Exhibit No.:	
Issue(s):	Project Background; MISO LRTP Process; MVP Benefits
Witness:	Jeff L. Dodd
Type of Exhibit:	Direct Testimony
Sponsoring Party:	Ameren Transmission Company of Illinois
File No.:	EA-2024-0302
Date Testimony Prepared:	July 16, 2024

MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. EA-2024-0302

DIRECT TESTIMONY

OF

JEFF L. DODD

ON

BEHALF OF

AMEREN TRANSMISSION COMPANY OF ILLINOIS

St. Louis, Missouri
July, 2024

TABLE OF CONTENTS

DIRECT TESTIMONY

OF

JEFF L. DODD

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I. INTRODUCTION AND BACKGROUND

Q. Please state your name and business address.

A. My name is Jeff Dodd. My business address is 1901 Chouteau Avenue, St. Louis, Missouri 63103.

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

A. I am employed by Ameren Services Company (Ameren Services or AMS) as Vice President, Transmission Strategy, Policy, and Stakeholder Relations.

Q. What are your responsibilities in that position?

A. I lead Regional Transmission Organization (RTO), regulatory, and legislative policy, and manage the related relationships, for Ameren Corporation's (Ameren) three transmission-owning utilities, Ameren Transmission Company of Illinois (ATXI), Ameren Illinois Company d/b/a Ameren Illinois (Ameren Illinois), and Union Electric Company d/b/a Ameren Missouri (Ameren Missouri). All three utilities are transmission-owning members of the RTO whose region generally encompasses the midcontinent, the Midcontinent Independent System Operator, Inc. (MISO). I also oversee interconnection policy and agreements and public outreach and communications for those utilities. And I lead the Transmission Business Center, including financial reporting and rates, meter data management, wholesale billing, load switching, and

training. Additionally, in my role, I serve as Chief of Staff to the President of ATXI, Mr. Shawn Schukar.

Q. Do you personally serve any roles in the MISO stakeholder process as a representative for Ameren's transmission-owning members?

A. Yes. I have previously served in multiple roles within the MISO stakeholder process. From 2005-2006, I served as Vice Chair of the MISO Settlements Working Group. I was a member of the MISO Finance Committee and a member of the MISO Alternative Dispute Resolution Committee from 2019-2021. In addition, I was Chair of the MISO Transmission Owners Sector from 2018-2019 and Vice Chair of the Transmission Owners Sector from 2020-2021. I have been elected to serve as Vice Chair of the Transmission Owners Sector again for 2024-2025.

Q. Please describe your educational and professional background.

A. I graduated from Southern Illinois University - Carbondale in 1988, with a Bachelor of Science Degree in Finance. I graduated from Webster University in 2016 with a Master of Business Administration degree with a concentration in strategic planning.

I have approximately 20 years of experience in the electric energy industry. In 2004, I was employed by Ameren as a settlement specialist with billing and MISO settlement responsibilities. In 2006, I moved into an analyst position with Corporate Planning responsible for long-term strategy and planning with specific responsibilities in monitoring the MISO energy markets. In 2007, I was promoted to a supervisor position in the Controller's Department with responsibilities over the MISO markets settlement and fuels and services settlement groups. In 2008, I was promoted to a manager position in the Controller's Department with responsibilities over MISO

markets settlements, fuel and services settlements, trade settlements and management reporting. In 2009, I was promoted to a director in the Controller's Department with responsibilities for wholesale power and fuel accounting, all settlements and financial reporting for the wholesale trading departments. In 2010, I accepted the Senior Manager of RTO Consulting with the Structure Group and had responsibilities for guiding an Investor Owned Utility through the process of joining MISO.

In 2011, I accepted the position of Director of RTO Policy with Ameren Energy Marketing with responsibilities over strategy and policy advocacy for Ameren's unregulated generating and trading segment. In 2012, I transferred to the position of Director of Transmission Policy with Ameren's Transmission segment with responsibility for stakeholder and policy advocacy at MISO, with the FERC and State Commissions, while also representing Ameren within the MISO Transmission Owners Sector. In 2020, I was promoted to Senior Director of Transmission Policy and Stakeholder relations with the added responsibilities for the Generator Interconnection process and coordination between Ameren and MISO, along with responsibilities for managing our external stakeholder relations team and internal training organization, our wholesale billing and contract group and meter data management teams.

Finally in 2023, I was promoted into my current role as Vice President of Transmission Policy, Strategy and Stakeholder Relations.

Q. Have you previously testified before the Missouri Public Service Commission?

A. I have provided testimony on behalf of Ameren Missouri in Commission Dockets ER-2016-0179, ER-2012-0165, ER-2012-0164, ER-2012-0028, ER-2011-0321, ER-2011-0317, ER-2011-0153, ER-2011-0018, ER-2010-0274, ER-2010-0264, and ER-2010-0165.

II. PURPOSE OF TESTIMONY AND EXHIBITS

Q. Are you familiar with the electric transmission projects for which ATXI is requesting Commission approvals in this proceeding?

A. Yes. ATXI, the Missouri Joint Municipal Electric Utility Commission (MJMEUC), and Ameren Missouri are working together to build a more reliable and resilient energy grid for the future, and to construct, acquire, and operate certain transmission assets as part of the Northern Missouri Grid Transformation Program (the Program) described in the direct testimony of ATXI witness Mr. Shawn Schukar. This application concerns the first phase of the Program (Phase 1), which encompasses two projects: the Fairport-Denny-Iowa/Missouri Border Project (FDIM or FDIM Project) and the Maywood-Mississippi River Crossing Project (MMRX or MMRX Project) (collectively, the Projects or Phase 1 Projects).

FDIM includes the construction of approximately 44 miles of 345-kV transmission lines and a new 345-kv substation and will route through DeKalb, Gentry, and Worth counties. It will include two transmission line segments: 1) a single-circuit transmission line from a new four-position ring bus substation to be named Denny in northwest Missouri to Associated Electric Cooperative Incorporated's (AECI) existing Fairport Substation in DeKalb County, Missouri, and 2) a single-circuit transmission line from Denny north to the Missouri-Iowa border. ATXI partnered with MJMEUC on the FDIM Project and will transfer to MJMEUC a 49% interest in the Project (excluding the land for the Denny Substation) shortly before the project is placed into service.

MMRX includes the construction of approximately nine miles of 345-kv transmission line from ATXI's existing Maywood Substation near Palmyra, Missouri to the Mississippi River Illinois/Missouri border. Approximately 3 miles of the MMRX Project will involve repurposing a portion of an existing 345 kV transmission line (from the Maywood Substation to a point north of,

but not connected to, the existing AECI Palmyra Substation) and constructing a new 345kV line to relocate the repurposed line. Approximately six miles of the project will be rebuilt along existing corridors from Palmyra to the Mississippi River and co-located with Ameren Missouri's existing 161-kV transmission line. The MMRX Project also includes upgrades to the Maywood Substation.

In this proceeding, ATXI is requesting a Certificate of Convenience and Necessity (CCN) for Phase 1 and certain related approvals from the Commission to make the Program a reality, deliver its benefits to Missouri electricity customers, and address the reliability implications of the Midwest region's changing energy fleet and clean energy transition by adding needed transmission capacity.

Q. What is the purpose of your direct testimony?

A. I explain how and why the Program, including the Phase 1 Projects, came to be. Specifically, I describe MISO and explain MISO's role in ensuring the reliability of the interstate transmission grid. I explain how MISO meets that objective by, among other efforts, continuous, multifaceted, and iterative transmission study and planning. I explain how, as a result of that study and planning, MISO identified a large group of regionally beneficial transmission expansions projects—collectively known as the Long Range Transmission Planning (LRTP) Tranche 1 Portfolio—as necessary to address the reliability implications of the Midwest region's rapidly changing generation fleet. The Program comprises the Missouri portions of the LRTP Tranche 1 Portfolio, including the Phase 1 Projects. I also explain the many regional benefits of the LRTP Tranche 1 Portfolio. I generally explain how the costs of the portfolio are shared among MISO Midwest Subregion customers. Finally, I explain the obligations of Ameren's transmission-owning companies in Missouri to construct the Program. I would note that ATXI witnesses Dr. Schatzki

and Mr. Davies also address the benefits of the broader Program and its specific components to Missouri customers.

Q. Are you sponsoring any schedules with your direct testimony?

A. Yes. I am sponsoring:

- Schedule JLD-D1 – MISO's Renewable Integration Impact Assessment (RIIA) Summary Report (February 2021);
- Schedule JLD-D2 – MISO's Response to the Reliability Imperative (Updated January 2023); and
- Schedule JLD-D3 – MTEP21 Addendum – LRTP Tranche 1 Report (2022).

Q. Are you offering any legal opinions in your direct testimony?

A. No. Although I provide my lay understanding of certain Federal Regulatory Energy Commission (FERC) and MISO reliability and transmission planning requirements, I am not an attorney and none of my direct testimony is intended to offer any legal opinions.

III. THE MIDCONTINENT INDEPENDENT SYSTEM OPERATOR, INC. (MISO)

Q. What is MISO?

A. MISO is an independent, not-for-profit, member-based regional transmission organization (RTO) that oversees the electric transmission system and energy market across 15 U.S. states, including Missouri, and the Canadian province of Manitoba. MISO is committed to delivering electricity reliably, efficiently, and cost-effectively to the approximately 45 million people who live within its region and who depend on electricity to power their homes, businesses, and transportation.

Q. How does MISO achieve that commitment?

A. Among other efforts, MISO manages the generation and flow of electricity across the power grid within its footprint—which comprises approximately 75,000 miles of interconnected high-voltage transmission lines—consistent with an Open Access Transmission, Energy, and Operating Reserve Markets Tariff (the MISO Tariff) approved by FERC. MISO also collaborates with its transmission-owning members and other industry stakeholders in transmission planning to ensure a transmission grid that both today and in the future is reliable, supports federal and state policy requirements, and enables a competitive market that benefits all customers. Additionally, MISO manages an energy and operating reserve market, one of the world's largest, for approximately 200,000 megawatts of power-generating resources.

Q. Please describe MISO's reliability footprint.

A. It is expansive. As MISO's name implies, MISO's reliability footprint encompasses the midcontinent, broadly spanning, in the U.S., from Minnesota and Wisconsin in the north to Louisiana in the south, with Missouri at the region's center:

(https://www.ferc.gov/industries-data/electric/electric-power-markets/miso).

Q. Is ATXI a member of MISO?

A. Yes. It is a transmission-owning MISO member.

IV. MISO TRANSMISSION PLANNING

A. Generally

Q. How does MISO approach transmission planning to ensure a reliable grid?

A. MISO continuously studies the existing and potential expanded transmission grid within its footprint in a multifaceted and iterative manner that engages a wide array of stakeholders to ensure that the grid necessary to deliver reliable electricity to MISO region customers is in place today and in the future. MISO's specific transmission planning efforts are many and varied. One prominent example, however, is MISO's recurring Midcontinent Transmission Expansion Plan (MTEP) process, which repeats on a regular, overlapping, 18-month cycle. The MTEP process employs, among other things, model building, MISO Futures (Futures) forecasting, extensive stakeholder workshops, reliability analysis, economic analysis, and resource assessments. It culminates with an MTEP report that recommends, for the MISO Board of Directors to approve and designate transmission developers to then implement, a comprehensive grid plan to meet regional and local reliability, policy, and economic needs. Another, recent example is MISO's Renewable Integration Impact Assessment (RIIA), a first-of-its kind study initiated in 2018 in response to the rapid changes in energy fleets that MISO began observing in its footprint. As I explain further below, the RIIA along with several other of MISO's rigorous, multipronged transmission planning initiatives collectively serve as the catalyst for the LRTP Tranche 1 Portfolio of transmission expansion projects, including the Northern Missouri Grid Transformation Program.

Q. You said that the MTEP process employs Futures forecasting. What are Futures?

A. Futures are another tool that MISO uses to study and plan a reliable transmission grid. They are forecasted scenarios, developed through an iterative and robust stakeholder process, that establish a bookended range of economic, policy, and technological possibilities, such as load growth, electrification, decarbonization, renewable energy levels, generator retirements, fuel prices, and generation capital costs. They are designed to "bookend" the potential range of outcomes over the next 20 years, aiming for actual outcomes to land within the range of the Futures. In the MTEP process, Futures form the basis for forecasts of resources and load that would be both economical and consistent with energy policy.

Q. Generally, who participates in MISO's transmission planning processes?

A. MISO collaborates with a broad and diverse group of stakeholders that includes not only MISO's transmission-owning members, but also other utilities and qualified transmission developers, generators, state regulators, consumer representatives, environmental organizations, and other public interest groups.

Q. Do any guidelines or standards inform MISO's transmission planning processes?

A. Yes, several. MISO's transmission planning processes are informed by both external guidelines and internal MISO guidelines. For example, MISO adheres to FERC orders that dictate transmission planning practices. MISO is obligated by FERC to study, via an open and transparent regional transmission planning process (like the MTEP) the transmission system within its footprint to identify transmission projects that are necessary to address reliability issues

and ensure reliable electricity. Consistent with FERC-outlined principles, MISO's transmission planning processes also accounts for public policy considerations, coordinated inter-regional planning, and appropriate allocation of costs.

Q. Are there other external guidelines that inform MISO's transmission planning?

A. Yes. MISO also plans its transmission system in compliance with North American Electric Reliability Corporation (NERC) requirements. NERC's Transmission Planning (TPL) reliability standard, for example, applies to transmission planning and governs planning requirements to ensure reliable transmission system performance. MISO also complies with the relevant regional entities' requirements. Regional entities represent all segments of the electric industry in a region and are responsible for ensuring reliable and secure grids across their regions. Missouri is included in the SERC Reliability Corporation's (SERC) 16-state region. Additionally, MISO complies with its transmission-owning members' own planning requirements. I note that ATXI witness Mr. Davies generally addresses ATXI's transmission planning and related requirements.

Q. What internal guidelines inform MISO's transmission planning?

A. Again, there are several. The Agreement of Transmission Facilities Owners to Organize the Midwest Independent Transmission System Operator, Inc., a Delaware Non-Stock Corporation (the Transmission Owners Agreement or TOA),[1] for example, establishes a Planning

[1] In 2001, several Midwestern transmission owners joined together to form the Midwest Independent System Operator, Inc., the nation's first FERC-approved RTO. In 2013, the RTO expanded its region to include portions of four southern states and in conjunction with that expansion changed the "M" in its name from "Midwest" to "Midcontinent."

Framework that describes MISO's and its transmission-owning members' respective planning responsibilities. Those responsibilities include development of the annual MTEP referenced above. Additionally, Attachment FF to the FERC-approved MISO Tariff, "Transmission Expansion Planning Protocol," describes, among other things, the process used to develop the MTEP and to designate the developers responsible for completing MISO Board-approved transmission projects. MISO is also guided by its Transmission Planning Business Practices Manual (BPM). MISO otherwise implements its transmission planning practices through its other, various governing and informational documents.

Q. You mentioned that MISO's Board approves an MTEP before transmission owners implement the plan. Does the Board rely on any particular criteria in evaluating an MTEP for approval and subsequent implementation?

A. Yes. The Board provides MISO's staff six guiding principles in developing the recurring MTEP to enable MISO to fulfill its transmission planning obligations. Those principles are: (1) develop transmission plans that will ensure a reliable and resilient transmission system that can respond to the operational needs of the MISO region; (2) make the benefits of an economically efficient electricity market available to customers by identifying solutions to transmission issues that are informed by near term and long-range needs and that provide reliable access to electricity at the lowest total electric system cost; (3) support federal, state, and local energy policies and MISO member goals by planning for access to a changing resource mix; (4) provide an appropriate cost allocation mechanism that ensures that the costs of transmission projects are allocated in a manner roughly commensurate with the projected benefits of those projects; (5) analyze system scenarios and make the results available to federal, state, and local energy policy makers and other

stakeholders to provide context and inform choices; and (6) coordinate planning processes with neighboring systems and work to eliminate barriers to reliable and efficient grid operations. MISO Board approval of an MTEP signals that the MTEP aligns with these principles and certifies the MTEP as MISO's immediate plan for meeting the transmission needs of all stakeholders subject to any required federal or state regulatory approvals.

Q. Once MISO's Board approves an MTEP, which transmission owners are responsible for implementing that plan?

A. Attachment FF to the FERC-approved MISO Tariff outlines the process and obligations related to implementation of a transmission expansion project approved as part of an MTEP, including what is generally known as the "80/20" rule for which a transmission owner or owners will develop a project. At a high level, if 80% or more of the total cost of the transmission facilities included in a project are upgrades, MISO designates the applicable incumbent transmission owner (the owner to which the project will connect) to develop, own, and operate all transmission facilities comprising the project, and that transmission owner is obligated to do so pursuant to the TO Agreement. If less than 80% of the total cost of the transmission facilities included in a project are upgrades, MISO divides the project into two or more segments or facilities. For those segments or facilities that are upgrades, again, MISO designates the incumbent transmission owner, who is then obligated to implement those segments or facilities pursuant to the TO Agreement. With certain exceptions, the remaining segments or facilities are subject to a Competitive Developer Selection Process outlined in Attachment FF. Under that process and consistent with a specified timeline, qualified transmission developers, including the incumbent transmission owner, may submit one or more bids to implement the segments or facilities. MISO

then selects a winning bid, obligating the chosen transmission developer to carry out that proposal to implement the subject segments or facilities. Attachment FF, as approved by FERC, is publicly available on MISO's website, at https://www.misoenergy.org/legal/tariff/.

B. Supporting the Clean Energy Transition

Q. You mentioned that the Program, including the Phase 1 Projects, will help Missouri address the reliability implications of the Midwest region's changing energy fleet and clean energy transition. What do you mean by clean energy transition?

A. The MISO region is amidst a fundamental change in the energy industry landscape. We are seeing a shift in generation resources from conventional sources to clean and renewable generation, increases in customer demand for low-carbon resources, and increased decentralization of generation. Whereas just a decade ago, generation across MISO was largely provided by coal generation and some natural gas, by 2022, coal generation had shrunk to approximately one-third of MISO's annual energy production, and the system had achieved 19% renewable (wind, solar, and hydro) penetration MISO-wide. Further, in the last decade, over 40 gigawatts (GW) of renewable resources have been installed across MISO. And the pace at which these changes are occurring is quickening. MISO predicts as much industry transformation in the next 5 years as has happened in the past 35. These changes, and their increasing pace, are being driven by clean energy policies at both the state and federal levels, customer preferences, economics, and utility goals. I generally refer to these changes in the MISO region—and the significant industry transformation they collectively represent—as the clean energy transition. The transition presents challenges, including transmission reliability challenges that MISO is addressing via a multifaceted, iterative approach to planning for the changing energy fleet, which I discuss below.

1. The Renewable Integration Impact Assessment (RIIA)

Q. You stated that the RIIA was a catalyst for the LRTP Tranche 1 Portfolio, including the Program and the Phase 1 Projects. What is the RIIA?

A. Approximately five years ago, MISO began observing a significant shift in its members' portfolio projections—from conventional nuclear, coal, and gas generation to substantial levels of new renewables, such as wind and solar. The shift signaled a dramatic and rapidly approaching transformation of the resource mix in MISO's footprint. To better understand the impact of renewable energy growth in its region over the long term, MISO initiated the RIIA in 2018. The RIIA assessed the effect on the MISO system of integrating increasingly higher levels of renewables. The RIIA culminated in a formal report issued in February 2021 that explains the study and recommends next steps. I summarize the RIIA at a high level below. The full summary report is provided with my testimony as Schedule JLD-D1.

Q. What specifically did the RIIA study?

A. The RIIA examined "inflection points"—or thresholds at which system complexities resulting from integration of wind, utility-scale photovoltaic (PV) (i.e., solar), and distributed PV sourced energy significantly increase—by assessing various penetration levels of those renewables on Resource Adequacy, Energy Adequacy, and Operating Reliability (both steady-state and stability) within the MISO system. The intent of the RIIA was to identify not only integration issues, but also at what inflection points they might occur. This would in turn enable MISO to evaluate and timely implement potential solutions to mitigate or guard against those issues.

Q. What did the RIIA find?

A. The RIIA found that renewable penetration levels of up to 30% are likely manageable with incremental transmission expansion. However, at penetration levels beyond 30%, planning and operating the grid become more complex. At those levels, expected portfolio changes—again, a reduction in conventional generation and an increase in inverter-based generation—will cause significant grid and stability issues. Regional energy transfers will likely increase in magnitude and become more variable, leading to a need for increased extra high-voltage line thermal capabilities. Additionally, the growth in renewables penetration causes different dispatch patterns relative to conventional generators, leading to several dynamic issues. Put simply, at penetration levels beyond 30%, increased transmission investment and transformational change in planning, markets, and operations are required to maintain system reliability. Nevertheless, the RIIA found that renewable penetration levels of even 50% or higher could be reliably achieved if MISO, its members, and states work together now towards a future grid that will support that level of integration.

Q. What was the result of the RIIA?

A. The RIIA provided insight into the challenges presented by high renewables penetration scenarios. To put the study's findings in perspective, while in 2022, the MISO system achieved 19% renewable penetration MISO-wide, many areas in the region experienced periods of more than 40% of energy from renewables. Further, as the study shows, in the next five years wind and solar generation could serve nearly 30% of MISO's annual load, and 60% of load by 2041. While this would reduce emissions by nearly 80% by 2041 relative to 2005 levels, it would also sharply increase the complexity of reliably operating and planning the system, given the

RIIA's findings. Thus, the RIIA revealed that while incremental transmission expansion has been and continues to be necessary to respond to increased renewables penetration in the MISO footprint today, to maintain system reliability efficiently and cost-effectively in both the near and long term as MISO members and states work to achieve their clean energy goals, it would be critical for MISO to determine what transmission expansion is needed, and by when. In other words, MISO's work was just beginning. The RIIA informed and prompted more transmission planning efforts related to the changing energy fleet, including the Reliability Imperative, Updated Futures, and Long Range Transmission Planning, all of which I discuss below.

2. The Reliability Imperative

Q. What is the Reliability Imperative?

A. MISO recognized as a result of the RIIA and other efforts, such as its annual Regional Resource Assessment (RRA), which reports on publicly shared utility resource plans and goals, that industry trends are driving members to make significant changes to their portfolios, including retirements of aging units and integration of increased levels of renewables. Thus, MISO was aware that it must focus on solutions now that anticipate and timely adapt to those changes. MISO therefore formulated the Reliability Imperative. The Reliability Imperative is what MISO terms its members', and states' shared responsibility to work together to address the region's electric system reliability challenges posed by a dramatically changing fleet in addition to other trends affecting the MISO system, such as increasingly frequent extreme weather events. MISO has explained that the Reliability Imperative is not intended to replace existing reliability initiatives with which stakeholders are already familiar. Rather, the Reliability Imperative pulls together a number of strategic initiatives under a single framework for the purpose of ensuring more

alignment, reinforcing the sense of urgency, and highlighting the connections among the workstreams. MISO's response to the Reliability Imperative (updated January 2023) is attached to my testimony as Schedule JLD-D2.

Q. What strategic initiatives comprise the Reliability Imperative?

A. MISO's response to the Reliability Imperative consists of a host of interconnected initiatives that aim to address the region's challenges in a comprehensive and prioritized fashion. These initiatives are organized into four primary, linked initiatives: (1) Market Redefinition; (2) Operations of the Future; (3) System Enhancements; and (4) Transmission Evolution, or Long Range Transmission Planning. The last one, LRTP, is particularly important here. As I explain below, it is the study through which MISO developed the LRTP Tranche 1 Portfolio, which includes the Phase 1 Projects that are the subject of ATXI's application in this proceeding.

3. Three Updated Futures

Q. You stated that the RIIA informed Updated Futures. Please explain.

A. In response to the need for transmission solutions that allow MISO members and states to reach their clean energy transition goals, MISO initiated a stakeholder process to update its Futures to better incorporate those goals and align with the ongoing and rapidly increasing pace of fleet transformation in its region. The stakeholder process began in August 2019, concluded in December 2020, and consisted of 13 stakeholder meetings to receive and evaluate input. The result was three Updated Futures (Futures 1, 2, and 3, the Series 1 Futures) that represent a "bookended" range of plausible future scenarios over a 2020-2040 horizon that could be used in multiple transmission study and planning cycles to ensure continued reliable and economic energy delivery within MISO's footprint. The Updated Futures were used, for example, in conjunction with the

2021 MTEP (or MTEP21), which was approved by the MISO Board in December 2021 and was the formal process by which the LRTP Tranche 1 Portfolio was approved. All three Updated Futures incorporate varying assumptions about member and state clean energy goals, retirements, Distributed Energy Resources (DER) adoption, and electrification, among other factors. And all three assume that changes announced through September 2020 in utility Integrated Resource Plans (IRPs), which are resource plans for 10-15 years into the future, are realized.

Q. What is Future 1?

A. Future 1 incorporates state and utility goals that are not reflected in enacted legislation. It assumes that the MISO footprint develops in line with 100% of utility IRPs and 85% of utility and state announcements. Future 1 also assumes emissions decline as an outcome of utility plans and load growth consistent with trends and includes a 40% carbon emissions reduction target from 2005 baseline by 2040.

Q. What is Future 2?

A. Future 2 incorporates announced state and utility goals by their respective timeframes, assuming that states and utilities meet their goals and mandates. Future 2 also assumes MISO footprint-wide Carbon Emissions Reduction (CER) of 60%, from a 2005 baseline, by 2040. And Future 2 assumes energy increases 30% footprint-wide by 2040, driven by electrification.

Q. What is Future 3?

A. Future 3 incorporates 100% of announced state and utility goals within their respective timelines. It also assumes that changing state and federal policies support an 80% CER,

footprint-wide. Additionally, Future 3 assumes that increased electrification drives a 50% footprint-wide increase in energy by 2040.

Q. Is there anything else notable about the Updated Futures?

A. Yes. I would note that the magnitude of change considered in the Updated Futures is transformational. Future 1 alone, which is the "least transformational" of the three scenarios, still anticipates 121 GW of resource additions, roughly a 30% MISO-wide renewable penetration. Here are the specifics of the three Updated Futures, as summarized by MISO in Tables 13 and 14 in its updated December 2021 Futures Report (pages 84-85):

Variables	Future 1	Future 2	Future 3
Gross Load[29] Total Growth	Low-Base EV Growth 94,275 GWh	30% Total Energy Growth by 2040 196,996 GWh	50% Total Energy Growth by 2040 334,692 GWh
Energy (CAGR) Input/*Result* **Demand (CAGR)** Input/*Result*	0.63% / *0.48%* 0.75% / *0.60%*	1.22% / *1.09%* 1.11% / *0.97%*	1.91% / *1.71%* 1.60% / *1.41%*
Electrification Growth & Technologies Growth from Electrification	2% of Total Growth 14,147 GWh	15.2% of Total Growth 109,101 GWh	31.8% of Total Growth 231,513 GWh
Electrification Technologies	PEVs	PEVs RES-HVAC RES-DHW RES-Appliances C&I-HVAC C&I-DHW	PEVs RES-HVAC RES-DHW RES-Appliances C&I-HVAC C&I-DHW C&I-Process
Selected DERs DR EE DG	0.94 GW 7.82 GW 3.47 GW	0.94 GW 8.05 GW 3.47 GW	0.94 GW 11.72 GW 6.17 GW
Carbon Reduction *(2005 baseline)* MISO Footprint currently at 29%	40% *63% realized in results*	60% *65% realized in results*	80% *81% realized in results*
Wind & Solar Generation Percentage[82]	Resulted in 26% with No Minimum Enforced	Resulted in 35% with No Minimum Enforced	46%
Utility Announced Plans	85% Goals Met 100% IRPs Met	100% Goals Met 100% IRPs Met	100% Goals Met 100% IRPs Met

Table 13: MISO Futures Assumptions

Variables		Future 1	Future 2	Future 3
Retirement Age-Based Criteria	Coal	46 years[30]	36 years	30 years
	Natural Gas-CC	50 years	45 years	35 years
	Natural Gas-Other	46 years	36 years	30 years
	Oil	45 years	40 years	35 years
	Nuclear	Retire if Publicly Announced	Retire if Publicly Announced	Retire if Publicly Announced
	Wind & Solar - Utility Scale	25 years	25 years	25 years
Retirements	Coal	44.8 GW	45.1 GW	47 GW
	Gas	18.6 GW	21.6 GW	51.4 GW
	Oil	2 GW	2.03 GW	2.3 GW
	Nuclear	2.4W	2.4GW	2.4GW
	Wind	9.2 GW	9.2 GW	9.2 GW
	Solar	0.02 GW	0.02 GW	0.02 GW
	Other	0.04 GW	0.04 GW	0.04 GW
	Total	77.1 GW	80.4 GW	112.3 GW
Additions	CC	37.1 GW	58.7 GW	41.9 GW
	CT	14.1 GW	10.5 GW	17.7 GW
	CC+CCS	0 GW	1.2 GW	42 GW
	Wind[31]	18.7 GW	63.1 GW	123.1 GW
	Solar	34.7 GW	28.7 GW	28.7 GW
	Hybrid	12 GW	1.2 GW	10.8 GW
	Battery	0.6 GW	3.4 GW	35.4 GW
	Hydro	0.1 GW	0.1 GW	0.1 GW
	Total (Including DERs)	129.5 GW	179.4 GW	318.5 GW

Table 14: MISO Futures Assumptions and Expansion Results

(available at https://cdn.misoenergy.org/MISO%20Futures%20Report538224.pdf).

4. Long Range Transmission Planning (LRTP)

Q. Generally, what is the importance of long range transmission planning?

A. Long range transmission planning—that is, planning over 10- and 20-year horizons or beyond—is designed to be responsive to situational grid needs given the extensive lead time required for large-scale transmission investments. It is generally used when incremental transmission system fixes, upgrades, or additions will not be sufficient to address those needs effectively or efficiently. Rather, these situations require MISO to consider a range of potential

future states, the implications of those outcomes for the industry, the transmission system needs this will create, and potential solutions to respond to those needs.

Q. What is the LRTP initiative of the Reliability Imperative?

A. The clean energy transition that I've discussed represents such a situation. The scale and pace of resource changes desired by MISO members and states, which MISO is already seeing, coupled with the time it takes a transmission project to go from concept to reality, mean that the clean energy transition demands prompt attention *now* to develop efficient, cost-effective transmission investments that ensure maintained grid reliability in the near future. The LRTP initiative component of the Reliability Imperative is MISO's transmission planning response. It requires MISO to study future transmission needs holistically, reflecting utility and state plans for generation, to identify grid needs based on the three Updated Futures that I explained, to identify larger, subregional solutions, and to consider appropriate allocation of the attendant costs.

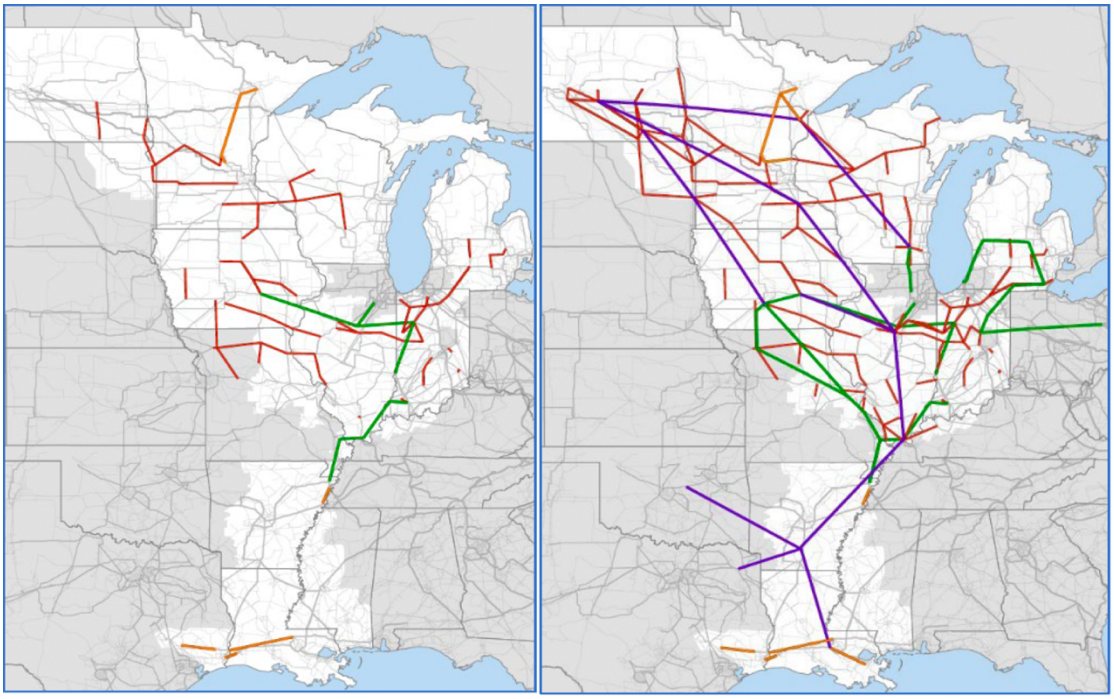
Q. What is the LRTP study?

A. The LRTP study is a multi-phase, multi-year study initially launched by MISO in 2019 to identify an updated regional transmission "backbone" that will cost-effectively maintain reliability while serving future transmission needs during the ongoing energy industry transition. The objective of the LRTP study is to provide orderly and timely transmission expansion plans that promote these primary objectives: A Reliable System – maintain robust and reliable performance in future conditions despite greater uncertainty and variability in supply; Cost Efficient – enable access to lower-cost energy production; Accessible Resources – provide cost-effective solutions allowing the future resource fleet to serve load across the MISO footprint; and Flexible Resources – allow more flexibility in the fuel mix for customer choice. I explain the first

phase of the LRTP study at a high level below. Details regarding the study are provided in the MTEP21 Addendum – LRTP Tranche 1 Report (LRTP Tranche 1 Report), which is attached to my testimony as Schedule JLD-D3.

Q. How did MISO identify the updated regional transmission backbone that you referenced above?

A. MISO began with the first phase of the LRTP study by developing indicative, or hypothesis, roadmaps of potential transmission expansions throughout the region, including solutions that would be required to enable Future 1 alone (below on the left) and Futures 1, 2, and 3 together (below on the right):



(LRTP Tranche 1 Report, page 5). Qualitative considerations created a framework for the roadmaps, including resource fleet evolution (i.e., a grid that would deliver future renewable resource output to load and facilitate conventional generation resource retirements), operational

considerations (a grid that would support internal transfer capability to enhance operating flexibility and external transfer capability for mutual support during extreme weather and other largescale grid-affecting events), and demand side requirements (a grid that would support demand and energy growth driven by electrification). The roadmaps were then contemplated by MISO planning staff as extensions of the existing grid that would provide for logical connections that could increase connectivity, close gaps between subregions, and support a more resilient grid by enabling more transfers of bulk power flows.

Q. What did MISO do with the indicative roadmaps?

A. The roadmaps provided, among other things, an indication of the potential magnitude of transmission expansions that may be needed to maintain reliable and efficient operations under the three Updated Futures as well as a basis for studying the expected transmission issues identified in the RIIA and possible solutions. MISO staff engaged stakeholders in an extensive, robust, and open process, encompassing over 200 stakeholder meetings between 2020 and 2022, with an average meeting attendance of between 200 and 300 stakeholder representatives, to study in an iterative manner system performance under the three Updated Futures and the transmission expansions contemplated by the roadmaps. In the first phase of the LRTP study, MISO staff and stakeholders initially focused on the future transmission investments needed to address Future 1 and the 10- to 20-year horizon. The transmission expansions on the indicative roadmaps were then adjusted, added, removed, and improved. They were then scrutinized again through an iterative process benefited by considerable stakeholder input.

Q. Was ATXI involved in that iterative process?

A. Yes. As further explained by Mr. Davies, Ameren Services' Transmission Planning group, which provides shared transmission planning services to ATXI, was and remains today an active participant in the LRTP study process on behalf of Ameren's transmission-owning utilities.

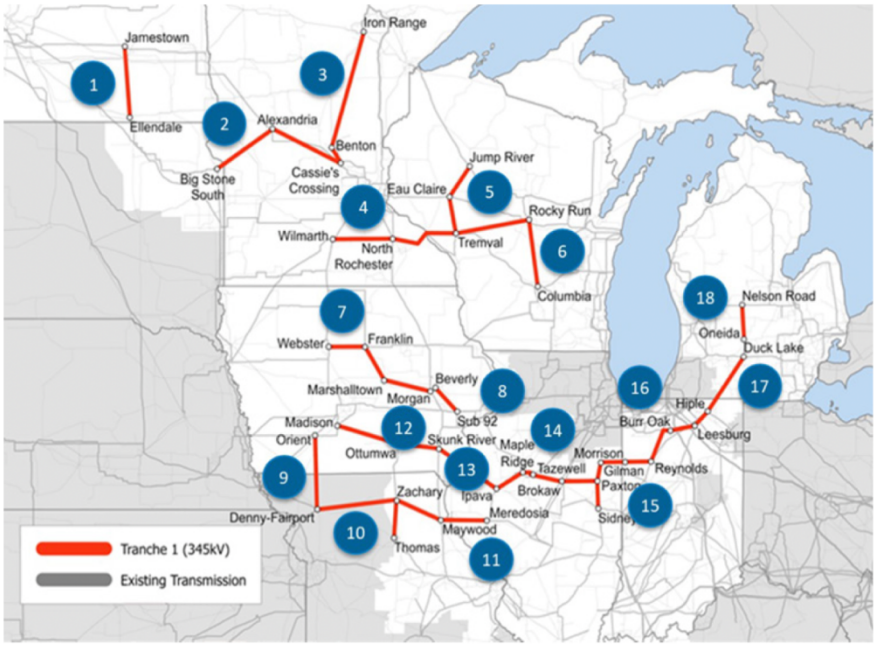
Q. What was the result of the LRTP study?

A. The result was a transmission expansion plan that could support the requirements of Future 1 by enhancing connectivity and maintaining adequate reliability for MISO's Midwest Subregion by 2030 and beyond. Again, that transmission expansion plan is known as the LRTP Tranche 1 Portfolio. I explain that portfolio below.

V. THE LRTP TRANCHE 1 PORTFOLIO

Q. Please further describe the LTRP Tranche 1 Portfolio.

A. The LRTP Tranche 1 Portfolio represents the result of the most complex transmission study efforts in MISO's history and the largest portfolio of transmission projects ever approved by a U.S. RTO. It comprises approximately 2,000 miles of new and upgraded high-voltage transmission lines totaling approximately $10.3 billion in investment. It is an aggregate of 18 "least regrets" multi-value projects (or MVPs, which I explain further below) needed to help to ensure a reliable, resilient, and cost-effective transmission system as the resource mix continues to change in MISO's footprint over the next 20 years. Below is a map of the LRTP Tranche 1 Portfolio, with the number MISO assigned to each MVP and MISO's estimated cost and in-service date for each MVP, as depicted in the LRTP Tranche 1 Report (pages 3-4, Figure 1-1 and Table 1-1):



ID	DESCRIPTION	EXPECTED ISD	EST COST ($2022M)
1	Jamestown – Ellendale	12/31/2028	$439
2	Big Stone South – Alexandria – Cassie's Crossing	6/1/2030	$574
3	Iron Range – Benton County – Cassie's Crossing	6/1/2030	$970
4	Wilmarth – North Rochester – Tremval	6/1/2028	$689
5	Tremval – Eau Claire – Jump River	6/1/2028	$505
6	Tremval – Rocky Run – Columbia	6/1/2029	$1,050
7	Webster – Franklin – Marshalltown – Morgan Valley	12/31/2028	$755
8	Beverly – Sub 92	12/31/2028	$231
9	Orient – Denny – Fairport	6/1/2030	$390
10	Denny – Zachary – Thomas Hill – Maywood	6/1/2030	$769
11	Maywood – Meredosia	6/1/2028	$301
12	Madison – Ottumwa – Skunk River	6/1/2029	$673
13	Skunk River – Ipava	12/31/2029	$594
14	Ipava – Maple Ridge – Tazewell – Brokaw – Paxton East	6/1/2028	$572
15	Sidney – Paxton East – Gilman South – Morrison Ditch	6/1/2029	$454
16	Morrison Ditch – Reynolds – Burr Oak – Leesburg – Hiple	6/1/2029	$261
17	Hiple – Duck Lake	6/1/2030	$696
18	Oneida – Nelson Rd.	12/29/2029	$403
	TOTAL PROJECT PORTFOLIO COST		$10,324

Figure 1: LRTP Tranche 1 portfolio includes 18 projects in MISO's Midwest Subregion, with an investment cost of $10.3 billion

Q. Should these 18 MVPs be considered individually?

A. No. MISO intended the LRTP Tranche 1 Portfolio to be viewed as an integrated portfolio. The MVPs comprising the portfolio were designed to work together and function as a collective. Together, the 18 MVPs will help integrate new generation resources that utilities and states build in the north and central parts of the MISO region and will support the reliable and affordable transition of the fleet. Together, they will also further harden the grid against extreme weather events. And, together, they reflect the urgency of the transmission response to the clean energy transition that is happening *now*.

Q. How does the LRTP Tranche 1 Portfolio reflect that urgency?

A. MISO intended that the portfolio make use of existing transmission corridors where possible. This reduces the need to acquire additional new, or "greenfield," right-of-way, which lowers costs, helps mitigate impacts on landowners and other stakeholders, and promotes timelier implementation of transmission expansion. Additionally, co-locating portfolio facilities with existing transmission assets enables more efficient development of transmission projects and minimizes the environmental and social impacts of transmission infrastructure investments.

Q. What do you mean by "least regrets"?

A. The LRTP Tranche 1 Portfolio is considered "least regrets" by MISO because MISO is planning for an uncertain future. MISO has chosen to plan towards the needs that represent current member and state plans. Those plans continue to accelerate and expand, however, making Future 1 the conservative, expected case. Future 1 presents reliability implications that the LRTP Tranche 1 Portfolio addresses. It is therefore a "yes and" portfolio, with future tranches to

build off of the first tranche to continue to meet the increasing renewable penetration levels and electrification growth expected within the MISO region in the future.

Q. How does the portfolio address the Future 1 reliability implications?

A. The LRTP Tranche 1 Portfolio was specifically developed to ensure that the regional transmission system can meet demand in all hours while supporting the resource plans and renewable energy penetration targets reflective of MISO member utilities' goals and state policies. MISO determined that the LRTP Tranche 1 Portfolio prevents numerous thermal and voltage reliability issues arising under Future 1 so that the MISO transmission grid can continue to reliably deliver energy from current and future generation resources to future load under a range of projected system conditions associated with Future 1 in the 10-year and 20-year time horizons. The thermal and voltage reliability issues that the LRTP Tranche 1 Portfolio addresses are summarized in the LRTP Tranche 1 Report. At a high level, however, the LRTP study demonstrated that the LRTP Tranche 1 Portfolio is urgently needed to address reliability violations as defined by NERC at over 300 different sites across the Midwest, as Mr. Davies explains in more detail. The portfolio is also needed to increase transfer capability across the MISO Midwest Subregion to allow reliability to be maintained for all hours under varying dispatch patterns driven by differences in weather conditions.

Q. Did MISO quantify the economic benefits of the LRTP Tranche 1 Portfolio?

A. Yes. MISO quantified benefits to the Midwest region totaling $37.3-69.1 billion, with net benefits of $23.2-52.2 billion. The quantified benefits include:

- **Congestion and Fuel Savings** – $13.1-19.9 billion. The LRTP Tranche 1 Portfolio will allow more low-cost resources to be integrated, replacing higher-cost resources and lowering the overall cost to serve load.
- **Avoided Capital Cost of Local Resources** – $17.5 billion. The LRTP Tranche 1 Portfolio will allow renewable resources build-out to be optimized in areas where they can be more productive compared to a wholly local buildout.
- **Avoided Transmission Investment** – $1.3-1.9 billion. The LRTP Tranche 1 Portfolio will reduce loading and avoid future reliability upgrades, avoiding the cost for replacing facilities due to age and condition.
- **Resource Adequacy Savings** – $.6-.9 billion. The LRTP Tranche 1 Portfolio will increase transfer capability, which will allow access to resources in otherwise constrained areas and defer the need for investment in local resources.
- **Avoided Risk of Load Shedding** – $1.2-11.6 billion. The LRTP Tranche 1 Portfolio will enhance the resilience of the grid and reduce risk of load loss caused by severe weather events.
- **Decarbonization** – $3.5-17.4 billion. The higher penetration of renewable resources enabled by the LRTP Tranche 1 Portfolio will result in less carbon dioxide emissions.

Q. What about economic benefits to MISO Zone 5 (Missouri) specifically?

A. MISO quantified those too. Those quantified benefits are:

- **Congestion and Fuel Savings** – $1.5-2.2 billion.
- **Avoided Capital Cost of Local Resources** – $1.4 billion.

- **Avoided Transmission Investment** – $0.1-0.2 billion.
- **Avoided Risk of Load Shedding** – $0.1-0.9 billion.
- **Decarbonization** – $0.3-1.3 billion.

MISO also calculated Resources Adequacy Savings to Zone 5 of $0. However, that does not mean there is no related benefit to that zone. Rather, the LRTP Tranche 1 Portfolio of projects provide for additional transfer limits into Zone 5, which in turn provides Zone 5, the opportunity for access to additional capacity resources.

Q. Does the portfolio provide any other, nonquantifiable benefits?

A. The LRTP Tranche 1 Portfolio also provides multiple other, qualitative benefits. MISO expects the addition of the LRTP Tranche 1 Portfolio to increase the operational flexibility to better allow timely outage scheduling to maintain the reliability of the system and to reduce the economic impacts due to congestion caused by outages. This increased operational flexibility also helps reduce the economic impacts of natural gas fuel price changes by providing access to a broader pool of generation resources. The LRTP Tranche 1 Portfolio also gives more flexibility to better support diverse policy needs. The proactive long-range approach to planning of regional transmission should provide regulators greater confidence in achieving their policy goals by reducing uncertainty around the future resource expansion plans. Elimination of much of the high transmission cost barriers also allows resource planners to assume less risk in making resource investment decisions.

Q. Is the LRTP Tranche 1 Portfolio cost-effective?

A. Yes. MISO calculated that the portfolio has an overall benefit-to-cost ratio range of 2.6 to 3.8, meaning the benefits to the region well exceed the costs. Evaluation of economic

benefits compares the production cost savings associated with the transmission expansion needed to reliably support Future 1 versus the production costs without generation that cannot be reliably supported. The first phase of the LRTP study determined that the LRTP Tranche 1 Portfolio will provide $23.2 billion in net economic savings to the MISO region over the first 20 years of the portfolio's service, resulting in a benefit to cost ratio of at least 2.6. This amount increases to $52.2 billion in net economic savings over 40 years, resulting in a benefit to cost ratio of 3.8. Further, the benefits exceed the costs in every MISO zone, including Zone 5. MISO quantified the Zone 5 benefits-to-cost ratio as at least 3.0, and up to 4.2, as shown in the LRTP Tranche 1 Report (page 5, Figure 3):

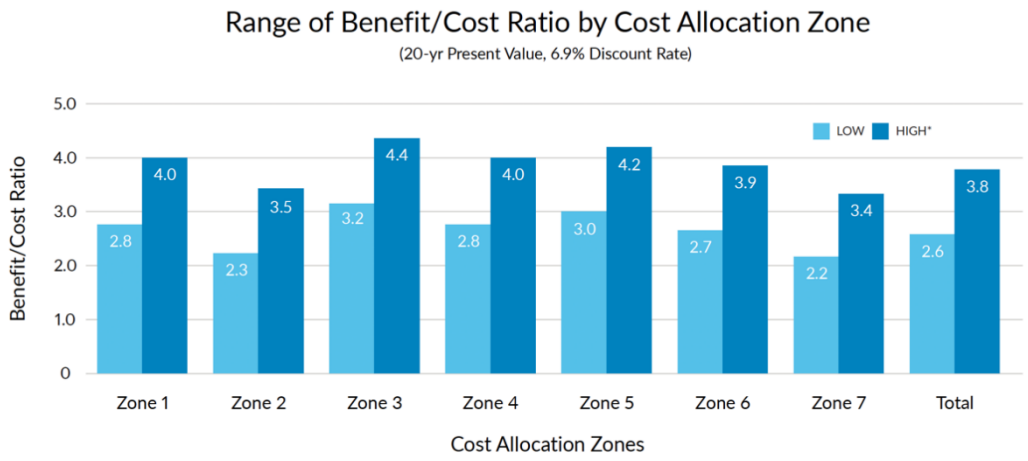


Figure 3: Benefits from the LRTP Tranche 1 portfolio exceed costs in every Midwest Subregion cost allocation zone

* The low and high range of benefit/cost ratios by Cost Allocation Zone are driven by changing two assumptions in the 20-year present value analysis: 1) increasing the Value of Lost Load (VOLL) from $3,500/MWh (low) to $23,000/MWh (high); and 2) increasing the price of carbon from $12.55/ton (low) to $47.80/ton (high).

Q. How will the cost of the LRTP Tranche 1 Portfolio be allocated to customers?

A. The cost of the portfolio will be broadly shared across MISO's Midwest Subregion. Again, the LRTP Tranche 1 Portfolio is a single transmission expansion plan intended to address the reliability implications of Future 1 for MISO's Midwest Subregion. The MVPs comprising the

portfolio were designed to work together and function as a collective. That said, for cost allocation purposes, the portfolio is split into the above 18 sub-regionally beneficial MVPs. Unlike local transmission projects, MVPs benefit multiple states, members, and customers. As such, pursuant to the MISO Tariff and FERC approval, MVPs are eligible for regional cost sharing, under which a project's costs are allocated across a broader base of customers—those within the subregion benefited. ATXI witness Mr. Gudeman explains in more detail how the cost of the LRTP Tranche 1 Portfolio investments will be allocated across pricing zone regions in MISO and then recovered from customers.

Q. How are MVPs designated?

A. Under the MISO Tariff, a transmission project must meet one or more of three criteria to be considered an MVP, the cost of which is regionally shared. First, the project must be developed through the transmission expansion planning process to enable the transmission system to deliver energy reliably and economically in support of documented energy policy mandates or state or federal laws or regulation that directly or indirectly govern the minimum or maximum amount of energy that can be generated by specific types of generation. The project must be shown to enable the transmission system to deliver such energy in a manner that is more reliable or more economic than it otherwise would be without the project. Second, the project must provide multiple types of economic value across multiple pricing zones with a total benefit-to-cost ratio of 1.0 or higher. Third, the project must address at least one transmission issue associated with a projected violation of a NERC or regional entity standard and at least one economic-based transmission issue that provides economic value across multiple pricing zones within MISO. On this latter requirement, the project must generate total financially quantifiable benefits, including

quantifiable reliability benefits, in excess of the total project costs. Each of the above 18 projects comprising the LRTP Tranche 1 Portfolio meets these criteria. Thus, each is eligible for subregional cost sharing.

Q. What about FERC approval?

A. In February 2022, MISO filed with FERC a proposed cost allocation methodology for MVPs that meet the unique needs of the MISO region in developing LRTP projects. The filing, which was supported by a majority of MISO transmission owners, was approved by FERC in May 2022 for the Midwest Subregion and LRTP Tranche 1, as well as for LRTP Tranche 2.

Q. Has the LRTP Tranche 1 Portfolio been approved by the MISO Board?

A. Yes. The portfolio was unanimously approved for implementation by the Board of Directors in July 2022 as an addendum to the MTEP21 plan that was previously approved by the Board in December 2021. As approved, MISO planned the portfolio to be completed and in service by June 2030.

Q. Who is obligated to construct the portfolio?

A. MISO has already designated myriad incumbent transmission developers to develop, own, and operate many of the segments and facilities comprising the approximately 2,000-miles of new and upgraded transmission lines and related facilities comprising the LRTP Tranche 1 Portfolio, consistent with Attachment FF to the MISO Tariff and the 80/20 process that I explained above. Certain other segments and facilities are subject to the competitive bid processes under the tariff.

Q. You mentioned that MISO anticipates future LRTP tranches to build off the LRTP Tranche 1 Portfolio. Is MISO studying those tranches now?

A. Yes. The LRTP study is a multi-phase, multi-year study. The LRTP Tranche 1 Portfolio is the outcome of the first phase of the study. The study continues, however. Work is currently underway on LRTP Tranche 2, with at least two additional tranches to follow.

Q. Why is MISO developing the LRTP transmission solutions in tranches?

A. MISO is developing the LRTP transmission solutions in tranches, or phases of effort, to first foster timely development of solutions targeted to specific subregional needs before building to potential region-wide portfolios. Tranches 1 and 2 are focused on the Midwest Subregion. Tranche 3 will focus on the South Subregion, and Tranche 4 will address the North/South interface limit. Again, although preliminary solutions have been identified, Tranche 2 planning remains underway. The timing for Tranches 3 and 4 will be determined as Tranche 2 approaches completion. Longer-term, MISO envisions that long term regional planning will become an embedded part of the recurring MTEP process. This may result in additional LRTP tranches based on system needs, although MISO does not envision that every analysis will result in a recommended transmission portfolio.

VI. CONCLUSION

Q. Does this conclude your direct testimony?

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Ameren Transmission Company of Illinois for a Certificate of Convenience and Necessity under Section 393.170.1, RSMo and Approval to Transfer an Interest in Transmission Assets Under 393.190.1, RSMo relating to Transmission Investments in Northwest and Northeast Missouri.	))))))))	File No. EA-2024-0302

AFFIDAVIT

1. My name is Jeff L. Dodd. I am the Vice President of Transmission Strategy, Policy, and Stakeholder Relations for Ameren Services Company, which is a subsidiary of Ameren Corporation and an affiliate of Ameren Transmission Company of Illinois, the Applicant in the above-captioned proceeding.

2. I have read the above and foregoing Direct Testimony and the statements contained therein are true and correct to the best of my information, knowledge, and belief.

3. I am authorized to make this statement on behalf of Ameren Transmission Company of Illinois.

4. Under penalty of perjury, I declare that the foregoing is true and correct to the best of my knowledge and belief.

/s/ Jeff L. Dodd
Jeff L. Dodd
Vice President of Transmission Strategy, Policy, and Stakeholder Relations for Ameren Services Company

On behalf of Ameren Transmission Company of Illinois

Date: *July 16, 2024*