COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC TARIFF FILING OF KENTUCKY POWER COMPANY FOR APPROVAL OF A SPECIAL CONTRACT UNDER ITS ECONOMIC DEVELOPMENT RIDER AND DEMAND RESPONSE SERVICE TARIFFS WITH CYBER INNOVATION GROUP, LLC	))))	CASE NO. 2022-00424

TESTIMONY OF STACY L. SHERWOOD

ON BEHALF OF MOUNTAIN ASSOCIATION, KENTUCKIANS FOR THE COMMONWEALTH, APPALACHIAN CITIZENS' LAW CENTER, SIERRA CLUB, AND KENTUCKY RESOURCES COUNCIL AS JOINT INTERVENORS

March 3, 2023

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I. Introductions & Qualifications

Q. Please state for the record your name and business address.

A. My name is Stacy L. Sherwood. My business address is PO Box 587, Hinesburg, VT 05461.

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

A. I am a Managing Consultant at Energy Futures Group ("EFG"), a consulting firm that provides specialized expertise on energy efficiency and renewable energy markets, program design, power system planning, and energy policy. I provide technical assistance to energy efficiency organizations, environmental advocates, utilities, and nonprofit organizations to design, develop and implement policies and programs related to energy efficiency, energy policy and decarbonization.

Q. On whose behalf are you testifying in this proceeding?

A. I am testifying on behalf of Mountain Association, Kentuckians for the Commonwealth, Appalachian Citizens Law Center, Sierra Club, and Kentucky Resources Council (collectively "Joint Intervenors").

Q. Please describe your educational background.

A. I received a Bachelor of Arts degree in Accounting, Business Administration, and Economics from McDaniel College in 2009.

Q. Please describe your professional background.

A. I have over a decade of experience in the energy sector, related specifically to the review and development of energy efficiency and demand response programs and policies. I have been employed by EFG since October 2021. Prior to joining EFG, I was employed for six years by Exeter Associates, Inc., as a Senior Analyst where I provided technical support and analysis to state and federal clients on automated metering infrastructure, energy efficiency, distributed resources, demand response, renewable energy, and review of utility contracts. Additionally, I reviewed economic development impacts of renewable energy and evaluated environmental justice in Maryland. I have also participated in the review of utility rate cases in New Jersey, Pennsylvania, and Rhode Island. From 2009 through 2015, I worked at the Maryland Public Service Commission as a staff member with a focus on the regulatory review of Maryland's energy efficiency programs, known as EmPOWER Maryland. A copy of my curriculum vitae is attached as Appendix A.

Q: Have you previously filed expert witness testimony in other proceedings before this Commission or before other regulatory commissions?

A: I have filed testimony and comments before the Kentucky Public Service Commission ("Commission") in the East Kentucky Power Cooperative's 2022 Integrated Resource Plan, Case No. 2022-00098, in the Electronic Tariff Filing of Kentucky Utilities Company for Approval of an Economic Development Rider Special Contract with Biktiki-KY, LLC, Case No. 2022-00371, and in the Electric Tariff Filing of Kentucky Power Company for Approval of a Special Contract with Ebon International, LLC, Case No. 2022-0387. Additionally, I have filed testimony before Commissions in Louisiana, Maine, Maryland, Pennsylvania, and Rhode Island regarding automated metering infrastructure, energy efficiency programs, revenue requirement and adequacy of service.

Q. What is the purpose of your testimony?

A. EFG was retained by the Joint Intervenors to assist in the evaluation of the Special Contract for Firm Electric Service between Cyber Innovation Group, LLC ("CIG") and Kentucky Power Company ("KPCO") that was filed with the Kentucky Public Service Commission ("Commission") on November 16, 2022. This testimony evaluates the impact of providing CIG with an economic development discount and its adherence to applicable Commission Orders, as well as highlighting my findings concerning limiting risk to ratepayers that can be posed by crypto mining facilities and recommendations on the Special Contract.

II. Summary of Recommendations

Q. Please summarize the request in this proceeding.

A. KPCO is requesting approval of the Special Contract between KPCO and CIG. The Special Contract is for CIG to receive service under the Industrial General Service ("IGS") tariff with a discount provided through the Economic Development Rider, as outlined in the contract, which allows CIG to receive discounts on its demand from its Rockhouse Facility for the first five years of the 10-year contract. The Rockhouse Facility, which will be used to mine Bitcoin cryptocurrencies and as a data center, will be brought online in multiple phases, for a total facility load of 7 MW.[1] In seeking to qualify for economic development discounts, CIG has claimed that it will invest $3.5 million in its facilities and create 3-5 new jobs.[2] If the Special Contract is approved by the Commission, CIG would receive

[1] KPCO-CIG Contract, at 1.

[2] Kentucky Power Co. Application for Economic Development Rider Discount, at 2; *see also* KPCO's response to KPSC 1-3.

service under the Special Contract for an initial term of 10 years, with the option to extend beginning in 2030.

Q. Please summarize your findings and recommendations in this case.

A. Based upon my review of the evidence in this case, I recommend that the Commission deny the approval of the Special Contract as proposed by KPCO. Furthermore, I recommend that the Commission consider minimum requirements and a standardized application related to the approval for special contracts which offer an economic development discount, particularly for cryptocurrency mining facilities ("crypto mining facilities"). A summary of my findings are as follows:

- The limited number of jobs that CIG claims can be filled by local residents will limit local and state economic development related to the CIG facility.
- The volatility of cryptocurrency mining could leave local residents and KPCO ratepayers responsible for CIG in the event of a default. CIG has not provided a security deposit or surety bond to offset this risk.
- Although CIG could locate in another state due to favorable rates, it built the Rockhouse facility prior to the approval of the Special Contract.
- It's uncertain if the Commission will approve the special contract for the Ebon facility in Case No. 2022-00387, and if so, whether that load will be applied to KPCO's limit under the EDR tariff.
- Given the influx of cryptocurrency facilities within Kentucky, the Commission should consider prohibiting any further capacity under the EDR being allocated to cryptocurrency versus other industries that may provide greater economic benefits.

Q. How is the remainder of your testimony organized?

A. In the remainder of my testimony, I discuss the volatility of crypto mining operations, the requirements to issue an economic development discount, and my evaluation of the Special Contract application. For the Commission's consideration, I provide two sets of recommendations, one related to KPCO's request and a second set of recommendations related to the review of future EDR applications for crypto mining operations.

III. Volatility of Crypto Mining Facilities

Q. What is crypto mining?

A. Crypto mining is the process used to create cryptocurrency, or digital coins such as Bitcoin, through the validation of new transactions. These transactions are recorded on a blockchain network and added to a digital ledger. Crypto mining is an energy intensive process, due to the "proof-of-work" ("PoW") consensus algorithm which requires competitions between computers/miners to solve complex mathematical equations. The first computer to find the solution to the equation receives the next block of cryptocurrency.

Q. What are crypto mining facilities?

A. Crypto mining facilities can come in a variation of size and building types, ranging from warehouses to shipping containers. Regardless of size or building types, the facilities consist of similar equipment, including banks of computers, known as mining rigs, which always require a reliable internet connection and power source to compete for the cryptocurrency block. Additionally, crypto mining requires investment in cooling technology to keep the mining rigs operational.

Cryptocurrency mining operations are not tethered to any particular geography, but rather seek cheap energy, speed to market, and flexibility. For example, multiple companies offer mining equipment in shipping containers to chase the best prices,[3] and when prices fluctuate, mining facilities can migrate quickly. Cryptocurrency operations prioritize seeking out utilities where industrial electricity rates are low or discounted as in the present proposal.

Q. Please explain why crypto mining facilities are considered volatile.

A. First, crypto mining is relatively new in comparison to other industries which receive power from electric companies. First introduced in 2009 with Bitcoin, a type of crypto, the digital currency has had a volatile history. Some notable events include the 2013 crash in the price of Bitcoin, surging value of crypto in 2021, and 2022 marking the collapse of a crypto hedge fund and several crypto lenders. The value of crypto, in its short history, has fluctuated significantly regardless of the type. An example of this is provided in Figure 1 below, which displays the 5-year history of Bitcoin's value. The value of crypto influences the level of mining activity, as miners need the value of the currency to outweigh the mining costs to create profit. The variance in price, particularly over the past five years determines the level of mining, and subsequently, the level of energy usage.

[3] *See, e.g.*, EZ blockchain, *EZ Smartbox Mobile Mining Container* (last visited Oct. 24, 2022). https://ezblockchain.net/smartbox/.

Figure 1 Bitcoin Value, Most Recent 5 Years

Source: Google Finance, captured February 3, 2023

Second, unlike traditional facilities, which have invested significant capital in permanent structures, crypto mining operations are typically housed in temporary building structures and can be easily relocated. The temporary structure model allows for mining operations to be flexible, including by quickly shifting operations among facilities and states, to react to energy rates and cryptocurrency market conditions.[4]

Q. What can this volatility mean for KPCO's existing customers?

A. Given that crypto mining operations are highly dependent on market conditions and can be quickly and easily shut down or relocated, there is an inherent risk for existing ratepayers

[4] *See, e.g.*, Eliza Gkritsi, Bitcoin Mining Middleman Compass' Georgia Facilities to Close as Energy Prices Soar (Sept. 1, 2022), https://www.coindesk.com/business/2022/09/01/bitcoin-miningmiddleman-compass-georgia-facilities-to-close-as-energyprices-soar/ (reporting move of Georgia mining machines to Texas, only two months after company had moved some machines from Texas to Georgia).

if a utility is required to invest in transmission or distribution grid infrastructure.[5] If the upgrades are needed, those costs could be borne by the other ratepayers if the mining operations cease or exit the service territory without a safeguard in place – even if the associated infrastructure upgrades provide little or no benefit to those ratepayers. Requiring safeguards, in the form of a bond or an upfront contribution-in-aid-of-construction ("CIAC"), from the crypto mining operation seeking an economic development discount, should mitigate concerns about increased costs for existing ratepayers. The level of investment on behalf of the crypto mining operation should be dependent upon whether the utility upgrades provide shared benefits to the existing ratepayers.[6] Similarly, given the high energy usage for crypto mining facilities, it is important to require a bond equivalent to a portion of their annual electric bill. These deposits or security bonds should be determined at the time the EDR contracts are being considered, so the Commission can review all parts of the agreement during the approval process and to ensure that deposits or bonds are provided upon signing of the EDR contract. Furthermore, there are deposit requirements related to the IGS tariff, which requires 2/12 of the annual bill, excluding any discounts. Its unclear if CIG has paid this deposit, as it is currently operating under the IGS tariff.[7]

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[5] *See* In the Matter of the Application of Entergy Arkansas, LLC for a Proposed Tariff Regarding Large Power High-Load Density," Direct Testimony of D. Andrew Owens, at 13 (Jul. 28, 2022), Ark. Pub. Serv. Comm'n, Docket No. 22-032-TF, http://www.apscservices.info/pdf/22/22-032-TF_16_1.pdf (describing an incident in 2019 where a new cryptocurrency mining customer requiring significant facility upgrades opted to pay a monthly minimum for those upgrades—only to move its shipping containers "virtually overnight" "shortly after taking service . . . effectively disappearing" and leaving the utility unable to even reach the customer to recoup their upfront costs).

[6] For example, if the infrastructure upgrades and investments benefit other customers, then a cost sharing approach should be considered.

[7] *See* KPCO response to KPSC data request 2-3 (stating that KPCO and CIG only have a verbal agreement concerning security deposit).

Q. Are there known instances that support the concern regarding the cryptocurrency mining industries' volatility?

A. Yes. There are several instances throughout the United States where ratepayers have been burdened with costs to bring a cryptocurrency customer online, as well as instances in which utilities have requested to provide protections for existing ratepayers and the company. Below is an outline of a few examples.

- Entergy Arkansas has requested Commission approval to require all cryptocurrency mining customers to pay for all network upgrades upfront through a Contributions in Aid of Construction rather than over time to limit the financial risk.[8]
- The town of Plattsburgh, New York experienced the negative consequences of an influx of cryptocurrency mining operations. Although there was some increased tax revenue, there were minimal jobs or stimulation for the local economy. Furthermore, the increase in electricity demand from crypto mining operations increased the monthly bills for all ratepayers. It was determined that the increase in tax revenues only partially offset the increase in electric bills.[9]

[8] In the Matter of the Application of Entergy Arkansas, LLC for a Proposed Tariff Regarding Large Power High-Load Density," Direct Testimony of D. Andrew Owens, at 13 (Jul. 28, 2022), Ark. Pub. Serv. Comm'n, Docket No. 22-032-TF, http://www.apscservices.info/pdf/22/22-032-TF_16_1.pdf.

[9] Benetton, Matteo and Compiani, Giovanni and Morse, Adair, When Cryptomining Comes to Town: High Electricity-Use Spillovers to the Local Economy (May 14, 2021). Available at SSRN: https://ssrn.com/abstract=3779720 or http://dx.doi.org/10.2139/ssrn.3779720.

- Idaho Power requested that cryptocurrency mining operations prepay for required infrastructure upgrades to prevent stranded assets for remaining ratepayers when the economics of cryptocurrency mining change.[10]

IV. Economic Development Discounts

Q. What benefits are accrued from offering an EDR discount?

A. There are two primary benefits that are expected to result when an EDR discount is provided to a facility. First, it promotes economic development with the Commonwealth of Kentucky. When facilities opt to locate within the utility's service territory it subsequently creates new jobs, provides an influx of capital investment, and provides an increase to local and state tax revenues. Second, existing ratepayers benefit as a result of a customer being added to the system, i.e., increasing the number of ratepayers from which fixed costs are recovered lowers the cost to individual ratepayers. According to KPCO's Tariff EDR, the discount is reserved for operations that "will promote sustained economic development based on plant and facilities investment and job creation."[11] KPCO offers two types of EDR discounts, the Incremental Billing Demand Discount ("IBDD") which is offered to facilities which reach a certain load requirement and the Supplemental Billing Demand Discount ("SBDD") which can be an added discount for facilities that result in 25 new full time permanent jobs.

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[10] Idaho Pub. Utils. Comm'n, *Application of Idaho Power Co. for Authority to Establish a New Schedule to Serve Speculative High-Density Load Customers*, at 13-14, Case No. IPC-E-21-27 (Nov. 4, 2021), https://puc.idaho.gov/Fileroom/PublicFiles/ELEC/IPC/IPCE2137/CaseFiles/20211104Application.pdf.

[11] Kentucky Power Tariff P.S.C. KY No. 12 Original Sheet No. 37.1, effective January 14, 2021.

Q. Are there requirements to qualify for service under the EDR?

A. Yes. Per KPCO's EDR tariff, the applicant must provide a written application to the Company with the following information:

> "a. a description and good faith estimate of the new or increased load to be served during each year of the contract,
>
> b. the number of new employees or jobs that will be added as a result of the new load,
>
> c. A description of the anticipated capital investment,
>
> d. A description of all other federal, state, or local economic development tax incentives, grants, or any other incentives or assistance associated with the new or expanded project, and
>
> e. A statement that without the EDR discount, the customer would locate elsewhere or would choose not to expand within Kentucky Power's service territory."[12]

Additional applicable requirements from KPCO's EDR include:

> "The Company will offer the EDR to qualifying customers with new or increased load when the Company has sufficient generating capacity available. When sufficient generating capacity is not available, the Company will procure the additional capacity on the customer's behalf. The cost of capacity produced on behalf of the customer shall reduce on a dollar-for-dollar basis the customer's Incremental Billing Demand Discount and Supplemental Billing Demand Discount."

[12] Ibid., Original Sheet No. 37-2.

> "The new or increased load cannot accelerate the Company's plans for additional generating capacity during the period for which the customer receives a demand discount."[13]

In addition, the following language from the Order in Administrative Case 327 indicates that an EDR discount should not be extended to potential or existing customers unless it can prove that the energy load would not occur absent the discount.

> "The Commission concludes that the revenue loss resulting from free riders taking advantage of rate discounts offered through general EDR tariffs is detrimental to the utility and all nonparticipating ratepayers. The Commission seeks to minimize the number of free riders taking advantage of discounted utility rates in Kentucky."[14]

Furthermore, the utility has an implicit responsibility to ensure that the information provided in the application is reasonably accurate and made in good faith.

V. Review of the Proposed Special Contract

Q. Do you believe that the Special Contract has met the requirements to extend an EDR to CIG?

A. No, I do not.

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[13] Ibid., Original Sheet No. 37-1.

[14] Order, *In re: An Investigation into the Implementation of Economic Development Rates by Electric and Gas Utilities*, at 7 (Ky. P.S.C. Sept. 24, 1990).

Q. Is it clear that absent the discount that CIG would not locate its facility in KPCO's service territory?

A. No, it is not. While KPCO indicated that there are lower rates in other states, CIG built its facility and began operation before this Special Contract was filed with the Commission seeking approval. If CIG were serious about the discounts being a driver for location that it may have opted to wait to invest in the facility and begin operations until the Special Contract was executed.

Q. Do you have concerns about whether the Special Contract would in fact result in economic development?

A. Yes. In terms of new employment, the proposed Special Contract would share employees with CIG's other location, Long Fork facility, which has 10 employees and may only hire three additional positions. While CIG indicates it will recruit locally, the Special Contract does not require CIG to hire any local residents for any jobs in exchange for the discounts from KPCO. As such, it's unclear what the level of economic impact the CIG facility has already had or would have on the local or state economy.

The unknown level of economic development offered by the Special Contract is concerning, particularly in a region that has been severely affected by recent weather events. The location of this facility is in an area that would greatly benefit from true and sustained economic development. It's unclear if the CIG facility will provide that. At the same time, it could limit KPCO's ability to consider offering other, potentially more impactful economic development discounts in the future.

Q. Is there a minimum level of economic development required under the EDR tariff?

A. No, the Commission made clear in the Order from Administrative Case No. 327 that it would not set a bright-line minimum level of economic development. However, the purpose of the EDR is to drive economic development in the Commonwealth, which includes the creation of jobs. This is evident based upon the following language in the Order from Administrative Case 327, "Increased economic activity is the major objective of EDRs. Two key indicators of economic activity are job creation and capital investment."[15] Furthermore, job creation and capital investment are of enough importance following the issuance of an EDR discount that utilities are required to document and report on an annual basis.[16]

Here, CIG has already constructed its Rockhouse facility and is operating it, even without receiving approval of an EDR discount. KPCO reports that CIG "plans on adding at least three more" jobs to serve the Rockhouse facility, although the record is unclear as to whether the addition of those jobs is dependent on the facility receiving an EDR discount, or why that is (given that the facility is already operating without the discount).[17]

Even if it were driven by the EDR discount, it is unclear what economic benefits are being provided to ratepayers and the local economy through the addition of this facility. The addition of only three jobs, particularly during a period of time when KPCO will need to purchase additional capacity just to serve its existing customers, does not provide the economic benefits that serve the purpose behind the tariff.

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[15] Order, *In re: An Investigation into the Implementation of Economic Development Rates by Electric and Gas Utilities*, at 7. (Ky. P.S.C. Sept 24, 1990).
[16] "Each utility that offers an economic development rate should be required to document and report any increase in employment and capital investment resulting from the tariff and contract." (Ibid, at 3).
[17] *See* KPCO response to KPSC data request 1-3.

Given the number of cryptocurrency facilities seeking an EDR discount within KPCO's service territory, it may be worth understanding if there is a greater benefit in providing the EDR discount to facilities which provide a certain level of economic development, particularly for the local economy. Allowing an EDR discount to be offered to a customer claiming such a low level of economic development, particularly where as here the record is unclear as to whether the economic development would occur even without the discount –raises the risk of unintended free ridership that would subsidize the new EDR customer at the expense of existing customers or future customers that would not be free riders and may create more meaningful economic development because of the discount.

Q. Has the Commission opposed free ridership under EDR tariffs?

A. Yes. The Commission made clear in Administrative Case No. 327 that any economic development rates that are offered should not allow for free ridership by subsidizing customers who would take service from the utility even in the absence of the discount.

Given the limited economic development and the current operation of the Rockhouse facility, approval of an EDR discount for this facility would risk allowing free ridership under the tariff.

Q. What is the current capacity approved under KPCO's EDR tariff?

A. According to KPCO's Application in Case No. 2022-00181, KPCO currently has approved contracts for a total of 39 MW of its 250 MW capacity under the EDR tariff.[18]

[18] *See* Application, Case No. 2022-00181, Ex. 2 (June 9, 2022).

Q. Does KPCO have any additional contracts under consideration by the Commission at the time or forecasted special contracts that may receive a discounted demand rate as a result of economic development?

A. Yes. Currently KPCO is requesting Commission approval in Case No. 2022-00387 in the amount of 250 MW for a crypto mining facility. Although KPCO is not requesting that the demand discount for that contracted be approved under the EDR tariff, it is unclear whether the Commission may count any portion of that discount (if the contract is approved) against KPCO's cap under the EDR tariff. Additionally, KPCO noted in a discovery response in this case that it is in discussions with a potential 30 MW cryptocurrency EDR customer,[19] and had previously represented in Case No. 2022-00181 that there have been other facilities that it has considered offering a Special Contract to under the EDR tariff.[20] In total, the approved and proposed capacity in Case No. 2022-00181 was equivalent to 550 MW. Of that amount, 430 MW are related to cryptocurrency facilities. These facilities are projected to result in 457 jobs; however, it is unlikely that that level of employment will occur and its unclear what percentage of these will actually be local jobs, as I explained in my testimony in Case No. 2022-00387. Conversely, the non-crypto facilities approved and proposed projects in Case No. 2022-00181 equated to 91.6 MW is projected to provide 721 jobs. These facilities are related to manufacturing and distribution plants, provide significantly more jobs, while requiring a lower amount of capacity, leaving significantly more room under the current EDR cap of 250 MW for additional facilities to provide economic benefits.

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[19] KPCO response to Joint Intervenors' request 2-6.

[20] *See* Application, Case No. 2022-00181, Ex. 2 (June 9, 2022).

Q. What is the difference in economic development in terms of jobs between cryptocurrency facilities and other facilities, such as those for manufacturing?

A. Using the approved and proposed list of EDR facilities provided in Case No. 2022-00181, it appears that there is a significant difference. To make a comparison, the economic discounts for cryptocurrency facilities result in 1.1 job per MW of load (assuming the projected level of jobs by KPCO comes to fruition), whereas the non-cryptocurrency facilities provide 7.9 jobs per MW of load.

Q. Do you have concerns about a significant portion of the EDR tariff capacity being allocated to crypto mining facilities?

A. Yes. First, it is evident that KPCO has facilities other than crypto mining and data centers that are interested in the discount, as highlighted by the approved EDR contract for a manufacturer and the pending applications for manufacturers and distribution centers. If a significant portion of the EDR discounts go to crypto mining facilities with limited job opportunities, then the level of economic development in KPCO is going to be limited, given the Tariff's capacity cap. These facilities offer limited economic benefits to existing ratepayers and the local area as a result of offering EDR discounts to such facilities, especially for facilities which are received other economic discounts from the commonwealth such as those on payment of taxes that fund schools.

Second, and more importantly, as indicated throughout this testimony, there are significant risks associated with offering electric service to crypto mining facilities, specifically, that may be borne by the existing ratepayers. Allocating a significant portion of the EDR capacity cap to crypto mining facilities increases the risks to ratepayers identified within this testimony and experienced in other states, even more so if there is a downturn in the value of the currency which may result in stranded assets and capacity if the facilities shut down or relocate. Furthermore, the addition of these large capacity facilities will result in KPCO seeking recovery for transmission and distribution assets related to serving these cryptocurrency customers.[21]

It is possible to mitigate that risk to ratepayers to some extent through several mechanisms, including a deposit and requiring proof of meaningful local economic development. However, in light of the track record of crypto mining facilities both in Kentucky and in other states, to most robustly mitigate that risk the Commission could develop a safeguard for ratepayers on a larger scale, such as by prohibiting any further capacity under KPCO's EDR tariff being offered to crypto mining facilities.

Q. Do you have a recommendation that may alleviate this concern and the risks to ratepayers?

A. Yes. In an effort to ensure that there is sufficient capacity under KPCO's EDR tariff for special contracts that produce greater economic development and pose a lower risk than crypto mining facilities, in light of the issues with crypto mining facilities in both Kentucky and other states described in this testimony, the Commission should prohibit any further EDR discounts being approved for crypto mining facilities within KPCO's service territory. Limiting the level of cryptocurrency facilities within the service territory can

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[21] Order, *In re: Electronic Application of Kentucky Power Company for a Certificate of Public Convenience and Necessity to Construct 69 KW Transmission Lines and Associated Facilities in Pike County, Kentucky*, Case No. 2022-00236, at 10. In this proceeding, KPCO requested Commission approval to update transmission lines to increase capacity within the area where the Company "received multiple new customer requests from crypto currency mining customers." If additional investment in transmission and distribution are needed to serve the increased load requests, then those customers should be the ones to fund the improvements in exchange for the discount.

minimize risk to existing ratepayers while also encouraging a diverse industry within the area.

V. Recommendation Related to the CIG Special Contract

Q. Do you recommend that the Commission approve the Special Contract between KPCO and CIG?

A. No. I recommend that the Commission deny the Special Contract between KPCO and CIG. First, while KPCO states that CIG had considered locating its facility in two other states with favorable rates, CIG nevertheless constructed the Rockhouse facility and is now operating it within the KPCO service territory absent the requested discounts. Second, I do not believe that the Special Contract has been designed in a way that would not be harmful to existing ratepayers, and it has not met the requirements of the economic development rate. Ultimately, the evidence in the case does not establish that CIG would not be a free rider under this tariff nor does it indicate that no harm may be done to ratepayers or the pathway to hold CIG accountable for any harm experienced by existing ratepayers, especially given the apparent lack of a finalized bond or security deposit.

Finally, it is unclear what the Commission decision will be related to Ebon, the proposed 250 MW crypto mining facility to be located within KPCO's service territory.[22] Although KPCO has not sought approval of the proposed special contract in that case under the EDR tariff, it is unclear why the proposed discounts for that facility would not count against KPCO's EDR cap. It appears that KPCO structured the proposed special contract in Case No. 2022-00387 to try to go around its EDR cap to offer a discount; however, that

[22] Case No. 2022-00387, currently pending before the Commission.

should be taken into account when the Commission determines whether to approve or deny the EDR discount requested in this proceeding.

VI. Proposed Requirements for Evaluating Special Contracts for Crypto Mining Facilities

Q. Do you believe that crypto mining facilities should have minimum requirements when an EDR discount is provided?

A. Yes, I do. Establishing more stringent requirements for risky and volatile business operation provides protections for ratepayers and the utility itself. Additionally, it can streamline the evaluation of a special contract offering an EDR discount. Given the volatility and the potential increased risk to existing customers, the Commission should consider investment requirements related to required investments in grid infrastructure by a utility and against bankruptcy and abrupt closure of an operation. These safeguards should be related to the level of investment required by the applicant for grid infrastructure upgrades and estimated monthly billing.

As discussed earlier in this testimony, the ultimate safeguard would be to prohibit any additional EDR discounts for cryptocurrency facilities. At a minimum, I recommend that the Commission consider capping the amount of capacity under the EDR tariff that can be used to offer discounts to cryptocurrency facilities. Doing so will limit the risk to ratepayers, ensure diversity with the Companies locating to service territory, and provide the potential for more significant economic development in the form of local investment and jobs, such as those offered by the manufacturing and distribution centers that are seeking EDRs from KPCO.

Additionally, there is potential for a cryptocurrency customer to not seek the EDR discount. If this occurs, the Commission should consider requiring the same safeguards when utilities extend electric service to cryptocurrency mining operations, regardless of the tariff option.

Q. What should be considered when approving an EDR Special Contract?

A. First, given the influx of EDR contracts for cryptocurrency mining operations the Commission should consider developing a standardized application to be included with a special contract. A standardized application could provide an efficient way to evaluate all necessary requirements for approval and clearly identify the economic benefits of the EDR with supporting evidence identified. It could potentially limit the number of data requests needed to evaluate a Special Contract. The standardized application should include all elements that the Commission needs to consider extending the EDR discount, including, but not limited to, the level and types of economic development, identification of any costs associated with bringing a facility online, and any requirements placed upon the applicant by the utility, for example a surety bond.

Second, there are several elements the Commission should take into consideration when evaluating whether to approve the EDR Special Contract in addition to evidence considered in the past. These include:

- The utility has the onus of proving that absent the discount that the applicant would not move forward with locating, maintaining, or expanding its energy load within the utility's service territory.
- Any evidence provided in the EDR application, including the marginal cost analysis, should be based upon Commission-reviewed analysis that is adjusted

only for known and quantifiable new information. For example, the marginal cost analysis should be based upon the most recent Commission-reviewed Integrated Resource Plan ("IRP") that is adjusted for only known capacity changes, such as an approved application for a Certificate of Public Convenience and Necessity ("CPCN"), or updated cost information.

- "EDRs should only be offered during periods of excess capacity," and "the load of EDR customers should not create a need for additional capacity."[23]
- The utility should demonstrate that no financial harm will be incurred by existing customers as a result of the EDR discount. Furthermore, there should be assurance that extending the EDR will accrue a benefit to existing customers related to fixed costs.
- The applicant should provide a good faith estimate of the economic development resulting from the project, with benefits being accrued to all three areas: jobs, capital investment, and local and state taxes.
- There should be a documented minimum level of job creation and economic development that will be achieved.
- The utility should provide annual documentation, once the special contract is approved, to prove the creation of jobs, capital investment, and taxes.
- There should be bond and investment requirements assumed by the applicant to limit the financial risk to a utility's existing customers related to not only non-

payment, but also investment to transmission and distribution facilities that are required to bring the energy load online.

Q. Does the Special Contract met the requirements you recommend in this section?

A. No, it does not.

Q. Does this conclude your testimony?

A. Yes.

VERIFICATION

The undersigned, Stacy L Sherwood, being first duly sworn, deposes and says that she has personal knowledge of the matters set forth in the foregoing testimony and that the information contained therein is true and correct to the best of her information, knowledge, and belief, after reasonable inquiry.

Subscribed and sworn to before me by Stacy Sherwood this 2 day of March, 2023.

Notary Public

GAIL WILLIAMS
NOTARY PUBLIC
ANNE ARUNDEL COUNTY, MD

My commission expires: 4 · 24 · 2025