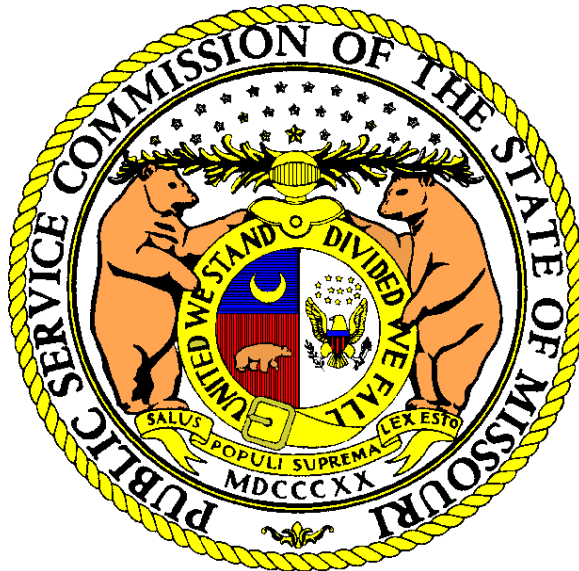


# MISSOURI PUBLIC SERVICE COMMISSION

## STAFF REBUTTAL REPORT



UNION ELECTRIC COMPANY,  
d/b/a Ameren Missouri

CASE NO. EA-2019-0371

*Jefferson City, Missouri*

*December 2019*

\*\*\* Denotes Highly Confidential Information \*\*\*

\*\* Denotes Confidential Information \*\*

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**UNION ELECTRIC COMPANY,**  
**d/b/a Ameren Missouri**  
**CASE NO. EA-2019-0371**

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**STAFF REBUTTAL REPORT**  
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***I. Executive Summary***

On September 3, 2019, Union Electric Company, d/b/a Ameren Missouri (“Ameren Missouri”) filed an Application requesting three Certificates of Convenience and Necessity (“CCNs”) under subsection 1 of Section 393.170 RSMo. (2018) to construct, install, own, operate, maintain, and otherwise control and manage a solar generating asset to be constructed near Green City, Missouri in Sullivan County (“Green City Project”); a solar generating asset to be constructed near Richwoods, Missouri in Washington County (“Richwoods Project”); and, a solar generating asset to be constructed near Utica, Missouri in Livingston County (“Utica Project”) (collectively, “the projects”). According to the Application, each of the generating assets will be paired with battery storage “to address reliability concerns and an alternative to a traditional ‘wires only’ solution.” (The projects are more specifically described throughout Staff’s Rebuttal Report.) Ameren Missouri indicates the battery storage to be paired with the solar generating assets for each project is not an “asset” as defined in 20 CSR 240-20.045(1)(A); thus, Ameren Missouri is not seeking CCNs for any of the battery storage components of the projects.

On November 25, 2019, Ameren Missouri filed its Request for Leave to Amend its Original Application and Amended Application (“Amended Application”) (collectively, “Application”). In its Amended Application, Ameren Missouri requested four CCNs under subsection 1 of Section 393.170 RSMo (2018). The Amended Application included the projects discussed above, but also included a request for a CCN to construct a distribution asset, as defined in 20 CSR 4240-20.045(1)(A), outside of its certificated service territory as part of the Utica Project. The Amended Application also included the amended Direct Testimony of Kevin Anders and Supplemental Direct Testimony of Rex Jenkins.

Ameren Missouri’s Application and the Direct Testimony of Ameren Missouri witness Tom Byrne discuss the applicability of Section 393.1665 RSMo. (2018) to the proposed projects

1 and Mr. Byrne comments on the Tartan Factors<sup>1</sup> the Commission and Staff traditionally analyze  
2 when reviewing CCN applications. According to Ameren Missouri, Section 393.1665 makes  
3 moot the requirement for Ameren Missouri to demonstrate a need or the economic feasibility for  
4 the projects in the instant Application. Since this is largely a legal argument it will be addressed  
5 in a contemporaneous filing with this Rebuttal Report and during the Oral Argument scheduled  
6 on January 7, 2020; however, Staff notes this argument in Section VI.A. of this Rebuttal Report  
7 since Mr. Byrne raises it in testimony.

8 **A. Tartan Criteria**

9 Consistent with its review of CCN applications, Staff reviewed the instant Application  
10 using the Tartan Factors. A summary of each factor follows.

11 *1. Need for the Project*

12 Ameren Missouri asserts there are reliability issues on the circuits in which the projects  
13 will be located. Staff reviewed various metrics, the outage history, number of customers served,  
14 critical infrastructure served, Ameren Missouri's internal project reports related to wired  
15 alternatives and studies and other potential project risks. In Section VI.B.1. of this Rebuttal  
16 Report, Staff witness Claire M. Eubanks, PE explains that, based on Staff's review, Staff does  
17 not find there is a need for the projects which justify the cost.

18 *2. Economic Feasibility of the Project*

19 Staff reviewed the economic feasibility studies prepared by Ameren Missouri. In  
20 Section VI.B.2. of this Rebuttal Report, Staff witness Jason Kunst, CPA notes that a primary  
21 reason for the economic feasibility of the projects is the investment tax credit. Based on Staff's  
22 review, the proposed projects are economically feasible.

23 *3. Ability of the Applicant to Finance the Project*

24 In Section VI.B.3. of this Rebuttal Report, Staff witnesses Jason Kunst, CPA and  
25 Paul K. Amenthor explain the cost estimate for the three projects is relatively small in  
26 comparison to some other Ameren Missouri construction projects. Messer's Kunst and Amenthor  
27 indicate that completion of past large construction projects demonstrates that Ameren Missouri  
28 has the financial ability to construct the proposed projects because of its access to the necessary  
29 equity and debt capital that will be needed.

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<sup>1</sup> *In Re Tartan Energy*, GA-94-127, 3 Mo.P.S.C.3d 173, 177 (1994).

1           4. *Qualifications of the Applicant to Construct the Project*

2           In Section VI.B.3 of this Rebuttal Report, Staff witnesses Jason Kunst, CPA and  
3 Paul K. Amenthor explain that Ameren Missouri has a proven record for completing significant  
4 and complex capital projects. In Section VI.B.4 of this Rebuttal Report, Staff witness Cedric E.  
5 Cunigan discusses projects that Ameren Missouri and Ameren Illinois have completed. He also  
6 notes EDF Renewables, Inc. (“EDF”), Ameren Missouri’s contractor, is a known contractor in  
7 the renewables field. EDF has constructed solar projects since 2008 from small distribution  
8 scale projects to grid scale projects. Staff is not concerned with Ameren Missouri’s or EDF’s  
9 qualifications to construct the three projects.

10           5. *Whether the Project is in the Public Interest*

11           In Section VI.B.5. of this Rebuttal Report, Staff witness Claire M. Eubanks, PE explains  
12 whether the projects are in the public interest. The Commission has stated that an affirmative  
13 finding on the first four factors generally leads to the conclusion that the final factor, public  
14 interest, is satisfied. Some of Staff’s analysis of the individual Tartan Factors necessarily  
15 overlaps with its analysis of other Tartan Factors. For instance, as demonstrated in this Rebuttal  
16 Report, it appears the Projects meet the “economic feasibility” factor when viewed in and of  
17 itself, but when reviewed in the context of the “need” for the projects, Staff explains that the  
18 Projects are not economically feasible. Based on its analysis, Staff does not find there is a need  
19 for the Projects that would justify the cost. However, recognizing the importance of gaining  
20 insight into Solar + Storage solutions, Staff would be supportive of the Richwoods Project  
21 moving forward as a pilot project since the Richwoods Project impacts more customers, serves  
22 more customers who are considered to be critical infrastructure, and load growth is projected in  
23 the future in comparison to the other projects. In Section VI.B.1 of this Rebuttal Report, Staff  
24 recommends various conditions should the Commission approve any CCN in this case.

25 *Staff Expert/Witness: Natelle Dietrich*

26 **II. *Application Overview***

27           Ameren Missouri has proposed three distinct Solar + Storage projects in its Application.  
28 All three projects are intended to address a reliability concern commonly referred to as a single  
29 supply substation. A single supply substation is a distribution substation with a radial sub-

transmission line as a feeder (i.e. a single flow path) rather than a network of lines which would provide multiple paths of energy flow.

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<sup>2</sup>

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The Commission should note Ameren Missouri has not requested a Certificate of Need and Necessity for the battery energy component of these projects, asserting batteries do not require Commission approval per the definition of an “asset” in 20 CSR 4240-20.045(1)(A). Additionally, Ameren Missouri claims that the Commission’s traditional practice of assessing the Tartan Factors of need and economic feasibility are superseded by Section 393.1665 RSMo. (2018).<sup>3</sup> This statute includes a requirement for a \$14 million dollar investment in solar that shall be deemed prudent. However, Ameren Missouri is also pursuing a Neighborhood Solar program, which it does not intend to request a CCN for.<sup>4</sup> Additionally, the costs of all three projects combined, including the battery components, is \$69 million dollars, well over the required \$14 million investment in utility-scale solar.<sup>5</sup>

*Staff Expert/Witness: Claire M. Eubanks, PE*

### **III. Application Requirements**

On September 3, 2019, Ameren Missouri filed its Application for three CCNs. Ameren Missouri filed an Amended Application on November 25, 2019, to include an additional CCN request among other changes. The CCN requests were for solar generating assets for the Green City Project in Sullivan County, the Richwoods Project in Washington County, the Utica Project in Livingston County, and a construction certificate for a distribution asset attached to the Utica Project. A section of the regulations for CCN applications, 4 CSR 240-3.105, was recently rescinded (“Rescinded Rule”) and replaced in a 2018 rulemaking with 4 CSR 240-20.045. This

<sup>2</sup> Response to Staff Data Request No. 0015.

<sup>3</sup> Direct Testimony of Tom Byrne, page 5, lines 20-22.

<sup>4</sup> Notice to Update a Portion of Integrated Resource Plan Update filed on August 28, 2019 in File No. EO-2019-0314, see page 2, paragraph 9.

<sup>5</sup> Application, page 7.

## Rebuttal Report

rule was challenged in the Missouri Court of Appeals, Western District, which issued an opinion<sup>6</sup> on June 28, 2019. Ultimately, the Western District vacated the Order of Rulemaking promulgating 4 CSR 240-20.045 (“Vacated Rule”). Both Kansas City Power & Light Company and the Missouri Public Service Commission filed Applications for Transfer with the Supreme Court of Missouri in Case No. APSC98039 on August 13, 2019 and August 14, 2019, respectively. On November 19, 2019, the Supreme Court of Missouri accepted transfer of the case. 4 CSR 240-20.045 was then moved to 20 CSR 4240-20.045 effective August 28, 2019 with the transition of the Public Service Commission from the Department of Economic Development to the Department of Commerce and Insurance. Since the appeal is ongoing, a comparison of requirements of the Rescinded Rule and the Vacated Rule is provided below. Staff used 20 CSR 4240-20.045 (the new location of 4 CSR 240-20.045) to evaluate the Application, as 20 CSR 4240-20.045 was in effect at the time the Application was received.

Requirement	4 CSR 240-3.105	20 CSR 4240-20.045
Description of the route of construction	✓	✓
List of utilities and railroads crossed	✓	✓
Plans and specifications for the project and estimated cost of construction <sup>7</sup>	✓	✓
Plans for financing	✓	✓
Evidence of approval of governmental bodies or a statement that none are required	✓	
Facts showing the granting of the application is required by the public convenience and necessity	✓	✓
The option to furnish information at a later date, prior to granting the of the authority sought	✓	✓
The option for Commission to condition approval upon submission of required information at a later date		✓
Description of common plant		✓

<sup>6</sup> *Matter of Amendment of Commission's Rule Regarding Applications for Certificates of Convenience & Necessity; Kansas City Power and Light v. Missouri Public Service Commission*, No. WD 82182.

<sup>7</sup> 4 CSR 240-3.105 required the submittal of the plans and specifications for the complete construction project and estimated cost of the construction project whereas 4240-20.045 requires a description of the plans, specifications, and estimated costs for the complete scope of the construction project that also clearly identifies what will be the operational features of the asset once it is fully operational and used for service.

Requirement	4 CSR 240-3.105	20 CSR 4240-20.045
Description of how construction relates to preferred plan under 4 CSR 240-22.		✓
Option for the Commission to condition approval as it deems reasonable and necessary		✓
Overview of plans regarding competitive bidding		✓
Overview of plans to restore safe and adequate service after significant unplanned/forced outages		✓
Notice to landowner affected by transmission routes or substation locations		✓

Ameren Missouri provided a description of the projects in its Application. Each project will combine a 10 MW solar generating asset with 2 to 4MW of battery storage.<sup>8</sup>

Ameren Missouri included a list of utility crossings inside the project area in Schedule C of its Application.

Ameren Missouri provided some project specification in Schedules B and D of its Application. \*\*

\*\*

Ameren Missouri provided in its Application an anticipated start date in 2020 and anticipated completion of the projects by December 31, 2020.<sup>9</sup>

Ameren Missouri stated in its Application that there is no common plant applicable to these projects.

Ameren Missouri plans to finance the projects using existing funds and indebtedness. Further discussion regarding financing is provided in Section VI.B.3. of this Rebuttal Report.

Ameren Missouri states in Schedule E of its Application that the Projects are not necessary for Renewable Energy Standard (“RES”) compliance, but are a part of Ameren Missouri’s Smart Energy Plan and not inconsistent with the preferred plan identified in the 2017

<sup>8</sup> Revised Direct Testimony of Kevin Anders lists storage capacities of 2.5 MW for the Green City Project, 4MW for the Richwoods Project, and 2 MW for the Utica Project.

<sup>9</sup> Application page 7, paragraph 21.

1 Integrated Resource Planning (“IRP”) process. In response to Staff Data Request No. 0041,  
2 Ameren Missouri states that the need for Solar + Storage systems were not identified in the IRP  
3 process, but were considered as a part of distribution planning. However, in response to Staff  
4 Data Request Nos. 0015 and 0015.1, Ameren Missouri states that the June 2018 deployment  
5 plan, which included identification of circuits capable of supporting utility-scale solar and could  
6 also benefit from battery energy storage systems for backup during power outages, was  
7 developed to meet solar targets identified in the 2017 IRP.

8 Ameren Missouri issued a RFP to allow for competitive bidding. The proposals were  
9 evaluated by a cross-functional team within Ameren Missouri and contracts were executed with  
10 the winning bidder.

11 Ameren Missouri provided a draft operation procedure, which includes restoration of  
12 service of assets in Schedule G of its Application.

13 These projects should not require electric transmission lines, therefore, 20 CSR 4240-  
14 20.045(6)(K) is not applicable.

15 For items that are required by 20 CSR 4240-20.045, but unavailable at the time of  
16 application, Subsection (3)(C) allows for later submission of the unavailable items prior to  
17 approval of the application or with approval conditioned on providing the unavailable items<sup>10</sup>.  
18 Ameren Missouri has met the initial filing requirements for the Application but should submit  
19 updated plans and project specifications as they are available.

20 *Staff Expert/Witness: Cedric E. Cunigan*

#### 21 **IV. Overview of Projects**

22 The Green City Renewable Energy Center will be located near Green City, Missouri on a  
23 sub-transmission circuit named GARD-74. Green City, MO is located in Adair and Sullivan,  
24 Missouri. The Green City Project is located within Ameren Missouri’s service area in Sullivan,  
25 Missouri<sup>11</sup> and will include 10 MW AC of single-axis tracking photovoltaic (“PV”) solar panels.

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<sup>10</sup> 20 CSR 4240-20.045(3)(C) “If any of the items required under this rule are unavailable at the time the application is filed, the unavailable items may be filed prior to the granting of authority by the commission, or the commission may grant the certificate subject to the condition that the unavailable items be filed before authority under the certificate is exercised.”

<sup>11</sup> M.O. P.S.C. Schedule No. 6, Original Sheet 46 indicates Section 17 and 18 of 63N 18W is part of Ameren Missouri’s Service Area.

Single-axis means the solar panels will be able to rotate on one axis. Ameren Missouri's previous solar installations were fixed tilt which means the solar panels are fixed in position. The Green City Project includes a 2.5 MW battery energy storage system.

The Richwoods Renewable Energy Center will be located near Richwoods, Missouri on a sub-transmission circuit named ESTR-73. The Richwoods Project will include 10 MW AC of single-axis tracking PV solar panels and a 4 MW battery energy storage system.

The Utica Renewable Energy Center will be located near Utica, Missouri on a sub-transmission circuit named RAIL-72. The Utica Project will include 10 MW AC of single-axis tracking PV solar panels and a 2 MW battery energy storage system. A separate CCN request was filed for the energy storage battery and distribution assets with the Utica Project due to the project being located outside of Ameren Missouri's service territory.

The Battery Energy Storage System component of the three projects will have the following capabilities: black start (substation), grid forming, islanding, renewable energy smoothing, and power quality maintenance.<sup>12</sup> The Utica and Green City Projects will be primarily used during an outage, whereas the Richwoods Project will also be used to shift load.

#### **A. Asset Definition**

Commission Rule 20 CSR 4240-20.045(1)(A) defines asset as follows:

(A) Asset means:

1. An electric generating plant, or a gas transmission line that facilitates the operation of an electric generating plant, that is expected to serve Missouri customers and be included in the rate base used to set their retail rates regardless of whether the item(s) to be constructed or operated is located inside or outside the electric utility's certificated service area or inside or outside Missouri; or
2. Transmission and distribution plant located outside the electric utility's service territory, but within Missouri;

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<sup>12</sup> A black start is the process of restoring the electric grid (in this case the circuit) to operation without relying on the external transmission network.

Islanding is a condition where a portion of the electric power system is energized while electrically separated from the rest of the system.

Renewable energy smoothing refers to the ability to time-shift renewable energy generation to match demand.

Power quality maintenance refers to maintaining voltage and frequency tolerances.

As previously discussed, Ameren Missouri asserts that the battery energy storage system portion of the solar facility does not fit in the definition of an “asset” under 20 CSR 4240-20.045(1)(A). However, according to Ameren Missouri, the battery energy storage systems and the solar panels are two necessary components of the proposed projects. Ameren Missouri noted several times in response to Staff Data Request No. 0033 that both components are necessary for reliability improvement:

The combination of both solar and battery was determined to be essential to provide a distribution solution so no evaluation was performed that looked at solar or battery in isolation.

There was no analysis done for a solar facility only as it does not provide a sufficient reliability solution.

Further, pairing the solar and storage together allows for a significant reduction in the size of the batteries.<sup>13</sup> Regardless of whether or not battery energy storage systems fall under the definition of an “asset,” in this case it is clear that the solar and storage components are both essential components of the proposed projects; therefore, Staff recommends the Commission regard each Solar + Storage facility as one single asset for purposes of deciding whether or not to grant the Certificate of Convenience and Necessities.

*Staff Expert/Witness: Claire M. Eubanks, PE*

## **V. Background Information**

### **A. Reliability and Resiliency**

Ameren Missouri has proposed the three Solar + Storage projects as options to solve reliability issues on three sub-transmission circuits and asserts the projects increase reliability and resiliency.

Reliability is the ability of the electric system to supply power at all times and withstand sudden disturbances. Commission rule 20 CSR 4240-23.010 establishes reliability monitoring and reporting requirements for the investor owned electric utilities, often referred to as reliability metrics. Reliability metrics are used to assess the operational performance of the distribution system in terms of reliability. These indices are affected by customer density, tree density,

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<sup>13</sup> Kevin Anders Revised Direct Testimony, page 13, lines 11- 19.

geography, observed weather, and other factors that may be beyond the control of the utilities.  
The reliability metrics<sup>14</sup> required by Commission Rule 23 are:

SAIFI (System Average Interruption Frequency Index)

- A gauge for outage frequency
- $SAIFI = \frac{\text{Total number of customer interruptions for the period covered}}{\text{Total number of customers served}}$

CAIFI (Customer Average Interruption Frequency Index)

- A gauge for frequency of customer interruptions
- $CAIFI = \frac{\text{Total number of customer interruptions for the period covered}}{\text{Total number of customers affected}}$

SAIDI (System Average Interruption Duration Index)

- A gauge for outage duration
- $SAIDI = \frac{\sum \text{All customer interruption durations}}{\text{Total number of customers served}}$

CAIDI (Customer Average Interruption Duration Index)

- A gauge for average time to restore service
- $CAIDI = \frac{\sum \text{All customer interruption durations}}{\text{Total number of customers interrupted}}$

The investor-owned utilities are required to perform a worst performing circuit analysis per 20 CSR 4240-23.010(6). This analysis identifies its top five percent (5%) worst performing circuits by ranking the SAIFI values computed for each circuit. The annual reporting requirements include reporting on actions taken or planned to improve the worst performing circuits.

Ameren Missouri considers additional reliability metrics above the Chapter 23 requirements. These include CERT and CARE.<sup>15</sup>

Resiliency can be defined as the “[r]obustness and recovery characteristics of utility infrastructure and operations which avoid or minimize interruptions of service during an

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<sup>14</sup> The listed Reliability metrics are calculated with and without major storm events included per IEEE 1366-2003.

<sup>15</sup> Response to Staff Data Request Nos. 0008.2 and 0008.11. CARE represents premises which experienced either of the following for 3 consecutive years: an outage reaching or exceeding 8 hours in duration in a year or a premise which experienced three or more interruptions in a year. CERT: Premises which experienced the following for 3 consecutive years: 18 total hours of interruption in each year and seven or more interruptions in each year. CERT is a new metric Ameren Missouri began tracking this year developed by Ameren Illinois. CARE is an Ameren Missouri internally developed metric.

extraordinary and hazardous event.”<sup>16</sup> The Commission Rules do not require a similar reporting metric related solely to resiliency.

## B. Non-wires Alternatives

Non-wires alternatives (“NWAs”) are defined as “an electricity grid investment or project that uses non-traditional transmission and distribution (“T&D”) solutions, such as distributed generation (“DG”), energy storage, energy efficiency (“EE”), demand response (“DR”), and grid software and controls, to defer or replace the need for specific equipment upgrades, such as T&D lines or transformers, by reducing load at a substation or circuit level,” (Navigant, 2017). NWAs may be used individually or in combination. In this case Ameren Missouri is proposing to combine energy storage with solar as a non-wires alternative on three separate sub-transmission circuits.

Benefits from NWAs include deferred or avoided distribution capital investments such as upgrades to or replacement of feeders, substations, and transformers. For the Green City and Utica Projects, Ameren Missouri is proposing a NWA to avoid a distribution capital investment in an additional feeder and substation, which would provide redundant supply to the area. For the Richwoods Project, Ameren Missouri is proposing a NWA to avoid re-conductoring or rebuilding a segment of the feeder. Ameren Missouri additionally outlines a wire solution for the Richwoods area which would involve an additional feeder and substation. Although Ameren Missouri asserts the projects defer other distribution investments, \*\* \_\_\_\_\_

\_\_\_\_\_ \*\* as stated in response to Staff Data Request No. 0004.2:

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Further, Ameren Missouri's response to Staff Data Request No. 0004 indicates that for all three projects an alternative was to \*\* . \*\*

<sup>16</sup> NARUC *Resilience in Regulated Utilities*, November 2013.

Staff is concerned with how Ameren Missouri is prioritizing distribution system projects in that it appears these projects were not considered under Ameren Missouri's previous method of using Service Availability Cost Factors.<sup>17</sup> Further, Ameren Missouri did not identify the need for these projects in its integrated resource planning process.<sup>18</sup> However, Staff is working on a revision to Chapter 22 related to planning for Distributed Energy Resources ("DERs") in File No. EW-2017-0245 and is hopeful that revisions will improve planning for DERs such as solar and storage.

*Staff Expert/Witness: Claire M. Eubanks, PE*

## **VI. Tartan Criteria**

### **A. Tartan Criteria Policy Overview**

In his Direct Testimony, beginning at page 4, line 19, Tom Byrne accurately states that the Commission has traditionally analyzed CCN applications using factors announced in a 1994 decision *In Re Tartan Energy*, GA-94-127, 3 Mo.P.S.C.3d 173, 177 (1994). He notes the Tartan Factors include: 1) Need for the Project; 2) Economic Feasibility of the Project; 3) Ability of the Applicant to Finance the Project; 4) Qualifications of the Applicant to Construct the Project; and 5) Whether the Project is in the Public Interest.

Mr. Byrne goes on to state that, in his opinion, the Commission does not have to determine the first two Tartan Factors – need and economic feasibility - citing Section 393.1665 RSMo (2018). Specifically, Mr. Byrne, at page 5, lines 14-16, states, "Subsection 3 of that statute provides that '[a]n electrical corporation's decision to invest in utility-owned solar facilities consistent with subsection 2 of this section shall be deemed to be prudent.' "

Section 393.1665, in pertinent part, states:

2. An electrical corporation with one million or more Missouri electric customers shall invest in the aggregate no less than fourteen million dollars in utility-owned solar facilities located in Missouri or in an adjacent state during the period between August 28, 2018, and December

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<sup>17</sup> Response to Staff Data Request No. 0055: "Ameren Missouri is no longer using the SACF [Service Availability Cost Factor] method to justify projects. A new methodology is being finalized to evaluate projects. This approach has both objective criteria and uses Ameren Missouri engineer's professional expertise to prioritize investments annually."

<sup>18</sup> Response to Staff Data Request No. 0041. Note Ameren Missouri's Application indicates these projects are not inconsistent with its preferred plan.

31, 2023. An electrical corporation with less than one million but more than two-hundred thousand Missouri electric customers shall invest in the aggregate no less than four million dollars in utility-owned solar facilities located in Missouri or in an adjacent state during the period between August 28, 2018, and December 31, 2023. An electrical corporation with two hundred thousand or fewer Missouri electric customers shall invest in the aggregate no less than three million five hundred thousand dollars in utility-owned solar facilities located in Missouri or in an adjacent state during the period between August 28, 2018, and December 31, 2023. If the rate impact of the electrical corporation's investment in such facilities would cause the electrical corporation to exceed the one percent maximum average retail rate increase limitation required by subdivision (1) of subsection 2 of section 393.1030, that part of such costs that would cause such one percent limitation to be exceeded shall be deferred by the electrical corporation to a regulatory asset. Carrying costs at the electrical corporation's weighted average cost of capital shall be added to the regulatory asset balance and the regulatory asset shall be recovered through rates set under section 393.150 or through a rate adjustment mechanism under section 393.1030, as soon as is practical.

3. An electrical corporation's decision to invest in utility-owned solar facilities consistent with subsection 2 of this section shall be deemed to be prudent. An electrical corporation shall not be required to obtain the permission of the commission to construct the facilities required by this section, notwithstanding the provisions of section 393.170. The commission shall retain the authority to review the specific costs incurred to construct and own the facilities to ensure that rates are based only on prudently incurred costs.

Ameren Missouri's position is further explained in its Application, where in paragraph 10, Ameren Missouri places emphasis on "no less than" in the following excerpt from subsection 2:

2... An electrical corporation with one million or more Missouri electric customers shall invest in the aggregate **no less than** fourteen million dollars in utility-owned solar facilities located in Missouri or in an adjacent state during the period between August 28, 2018, and December 31, 2023.

In paragraph 11, Ameren Missouri then points to subsection 3, stating, "Section 393.1665.3, RSMo. (2018) announces the Commission's role: 'An electrical corporation's decision to invest in utility-owned solar facilities consistent with subsection 2 [] shall be deemed prudent.'" In paragraph 12, Ameren Missouri notes that it will spend "at least \$14 million" as required by Section 393.1665.2 on Neighborhood Solar projects. Ameren Missouri concludes, in

paragraph 13, that the solar generating assets for the projects that are part of the instant Application are “deemed prudent under subsection 3 of Section 393.1665 RSMo” since they will be owned by Ameren Missouri, located in Missouri, and constructed before December 31, 2023.

Since this is largely a legal argument it will be addressed in a contemporaneous filing with this Rebuttal Report and during the Oral Argument scheduled on January 7, 2020; however, Staff wanted to note it in its Rebuttal Report since Mr. Byrne raises it in testimony.

The Application also states, “The battery storage to be paired with the solar generating assets for the Green City Project and Richwoods Project are not ‘assets’ as defined in 20 CSR 4240-20.045(1)(A), and therefore, Applicant does not seek a CCN for any of the battery storage components of those respective projects.”<sup>19</sup> In its Amended Application, Ameren Missouri explains that since filing its original application in September 2019, it discovered the location of the Utica Project is outside of its certificated service area; thus, Ameren Missouri requests a CCN for the energy storage battery and distribution facilities, “as an ‘asset’ as defined in 20 CSR 4240-20.045(1)(A), that will be located near Utica Missouri but outside of Ameren Missouri’s certificated service area.”<sup>20</sup> If the Commission only issues a CCN for the Richwoods Project as Staff recommends, or issues a CCN for some or all of the projects, Staff suggests it would be appropriate for the Commission to issue a CCN for the “project site(s)”.

*Staff Expert/Witness: Natelle Dietrich*

## **B. Tartan Factors**

### **1. Whether there is a need for the facilities and service**

#### **Overview**

In the context of the Tartan Criteria, Staff has interpreted “need” as a requirement for the applicant to demonstrate that there are benefits to the project which justify its cost. Ameren Missouri asserts there is a reliability need for the three Solar + Storage projects while maintaining that the Commission’s traditional practice of assessing the Tartan Factors of need and economic feasibility are superseded by Section 393.1665 RSMo. (2018).<sup>21</sup>

Staff has reviewed the merits of each of the three projects separately and concludes there is not a need for the projects that justify the cost. However, Staff is interested in the Solar +

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<sup>19</sup> Application, page 2. November 25, 2019.

<sup>20</sup> *Id* at page 2-3.

<sup>21</sup> Direct Testimony of Tom Byrne, page 5, lines 20-22.

Storage solution and would be supportive of one of the projects moving forward as a pilot, preferably the Richwoods Project.

### **Need Evaluation**

Ameren Missouri asserts there are reliability issues on the circuits in which the projects will be located, GARD-74, ESTR-73, and RAIL-72. Specifically, since the substations are considered a “single supply substation”, these circuits do not have a redundant supply of power. It is important to note Ameren Missouri has 209 substations it has identified as being “single supply substations,” however; these are the only three locations identified by Ameren Missouri, at this time, as able to benefit from the Solar + Storage solution.<sup>22</sup> Ameren Missouri initially identified these projects by considering the length of the radial feeder and surrounding geography.<sup>23</sup>

In evaluating the need for these projects Staff considered the following information related to circuit reliability and potential project risks:

- Reliability metrics
- Outage History
- Number of customers served
- Critical Infrastructure served by the respective circuits
- Ameren Missouri’s internal project reports related to the wire alternatives and studies<sup>24</sup>
- Service Availability Cost Factor
- Other potential project risks (environmental, safety, cost projections)

The investor-owned utilities are required to perform a worst performing circuit analysis per 20 CSR 4240-23.010(6). This analysis identifies its top five percent (5%) worst performing circuits by ranking the SAIFI values computed for each circuit. Ameren Missouri did not specifically report on sub-transmission level circuits in its reliability reporting.<sup>25</sup> However, two of

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<sup>22</sup> Response to Staff Data Request No. 0010.

<sup>23</sup> Response to Staff Data Request No. 0010.1.

<sup>24</sup> Response to Staff Data Request No. 0015.2 provides the identification of reliability concerns related to ESTR-73 and RAIL-72 in previous studies.

<sup>25</sup> It has come to Staff’s attention that Ameren Missouri is not including these circuits specifically in its Annual Reliability Reporting required by Chapter 23, asserting these circuits are sub-transmission level circuits rather than distribution level circuits. Chapter 23 requires the scope of reliability reporting to

the three sub-transmission circuits feed distributions circuits have been recently on the worst performing circuit list (ESTR-73 and RAIL-72). ESTR-73 feeds circuit 563052 and 563053 and RAIL-72 feeds circuit 760051, which were each identified on the worst performing circuit list once within the last three years.<sup>26</sup> As shown in the table below, many distribution circuits make up the sub-transmission circuits in which Ameren Missouri asserts there is a reliability concern, yet there are few instances where the distribution circuits appear on the worst-performing circuit list.

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cover all retail electric customers and Ameren Missouri has indicated in Response to Staff Data Request No. 0003.2 that all customers are included in the calculation of reliability indices required by Chapter 23.

<sup>26</sup> Response to Staff Data Request No. 0003.1.



Refer to Confidential Attachment CME-1 (in EXCEL) for an illustrative table of all reliability metrics by distribution circuit.

The revised Direct Testimony of Kevin Anders notes several outages on each of the three circuits over the past three years (2016-2018). However, several of the outages were momentary outages.<sup>29</sup> Customers may still experience momentary interruptions with the Solar + Storage solution.<sup>30</sup> The tables provided below summarize the outage history data at the substation level including interruptions which occurred in 2019 thus far.<sup>31</sup>

**GARD-74  
(Green City)**

	Momentary Interruption	Outage longer than 5 min	Outage Duration Range
2019	0	1	6 hr 13 min
2018	2	0	n/a
2017	0	3	13 min to 4 hr 18 min
2016	0	2	31 min to 2 hr 39 min

**ESTR-73  
(Richwoods)**

	Momentary Interruption	Outage longer than 5 min	Outage Duration Range
2019	7	5	5 min to 3 hr 32 min
2018	2	2	5 min to 4 hr 12 min
2017	1	0	5 min
2016	0	1	7 hr 45 min

<sup>29</sup> A momentary interruption occurs when a customer is de-energized for less than a few minutes.

<sup>30</sup> Revised Direct Testimony of Kevin Anders page 5, line 2; page 10, lines 1-2; page 12, lines 7-8.

<sup>31</sup> First Supplemental Response to Staff Data Request No. 0008.3.

	<b>RAIL-72 (Utica)</b>		
	Momentary Interruption	Outage longer than 5 min	Outage Duration Range
2019	0	1	1 hr 14 min
2018	4	1	1 hr 20 min
2017	0	3	22 min to 5 hr 14 Min
2016	0	2	15 min to 6 hr 56 min

In terms of reliability benefits to customers, the Richwoods Project impacts more customers; it also impacts more customers who are considered to be critical infrastructure in comparison to the Green City Project. Of the critical infrastructure served by these circuits, the Green City Project did not appear to have any critical infrastructure related to life safety. Critical infrastructure related to life safety would include hospitals or nursing homes where there would be an impact to life safety in the event of an electric outage. The table below lists the approximate number of customers per circuit, number of life safety critical infrastructure, and total number of identified critical infrastructure.<sup>32</sup>

	<b>GARD-74 (Green City)</b>	<b>ESTR-73 (Richwoods)</b>	<b>RAIL- 72 (Utica)</b>
Customers	1,000	5,550	1,800
Life Safety Critical Infrastructure	0	2	2
Critical Infrastructure	5	13	33

\*\*

<sup>33</sup>

<sup>32</sup> Customer count from Kevin Anders Revised Direct Testimony, Critical Infrastructure count from Data Request No. 0036, Staff identified number of hospitals or nursing homes from that list.

<sup>33</sup> Response to Staff Data Request No. 0015.2.

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6 \*\*  
7 As discussed in Kevin Anders Revised Direct Testimony, ESTR-73 experiences a  
8 physical sag during peak load conditions, which occurs in the winter for this circuit.

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<sup>37</sup> Response to Staff Data Request No. 0004.4.

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4 \*\*<sup>38,39</sup> Finally, Ameren Missouri has forecasted load growth in the  
5 Richwoods area.<sup>40</sup> A diagram of the ESTR-73 and WLCK-75 circuits and substations are  
6 presented in Confidential Attachment CME-2.<sup>41</sup>

7 In response to Staff Data Request No. 0015.2, \*\*

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13 As mentioned previously, Ameren Missouri no longer calculates the Service Availability  
14 Cost Factor (“SACF”), a reliability based metric used to prioritize distribution projects. A  
15 description of this calculation and its importance is included in Volume 7 of Ameren Missouri’s  
16 2017 Integrated Resource Plan,<sup>42</sup> “[b]y giving preference to projects with the best cost/benefit  
17 ratios (lowest SACF scores), Ameren Missouri ensures that system capacity and reliability will  
18 be enhanced as fully as possible through proper prioritization of projects.” Previously, for a  
19 Redundant Supply Circuit, Ameren Missouri would consider the peak load of the substation and  
20 average forced outage rate of the circuit to calculate the kVA-hours considered to be at risk for a  
21 forced outage. Staff calculated the SACF using the forecasted peak load for each circuit shown in  
22 the table below.<sup>43</sup> For comparison, the redundant supply circuit example from the IRP calculated  
23 an \$8.68/kVA-hr benefit/cost ratio.

<sup>38</sup> Response to Staff Data Request No. 0008.6.

<sup>39</sup> Response to Staff Data Request No. 0015.2.

<sup>40</sup> Response to Staff Data Request No. 0009.

<sup>41</sup> Response to Staff Data Request No. 0008.6.

<sup>42</sup> Page 22-23.

<sup>43</sup> Staff utilized the forced outage rates provided in response to Staff Data Request No. 0063 and weighting factor of 2 to account for load and/or duration.

	Peak Load (MVA) <sup>44</sup>	kVA-hr	Project Cost	\$/ kVA-hr
Green City	2.5	35,700	\$ 22,700,000	\$ 636
Richwoods	5.14	41,120	\$ 24,600,000	\$ 598
Utica	3.1	57,040	\$ 21,700,000	\$ 380

Based on Staff's review as described above, Staff does not find there is a need for the Projects that justify the cost. However, Staff is interested in the Solar + Storage solution and would be supportive of one of the projects moving forward as a pilot, preferably the Richwoods Project. The Richwoods Project impacts more customers, more customers are considered to be served by critical infrastructure, and there is load growth projected in the future when compared to the other projects.

Other items the Commission may want to be aware of related to the Projects include the environmental review of the sites, and potential safety concerns with batteries.

As Kevin Anders noted in his revised Direct Testimony, Ameren Missouri had a Critical Issues Analysis completed for each of the three project sites. The Critical Issues Analysis performed was a desktop review of the potential environmental considerations of the sites, for example if any wetlands or endangered species are known to the area. An additional Wetlands Delineation was performed for the Green City Project based on the initial desktop review.<sup>45</sup>

Finally, there is a fire risk associated with lithium ion batteries and the potential for gases to build up in battery enclosures and explode. In April of 2019, at an Arizona Public Service ("APS") battery facility, a single battery rack caught fire and burned. Additionally, gases built up in the container to a point where an explosion occurred, injuring first responders. Investigations regarding the cause of the fire and the explosion are ongoing. Attached to this Rebuttal Report is a news article regarding the event, see Attachment CME-3. Ameren Missouri has considered safety of the battery energy storage system in its design including a detection system, automatic ventilation, and training for local fire responders.<sup>46</sup>

<sup>44</sup> Response to Staff Data Request No. 0009, forecasted peak load for each circuit in year 2024.

<sup>45</sup> Response to Staff Data Request No. 0043.

<sup>46</sup> Response to Staff Data Request No. 0048.

Staff further recommends the following conditions be ordered with approval of any CCN in this case:

(1) Ameren Missouri shall provide an annual report, to be submitted with its Annual Reliability reporting required by Chapter 23, detailing the following:

a. The reliability metrics (SAIDI, CAIDI, SAIFI, and MAIFI) specific to the sub-transmission circuits and associated distribution circuits, including any seasonally switched circuits, which are being supported by the Solar + Storage project(s). 2019 will be considered the baseline year.

b. New projects (cost and reason) located on the sub-transmission circuits and associated distribution circuits, including any seasonally switched circuits, which are being supported by the Solar + Storage project(s).

c. Any occurrence (including duration and reason) of battery charging and discharging.

(2) Ameren Missouri shall notify the Commission if any battery associated with the Solar + Storage project(s) are registered in MISO.

(3) Ameren Missouri shall work with Staff and interested parties to develop in-service criteria to be used for the Solar + Storage projects prior to completion of construction.

(4) Ameren Missouri shall provide Staff its incident response plan.

*Staff Expert/Witness: Claire M. Eubanks, PE*

## **2. Whether the proposal is economically feasible**

It is Staff's position that the proposed Solar + Storage projects are economically feasible for Ameren Missouri.

Ameren Missouri witness Rex Jenkins filed Supplemental Direct Testimony on November 25, 2019 to support the economic feasibility of the Solar + Storage projects. The analyses performed by Mr. Jenkins calculate the net present value ("NPV") for the projects and their wired alternatives, which includes costs for construction, estimated operating costs, the projected volume and value of off-system sales.<sup>47</sup> The model then calculates the incremental net revenue requirement for the projects and the wired alternatives.

Staff has reviewed the economic feasibility studies prepared by Ameren Missouri with regards to the three proposed Solar + Storage projects compared to the use of wired alternatives

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<sup>47</sup> Supplemental Direct Testimony of Rex Jenkins, page 3, lines 15-17. The model does not take into account the value of the SRECS generated by the proposed projects.

1 to address the reliability issues for the three circuits. In response to Staff Data Request No. 0065,  
2 Ameren Missouri indicated that it does not anticipate replacing the battery components<sup>48</sup> for any  
3 of the three solar + storage facilities based upon the manufacturer's supplied degradation  
4 information and Ameren Missouri's intended use of the battery storage, however \*\* \_\_\_\_\_

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10 \_\_\_\_\_ \*\* Additionally Ameren Missouri has indicated that the  
11 battery components will be recorded in Account 363 – Energy Storage Equipment – Distribution,  
12 and has proposed a 10% depreciation rate in the current rate case, ER-2019-0335.  
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### 17 **Background**

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22 Through analysis and cost/revenue modeling Ameren Missouri concluded that the construction  
23 of the Solar + Storage facilities were more<sup>50</sup> cost effective than the traditional wired solutions to  
24 address the reliability issues at the proposed sites.

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In his Direct Testimony filed on September 3, 2019 Ameren Missouri witness Kevin D. Anders cites estimated costs using an American Association of Cost Engineers (“AACE”) Class 3 estimate<sup>51</sup> of \$22.9 million for the Green City Project, \$23.4 million for the Richwoods Project, and \$21.9 million for the Utica Project. However in his Revised Direct Testimony, Mr. Anders cites updated estimated costs of \$22.7 million for the Green City Project, \$24.6 million for the Richwoods Project, and \$21.7 million for the Utica Project, which are broken down below:

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[illegible]

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<sup>51</sup> An AACE Class 3 cost estimate has an expected accuracy range of -20% to +30%.

[illegible]

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Additionally, in his Revised Direct Testimony, Kevin D. Anders indicated that the project cost estimates have been updated using the AACE estimate to Class 1, which has an over/under range of -10% to +10%, \*\*

52\*\*

## Investment Tax Credit

A primary reason for the economic feasibility of the projects is the eligibility of the projects for the investment tax credit. The Internal Revenue Services (“IRS”) issued guidance in November of 2018 which outlined the requirements for a solar facility to be eligible for the full 30% investment tax credit. To meet these requirements a solar project must begin construction before January 1, 2020, show continued progress towards completion, and finally be placed in service before January 1, 2024. These investment tax credits are currently subject to a phase-

<sup>52</sup> From the response to Office of the Public Counsel Data Request 2023.

down, which is reduction of the available investment tax credit for projects that begin construction after January 1, 2020:

- For solar facilities commencing construction in 2020 and placed in service before January 1, 2024 the credit is reduced to 26%.
- For solar facilities commencing construction in 2021 and placed in service before January 1, 2024 the credit is reduced to 22%.
- For solar facilities commencing construction in 2022 and beyond the credit is reduced to 10%.

The IRS guidance provided two methods for a taxpayer to establish that construction has begun on an energy property for the purposes of investment tax credit eligibility, a “physical work” test and a “five percent safe harbor” test. The physical work test requires that a taxpayer begin physical work of a significant nature on the facility, and focuses on the nature of the work performed rather than the cost. The safe harbor test is met by demonstrating that the taxpayer has incurred or paid five percent or more of the total cost of the facility by the applicable date. To be eligible for the ITC, a taxpayer needs to only meet one of the tests above. Ameren Missouri has indicated to Staff that it has \*\*

\_\_\_\_\_ . \*\*

Ameren Missouri’s intention to place the facilities in service in 2020 meets the requirement to show continued progress towards completion and being placed in service prior to January 1, 2024.

The investment tax credit is also applicable to the BESS component of the projects if it meets certain requirements. If the BESS is charged more than 75% of the time from a renewable resource on annual basis it is eligible for a portion of the investment tax credit based upon the percentage of time that it is charged by the renewable resource, and a BESS that is charged 100% of the time from a renewable resource is eligible for 100% of investment tax credit. In response to Staff Data Request No. 0050, Ameren Missouri has indicated that it intends to charge the BESS 100% of the time if operationally possible from the solar facilities, which would make it eligible for the full 30% ITC<sup>53</sup>. Per current federal law pertaining to the solar investment tax

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<sup>53</sup> The BESS system will also be capable from charging from the grid if necessary.

1 credit, \*\*

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3 In response to Staff Data Request No. 0030, Ameren Missouri indicated that it anticipates  
 4 having the tax appetite to utilize the ITC \*\* . \*\*  
 5 If Ameren Missouri ultimately does not receive the expected full value of the investment tax  
 6 credits benefit associated with these projects, then Staff will review and examine the financial  
 7 impact resulting from that event as part of a future Ameren Missouri rate case and may propose  
 8 ratemaking adjustments, if appropriate.

9 *Staff Expert/Witness: Jason Kunst, CPA*

### 10 **3. Ability of the applicant to finance the project**

#### 11 **Ameren Missouri Financial Capability**

12 As referenced earlier in this Rebuttal Report, the three proposed Solar + Storage projects  
 13 have a total estimated construction cost of approximately \$69 million.<sup>55</sup> Ameren Missouri has the  
 14 financial ability to construct, install, own, operate, maintain, and otherwise control and manage  
 15 solar generation facilities. Recently, Ameren Missouri requested and received approvals from the  
 16 Commission for the construction and acquisition of two wind projects that are currently in  
 17 progress. The first project currently under construction is the Terra-Gen LLC. 400 MW High  
 18 Prairie Wind Farm (Case No. EA-2018-0202) located in Schuyler and Adair Counties in  
 19 northeast Missouri. The second project that is being developed is the Invenergy LLC<sup>56</sup>

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<sup>54</sup> Or a percentage of the investment tax credit if the batteries are charged from the solar facility at least 75% of the time.

<sup>55</sup> Staff would note that the Direct Testimony of Ameren Missouri witness Kevin D. Anders indicated an estimated cost of approximately \$68.2 million for the three proposed projects. Mr. Anders specifically states on pages 5 that estimated cost for the Green City Project is \$22.7 million, on page 9 that the estimated cost for the Richwoods Project is \$23.4 million and on page 11 an estimated cost for the Utica Project of \$21.9 million, totaling to approximately \$68.2 million. Ameren Missouri's Application filed on September 3, 2019 stated the following estimated construction costs: Green City \$22.7 million, Richwoods \$26.0 million and Utica \$21.6 million for a total construction cost of approximately \$70.3 million. \*\*

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<sup>56</sup> Invenergy is in the process of acquiring Outlaw Wind from Enel Kansas LLC.

1 approximately 300 MW<sup>57</sup> Outlaw Wind Project that will be located in Atchison County in  
2 northwest Missouri (Case No. EA-2019-0181). These projects have an estimated total cost of  
3 approximately \*\*\* <sup>58</sup> \*\*\* million for the High Prairie Wind Farm and approximately  
4 \*\*\* <sup>59</sup> \*\*\* million for the Outlaw Wind Project.

5 Ameren Missouri has a proven record for completing significant and complex capital  
6 projects. Between January 1, 2002 and December 31, 2006, Ameren Missouri completed a  
7 number of projects that totaled to approximately \$2.7 billion of overall capital improvements and  
8 that were ultimately placed into permanent rates by the Commission in Case No. ER-2007-0002.  
9 Ameren Missouri complied with environment regulations by installing scrubbers at the Sioux  
10 generating facility. The Sioux scrubber project cost approximately \$574 million and this  
11 investment was included in the permanent rates by the Commission as part Ameren Missouri rate  
12 case, Case No. ER-2011-0028. Additionally, in 2010 and 2014 Ameren Missouri successfully  
13 placed over \$1 billion of capital investment into service within each single calendar year and  
14 subsequently received recovery of those costs in rate cases. Most recently, Ameren Missouri  
15 completed approximately \$1.6 billion of capital investment between the December 31, 2014,  
16 true-up cutoff in Case No. ER-2014-0258 and the December 31, 2016, true-up cutoff in Case  
17 No. ER-2016-0179. That level of capital investment was also reflected in permanent rates that  
18 were established by the Commission in Ameren Missouri's most recently completed 2016  
19 electric rate case.

20 This analysis clearly demonstrates that the cost estimate for the three proposed Solar +  
21 Storage projects, is relatively small in comparison to some other major construction projects that  
22 Ameren Missouri has undertaken in the past. Ameren Missouri's completion of past large  
23 construction efforts demonstrates that it has the financial ability to construct the proposed  
24 projects because of its access to the necessary equity and debt capital that will be needed.

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<sup>57</sup> Direct testimony of Ajay K. Arora on page 4, lines 17-20, and the project is an approximately 299 MW generation facility to be constructed in northwest Missouri, with all of turbines to be constructed in Atchison County.

<sup>58</sup> As discussed in direct testimony of Ameren Missouri witness Ajay K. Arora on page 11, lines 13-15, in Case No. EA-2018-0202, the purchase price for 100% of the ownership interests in the LLC consists of a base price of \*\*\* without transmission interconnection costs.

<sup>59</sup> Per direct testimony of Ameren Missouri witness Ajay K. Arora on page 15, lines 1-8, in Case No. EA-2019-0181, the purchase price for 100% of the ownership interests in the LLC consists of a base price of \*\*\*.

Ameren Missouri will have the ability to own, operate, control and maintain the proposed solar plus battery facilities throughout the facilities' expected service life. Finally, Staff will have the opportunity to fully review and evaluate the prudence of all three of the proposed Solar + Storage project costs in a future Ameren Missouri rate proceeding prior to inclusion in base rates.

*Staff Witnesses/Experts: Jason Kunst, CPA and Paul K. Amenthor*

#### **4. Whether the applicant is qualified to own, operate, control and manage the facilities and provide the service**

Ameren Missouri has operated the O'Fallon Renewable Energy Center, a 5.7 MW photovoltaic facility, since 2014. The three proposed projects are larger, but should be similar in operation with the exception of the battery storage component. Ameren Illinois has operated its microgrid in Champaign, IL since 2017. The microgrid contains 250 kW of battery storage connected to several types of generation sources. Staff is not concerned with Ameren Missouri's qualifications to own, operate, control, and manage the facilities.

Ameren Missouri used a cross-functional team to evaluate the RFP responses and select a contractor to construct the projects. EDF Renewables, Inc. ("EDF") is a known contractor in the renewables field. EDF has constructed solar projects since 2008 from small distribution scale projects to grid scale projects. Staff is not concerned with EDF's qualifications to construct the three projects.

*Staff Expert/Witness: Cedric E. Cunigan*

#### **5. Whether the project is in the public interest**

The Commission has stated that an affirmative finding on the first four factors generally leads to the conclusion that the final factor, public interest, is satisfied. Some of Staff's analysis of the individual Tartan Factors necessarily overlaps with its analysis of other Tartan Factors. For instance, as demonstrated in this Rebuttal Report, it appears the projects meet the "economic feasibility" factor when viewed in and of itself, but when reviewed in the context of the "need" for the projects, Staff explains that the projects are not economically feasible. Based on its analysis, Staff does not find there is a need for the projects that would justify the cost. However, recognizing the importance of gaining insight into Solar + Storage solutions, Staff would be supportive of the Richwoods Project moving forward as a pilot project since the Richwoods

1 Project impacts more customers, more customers who are considered to be critical infrastructure,  
2 and load growth is projected in the future in comparison to the other projects.

3 *Staff Expert/Witness: Claire M. Eubanks, PE*

4 **VII. Staff Recommendation**

5 Based on Staff's review as described above, Staff does not find there is a need for the  
6 projects that justify the cost. However, Staff is interested in the Solar + Storage solution and  
7 would be supportive of one of the Projects moving forward as a pilot, preferably the Richwoods  
8 Project. The Richwoods Project impacts more customers, more customers are considered to be  
9 served by critical infrastructure, and there is load growth projected in the future when compared  
10 to the other projects.

11 Staff recommends the following conditions be ordered with approval of any CCN, in  
12 this case:

13 (1) Ameren Missouri shall provide an annual report, to be submitted  
14 with its Annual Reliability reporting required by Chapter 23, detailing the  
15 following:

16 a. The reliability metrics (SAIDI, CAIDI, SAIFI, and MAIFI)  
17 specific to the sub-transmission circuits and associated distribution  
18 circuits, including any seasonally switched circuits, which are being  
19 supported by the Solar + Storage project(s). 2019 will be considered the  
20 baseline year.

21 b. New projects (cost and reason) located on the sub-transmission  
22 circuits and associated distribution circuits, including any seasonally  
23 switched circuits, which are being supported by the Solar + Storage  
24 project(s).

25 c. Any occurrence (including duration and reason) of battery  
26 charging and discharging.

27 (2) Ameren Missouri shall notify the Commission if any battery  
28 associated with the Solar + Storage project(s) are registered in MISO.

29 (3) Ameren Missouri shall work with Staff and interested parties to  
30 develop in-service criteria to be used for the Solar + Storage projects prior  
31 to completion of construction.

32 (4) Ameren Missouri shall provide Staff its incident response plan.

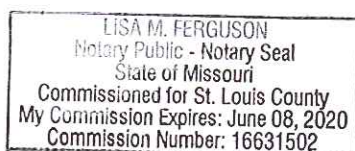
33 *Staff Expert/Witness: Claire M. Eubanks, PE*

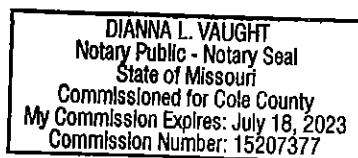
In the Matter of the Application of Union Electric )  
Company d/b/a Ameren Missouri for Permission and )  
Approval and a Certificate of Convenience and )  
Necessity Authorizing It to Construct Solar )  
Generation Facility(ies) )

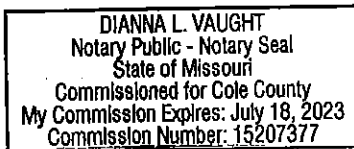
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St. Louis County )

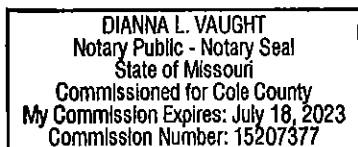
Paul K. Amenthor  
Paul K. Amenthor

Lisa M. Ferguson  
NOTARY PUBLIC









In the Matter of the Application of Union Electric )  
Company d/b/a Ameren Missouri for Permission and )  
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Generation Facility(ies) )

LISA M. FERGUSON  
Notary Public - Notary Seal  
State of Missouri  
Commissioned for St. Louis County  
My Commission Expires: June 08, 2020  
Commission Number: 16631502