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Witness:	Matt Michels
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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. ER-2022-0337

DIRECT TESTIMONY

OF

MATT MICHELS

ON

BEHALF OF

UNION ELECTRIC COMPANY

D/B/A AMEREN MISSOURI

St. Louis, Missouri
August 2022

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DIRECT TESTIMONY

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MATT MICHELS

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I. INTRODUCTION

Q. Please state your name and business address.

A. Matt Michels, One Ameren Plaza, 1901 Chouteau Avenue, St. Louis, Missouri 63103.

Q. By whom and in what capacity are you employed?

A. I work in Ameren Services Company's Innovation and Corporate Strategy Department as Director of Corporate Analysis. The Innovation and Corporate Strategy Department provides various corporate support services to Ameren Corporation and its subsidiaries, including Ameren Missouri.

Q. Please describe your educational and professional background.

A. I joined Ameren Services Company in 2005 as a Consulting Engineer in Corporate Planning. My responsibilities included coordination and monitoring of projects implemented in conjunction with the integration of processes and systems following the acquisition by Ameren Corporation of Illinois Power Company ("Illinois Power") in October 2004. I was subsequently involved in the integration of combustion turbine facilities acquired by Ameren Missouri in 2006. In September 2008, I was promoted to Managing Supervisor of Resource Planning with responsibility for long-range resource planning, including Ameren Missouri's Integrated Resource Plan ("IRP") filings and associated analysis. In February 2013, I was promoted to Corporate Analysis Manager, and

in June 2017, I was promoted to my current position. In that capacity, I continue to have direct responsibility for Ameren Missouri's resource planning process, including plans related to the acquisition of renewable energy resources.

I earned a Bachelor of Science degree in Electrical Engineering from the University of Illinois at Urbana-Champaign in May 1990. I have been employed by Ameren or Illinois Power since June 1990 in various positions related to resource and business planning. During most of that time, my responsibilities have included the development, use and oversight of various planning models used for purposes such as production costing, acquisition evaluation, corporate restructuring, financial forecasting, and resource planning. I have previously testified before this Commission in proceedings involving resource planning, renewable energy standards compliance, and energy efficiency cost recovery.

II. PURPOSE OF TESTIMONY

Q. What is the purpose of your direct testimony?

A. The purpose of my direct testimony is to present the analysis supporting Ameren Missouri's decision to accelerate the retirement of its Rush Island Energy Center ("Rush Island") rather than install expensive flue gas desulfurization ("FGD") or "scrubber" equipment to comply with a U.S. District Court decision.

Q. Please summarize your testimony.

A. Ameren Missouri's decision to retire Rush Island is based on the same IRP analysis framework the Company uses to make all major resource decisions. The Company's analysis shows that long-run costs to customers as measured by the present

value of revenue requirements ("PVRR") will be lower if the Rush Island is retired than if the Company constructed and operated FGD equipment at Rush Island.

Q. Please describe the analysis you performed to determine the relative economics of early retirement of Rush Island and the continued operation of Rush Island with FGD pollution controls.

A. I began with the model framework and assumptions Ameren Missouri used in the development of its 2020 IRP. Using that framework, I evaluated two plans – one with Rush Island retired at the end of 2025 ("Early Retirement Plan") and one with FGD equipment installed at Rush Island ("Continued Operation Plan"), with continued operation of the units until the end of 2039, the planned retirement date previously established in the Company's 2020 IRP.

For the Early Retirement Plan, I evaluated four different operating scenarios, each defined to represent a range of potential operating plans under which the units would be managed prior to the retirement of the units while necessary transmission system infrastructure was built to ensure grid reliability post-retirement. Following is a brief description of the four operating scenarios along with estimated energy margins associated with each scenario:

- Scenario 1 – Normal dispatch through 2025, then retire ($212MM margin 2022, $120MM in total, 2023-25)
- Scenario 2 – Seasonal operation (Jan-Feb, May-Dec) ($141MM margin 2022, $80MM in total, 2023-25)
- Scenario 3 – Summer reliability and non-summer emergencies ($36MM margin 2022, $25MM in total, 2023-25)

- Scenario 4 – Summer voltage reliability ($13MM margin 2022, $9MM in total, 2023-25)

The Early Retirement Plan also reflects certain key assumptions associated with the early retirement. This includes the cost of transmission infrastructure needed to ensure grid reliability post-retirement of **_____** (in current dollars) to be placed in service January 1, 2026, minimal additional plant capital expenditures and reduced O&M expenses. It also reflects recovery of the remaining undepreciated balance of the plant over 10 years and inclusion of the remaining undepreciated balance in rate base. Given that the Company intends to instead securitize the remaining undepreciated balance, I would expect the capital cost component of the PVRR of the Early Retirement Plan to be somewhat less than analyzed at the time due to the lower capital costs expected via use of securitization.

The Continued Operation Plan reflects the cost of FGD equipment, using a range of $681 million to $941 million, placed in service on April 1, 2026.[1] It also reflects an additional $60 million in capital expenditures for precipitator equipment improvements necessary for the efficient operation of the FGD equipment. Finally, it includes **_____ _____** (in current dollars) in transmission system upgrade investments to be placed in service on January 1, 2040, to ensure grid reliability post-retirement.

Q. Does your analysis include consideration of key uncertainties?

A. Yes. As is regularly done as part of our IRP analysis, I evaluated the plans under a range of assumptions for natural gas prices, carbon dioxide emission prices, and power prices, which are in turn influenced by both natural gas prices and carbon dioxide emission prices. I used the same price scenarios the Company used in the analysis

[1] FGD capital costs reflect overnight costs and do not include financing costs during construction.

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supporting the 2020 IRP. To ensure sufficient information to support the decision, I looked at results explicitly for each level of assumptions for carbon dioxide emission prices. I also explicitly looked at results for a combination of high gas prices and no carbon dioxide emission prices, which would result in the most favorable expectation for margins for the Continued Operation Plan.

Q. Did you evaluate the comparative economics of the two plans given different assumptions for the cost of FGD equipment?

A. Yes. I evaluated the economics of the Continued Operations Plan using three levels of capital cost assumptions for the FGD equipment – a low-cost assumption of $681 million, a high-cost assumption of $941 million, and a central cost assumption of $811 million. These cost estimates represent overnight costs and do not include allowance for funds used during construction ("AFUDC"). Ameren Missouri's IRP model calculates and adds AFUDC for inclusion in the economic results.

Q. What do the results of your analysis show?

A. Analysis results are shown in Schedule MM-D1, attached to my direct testimony. Those results show that PVRR would be higher (i.e., greater costs to customers) under just three of the 48 different combinations of assumptions analyzed for the Continued Operations Plan relative to the Early Retirement Plan. Put another way, the Early Retirement Plan is cheaper for customers in 45 of the 48 combinations of assumptions evaluated. Those 48 different combinations of assumptions reflect four different scenarios for natural gas and carbon dioxide prices, four different pre-retirement operating scenarios for Rush Island under the Early Retirement Plan, and three different assumptions for FGD capital costs under the Continued Operations Plan.

All three combinations of assumptions that result in higher PVRR under the Early Retirement Plan relative to the Continued Operations Plan reflect a combination of no carbon dioxide emissions price and high gas prices. Of those, two reflect the low assumption for FGD capital costs for the Continued Operations Plan and either operations scenario 3 or 4 for the Early Retirement Plan. The other reflects the midpoint FGD capital costs for the Continued Operations Plan and operations scenario 4 for the Early Retirement Plan.[2]

Q. Did you evaluate the effect of changes in transmission costs?

A. Yes. Analysis results for each of the 48 combinations of assumptions include an estimated break-even cost for transmission infrastructure. Break-even transmission costs were lower than the assumed **_____** in four of the 48 combinations of assumptions, all of which reflect no carbon dioxide emissions price, high gas prices, and operations scenario 3 or 4 under the Early Retirement Plan.

Q. Please state your conclusions given the results of the analysis you've described.

A. Under nearly all reasonable combinations of assumptions, Ameren Missouri's customers will realize lower costs under the Early Retirement Plan than under the Continued Operations Plan. This strongly suggests that customers are economically better off as a direct result of the Company's decision to retire the plant instead of installing the significant amount of additional control equipment that would otherwise have been required.

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[2] Ameren Missouri updated its probabilities for carbon dioxide emissions price scenarios as noted in its June 22, 2022 Notice of Change in Preferred Plan (File No. EO-2022-0362), including assigning zero probability to the "No Carbon Price" scenario.

Q. Does this conclude your direct testimony?

A. Yes, it does.

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Schedule MM-D1 is Confidential in its Entirety

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BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of Union Electric Company	**)**	
d/b/a Ameren Missouri's Tariffs to Adjust	**)**	Case No. ER-2022-0337
Its Revenues for Electric Service.	**)**	

AFFIDAVIT OF MATT MICHELS

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

Matt Michels, being first duly sworn states:

My name is Matt Michels, and on my oath declare 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.

\s\ *Matt Michels*
Matt Michels

Sworn to me this 1st day of August, 2022.