Testimony of Lanny Nickell

Executive Vice President, Chief Operating Officer

Southwest Power Pool, Inc.

Before the House Energy & Commerce Subcommittee on Energy

"Keeping the Lights On: Examining the State of Regional Grid Reliability"

Tuesday, March 25, 2025

Chairman Latta, Vice Chairman Weber, Ranking Member Castor, and members of the Subcommittee, thank you for the opportunity to speak about grid reliability.

My name is Lanny Nickell. I am Southwest Power Pool's (SPP) Executive Vice President and Chief Operating Officer, and incoming President and CEO effective April 1. As a regional transmission organization (RTO), SPP coordinates grid operations across a 14-state area in the central United States and is responsible for ensuring the reliable, economic delivery of wholesale electricity to utilities serving more than 18 million people in our region. We oversee the generation and delivery of electric power for our member utilities, study and direct needed enhancements to the region's bulk transmission network, and operate a wholesale electricity market that enables delivery of some of the most affordable wholesale energy in the country. I appreciate the chance to discuss the state of our grid and our generational challenge to meet an unprecedented growing demand for electricity with an evolving mix of energy sources.

Our industry is at a pivotal moment—having experienced the transition from historically centralized, controllable coal and natural gas generation toward decentralized, renewable-heavy resources. This rapid shift has increased operational complexity and significantly amplified reliability risks.

The demand for electricity in our region has increased faster than we had previously projected. SPP set our latest record peak for instantaneous demand in August 2023: around 56 gigawatts (GW), equivalent to the output of more than 50 Hoover Dams. That was roughly 10% higher than the peak set two years earlier. This growth isn't limited to summer. On February 20, 2025, we experienced a record winter peak of approximately 48 GW, about 2.5% higher than our prior winter peak. And it's not only that demand peaks are getting higher; overall electricity usage is increasing

too. Between 2014 and 2024, the annual electricity consumption in our region grew by roughly 25%. This increase has been driven by a number of factors, including economic expansion, conversion of gas to electric heating, harsh weather conditions, and an emerging proliferation of datacenters that require immense power.

Seasonal risks are no longer confined to summer months; winter electricity demand has surged dramatically, reinforcing our need for increased reserve margins and dispatchable generation. Recent reliability challenges, such as those experienced during Winter Storm Uri, demonstrate vividly why a diversified and robust generation mix is indispensable to grid resilience.

One of these drivers – the rise of advanced computing and artificial intelligence (AI) – deserves special mention. AI and high-performance computing are fueling a new wave of data centers that consume immense amounts of electricity. Our region's affordable and reliable power has already attracted interest from companies looking to build these energy-intensive facilities within SPP's footprint. Serving these emerging large loads will require us to strategically plan and aggressively expand our grid – ensuring we have sufficient generation and reinforcing transmission to deliver power where it's needed. It is also critical to maintain energy security for these digital infrastructure hubs, meaning a resilient, uninterrupted supply of electricity. By proactively meeting AI-driven demand through streamlined development of new resources and infrastructure, we can preserve reliability and help the United States maintain a competitive edge in the global digital economy.

SPP forecasts that peak demand over the next ten years could be as much as 50% higher than today's levels. Dispatchable power plant retirements due to age or environmental limits have been occurring and are expected to continue to occur, steadily reducing the amount of firm capacity

available to serve customers. These retirements have tightened our supply margins and almost exponentially increased reliability risks. Compounding the challenge, the majority of new generation that has been added in our region over the last several years has been intermittent wind. In other words, a large amount of around-the-clock generation was retired and largely replaced with weather-dependent resources.

This imbalance between rising demand and a changing resource mix is central to the challenge our industry and nation face. In 2024, SPP produced a comprehensive report on this subject titled "Our Generational Challenge." Its conclusion is that, without significant and collaborative action, grid operators like SPP will find it increasingly difficult to keep pace with consumers' future electricity needs. Notably, SPP's report also suggested measures to mitigate the reliability gap – for example, setting higher planning reserve margins (a step we have since taken) and incentivizing key generators to remain in operation longer until replacement resources can be put in place.

Among our peers across the nation, SPP has been a leader in navigating America's wind energy boom. Wind capacity in the SPP region has increased 30× over the last two decades, and we've seen as much as 90% of our region's demand for electricity supplied by wind power. Thanks in part to an abundant supply of renewable resources, SPP enjoys the lowest wholesale electricity prices of any region in the country.

An abundance of wind generation, however, also brings challenges, because it's a variable resource – meaning we can't control its availability. Instead, we react to varying wind generation output as weather conditions change. On February 27, changing wind speeds caused wind generation to plunge by 12,000 MW in just two hours. To meet the continuing demand for electricity, we had to rapidly increase the output of the dispatchable generation available during that time, primarily

natural gas generation. If dispatchable generation had not been available, we would have been forced to interrupt electricity consumption within the region. This real-world event underscores how variability stresses the system, especially during high-load periods, and we need increased dispatchable baseload generation in our footprint to ensure the lights stay on.

The nation's transmission infrastructure is simply not ready for this accelerating future. Even SPP's latest transmission expansion plan (published in October 2024) called for more than five times the investment of any prior plan—underscoring the massive scale of infrastructure needed to reliably meet rapidly growing electricity demand.

To maintain reliability amid these challenges, SPP and our member utilities have prioritized improving policies to ensure resource adequacy – the ample, reliable provision of generating capacity needed to meet peak demand with sufficient reserve or excess capacity that can be deployed as needed. Every utility providing electric service in our region must maintain access to an amount of reserve capacity that exceeds their expected peak demand. We call this a planning reserve margin. Driven by the almost exponentially increasing reliability risks we are facing and lessons learned from recent weather events, SPP's stakeholders and board have recently increased our planning reserve margin requirements. Beginning with the summer season of 2023, we increased summer reserve requirements from 12% to 15%. In other words, to ensure a safe amount of "headroom," utilities must have the ability to produce 15% more energy than their forecasts suggest they'll need during a summer peak. That requirement is expected to increase to 16% for the summer season of 2026 and 17% for the summer season of 2029. Last year, we set a new winter-season reserve target of 36% effective beginning in 2026 which will increase to 38% effective in 2029. This helps us mitigate unplanned transmission and generation outages, sudden changes in weather conditions, and other risks. It also signals that new investment in reliable

capacity is needed, so that our nation always has a safety net in terms of immediately available electricity. While smaller margins are less costly to maintain, they allow less room for error, increasing the risk of emergencies.

The good news is that we have a robust pipeline of new resources eager to come online. SPP has more than 100 GW of generation projects interested in connecting to our grid – almost twice our peak demand as of today, with over a third of those projects consisting of battery storage and gas generation, which will help offset the variable nature of the renewable generation we have today. If even a fraction of these projects gets built, and if we can construct the needed transmission to support them, they'll greatly improve our resource adequacy.

SPP's generation interconnection study queue, like most of the nation's, has been backlogged for years for a number of reasons. Likewise, transmission builders often face permitting, supply chain, and other challenges that further slow construction. SPP is working to streamline our processes, and we expect to clear our backlog by the end of this year. In the meantime, there remains a pressing need for new transmission lines to deliver energy from where it's produced to the growing load centers where it's needed. Our members have invested more than $12 billion in transmission over the past decade (with another $7 billion approved late last year), but more is needed to meet this generational challenge. Efficiently harnessing new resources – and replacing retiring plants – to meet future demand at low cost requires proactive planning and regulatory support.

We are on track to implement process improvements by the end of 2025 that will allow us to achieve a 12-month turnaround of new generator interconnection requests, allowing needed generation resources to reach operation faster and mitigate near-term reliability gaps. Further, SPP and its load-serving members are taking steps to ensure we maintain sufficient dispatchable

capacity through this transition. Many utilities in our footprint are investing in new on-demand generation and keeping existing plants available as long as needed. For example, Omaha Public Power District (OPPD) in Nebraska recently announced plans to add 900 MW of fast-start natural gas generation by 2030 to help meet rising demand reliably. Other SPP utilities have similar plans for new gas-fired power stations or upgrades, and some are extending the operation of critical coal and gas units to avoid near-term shortfalls. In addition, our members continue to expand demand response capabilities and explore emerging technologies like grid-scale batteries to supplement firm capacity. SPP is further evaluating market incentives to encourage adequate dispatchable resources and working closely with state regulators on coordinated resource planning. These joint efforts will help offset the retirement of older assets and provide the around-the-clock power needed to back up our growing renewable fleet.

We are also pursuing significant efforts to reimagine transmission planning policies—improving cost-sharing mechanisms, streamlining approval processes and allowing expedited access to generating resources needed to meet increasing reserve margin requirements. These policy changes are essential to accelerate construction of critical infrastructure, ensuring the grid meets growing electricity needs swiftly and economically.

SPP's system is reaching new heights of demand and integration of a diverse portfolio of generating resources. This is an exciting time of innovation and opportunity in our industry, but also one that truly tests our infrastructure planning and operating strategies. I want to emphasize that reliability is – and will remain – our top priority. We are taking steps such as boosting reserves, improving market tools, adding new generation, and advocating for appropriate grid expansion to

ensure we continue to keep the lights on at all times. Decisions made today will determine whether we succeed in providing reliable, affordable, and sustainable power for the next generation.

To make these urgent and transformational changes, our industry has a critical need for collaboration and consensus from utilities, regulators, policymakers, other Regional Transmission Organizations, and consumers. Utilities can upgrade aging infrastructure and bring new transmission and generation to the grid. State regulatory commissions can develop responsible cost allocation and resource adequacy policies and support prudent investments in infrastructure expansion. The Federal Energy Regulatory Commission (FERC) is critical in permitting infrastructure and acting decisively and in a timely manner on filings meant to ensure reliability and effective energy markets. Policymakers can enact laws that promote reliability while balancing affordability and environmental goals; they can also support collaboration across multi-state regions. RTOs can work together to provide visionary leadership in our regions while working across our boundaries to collaborate on interregional projects and improve grid resilience. Consumers can stay informed and support utilities' efforts to build infrastructure needed to provide reliable and affordable electric service. They can participate in demand response and energy efficiency programs and voluntarily reduce consumption during emergencies.

SPP's call to action is for all these parties to work together to assure adequate generation and transmission is being planned for the future. I am confident we can meet this challenge, but SPP can't do it alone. Thank you, and I look forward to your questions.