

**BEFORE THE
KANSAS CITY BOARD OF PUBLIC UTILITIES**

Prepared Direct Testimony of

Andrew Ferris

Issue:

Generation

March 2023

Q: What is your name?

A: Andrew Ferris

Q: What is your position at the BPU?

A: I am the Director of Financial Planning.

Q: Please summarize your professional qualifications and experience.

A: I have a Bachelor's degree in Finance from Truman State University and a Master's in Business Administration from Webster University. I have worked in Finance, Credit Risk, Audit, and Planning for 25 years with 10 of those years being with the Kansas City Board of Public Utilities.

Q: What are your responsibilities as Director of Financial Planning?

A: My responsibilities include forecasting fuel, purchase power, customer demand, electric purchases and sales, as well as the Energy Rate Component (ERC) calculations. I also manage long term capacity planning through the management of sales/purchase contracts including renewable contracts and the implementation of demand response initiatives to meet customer requirements and to satisfy the utility's capacity planning margin.

Q: What are your responsibilities relating to the current Electric & Water Rate Hearing?

A: My responsibilities are to participate as a team member and subject matter expert in the areas of load forecast, power supply costs, and the ERC in the Cost of Service and Revenue Requirement Studies and to provide information for the Rate Hearing

process.

Q What is the purpose of your testimony?

A. I sponsor testimony on the BPU generation portfolio.

Q: What generating resources are currently in BPU's portfolio?

A: The Board of Public Utilities has a diverse generation portfolio which consists of the following resources along with the fuel type and general nameplate quantity associated with each of the resources.

Nearman 1 - Coal - 245 MW

CT2 – Fuel Oil – 56 MW

CT3 – Fuel Oil – 46 MW

CT4 – Natural Gas / Fuel Oil – 75 MW

Dogwood – Natural Gas – 650 MW (BPU owns 17% of this facility)

Cimarron Bend – Wind – 200 MW

Smoky Hills – Wind – 25.2 MW

Alexander – Wind – 25 MW

Southwest Power Administration – Hydro – 38.6 MW

Western Area Power Administration – Hydro – 4.8 MW

Bowersock – Hydro – 7 MW

BPU Community Solar – Solar – 1 MW

Oak Grove – Landfill Gas – 3.5 MW

Q: How does BPU determine what generation operates, when, and to what output levels?

A: The BPU is a member of the Southwest Power Pool (SPP), as are the vast majority of all electric utilities in the region. SPP is the regional transmission operator in the central part of the United States and is responsible for transmission grid activities and thus dispatches resources throughout the region to best ensure system wide reliability. SPP will dispatch generating resources based on the needs of the transmission grid under actual real time conditions.

Q: What parameters does SPP look at when determining generation dispatch?

A: All registered generating resources provide SPP with real time information. This information includes fuel or operating costs at the various output levels, the upper and lower limits of the generator, the speed at which the generating unit can come online as well as the speed at which it can increase or decrease output levels, the amount of time that the unit is required to stay online if brought online and various other intricacies of each resource.

Q: What is the goal of the SPP?

A: The goal of the SPP is to ensure transmission or power reliability to the region and doing so at the lowest possible cost. Therefore, reliability is the number one responsibility of the regional transmission operator. SPP does this by looking at all generating resources, the operating parameters of each resource, any real time grid conditions, and the ability to meet the required demand at all points within the region and then dispatches units across the grid based on each resource's ability to meet the obligation based on the lowest possible cost of serving that need.

Q: What impacts resource operating parameters?

A: Every resource within the region has unique attributes, but the largest drivers behind operating parameters is fuel type, fuel availability, and fuel cost. Resource location is also a vital attribute as power is physical in nature and thus must be delivered to the end customer through the use of transmission lines therefore any transmission constraints on the system impact which resources have the ability to serve what load areas. Fuel type is an impactful parameter because each type of fuel is converted to power using different techniques and processes and thus impacts the flexibility of the resource. Fuel availability is also an important parameter. Some fuel types such as coal and fuel oil reside on site and thus are generally always available. Other fuel types such as Natural gas are delivered on demand via pipeline and thus when there are pipeline constraints due to high demand or other issues the resource may not be able to receive all fuel quantities needed at the time that the need is required. Renewables receive their fuel through various weather events and thus those resources are only available based on those weather conditions being met and therefore are only available at the time, location, and quantity that those weather conditions apply. Fuel cost is also a vital component of the resource parameter with each fuel type having different costs with each fuel type varying based on contracted rates and demand levels. Renewables conversely have no fuel costs due to those resources being driven exclusively by weather conditions, however most utility off-takers have fixed rate pricing contracts that are billed based on output or the potential ability to produce. Each resource and resource type have various attributes and challenges associated and thus no single resource type is able to seamlessly meet the demands of the electric grid.

Q: Other than power are there any other responsibilities of the generating fleet?

A: Those entities that serve load are responsible to provide generating capacity at a level of 115% of projected annual peak load. This is a requirement of all load serving entities that are members of SPP. This responsibility is to ensure that SPP has enough generating capability at all times throughout the year. Just like the resource attributes mentioned previously each resource receives different capacity accreditation based on that resource's ability to serve load during periods of high demand. This capacity accreditation is based on actual production and test results over a period of years. Capacity accreditation is an ever-changing process and is determined by SPP to ensure the reliability of the system. Conventional generating capabilities are determined by operating the units during extreme weather conditions to determine its ability to produce during those periods. Renewables are based on forecasted or actual generation across a span of time. As a general rule conventional generation, hydro generation, and landfill gas generation yields the highest capacity accreditation values when compared to nameplate. Solar generation currently generally yields approximately a 50% capacity accreditation value while wind accreditation continues to fall as additional wind is added to the region and is generally expected to receive a capacity accreditation of approximately 15% of nameplate during the summer period. As additional renewable quantities are added to the grid the capacity accreditation rate is expected to fall as other generation is generally required to serve the highest demand periods.

Generation is also responsible to help with auxiliary and voltage support which aids in the movement and support of the grid. Conventional spinning generation such as from coal or natural gas facilities provide the bulk of this assistance as renewables don't function as well in this role and large-scale renewable projects are generally

well outside the load centers. All of BPU's renewable facilities are outside of BPU's service territory excluding the 1 MW Community solar facility.

Q: What percent of BPU's generation and what percent of retail sales come from green or carbon free resources?

A:	2019	2020	2021	2022
% of Generation	47%	48%	42%	44%
% of Retail Sales	58%	64%	56%	51%

Q: What are BPU's future renewable procurement options?

A: As part of this Cost of Service the BPU is rolling out an optional green rider that will allow Commercial and Industrial customers to subscribe and procure renewable power up to 100% of their annual load. To learn more about this rider please see the Green Rider testimony and the rate manual. Outside of the procurement of additional renewable generation on behalf of the Commercial and Industrial customers, BPU closely monitors and manages the generating capacity needs of the utility. Each resource is evaluated based on its various attributes, which includes its capacity accreditation, development costs, location siting parameters, generation costs, etc.

Q: What are the challenges or risks of acquiring more or less renewable power?

A: As mentioned previously each resource type has various attributes. Those attributes create challenges. Some of the challenges associated with migrating away from local spinning generation and toward large-scale renewable facilities is that those facilities are not located within the service territory and thus the transmission system would

require substantial additional investment to maintain system voltage and to ensure its capability of bringing in high levels of power under all conditions including transmission outages. Other challenges may include the timing of generation, the location and therefore subsequent pricing of that generation, and the long-term capacity accreditation of that power source. Spinning generation also has challenges and concerns which may include fuel price volatility, and additional regulatory burdens and thus no single resource type has the ability to meet the current load requirements and thus diversification remains a key component.

Q: Does this conclude your prepared direct testimony in this matter?

A: Yes. It does.