

WORK SESSION MINUTES – WEDNESDAY, OCTOBER 20, 2021

STATE OF KANSAS)
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CITY OF KANSAS CITY)

The Board of Public Utilities of Kansas City, Kansas (aka BPU, We, Us, Our) met remotely in Work Session on Wednesday, October 20, 2021 at 5:00 P.M. The following Board Members were on the teleconference: Robert L. Milan, President; Mary Gonzales, Vice President; Rose Mulvany Henry, Secretary; Thomas Groneman Jeff Bryant, and Ryan Eidson.

Also on teleconference: William Johnson, General Manager; Angela Lawson, Deputy Chief Counsel; Lori Austin, Chief Financial Officer/Chief Administrative Officer; Johnetta Hinson, Executive Director Customer Service; Jeremy Ash, Executive Director Electric Operations; Jerry Ohmes, Executive Director Electric Supply; Steve Green, Executive Director Water Operations; Dong Quach, Executive Director Electric Production; David Mehlhaff, Chief Communications Officer; Andrew Ferris, Director Electric Supply Planning; Robert Kamp, IT Project Manager; Dennis Dumovich, Director Human Resources; and Patrice Townsend, Director Utility Services.

A tape of this meeting is on file at the Board of Public Utilities.

Mr. Milan called the meeting to order at 5:05 P.M.

Roll call was taken, all Board members were present.

Item #3 – Approval of Agenda

A motion was made to approve the Agenda by Mr. Bryant, seconded by Mr. Eidson and unanimously carried.

Item #4 – Board Updates / GM Updates

There were no updates.

Item #5 – 2022 Budget Workshop – Fuel and Purchase Power

Mr. Andrew Ferris, Director Electric Supply Planning, presented the 2022 Fuel and Purchase Power budget considerations to the Board, outlining how they forecasted the projected generation and the purchase power activity for the upcoming year. (See the attached PowerPoint presentation.)

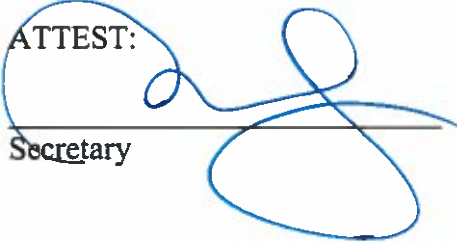
Mr. Ferris answered questions from the Board.

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Item #6 – Adjourn

A motion was made to adjourn the Work Session at 5:54 P.M. by Mr. Groneman, seconded by Ms. Mulvany Henry and carried unanimously.

ATTEST:

Secretary

APPROVED:

President

2022 Fuel & Purchase Power Budget Workshop

October 20, 2021

Fuel & Purchase Power Methodology

- Dispatch to Price model
 - Produces a chronological hourly calculation for the economic dispatch of resources
 - Resource dispatch / production is independent of load / system demand
- Load Data
- Resource Data

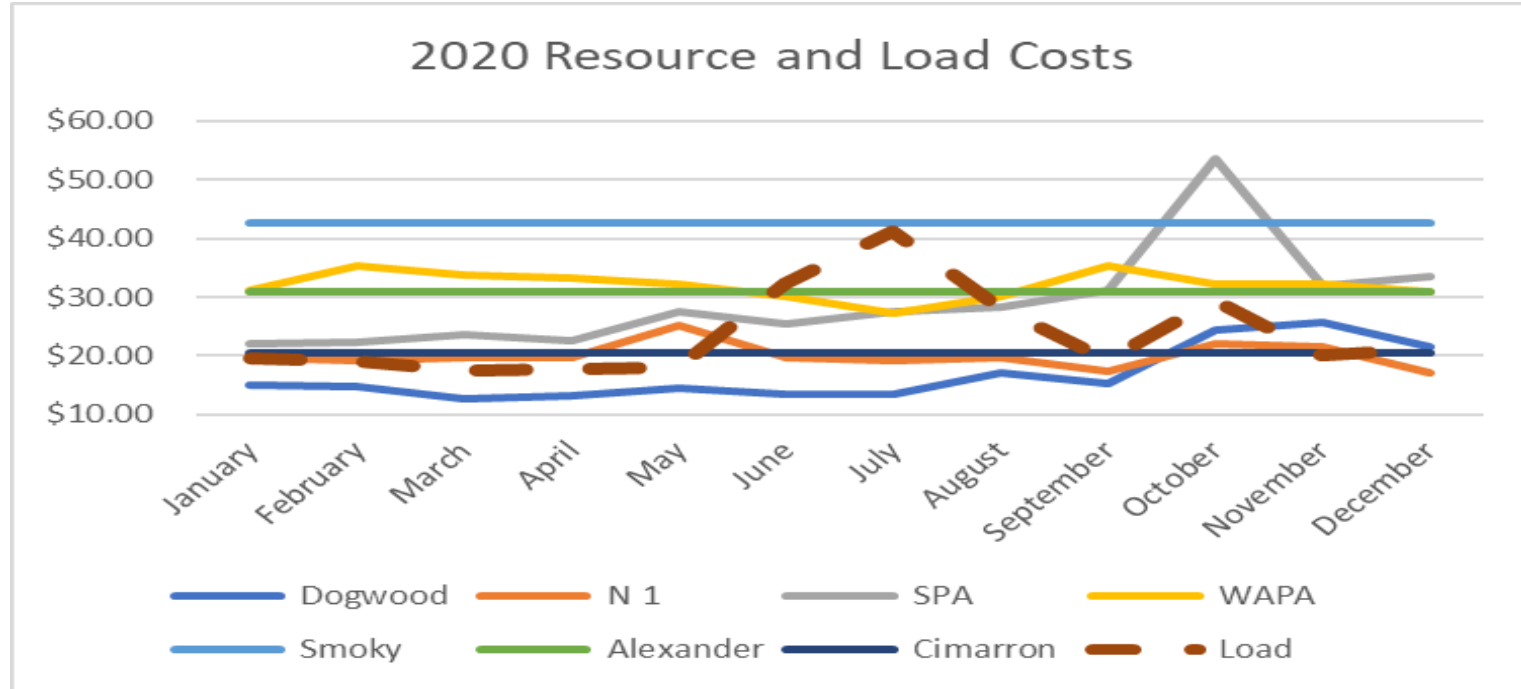
Load Requirement

- Load forecast
 - Historical monthly billing data
 - Current / Long term Trends
 - Weather Data / GDP / Number of Customers
 - Correlate / Normalize data for an average weather year
 - Known customer changes
 - Total energy needs from BPU system (Customers, BPU depts., system losses, UG, Nearman Participants, Borderline)
 - Annual peak requirement

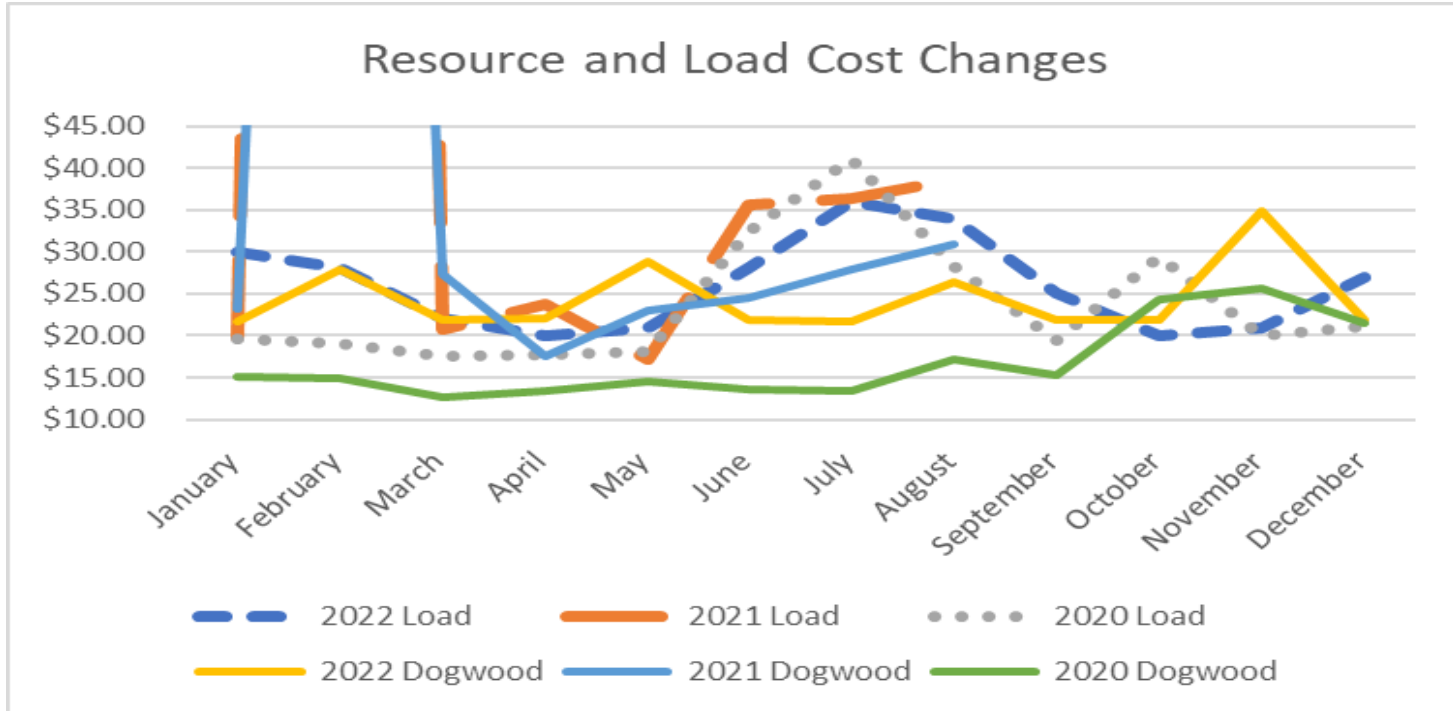
BPU Resource Data

- Examples of Types of BPU Resource Data
 - Generation plants
 - Maximum / minimum capacity
 - Usage - must run vs. economic dispatch
 - Fuel - type / price forecast index
 - Heat rate / curve
 - Scheduled maintenance outages
 - Forced outage rates
 - Fixed and Variable Operating costs
 - Start costs / minimum run times
 - Purchase Power Agreements
 - Capacity costs / energy price
 - Energy patterns (wind, hydro, other contractual scheduling requirements)
 - Transmission costs
 - Market Prices
 - On Peak
 - Off Peak

Resource and Market Cost



Forecasted Resource and Market Cost

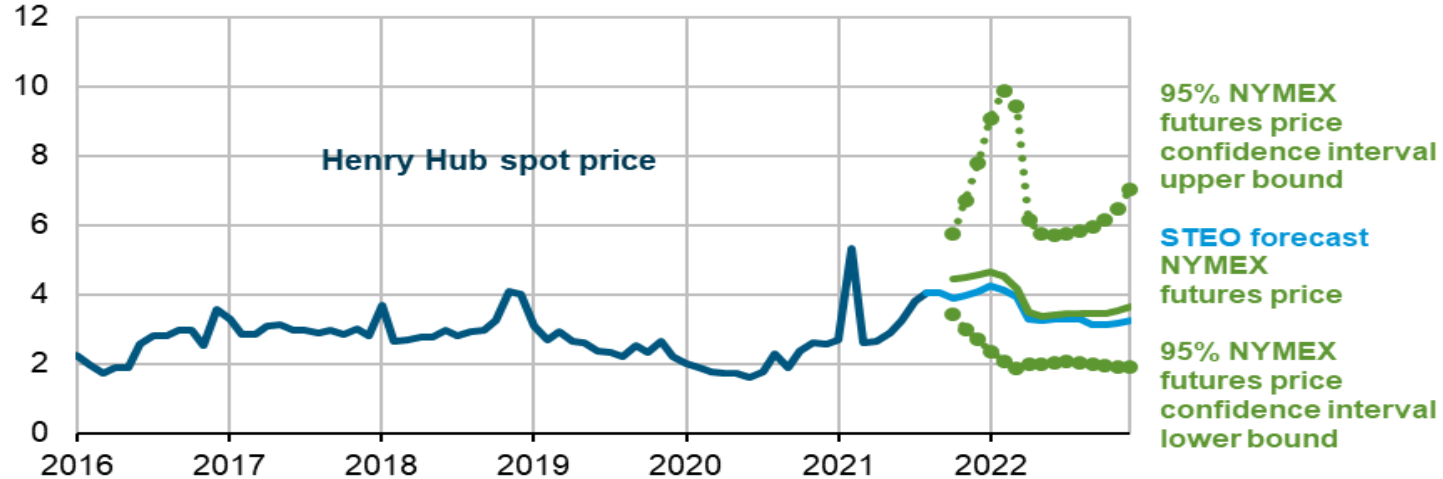


2022 Considerations / Impacts

- **Natural Gas Prices**
 - Henry Hub gas prices averaged \$2.11 in 2020 and \$3.77 in 2021, up 79%.
 - Gas prices are expected to average approximately \$3.60 in 2022
- **SPP Integrated Market**
 - Market prices are up approximately 243% over the first nine months of 2020 with an average LMP of \$75.82
 - Excluding the February weather event market prices are up approximately 20% with an average LMP of \$26.62
 - Average LMP is expected to be approximately \$26.00 in 2022
 - Wind is expected to continue to be the predominant fuel source in 2022. Coal output will likely be similar to 2021 due to higher natural gas pricing
- **Dogwood production**
 - Expecting production volumes to be about 1% lower in 2022 compared to 2021 estimated actuals and about 9% lower than the 2021 budget.
 - Although output is expected to decrease margins are expected to improve. Higher gas prices and increasing wind deployment will continue to weigh on output but likely creates more pricing volatility
- **Wind energy production**
 - SPP is expected to have over 34,000 MWs of wind resources as of the end of 2022, a growth of 26% over a 24 month period.
 - SPP set a wind penetration record of 84% of load, far higher than any other RTO. 43% of Kansas' generation comes from wind, second only to Iowa.
 - In 2020 wind energy accounted for over 31% of all generation in SPP, displacing coal as the predominant fuel source in SPP.
 - Negative congestion remains an area of concern with wind resources in particular due to location and timing of generation

Natural Gas Pricing

Henry Hub natural gas price and NYMEX confidence intervals
dollars per million Btu



Note: Confidence interval derived from options market information for the five trading days ending Sep 2, 2021. Intervals not calculated for months with sparse trading in near-the-money options contracts.

Sources: U.S. Energy Information Administration, Short-Term Energy Outlook, September 2021, CME Group, and Refinitiv an LSEG Business

2022 Forecast

- **SPP Purchase Power Energy**
 - Purchase Power Energy accounts for all the energy sales as well as all load purchases
 - The most volatile of any of the Purchase Power accounts as it is highly dependent on numerous variables
 - Daily expenses fall within the Purchase Power Energy account while daily revenue is moved to wholesale revenue
 - In 2022 the forecast is that Purchase Power expenses will exceed its share of the wholesale revenue figure by approximately \$860,000
 - Purchase Power Energy is expected to climb by approximately \$2.8 million due to higher overall market pricing
- **Purchase Power Renewables**
 - Purchase Power Renewables account for the contracted purchase power agreements of the renewable fleet
 - Expect a budget decrease of approximately 4% or \$1.1 million, primarily due to savings associated with Smoky Hills wind
- **Purchase Power Capacity**
 - Purchase Power Capacity accounts for the capacity payments associated with a portion of our purchase power agreements
 - Expect that budget to essentially remain flat as no changes have been announced on those accounts that have the ability to modify terms
- **Purchase Power Transmission**
 - Purchase Power Transmission is the cost of SPP transmission to serve load
 - As of January 1st 2020 BPU became a transmission customer owner within SPP which provides for greater transmission funding flexibility while also lowering the overall budget by approximately 25% compared to previous years
 - Expect a budget decrease of approximately 7% or \$480,000

2022 Forecast

- **Renewable Energy Certificates**
 - Expect a budget decrease of \$300,000 due to stronger market conditions for REC sales
 - Seeing sustained pricing in the \$2.00 - \$4.00 per REC range
- **Other Purchase Power**
 - These are expenses associated with SPP operations, MRO compliance, and other service providers
 - Expect a budget decrease of 46% or \$120,000 as we have seen a reduction in certain fees.
- **Total Purchase Power budget is expected to climb by 1.6% in 2022**
- **Purchase Power activities fall within the Energy Rate Component and therefore do not materially impact the cash position in the longer-term**

Notes:

SPP - 14 state region from northern Texas to Canada

Has about 95GW of Generation with Nat Gas making up 39%, Coal 24%, Wind 29%, Hydro 4%, Nuclear 2%, Fuel Oil 2%, Solar 0.2%

SPP has 92GW of Generation in the Queue with approx. 40GW Wind, 36GW Solar, 9GW Storage, and 5GW Gas

SPP added approximately 4,800MW of Wind in 2020 and had 390MW of gas and oil retirements

SPP has 27GW of wind installed and has 11.6GW of unbuilt with signed interconnection agreements.

SPP only has 235MW of solar but 36GW in the Interconnection Queue

Since 2012 SPP has the highest buildout of any RTO at 84% of all new generation being renewables, California was 2nd at 70%.

Kansas had 6,900 MW of installed wind at the end of 2020 and expected to bring 1,027 MWs online during the current calendar year or an increase of 15%.