthermore, it allows the Company to take advantage of various developers' expertise and long-term strategic partnerships with suppliers, which can reduce cost and delivery risks. A build-transfer development approach and the supporting BTA contract structure should be relatively familiar to the Commission, having approved three prior wind and two prior solar facility CCNs for projects acquired by Ameren Missouri in this way.[9]

Self-Development:

A self-development approach for renewable energy projects aligns with a more traditional means of constructing utility assets – including prior power plants, transmission projects, etc. For a self-developed project, Ameren Missouri itself locates the site, secures land rights, permits, project contracts, and completes all other actions necessary to develop, design, build, and construct a renewable energy project utilizing in-house and external engineering, procurement, and construction resources. The key advantage of the self-developed approach is that it puts the Company in the driver's seat for all project-specific decisions, enabling excellent alignment of the project's location, size and in-service timing with Ameren Missouri's strategy and overall customer energy needs. A self-development approach has been used by Ameren Missouri for many of its other utility-scale solar facilities, including the O'Fallon Renewable Energy Center, BJC, Lambert Community Solar Center, and Montgomery Community Solar Center.

[9] The High Prairie Renewable Energy Center (File No. EA-2018-0202), the Brickyard Hills project (File No. EA-2019-0021 (which was not built due to unacceptably high transmission interconnection costs), the Atchison Renewable Energy Center (File No. EA-2019-0181), the Huck Finn Solar Project (File No. EA-2022-0244), and the Boomtown Solar Project (File No. EA-2022-0245).

Development-Transfer:

The development-transfer acquisition approach is an evolution of the BTA structure that is becoming more common in the market and operates essentially as a hybrid of the build-transfer and self-development methods. Under a standard development-transfer, the developer is responsible for securing land rights, permits, and completing other development activities prior to selling the project to a utility, who is then responsible for completing the remaining project activities, including managing the construction and commissioning. A development-transfer approach is a very flexible contracting approach through which responsibility for development, engineering, procurement, and construction can be placed on either counterparty of the contract, allowing the parties to maximize their own expertise. For example, a developer may be very efficient at securing land, transmission interconnection rights, or equipment, but may lack project and construction management expertise, which is a strength of the utility. By balancing the responsibilities under the contract, both parties can maximize their expertise to further reduce project risk and maximize value.

A development-transfer approach, executed through a PSA, is being utilized for the first time by the Company to acquire the Cass County Solar Project.

Q. Please outline the basic contractual arrangements between Ameren Missouri and Invenergy for the Split Rail Solar Project.

A. The Split Rail Solar Project will be acquired through a build-transfer agreement with similar contractual terms to those of the recently approved Boomtown Solar Project. Attached to my testimony as Highly Confidential Schedule SW-D1 is a summary of the build transfer agreement, and the entire agreement is also attached as Highly Confidential Schedule SW-D2. Key terms are as follows:

- The BTA is between Ameren Missouri ("Purchaser") and Split Rail Solar Holdings LLC ("Seller").[10] Seller, through a special purpose entity known as Split Rail Solar Energy, LLC will develop, construct, and sell the Project to Purchaser.
- Split Rail Solar Energy, LLC will ultimately acquire all 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. All land rights for the solar facility have been acquired.
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[10] Split Rail Solar Holdings LLC is a subsidiary of Invenergy Renewables LLC.

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[redacted]

- [redacted]
  - [redacted]
  - [redacted]
  - [redacted]***

Q. Please outline the basic contractual arrangements between Ameren Missouri and Savion for the Cass County Solar Project.

A. The Cass County Solar Project will be acquired through a purchase and sale agreement. Due to the late-stage maturity of the Cass County Solar Project, the Cass County PSA shares many similar terms to that of a BTA. However, in contrast to a BTA, Ameren Missouri will purchase the project shortly after receiving the CCN as compared to closing at mechanical

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completion as is done under a BTA. There are some unique key advantages of the Cass County PSA that drive cost and schedule certainty for Ameren Missouri. These key advantages are related to the many contractual obligations that have already been satisfied that would normally be completed later under a BTA structure. These items include a fully executed transformer supply agreement with ***_____***, solar module supply agreement with ***_____ _____***, and an EPC agreement with ***_____.*** Attached to my testimony as Highly Confidential Schedule SW-D3 is a summary of the purchase and sale agreement. The entire agreement is also attached as Highly Confidential Schedule SW-D4. Key terms are as follows:

- The PSA is between Ameren Missouri ("Purchaser") and Savion, LLC ("Seller"). Seller, through a special purpose entity known as Cass County Solar Project, LLC will develop and sell the Project to Purchaser.
- Ultimately, Ameren Missouri will acquire all 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. All land rights for the solar facility have been acquired along with all major material supply and construction contracts.
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Q. Please outline the basic contractual arrangements between Ameren Missouri and EDF for the Vandalia and Bowling Green Solar Projects.

A. The Vandalia and Bowling Green Solar Projects will be executed through EPC contracts with EDF. Attached to my testimony as Highly Confidential Schedule SW-D5 is a summary of the Vandalia Solar Project EPC agreement, and the entire agreement is attached as Highly Confidential Schedule SW-D6. Similarly, Highly Confidential Schedule SW-D7 provides a summary of the Bowling Green EPC agreement, and the entire agreement is attached as Highly Confidential Schedule SW-D8. Key terms are as follows:

- The EPC agreements are between Ameren Missouri ("Owner") and EDF ("Contractor").
- EDF will be responsible for engineering and design of the Projects. Ameren Missouri has review and approval rights over the designs.
- EDF will be responsible for the procurement of all materials except for owner supplied materials as listed in Exhibit 8 of the contracts, and below:
    - Ameren Missouri will supply the main power transformer for both the Vandalia and Bowling Green Solar Projects.

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- Ameren Missouri will also supply approximately 12.2 MW-DC of safe harbor solar modules for the Vandalia Solar Project.

- EDF will be responsible for the construction of each Project, with final construction cost to be set for each Project approximately one month prior to Full Notice to Proceed, which is expected to occur shortly after CCN approval.
- Ameren Missouri will be responsible for each Project's interconnection to the 69-kV distribution system.
- There are two key milestones that underpin the structure of the contract: Contractor's Construction Cost Notice and Substantial Completion.
  - Contractor's Construction Cost Notice establishes the Not to Exceed ("NTE") Price of each Project. If the Contractor's Construction Cost Notice causes the contract price to exceed the NTE or Target price, then the Owner has the option to either (1) accept the proposed increased NTE/Target price; (2) Negotiate in good faith to reach a mutually acceptable Construction Cost; or (3) reject the proposed Contract Price and terminate the contract (paying the contractor the Termination Payment). Once the Contract Price is set and agreed upon, the Contractor will have an obligation to move forward with construction of the Project.
  - Upon installation of the Project's components, interconnection being available, and successful attainment of capacity testing requirements, the contractor will have achieved Substantial Completion and the project will be In-Service.

- The schedule for the Vandalia Solar Project anticipates Substantial Completion occurring by November 30, 2025.

The schedule for the Bowling Green Solar Project anticipates Substantial Completion occurring by March 31, 2026.

IV. THE REQUESTS FOR PROPOSAL AND PROJECT SELECTION PROCESS

Q. Earlier you mentioned that the Solar Projects were competitively procured. Please elaborate.

A. All four of the Solar Projects were identified and selected from among several dozen candidate sites or from among dozens of other projects proposed by developers. For the developer-led projects (Split Rail and Cass County Solar) the projects were identified and selected pursuant to a competitive request for proposals ("RFP") process. For the self-developed projects (Vandalia and Bowling Green Solar) the sites were evaluated and ultimately selected from among numerous potential project locations, and the EPC contractor was selected through a separate competitive RFP process.

Q. Starting with the developer-led projects first, can you please explain that RFP process?

A. The Split Rail and Cass County Solar Projects are the products of two different competitive RFPs: a 2020 RFP seeking project acquisitions which was discussed in detail in the Company's testimony in the Boomtown docket, and a 2022 RFP which sought additional solar and wind project acquisitions.

Q. For the project acquisition RFPs issued in 2020 and 2022, what were the selection criteria Ameren Missouri used in the evaluation of the RFP bids?

A. The categories of the criteria we applied for the selection of projects to be considered were as follows: project size, location, ownership arrangements, project maturity, developer experience, technology and project performance, transmission interconnection criteria, constructability, locational market pricing, project pricing, tax credit qualification, status of acquisition of required land rights, status of environmental studies, and response to the form agreements included with the RFP. As earlier noted, we applied all, or nearly all, of these criteria to the projects that were initially bid. Upon initial target screening, we conducted further due diligence on each of these key areas to reach a smaller subset of projects as discussed below. 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 renewable energy project, and the overall economics, feasibility and risks of a project were considered holistically through the evaluation process.

Q. In the 2020 RFP, what responses were received?

A. In October 2020, the Company received responses from 16 bidders, including a bid from Savion for the Cass County Solar project. The 16 bidders proposed a total of 51 different projects, with an aggregate capacity of approximately 9,000 MW. Of the bids received, 15 projects were wind resources, and 36 projects were solar resources. The projects were in Missouri, Kansas, Illinois, and Iowa.

Q. How did the 2020 RFP process proceed after the bids were received?

A. From approximately October to December 2020, the Company, with expertise from 1898 & Co. (a division of Burns and McDonnell) examined the bids for the 51 projects and engaged in a screening evaluation of each response using certain selection criteria. 1898 & Co. is

considered a leading industry expert and has supported many other utilities in evaluating renewable projects. 1898 & Co., in conjunction with the Company's subject matter experts, created a scorecard which was utilized to evaluate and document the selection criteria.

As a result of this initial scorecard evaluation process, we narrowed our consideration to a total of 9 projects proposed by 6 different developers: ***_____ _____ _____. *** [11]

In the spring of 2021, the Company began discussions and diligence efforts with all 6 developers. ***_____ _____ _____***, leaving 7 projects from this RFP as possibilities. As diligence and contract negotiations continued, Ameren Missouri was notified by the developers that, due to market volatility and uncertainty of new tariffs on construction components like solar panels, they could no longer honor the original bids and would need to resubmit new pricing for their projects based on the latest negotiations and market conditions. At this time, ***_____ _____ _____.***.There were three other projects that had also scored well as part of the Company's bid evaluation process (NextEra New Madrid, Ranger Show-me State, and Savion Cass County). In the fall and winter of 2021, ***_____ _____ _____ *** projects were no longer available. Additionally, the team discovered during the

[11] Invenergy's Split Rail Solar Project was bid in to the 2020 RFP, but at the time the project was not mature and therefore did not rank among the top projects.

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diligence process that ***[redacted]

[redacted]

[redacted].***

In the fall of 2022, ***[redacted]

[redacted]

[redacted].

***That left Huck Finn, Boomtown, and Cass County. While the Huck Finn and Boomtown CCN applications were proceeding, the team continued to diligence and negotiate with Savion. This process occurred in tandem with the 2022 RFP process, which confirmed that Cass County remained a well-scoring project.

Q. What led the Company to issue a second project acquisition RFP in 2022?

A. The three viable projects from the 2020 RFP still left the Company with a need for significant solar and wind generation capacity by 2030, with more renewable resources likely needed after 2030. Furthermore, during the time between RFPs the solar market had experienced significant volatility, so it was in the best interest of the Company to seek new project opportunities and allow developers to refresh their proposal for projects offered in the 2020 RFP that had matured over the two years between RFPs. Therefore, the Company went back to the market in August 2022 to locate additional suitable projects by issuing a second project acquisition RFP seeking both solar and wind projects for acquisition through a build- or development-transfer.

Q. In the 2022 project acquisition RFP, what responses were received?

A. The Company received responses from 17 bidders, including a bid from Invenergy for the Split Rail Solar Project. The 17 bidders proposed a total of 30 different projects, with an aggregate capacity of approximately 7,000 MW. ***[redacted]

[redacted].*** The projects were in Missouri, Kansas, Illinois, Arkansas, and Iowa.

Q. How did the 2022 project acquisition RFP process proceed after the bids were received?

A. From approximately August 2022 to January 2023, the Company, again with help from 1898 & Co. examined the bids for the 30 projects and engaged in a screening evaluation of each response using certain selection criteria. 1898 & Co., in conjunction with the Company's subject matter experts, utilized an updated scorecard initially created as part of the 2020 RFP process to evaluate and document the selection criteria.

As a result of this initial scorecard evaluation process, we narrowed our consideration to a total of 14 projects proposed by 8 different developers, as follows: *** [redacted]. ***

In the fall of 2022, the Company began discussions and diligence efforts with all 8 developers, many of which were eliminated from consideration during the diligence review because of project challenges. ***[redacted]. *** Additionally, in the winter of 2022, ***[redacted]

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*** project was no longer available. In the spring of 2023, *** *** could be exposed to flooding based on the recent proposed FEMA flood maps and would require additional development work. After thorough diligence and contract discussions, Ameren Missouri identified that Invenergy's Split Rail Solar Project was one of the most mature, local Missouri projects with the highest evaluation score. Given the high score, confirmed diligence, and good contract terms, the Split Rail Solar Project was selected. The remaining projects continue to be evaluated and remain under consideration for future use as the projects mature and contract negotiations proceed.

Q. Previously in your testimony you discussed the appropriate mix of solar and wind projects. How does wind fit into the Ameren Missouri pipeline?

A. As noted, Ameren Missouri continues to evaluate and diligence the *** *** projects out of 30 renewable energy resource projects from the 2022 acquisition RFP. As illustrated in the current MISO interconnection queue, available wind projects are limited in comparison to solar projects. During the 2022 Generator Interconnection Queue (GIQ) application period, MISO received submittals of 164 GW of renewable or storage projects across the MISO footprint. Fifty-one percent of the submitted capacity was for solar projects and only 8% of the capacity submitted was for wind projects. The company remains optimistic that, with the passage of the Inflation Reduction Act (IRA) in 2022, additional wind projects will be developed within MISO's footprint. Any new 2022 MISO interconnection queue projects as well as the existing RFP responses are future possibilities to meet the need for additional wind resources discussed by witnesses Arora and Michels.

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Q. Since the 2020 and 2022 RFPs sought only projects to acquire, how did the Company go about identifying and developing the Vandalia and Bowling Green Solar Projects?

A. In early 2020, aligned with the Company's 2020 Integrated Resource Plan, Ameren Missouri began pursuing the addition of 1,200 MW of new renewable generation capacity by 2025. However, as Company witness Arora discusses, project development can take anywhere from 5-8 years to complete, given the time required to secure land rights and proceed through a MISO interconnection process. Based on this, the Company decided to pursue two pathways to obtain renewable projects on a more expedited timeline. An acquisition RFP was issued in 2020, as discussed above, to evaluate purchase options for mature projects that had already begun or secured both land rights and MISO interconnections. In parallel, to avoid multiple years of interconnection delays and cost risk, the team began pursing mid-sized self-developed projects that could connect to Ameren Missouri's sub-transmission system and thereby avoid the MISO interconnection queue. The team focused on two key evaluations for the self-developed opportunities; the first was to identify sites and secure land adjacent to Ameren Missouri's 69kV sub-transmission lines, substations, and customer load; the second evaluation was to bid and select an EPC contractor for such projects.

Q. How were project sites determined when deciding where to self-develop a project?

A. The Company analyzed property currently owned by Ameren Missouri, current properties on the market, and properties that could be pursued but not presently for sale within the Ameren Missouri service territory. Property evaluations and rankings were completed for land presently owned by Ameren Missouri (at the time of the analysis) and compared to land on the

market (at the time of the analysis) and agricultural land evaluations. The screening method considered 13 different criteria and ranked each of the properties' potential. The screening criteria utilized included: proximity to sub-transmission, distribution lines, or substations (34.5 or 69 kV), a minimum of 350 acres of usable space, suitable terrain (flat land, minimal trees, accessible, no or few waterways), land not needed for other future Company needs, flood plain considerations, nearby lines and substations capable of adding a minimum of 50 MW-AC capacity, time and expense needed to obtain the land, minimization of site work required to develop the land for solar use, and zoning for solar field (industrial, commercial, or agriculture).

Upon completion of the land evaluations, it was determined that existing Ameren Missouri-owned properties were either not located adjacent to an acceptable interconnection point, were in a flood plain, or were too small to be of interest. Bowling Green and Vandalia emerged as the highest-ranking sites, and therefore were pursued and purchased in 2021 and 2023 respectively. In general, the land at the Bowling Green site has gentle slopes with some forestation but mostly consists of open fields. This plot of land is 440 acres, very close to the Peno Creek Energy Center, and is near a 69-kV circuit. The Vandalia project land is nearly completely cleared of all trees due to its use as a row-crop farm. The site is exceptionally flat with changes in elevation over the 400 acres of less than 20 feet. It is also located one-quarter mile from an Ameren Missouri 69-kV sub-transmission circuit to the east.

Q. What were the primary criteria applied in evaluating the EPC bids for Bowling Green and Vandalia?

A. Ameren Missouri evaluated each bidder's submittal in a consistent and objective manner. Responses to questions or requirements identified in the RFP formed the primary basis of the evaluation. The contract development team developed an RFP scorecard matrix to evaluate

the submittals. Submittals were evaluated on several key factors that include, but were not limited to, the following: compliance with specification format and completeness of bid proposal, design/technology/major equipment, safety record, project plan, project team and staff, past performance and references, project schedule, diversity plan, commercial terms and conditions of contract, and price and proposed percent mark-ups. EDF Renewables was the firm that most fully met Ameren Missouri's overall contract and project requirements and was awarded the EPC contract for both Vandalia and Bowing Green.

Q. You noted earlier that Vandalia and Bowling Green were companion projects and that this created efficiencies and synergies that effectively made the two combined projects a 100 MW project from an economic standpoint. Please elaborate.

A. Both the Vandalia and Bowling Green Solar Projects were competitively bid on a standalone basis. However, as we evaluated the EPC contractor bids, it was apparent that the same EPC contractor should be selected for both. Moreover, with the same EPC contractor selected, we were able to align project schedules and procurement activities for the two projects in a way that will enable EDF to stagger construction and utilize the same construction, engineering, and design resources for both projects, thus lowering overall costs.

V. PROJECT RISK MITIGATION

Q. Please outline the primary risks associated with development and construction of utility scale solar projects.

A. All projects carry risks, and that is true for each Project within this filing. The main risks associated with the Solar Projects are as follows:

1. Supply chain volatility and impacts to project costs;
2. Change in law/tariff uncertainty;

3. Construction risk; and

4 Interconnection risks.

Q. Please elaborate on current supply chain volatility in the solar industry.

A. Supply chain disruption continues to impact many industries, including the U.S. solar energy sector, due to the high demand for major solar equipment coupled with a heavy reliance on foreign raw materials, components, and equipment manufacturing. Supply chain challenges in the global solar supply chain continue to lead to project delays and increased costs for developers that in turn impact contractual arrangements and financing commitments.

Q. How is the Company managing supply chain risk for the Solar Projects?

A. The Company has leveraged its own buying power, maintained favorable contract terms, and partnered with developers and EPC contractors that have expertise and strategic partnerships to ensure the Solar Projects can secure equipment or manufacturing capacity in advance of construction.

Under the Split Rail Solar BTA, Invenergy's obligation to complete the Split Rail Project is conditioned upon meeting the Firm Date Conditions discussed above, including finalizing material Project contracts for key Project equipment and construction services, and delivering a final Project cost at the start of construction which is lower than a contractually set cost ceiling. The Company has the right to terminate the agreement if the Project cost exceeds the price cap at the Firm Date deadline, providing protection against extreme increases in material costs due to supply chain constraints. To further manage the risk associated with supply chain volatility, the Split Rail BTA requires the Module Supply Agreement and other major construction contracts to be competitively bid well in advance of firm date, providing up-to-date market data and supply optionality.

The Cass County Solar PSA has fully executed contracts with known cost for the transformers, solar modules, and EPC contractor, excluding force majeure or change orders. These executed contracts nearly eliminate supply chain volatility risk from the Cass County Solar Project.

The Vandalia and Bowling Green Solar Projects utilized a competitive RFP to select EDF as its EPC contractor. This will allow these projects to utilize EDF's procurement expertise and strategic panel supply partnerships, enabling access to beneficial terms such as rights to certain manufacturing capacity, cancellation rights, and improved pricing and delivery terms for key components. Furthermore, Ameren Missouri will supply its own main transformers for Vandalia and Bowling Green and has already placed orders for those transformers to mitigate the price and delivery risk of these long lead items.

Q. Please elaborate on the key change in law/tariff uncertainty risks for the Solar Projects.

A. On March 28, 2022, the U.S. Department of Commerce ("U.S. DOC") launched an anti-dumping circumvention ("AD/CVD") investigation of solar panels being imported from Cambodia, Malaysia, Thailand, and Vietnam ("CMTV"). The investigation alleged that those four countries are utilizing parts manufactured in China to produce solar panels that would otherwise be subject to a tariff. The investigation is ongoing. However, on September 16, 2022, the U.S. DOC released a final rule implementing President Biden's June 6, 2022, Proclamation 10414, which declares an emergency with respect to the U.S. energy market, and temporarily waives the collection of AD/CVD duties for certain solar panels and modules. The waiver applies to imports of photovoltaic cells and modules completed in CMTV, containing parts or components from China that meet the following criteria:

- They were entered or withdrawn from warehouse for consumption prior to June 6, 2024 (or any earlier date if the President decides to terminate the national emergency declared in Proclamation 10414);
- They were not already subject to the scope of the orders against panels and modules from China or Taiwan; and
- They were not already subject to an anti-circumvention order.

In the final rule, the U.S. DOC added a requirement that solar panels or modules benefiting from the two-year waiver must be utilized in the United States within 180 days following the date of termination of Proclamation 10414 (which terminates June 6, 2024), which would require utilization on or before December 6, 2024. The definition of "utilization" also contains the following provision: "Merchandise which remains in inventory or a warehouse in the United States, is resold to another party, is subsequently exported, or is destroyed after importation is not considered utilized"[12] for purposes of the waiver of duties. Though the IRS has not officially defined 'utilized', tax professionals in the industry have provided the opinion that having the panels staged at their final location and ready to install by December 6, 2024 meets the intent.

On December 8, 2022, the U.S. DOC preliminarily determined that imports of certain crystalline silicon photovoltaic cells, whether assembled into modules or not, that were exported from CMTV using parts and components produced in the People's Republic of China (China) are circumventing the AD and CVD orders on solar cells and modules from China. At this time, the companies found not to be circumventing are: Boviet, Jinko, and New East Solar. Therefore, based on the preliminary determination, most solar deliveries from CMTV will have varying amounts of tariffs imposed based upon the level of circumvention determined for each specific supplier. The

[12] Proclamation 10414, Declaration of Emergency and Authorization for Temporary Extensions of Time and Duty-Free Importation of Solar Cells and Modules from Southeast Asia; *Final Rule*, 87 Fed. Reg. at 56,870

final determination on the investigation is expected in the third quarter of 2023, however final tariff calculations for each supplier will be calculated on an annual basis, thereby creating ongoing uncertainty for solar projects.

Q. How has the Company responded to this tariff risk for the Solar Projects?

A. For the Split Rail Solar Project, tariff risks are reduced through ***_____ _____ _____ _____ _____ _____ _____ _____ _____.***

For the Cass County Solar Project, in addition to having an executed Module Supply Agreement with strong terms, the Project is being executed to an equipment delivery and construction schedule which will allow the solar panels to be "utilized" before December 6, 2024, thereby avoiding certain tariffs as waived under President Biden's June 6, 2022, Proclamation 10414.

For the Vandalia and Bowling Green Projects, Ameren Missouri has termination rights if the target price, which includes delivered costs of the modules, is exceeded prior to start of construction. In addition, the Vandalia and Bowling Green Projects will benefit from the strong purchasing power and module supply terms EDF has optimized on their other past projects, similar

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to those used for the Huck Finn project that was recently approved by the Commission. The module supply terms are expected to include cancellation terms and price caps related to tariffs.

Q. Please address the risk related to the Uyghur Forced Labor Prevention Act ("UFLPA").

A. The UFLPA was signed into law by President Biden on December 23, 2021 and took effect on June 21, 2022. UFLPA prohibits the importation of any goods produced or manufactured "wholly or in part" in the Xinjiang Uyghur Autonomous Region of the People's Republic of China, due to forced labor concerns. Passage of the UFLPA has led to significant importation delays at U.S. customs, and without strategic panel sourcing to ensure limited risk of UFLPA violation, solar panel shipments risk being stranded at U.S. ports, unable to clear customs.

Q. How has the Company mitigated this risk for the Solar Projects?

A. To mitigate this risk for Split Rail, Vandalia and Bowling Green, Ameren Missouri will request that the selected Module Supplier meet the importation obligations of the UFLPA to prove that its imports are outside the scope of the UFLPA, or within the scope but eligible for an exception as defined by the UFLPA. Further, Ameren Missouri intends to require the Module Supplier to provide representations within the Module Supply Agreement to state they will not source or manufacture the modules or any components thereof and are not utilizing materials or resources that are the products of forced labor. Ameren Missouri also intends to require that the developer or contractor have inspection rights at the selected Module Supplier facility for a third party to conduct a quality and supply chain audit. Ameren Missouri will either utilize the developer/contractor existing consultant or seek another independent third party to conduct an evaluation of the importation obligations on behalf of the Company.

For Cass County Solar Project, to mitigate UFLPA risks, ***[redacted].***

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Q. Please address the risks associated with construction activities and the mitigating actions the Company has taken to address such risks for the Solar Projects.

A. The transition to renewable generation resources is occurring nationally, and the passage of the Inflation Reduction Act in 2022 has significantly increased near-term demand for key renewable energy equipment as well as construction labor to construct renewables projects. Additionally, high U.S. inflation and a constrained construction labor market has contributed to increased labor costs economy wide. The Company has worked to mitigate the constraints associated with construction resources by staggering project construction schedules, bid out projects far in advance to review and awarded contracts to secure labor, has sought to realize synergies between projects for materials and construction labor when possible, and expanded our bid list to encompass a wide array of labor resources to add depth in the labor pool. Further, the primary labor, construction, and schedule risks have been transferred to the developers and EPC contractors through the BTA for Split Rail, and the executed EPC agreements for Cass County, Vandalia, and Bowling Green. Under each of these agreements it is the responsibility and obligation of the developer or contractor to supply labor, equipment and manage construction activities to meet the project schedule milestones. To further assure the schedule obligations are met, the project agreements include liquidated damages for delays in meeting the project milestones such as mechanical completion or substantial completion.

Q. Please address the risks associated with interconnection activities and how the Company has mitigated these risks for the Solar Projects.

A. The MISO generator interconnection process has prolonged renewable development and created delays now averaging 4-5 years. Such delays can have significant impacts on project schedules and costs. For example, if the transmission interconnection studies

are delayed, this in turn causes uncertainty in the ability to interconnect the project and in the cost associated with the interconnection, delaying equipment procurement and preventing cost certainty.

However, the Solar Projects at issue in this case face very minimal risk associated with interconnection activities. The Split Rail and Cass County Solar Projects completed the MISO interconnection process and have executed GIAs with the transmission owner and MISO. The GIA authorizes the Projects to interconnect to the MISO transmission system and will have full Energy Resource Interconnection Services and Network Resource Interconnection Service upon completion of the necessary transmission system upgrades as further defined in the GIA. Having a signed GIA provides certainty on interconnection costs and schedules thereby mitigating almost all transmission interconnection risks for the Split Rail and Cass County Solar Projects.

The Vandalia and Bowling Green Solar Projects are distribution-level projects. Therefore, they are not required to follow MISO's interconnection queue process and have no transmission interconnection risk. Distribution-level interconnection studies have been completed by Ameren Missouri for both Projects, ensuring the Projects can interconnect to the Company's 69-kV distribution system.

VI. ECONOMIC DEVELOPMENT

Q. Do the Solar Projects represent an economic development opportunity for the State of Missouri and surrounding region?

A. Yes, the economic impact of the Split Rail, Cass County, Vandalia, and Bowling Green Projects on the state and region will be positive. We anticipate that over 900 high-quality construction jobs will be created while the Solar Projects are being constructed – approximately 700 jobs in Missouri and 200 jobs in Illinois. After construction is complete, approximately three

or more permanent jobs will be required to operate the Solar Projects. In addition, landowners for the Split Rail and Cass County Solar Projects will receive ***_____*** in lease payments during the Projects' operation. And finally, local governments will benefit from more than ***_____*** (on a present value basis) in property taxes or payments made in lieu of taxes over the life of the projects, approximately ***_____*** of which will benefit counties in Missouri. In addition to these direct economic benefits, indirect benefits will be realized by restaurants, gas stations, hotels, stores and other businesses in the vicinity of the Projects. The benefits will be felt throughout the state of Missouri well beyond the project areas including from those projects being constructed in Illinois. And as Company witness Wills notes, increasing the Company's portfolio of renewable energy resources will continue to assist in attracting or retaining commercial and industrial customer loads given the importance of renewable energy to those customers, and some of the capacity from the Solar Projects may be utilized for additional phases of the Renewable Solutions Program approved by the Commission in its order in the Boomtown CCN docket.

VII. CONCLUSION

Q. What are your conclusions regarding the Solar Projects?

A. The Solar Projects are competitive, cost-effective additions to Ameren Missouri's generation portfolio. The Split Rail BTA and Cass County PSA contract structures allow Ameren Missouri to leverage the developer's expertise with solar generation to acquire a late-stage solar project in both Missouri and Illinois. Further, the self-developed Vandalia and Bowling Green Solar Projects are uniquely located and allow two projects to be installed consecutively thereby reducing overall development risk and cost while leveraging the construction and strategic procurement expertise of EDF. Through terms and conditions captured within each of the key

agreements, the Company can effectively manage and mitigate key risks associated with the Solar Projects. Therefore, I recommend the Commission grant Ameren Missouri the relief requested in its application.

Q. Does that conclude your direct testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

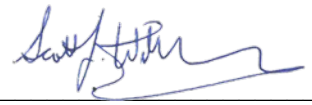
In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for a Certificate of Convenience and Necessity for Solar Facilities	)))	EA-2023-0286

AFFIDAVIT OF SCOTT WIBBENMEYER

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

Scott Wibbenmeyer, being first duly sworn on his oath, states:

My name is Scott Wibbenmeyer, and hereby declare on oath that I am of sound mind and lawful age; that I have prepared the foregoing *Direct Testimony*; and further, under the penalty of perjury, that the same is true and correct to the best of my knowledge and belief.



Scott Wibbenmeyer

Sworn to me this 16th day of June, 2023.