DECEMBER 2020, ISSUE 8

KYMEA POWER POST

A Quarterly Publication by KYMEA.

COVID-19 and its Impact on Demand

The year 2020 has demonstrated historical and unpredictable events for the entire world. It has been 100 years since our nation experienced the last severe pandemic.

COVID-19 has wreaked havoc on every aspect of our lives. KYMEA members and their communities are seeing unprecedented local impacts. Restaurants have been hit hard, with indoor dining coming to a halt. State government offices resorted to remote working. Kentucky schools have transitioned over 647,000 students to virtual learning. We will no doubt be feeling COVID-19 effects for many years.

Analysts are hard at work, trying to understand many aspects of the pandemic as it continues its ripple across the world. Along with that, many are projecting the long-term impact the energy industry will see as a result. In the near term, manufacturing and production facilities are seeing the largest impact causing a decrease in industrial demand for electricity. The effects trickle down to local utilities that base rates on customer demand.

Many office and non-essential workers have shifted to a remote workforce, which has resulted in small increases in residential demand in various demographics. The overall demand decrease far outweighs the small increase in residential customer demand for electricity from at-home workers and homeschoolers.

Steve Jobs once said, "Innovation is the ability to see change as an opportunity - not a threat." This is the attitude many commercial, retail, and industrial utility customers have displayed by faithfully serving their customers with innovative solutions to combat the impact of COVID-19 on their businesses and industries.

Until the virus runs its course, the pandemic continues its toll on the country, businesses, and the American people. Reductions in electricity demand will follow suit. The American spirit in all of us will not give up and will continue to fight with creativity and innovation so that our families and communities pull through with minimal harm.

Quantitative vs. Qualitative Analysis

Depth vs. Breadth

BY DOUG BURESH

Greetings,

In an often-repeated quote, Walter Gretzky gave this advice to his son Wayne, "Skate to where the puck is going, not where it has been." I recite this passage because I can think of no better communication to describe what the KYMEA Board of Directors considers when selecting the Agency's power supply portfolio.

In this newsletter, KYMEA discusses four seemingly unconnected topics. 1) COVID-19 and its Impact on Demand, 2) Non-RTO versus RTO, 3) Minimum Offer Price Rule (MOPR), and 4) The Market's Role in Reliability. In reality, these topics are very connected, along with thousands of other factors to consider when choosing a power supply portfolio.

In past newsletters and KYMEA's public IRP Community Focus Group presentations, KYMEA spent considerable time discussing the quantitative techniques used to analyze various power supply alternatives. This is the depth of our analysis. The Agency's technique is to use sophisticated models with projections of fuel prices, market prices, heat rates, demand, and a variety of other input drivers to simulate and rank plans according to cost while assessing risk.

Equally important is qualitative research. This is the breadth of our analysis. For example, when an unpredictable event occurs that is beyond a normally expected outcome, e.g., a black swan event, is the Agency nimble enough to react? The COVID-19 pandemic is undoubtedly such an event. KYMEA responded by reducing the energy cost adjustment (ECA) rate collection target and developing a late payment protection for its members.

KYMEA continually mulls over the qualitative "what-ifs." To test the what-if scenarios, we utilize simulation models to help us understand the ramifications of joining an RTO or the impact of new market rules such as the MOPR. The Agency studies rules which place upward pressure on prices and could adversely impact rates. Analyzing the market's role in reliability is also a consideration because it could hinder the Agency's ability to serve the member's load.

As the KYMEA directors look to decide their power supply future, they discuss these essential qualitative considerations by figuratively asking, "where is the puck going to be?"

Welcome to the team!

Molly Roesler

Accountant and Financial Analyst

On September 14th, KYMEA welcomed its newest member of the team, Molly Roesler. Ms. Roesler serves as an Accountant and Financial Analyst for the Kentucky Municipal Energy Agency (KYMEA). She is responsible for maintaining accurate accounting records that result in balance sheets, income statements, and cash flows reflecting the Agency's financial position.

Before joining KYMEA, Ms. Roesler held positions in both the healthcare and manufacturing industries, allowing her to develop a multitude of skills and expertise to bring to KYMEA.

She graduated Summa Cum Laude with a Bachelor of Science in Accounting from Spalding University. In addition, she also holds a Bachelor of Science in Exercise Science from Belmont University and a Master of Science in Exercise Physiology from the University of Louisville. We are excited to have such a great addition to our team!

Important Dates

December

15th	Compensation Committee Meeting
	Budget Committee Meeting
16th	BROC Meeting
16th	Combined AR Project Committee and KYMEA Board Meeting
16th	AR Rates Workshop
24-25	Office Closed for Christmas

January

27th	AR Rates Workshop
28th	KYMEA Board Meeting

February

18th	AR Rates Workshop
25th	Combined AR Project Committee and KYMEA Board Meeting

Non-RTO vs. RTO

Why Markets Matter

In the United States, approximately five billion megawatt-hours (MWh) of wholesale electricity are sold each year to resellers (i.e., Barbourville Utility Commission purchases wholesale electricity to, in turn, sell to its ratepayers). Surprising to most people, no single national market exists for these wholesale electricity transactions; the nature of the purchases varies by region. Sales can be made bilaterally via contract negotiation, through a broker, or through an electronic brokerage platform such as the Intercontinental Exchange (ICE). Additionally, some regions contain wholesale energy markets managed by Regional Transmission Organizations (RTOs) or Independent System Operators (ISOs). The purpose of these entities is to coordinate, control, and monitor large electric grids.

NON-RTO

Ten of the eleven KYMEA members' load reside in the LG&E/KU transmission service area. One KYMEA member, Falmouth, resides in the PJM RTO service area. The Falmouth load has PJM market access allowing KYMEA to purchase power at the commercial pricing node under affordable network transmission service. In contrast, KYMEA members' load in the LG&E/KU service area does not have unencumbered access to RTO markets as LG&E/KU does not belong to an RTO. Unfortunately, since there are no other non-RTO investor-owned utilities (IOU) in Kentucky besides LGE/KU, KYMEA has no opportunity to purchase from non-RTO IOUs. As such, KYMEA must acquire, generally, years in advance and at a significant cost, firm transmission service to gain access to the MISO and PJM markets.

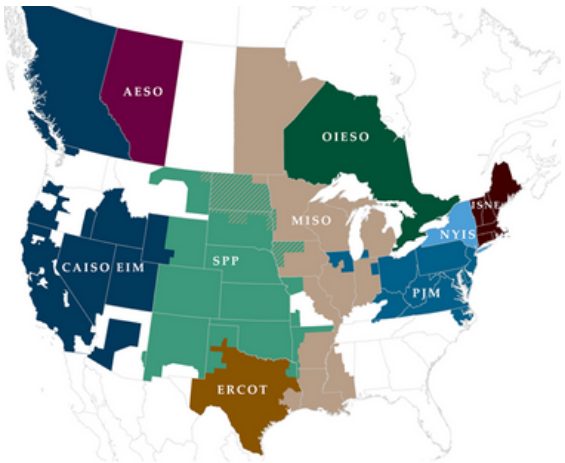
RTO

Ratepayers benefit when electricity delivery is reliable, low-cost over the long term, and meets environmental standards; federal and state. RTO/ISO markets provide an avenue where all public and private utilities, Federal Power Agencies, electric generators, and state public policy advocates can meet to discuss and consider solutions from a broad perspective. This consensus-building creates policy and market design crafted with stakeholder concerns in mind.

RTOs/ISOs are also the controllers of most of the US power grids and, as such, monitor power flow in their footprints and coordinate regional responses to emergency situations, including blackouts. By design, this reliability function is invisible to the retail user most of the time. It is only in the spotlight when electricity delivery is threatened. Unfortunately, the growing reliance on intermittent renewable resources such as wind and solar has triggered an increase in the complexity of providing reliability. When the wind stops blowing or a storm cloud arises, RTOs/ISOs must have at their disposal, other types of electric generation to fill in the gaps to keep the lights on. RTOs/ISOs have designed markets to incentivize the development of flexible resources such as demand response, energy storage, and quick-ramping generation resources by creating price signals. These flexible resources aid in managing wind and solar intermittency.

Market design also provides a solution to implementing varying public policies across the RTO/ISO region. Markets must balance the goals of safety, reliability, affordability, environmental stability, financial stability, and economic development. As one would assume, this market design requires staff with high technical ability and intelligence; it is most efficient to have this level of personnel at a regional level versus a local level.

Finally, and most importantly, utilities need to be able to access a variety of wholesale electricity suppliers. Without affordable transmission options, electric distributors cannot provide low-priced, reliable, environmentally responsible energy to the end-users. RTOs/ISOs create financial and environmental value by providing access to various generation options through the managed transmission grid thereby creating a robust market. Additionally, the RTOs/ISOs supply economic dispatch of all power purchased and generated in the region and balance with load demand. For example, a surplus of low-cost renewable solar power is not generally curtailed because generation not needed in one area can be allocated to a neighboring area. Economic dispatch provided by RTOs fully optimize assets across the region and allows power to flow more efficiently.



North American RTOs and ISOs

Learn more about RTOs and ISOs at www.ferc.gov

Capacity Auction: Minimum Offer Price Rule (MOPR)

Higher Prices with Less Competition

The example below was a perfect illustration given by the American Public Power Association in its July/August 2020 Public Power Magazine. The example helps explain how the capacity auction works with and without a Minimum Offer Price Rule (MOPR).

Capacity Auction Example:

Let us say a public power utility is planning to retire a plant and needs a new generation source to replace this supply. The utility decides to sign a long-term contract to purchase power from a new wind farm. Because of the minimum offer price rule, a complex and anti-competitive provision in some of the capacity markets, that particular utility could be required to pay twice for that power.

In certain regional transmission organizations (RTOs), the utility must offer the wind farm into a capacity auction when it will begin operating. If a utility does not have enough owned or contracted capacity to meet its peak demand plus a reserve, then it must purchase additional capacity from auctions held by the RTO. Some RTOs require all capacity to be offered into the auction.

In this case, the MOPR has led to wasted money, excess procurement, and increased prices for all capacity in the auction. as outlined in the below table, at $200 per MW/Day, the utility pays $1,460,000 in added annual cost to purchase the excess capacity.

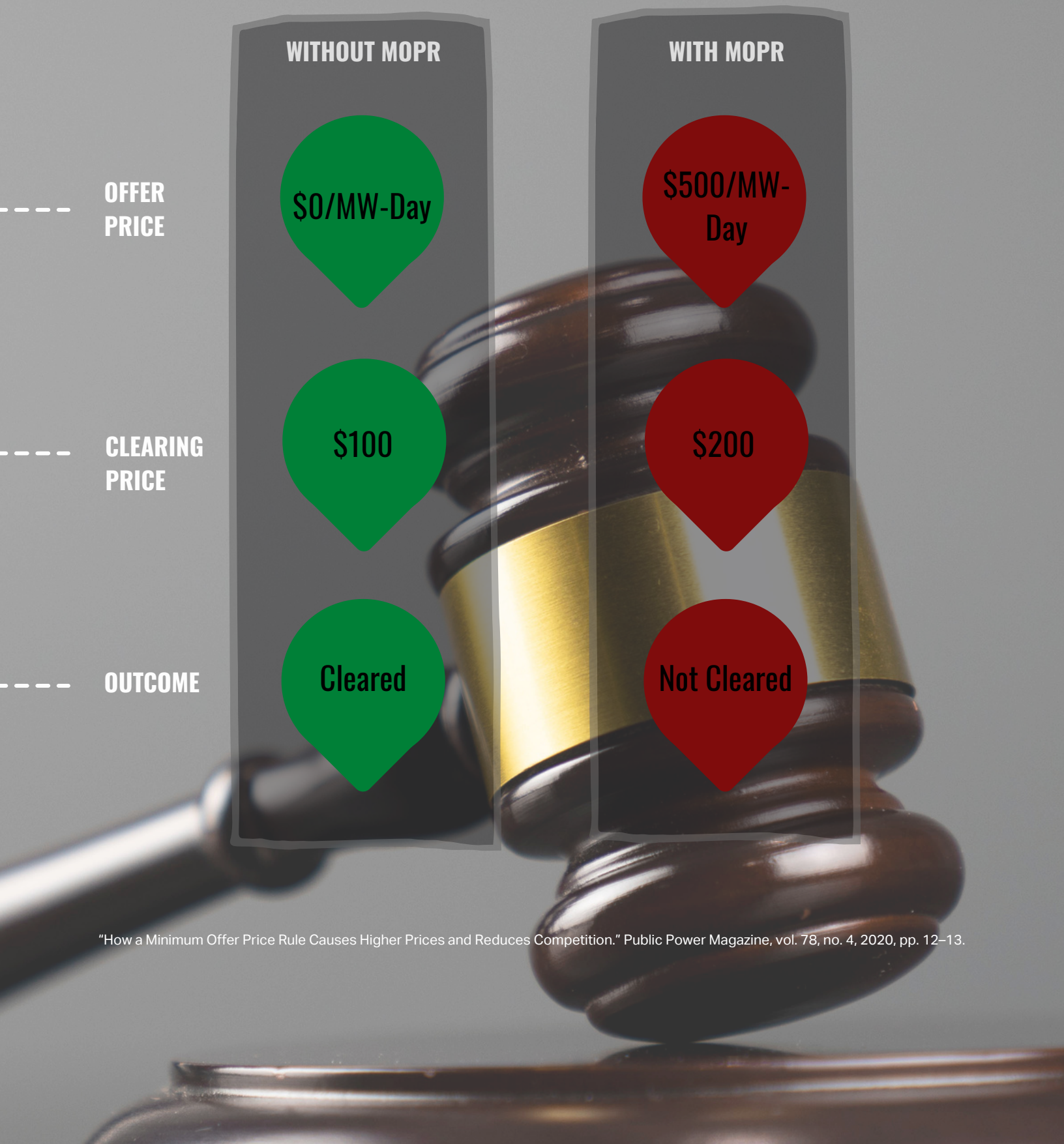
MOPR is a risk for new generation resources. Given KYMEA's members' current position, MOPR is not a risk. However, KYMEA staff will continue to monitor as it may affect planning in the future.

- Without MOPR: the utility can offer the wind capacity at any price it chooses. The utility would typically offer it at zero price to ensure that the resource will clear the auction.
- With MOPR: the utility might have to offer the wind capacity into the action at a higher price, which increases the risk that the capacity won't clear the auction

- The RTO sets a clearing price based on the supply offers and the needs for capacity during a specific time. If capacity is offered at a price below the clearing price, then it will clear the auction.
- With MOPR: higher price offers are being made and the auction clearing price also increases.

- Without MOPR: the offer clears and no further capacity purchase is necessary.
- With MOPR: if the offer does not clear then the utility cannot count the windfarm's capacity toward its reliability requirement, and must now purchase additional capacity from the auction to pay for the contracted and auctioned capacity.

	NO MOPR	MOPR
Solar	5 MW	5MW
Hydropower	25MW	25MW
Natural Gas	50MW	50MW
New Wind Farm	20MW	20MW
Capacity purchased from auction	0MW	20MW
TOTAL CAPACITY PURCHASED/OWNED	100MW	120MW



"How a Minimum Offer Price Rule Causes Higher Prices and Reduces Competition." Public Power Magazine, vol. 78, no. 4, 2020, pp. 12–13.

Markets' Role in Reliability

Regional transmission operators (RTOs) and independent system operators (ISOs) face reliability challenges. The nation's electricity portfolio mix continues to transform to include more wind, solar, natural gas, energy storage, and distributed energy resources, while coal and nuclear resources are facing retirements.

Challenges for RTOs and ISOs include:

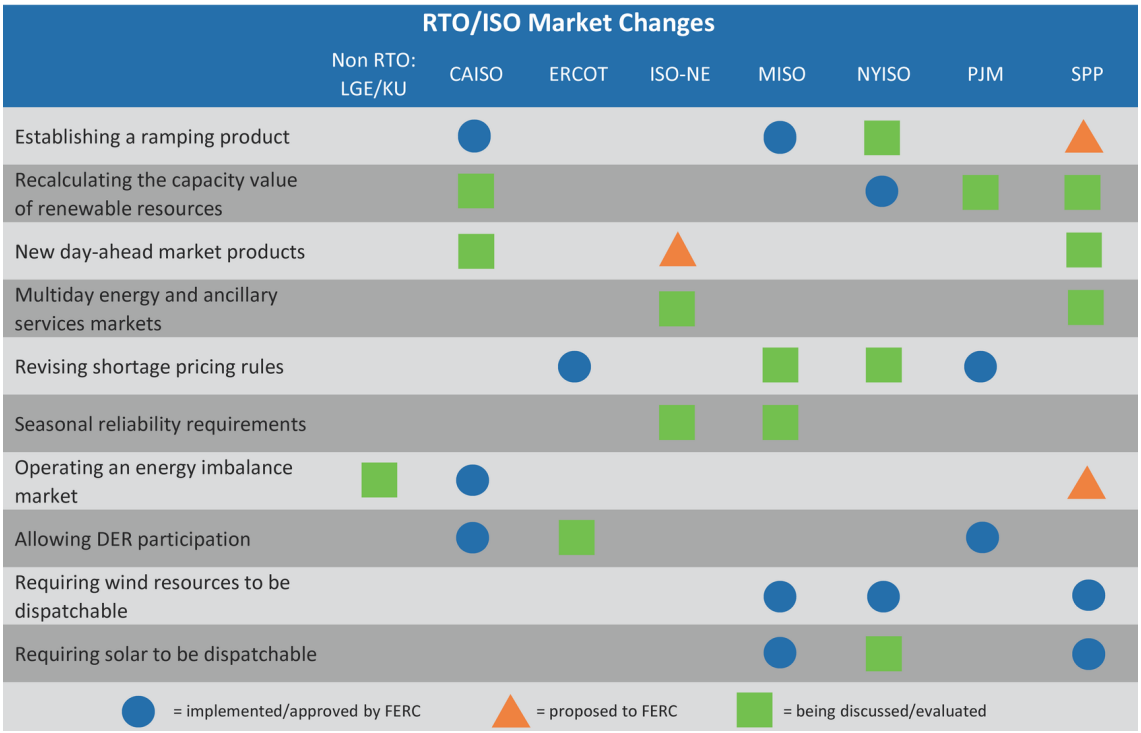
- Real-time availability of renewable resources.
- Availability of resources that have fast ramp up/down capabilities.
- Risk of oversupply.
- Difficulties in meeting frequency regulation and voltage support requirements.
- Limited visibility of distributed energy resources.

The long-standing measure of reliability as a balance of supply versus summer peak demand plus reserves may no longer be appropriate. Access to resources that can address the challenges above is necessary.

RTOs and ISOs have implemented or proposed the following changes to the markets they operate while evaluating other solutions.

- Removing barriers to the participation of energy storage resources, in compliance with the Federal Energy Regulatory Commission's Order 841 (All RTOs except ERCOT must comply with this order).
- Establishing a ramping product.
- Determining a more accurate capacity value of renewable resources based on how much each resource is on the grid.
- Creating new day-ahead market products to mitigate the differences between day-ahead markets and real-time markets.
- Considering multi-day markets beyond the day-ahead market.
- Revising shortage pricing rules to provide more robust financial incentives to develop flexible, fast ramping resources.
- Considering having seasonal reliability requirements.
- Operating an energy imbalance market.
- Allowing distributed resources to participate.
- Requiring certain wind and solar resources to be dispatchable.

There is concern amongst customer advocates (including public power) that these changes could potentially increase costs beyond what is needed.



Caplan, Elise. "Rethinking the Markets' Role in Reliability." Public Power Magazine, vol. 78, no. 4, 2020, pp. 30–31.

COVID-19 Resources

GENERAL RESOURCES

- Official Team Kentucky
- Kentucky's Responses to COVID-19
- Kentucky Cabinet for Health and Family Services
- State by State Policy Tracker

BUSINESS RESOURCES

- KY Chamber Resources for Small Businesses
- Kentucky SBA District Office
- US Chamber of Commerce Guidance for Employers
- Identifying Critical Infrastructure During COVID-19
- CDC Resources for Business/Employers
- American Public Power COVID-19 Resources
- Electricity Subsector Coordinating Council Resources
- Cybersecurity & Infrastructure Security Agency (CISA) Resources
- U.S. Environmental Protection Agency Memorandum
- Federal Energy Regulatory Commission (FERC) Policy Statement

More resources are available at https://www.kymea.org/kentucky-covid-19-resources/

Photo of Corbin, KY by Jim Begley https://www.wowphotoshdr.com/

DID YOU KNOW?

- Corbin, Kentucky, located in both Whitley and Knox Counties, was founded in 1855, and named after the Reverend James Corbin Floyd.
- Prior to incorporation in 1905, the first Corbin settlement was known as Lynn Camp Station.
- During the first part of the 20th century, the backbone of the local economy was L&N Railroad.
- Corbin is famous for being the home of Kentucky Fried Chicken's first restaurant which opened in 1930.
- It wasn't until 2012 that the City of Corbin voted to allow alcohol sales even though both Knox and Whitley Counties remained dry.
- The City Utilities Commission of Corbin has faithfully served the community for over a century. Established in 1915, it serves approximately 4,135 residential and commercial customers.

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DISCOVER THE POWER OF ENERGY OPTIONS

#PUBLICPOWERFORKENTUCKY

If you have ideas for the next Power Post, please email Michelle Hixon at mhixon@kymea.org.