

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC TARIFF FILING OF KENTUCKY)	CASE NO.
UTILITIES COMPANY FOR APPROVAL OF AN)	2022-00371
ECONOMIC DEVELOPMENT RIDER SPECIAL)	
CONTRACT WITH BITIKI-KY, LLC.)	

TESTIMONY OF STACY L. SHERWOOD

**ON BEHALF OF JOINT INTERVENORS KENTUCKIANS FOR THE
COMMONWEALTH, KENTUCKY SOLAR ENERGY SOCIETY, MOUNTAIN
ASSOCIATION, AND KENTUCKY RESOURCES COUNCIL, INC.**

January 17, 2023

TABLE OF CONTENTS

I.	Introductions & Qualifications.....	1
II.	Summary of Recommendations.....	3
III.	EDR Discount Requirements.....	4
IV.	Volatility of Crypto Mining Facilities	10
V.	Recommendation for Bitiki-KY, LLC Special Contract.....	15
VI.	Proposed Requirements for Evaluating Special Contracts for Crypto Mining Facilities	

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 **I. Introductions & Qualifications**

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

3 A. My name is Stacy L. Sherwood. My business address is PO Box 587, Hinesburg, VT
4 05461.

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

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

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

13 A. I am testifying on behalf of Kentuckians for the Commonwealth (“KFTC”), Kentucky
14 Solar Energy Society (“KYSES”), Mountain Association (“MA”), and Kentucky
15 Resources Council (“KRC”) (collectively (“Joint Intervenors”).

16 **Q. Please describe your educational background.**

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

19 **Q. Please describe your professional background.**

20 A. I have over a decade of experience in the energy sector, related specifically to the review
21 and development of energy efficiency and demand response programs and policies. I have
22 been employed by EFG since October 2021. Prior to joining EFG, I was employed for 6

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 years by Exeter Associates, Inc., as a Senior Analyst where I provided technical support
2 and analysis to state and federal clients on automated metering infrastructure, energy
3 efficiency, distributed resources, demand response, and renewable energy. I have also
4 participated in the review of utility rate cases in New Jersey, Pennsylvania, and Rhode
5 Island. From 2009 through 2015, I worked at the Maryland Public Service Commission as
6 a staff member with a focus on the regulatory review of Maryland’s energy efficiency
7 programs, known as EmPOWER Maryland. A copy of my curriculum vitae is attached as
8 Appendix A.

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

11 A: While I have not filed testimony before the Kentucky Public Service Commission
12 (“Commission”), I have filed comments. Additionally, I have filed testimony before
13 Commissions in Louisiana, Maine, Maryland, Pennsylvania, and Rhode Island regarding
14 automated metering infrastructure, energy efficiency programs, revenue requirement and
15 adequacy of service.

16 **Q. What is the purpose of your testimony?**

17 A. EFG was retained by the Joint Intervenors to assist in the evaluation of the Electronic Tariff
18 Filing of Kentucky Utilities Company (“KU”) for Approval of An Economic Development
19 Rider Special Contract with Bitiki-KY, LLC (“Special Contract”) filed on October 7, 2022.
20 This testimony evaluates the impact of providing Bitiki -KY, LLC (“Bitiki”) with an
21 economic development discount and the proposed Special Contract’s adherence to
22 Commission Orders. My findings related to limiting risk to ratepayers that can be posed
23 by crypto mining facilities and recommendations on the Special Contract are further

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 supported by the findings in the Direct Testimony of Chelsea Hotaling, related to the
2 marginal cost analysis that KU offered in support of the Special Contract.

3 **II. Summary of Recommendations**

4 **Q. Please summarize the request in this proceeding.**

5 A. KU is requesting approval of the Special Contract between KU and Bikiti-KY, LLC. The
6 Special Contract is for Bitiki to receive service under the Economic Development Rider
7 (“EDR”) and the Retail Transmission Service (“RTS”) for 13 megawatts (“MW”) of
8 capacity. In qualifying for the EDR, Bitiki has stated that it plans to invest \$25 million in
9 its facilities, creating approximately five new jobs.¹ If the Special Contract is approved by
10 the Commission, Bitiki would receive service under the EDR for an initial term of 10 years.
11 For the first 12 months, the demand charges shall be reduced for the first five consecutive
12 12 monthly billings, beginning with 50% in the first year, and decreased by 10% per year
13 thereafter until the sixth year of consecutive billing, which will have full total demand
14 charges applied.

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

16 A. Based upon my review of the evidence in this case and the direct testimony provided by
17 Witness Hotaling, I recommend that the Commission decline to approve the Special
18 Contract as proposed by KU. Furthermore, I recommend that the Commission consider
19 specifying in more detail the minimum requirements and standardized application for
20 approval of EDR special contracts, particularly for cryptocurrency mining facilities
21 (“crypto mining facilities”). A summary of my findings are as follows:

¹ Special Contract Economic Development Rider, page 2.

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

- 1 • KU asserts that the increased load projected by the Bitiki facility does not require
- 2 KU to make investments in transmission or distribution grid infrastructure.
- 3 • KU did not provide evidence to support that absent the EDR that Bitiki would not
- 4 increase its operational load.
- 5 • KU did not provide evidence to reasonably and in good faith support that any jobs
- 6 would be created as a result of this EDR contract.
- 7 • The application appears to provide sufficient safeguards against the volatilities
- 8 associated with crypto mining facilities.

9 Furthermore, I support the recommendations put forward by Witness Hotaling.

10 **Q. How is the remainder of your testimony organized?**

11 A. In the remainder of my testimony, I discuss the requirements to issue an EDR discount, the

12 volatility of crypto mining operations, and my evaluation of the Special Contract

13 application. For the Commission’s consideration, I provide two recommendations, one

14 related to KU’s request and a second recommendation related to the review of future EDR

15 applications for crypto mining operations.

16 **III. EDR Discount Requirements**

17 **Q. What benefits are accrued from an EDR discount?**

18 A. There are two primary benefits that are expected to result when an EDR discount is

19 provided to a facility. First, it promotes economic development with the Commonwealth

20 of Kentucky. When facilities opt to locate within the utility’s service territory it

21 subsequently creates new jobs, and it provides an influx of capital investment and an

22 increase to local and state tax revenues. Second, existing ratepayers benefit as a result of a

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 customer being added to the system, i.e., increasing the number of ratepayers from which
2 fixed costs are recovered lowers the cost to individual ratepayers.

3 **Q. Are there requirements to qualify for service under the Economic Development Rider**
4 **tariff?**

5 A. Yes. Per KU's EDR tariff, the applicant must provide the following:

6 "Customer desiring service under EDR for Economic Development
7 must submit an application for service that includes:

- 8 a. a description of the new load to be served;
- 9 b. the number of new employees, if any, Customer anticipates
10 employing associated with the new load;
- 11 c. the capital investment Customer anticipates making associated with
12 the EDR load;
- 13 d. a certification that Customer has been qualified by the
14 Commonwealth of Kentucky for benefits under programs reviewed and
15 approved by the Kentucky Economic Development Finance Authority,
16 or any successor entity authorized by the Commonwealth of
17 Kentucky."²

18 Additional applicable requirements from KU's Economic Development Rider in this
19 proceeding are:

20 "Company may offer EDR to qualifying new load only when Company
21 has generating capacity available and the new load will not accelerate

² KU P.S.C. Electric No. 13. Original Sheet No. 71.1

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 Company's plans for additional generating capacity over the life of the
2 EDR contract."^{3, 4}

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

7 "The Commission concludes that the revenue loss resulting from free
8 riders taking advantage of rate discounts offered through general EDR
9 tariffs is detrimental to the utility and all nonparticipating ratepayers.

10 The Commission seeks to minimize the number of free riders taking
11 advantage of discounted utility rates in Kentucky."⁵

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

14 **Q. In regard to the EDR discount requirements, do you believe that KU has met the**
15 **requirements to extend an EDR to Bitiki?**

16 **A.** No, I do not. The evidence in this case does not support that absent the EDR discount that
17 Bitiki would not expand its operations, nor does it provide a reasonable estimate of the
18 number of jobs anticipated from the expansion of Bitiki's operations for the electric load
19 referenced in the Special Contract.

³ Ibid, Original Sheet No. 71.2.

⁴ Order, *In re: An Investigation into the Implementation of Economic Development Rates by Electric and Gas Utilities*, at 10 (Ky. P.S.C. Sept. 24, 1990).

⁵ Ibid, page 7.

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 Based upon the response to Joint Intervenor Question 1-11, Bitiki indicated that the
2 EDR credits were important to expanding the operations to 13 MW. However, KU has not
3 provided evidence that absent the EDR discount Bitiki would not expand its operations.
4 KU references that Bitiki has pursued state level economic development incentives in the
5 form of reduced taxes in response to the Joint Intervenors’ request for evidence that Bitiki
6 would not move forward without the Special Contract.⁶ A business seeking available
7 incentives to offset upfront costs, such as those offered by the State, should not be sufficient
8 to meet the criteria for whether an EDR discount is necessary to locate or expand a business
9 within KU’s service territory.⁷ Making decisions to seek all opportunities to offset upfront
10 costs, such as tax incentives, when expanding or establishing a business is a good business
11 practice and likely something a business would seek regardless of their need for an EDR
12 discount.

13 Furthermore, it is unclear what criteria KU considers when it extends the EDR
14 discount to customers, as it contradicted itself in response to Joint Intervenor Question No.
15 2.4 when it states that it offers EDR discounts to customer “whom offering EDR demand
16 discounts might affect” the decision to locate or expand, but it also does not believe it is
17 appropriate to offer the discount to customers who may do so “irrespective of receiving
18 EDR discounts.” If a customer cannot prove that absent the discount it would locate or
19 expand in the service territory, then the customer would likely be considered a free rider,
20 like those that would opt to locate within the service territory irrespective of a discount.⁸

⁶ KU response to Joint Intervenors Question Nos. 1-11 and 2-7.

⁷ 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).

⁸ *Ibid.*

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 With respect to the job requirement, I do not believe that the Company has provided
2 a good faith estimate of the number of jobs. While there is not a minimum requirement for
3 the number of jobs, the purpose of the EDR is to drive economic growth in the
4 Commonwealth, which includes the creation of jobs. This is evident based upon the
5 following language in the Order from Administrative Case 327, "Increased economic
6 activity is the major objective of EDRs. Two key indicators of economic activity are job
7 creation and capital investment."⁹ Furthermore, job creation and capital investment is of
8 enough importance following the issuance of an EDR discount that utilities are required to
9 document and report such on an annual basis.¹⁰

10 As indicated in the Company's response to Joint Intervenor's Question 2-8, KU
11 does not possess any information concerning the projected number of jobs, let alone the
12 type of jobs created and economic development activity associated therewith, to be created
13 as result of the increased load but that have not already been created by Bitiki, as the facility
14 is currently receiving electric service without the Special Contract.

15 **Q. With no minimum economic development requirements to qualify for the EDR,**
16 **should the level of economic development be considered?**

17 A. Yes. This Special Contract will provide explicit benefits to Bitiki in the form of lower
18 electric costs and to KU in the form of increased revenues. There is limited economic
19 development offered to the Commonwealth of Kentucky and to the local community,
20 particularly given that the Bitiki facility is currently operating even without receiving an

⁹ Ibid, at 8.

¹⁰ "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." Order, *In re: An Investigation into the Implementation of Economic Development Rates by Electric and Gas Utilities*, at 3 (Ky. P.S.C. Sept. 24, 1990).

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 EDR discount. In fact, KU has not provided any evidentiary support for the level of job
2 creation that would result specifically from the Special Contract (i.e., any jobs that would
3 be created over and above those already at the currently operating facility). If the purpose
4 of the EDR discount is to provide economic development to the Commonwealth of
5 Kentucky, then there should be new local jobs that will be created by the facility receiving
6 the discount.

7 KU references Bitiki’s eligible sales and use tax refund offered by the Kentucky
8 Economic Development Finance Authority (“KEDFA”). To receive the tax refund, Bitiki
9 must make minimum investments in land and in equipment,¹¹ thus ensuring that an
10 economic benefit is recognized by the Commonwealth. By contrast, there is no minimum
11 investment requirement for an EDR discount, which raises the risk of unintended free
12 ridership if no economic development occurs. To address this risk, when proposing to offer
13 the EDR discount, a utility should at a minimum provide persuasive evidence that *some*
14 degree of economic development will result from the discount, relating to jobs, capital
15 investment, and/or state and local taxes.¹²

16 A minimum requirement that economic development should be recognized is
17 consistent with the Administrative Case No. 327 Order, which does not impose a specific
18 requirement level for job creation or capital investment but does require that economic
19 development occur and be documented by the utility. The Commission made clear in
20 Administrative Case No. 327 that any economic development rates that are offered should

¹¹ Special Contract Application. Agreement The Kentucky Enterprise Initiative Act, page 3.

¹² Order, *In re: An Investigation into the Implementation of Economic Development Rates by Electric and Gas Utilities*, at 10 (Ky. P.S.C. Sept. 24, 1990) (noting that the “major objectives of EDRs are job creation and capital investment”).

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 not allow for free ridership by subsidizing customers who would take service from the
2 utility even in the absence of the discount.

3 **IV. Volatility of Crypto Mining Facilities**

4 **Q. What is crypto mining?**

5 A. Crypto mining is the process used to create cryptocurrency, or digital coins such as Bitcoin
6 or Ethereum through the validation of new transactions. These transactions are recorded
7 on a blockchain network and added to a digital ledger. Crypto mining can be an energy
8 intensive process, due to the “proof-of-work” (“PoW”) consensus algorithm (currently
9 used by Bitcoin, and formerly used by Ethereum) which validates transactions through
10 competitions between computers/miners to solve complex mathematical equations. The
11 first computer to find the solution to the equation receives the next block of cryptocurrency.

12 **Q. What are crypto mining facilities?**

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

19 Cryptocurrency mining operations are not tethered to any particular geography, but
20 rather seek cheap energy, speed to market, and flexibility. For example, multiple
21 companies offer mining equipment in shipping containers to chase the best prices,¹³ and

¹³ See, e.g., EZ blockchain, *EZ Smartbox Mobile Mining Container* (last visited Oct. 24, 2022).
<https://ezblockchain.net/smartbox/>.

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 when prices fluctuate, mining facilities can migrate quickly. Cryptocurrency operations
2 prioritize seeking out utilities where industrial electricity rates are low or discounted as in
3 the present proposal.

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

5 A. First, crypto mining is relatively new in comparison to other industries which receive
6 power from electric companies. First introduced in 2009 with Bitcoin, cryptocurrency has
7 had a volatile history. Some notable events include the 2013 crash in the price of Bitcoin,
8 surging value of crypto in 2021, and 2022 marking the collapse of a crypto hedge fund and
9 several crypto lenders. The value of crypto, in its short history, has fluctuated significantly
10 regardless of the type. An example of this is provided in Figure 1 below, which displays
11 the 5-year history of Bitcoin. Among other factors, the value of crypto influences the level
12 of mining activity, and with it the level of energy usage, as miners need the value of the
13 currency to outweigh the mining costs (in particular, electricity costs) at a given time to
14 create profit. It is also possible that crypto mining will be subject to additional regulation
15 in the future that would impact the level of mining activity.

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 *Figure 1 Bitcoin Value, Most Recent 5 Years*



2
3 Source: Google Finance

4 Second, unlike traditional facilities, which have invested significant capital in permanent
5 structures, crypto mining operations are typically housed in temporary building structures
6 and can be easily relocated. The temporary structure model allows for mining operations
7 to be flexible to react to energy rates and cryptocurrency market conditions.¹⁴

8 **Q. What can this volatility mean for KU's existing customers?**

9 A. Given that crypto mining operations are highly dependent on market conditions and can be
10 easily shut down or relocated, there is an inherent risk for existing ratepayers if a utility is
11 required to invest in transmission or distribution grid infrastructure.¹⁵ If the upgrades are

¹⁴ 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).

¹⁵ 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,

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 needed, those costs could be borne by the other ratepayers if the mining operations cease
2 or exit the service territory without a safeguard in place. Requiring safeguards, in the form
3 of a bond and/or upfront contributions in aid of construction (“CIAC”), from the crypto
4 mining operation seeking the EDR, should alleviate concerns about increased costs for
5 existing ratepayers. The level of upfront investment required from the crypto mining
6 operation should be dependent upon whether the utility upgrades provide shared benefits
7 to the existing ratepayers.¹⁶ Similarly, given the high energy usage for crypto mining
8 facilities, it is important to require a bond equivalent to a portion of their annual electric
9 bill.¹⁷

10 **Q. Are there known instances that support the concern regarding the cryptocurrency**
11 **mining industries’ volatility?**

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

- 16 • Entergy Arkansas has requested Commission approval for to require all
17 cryptocurrency mining customers to pay for all network upgrades upfront

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).

¹⁶ For example, if the infrastructure upgrades and investments benefit other customers, then a cost sharing approach should be considered.

¹⁷ KU requires a deposit equivalent to 2/12 of a customer’s actual or estimated annual bill for customers not receiving residential or general service. As Bitiki receives service under the Retail Transmission Service tariff, it is subject to this deposit. P.S.C. Electric No. 13, Original Sheet No. 102.1 Terms and Conditions Deposits.

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 through a Contributions in Aid of Construction rather than over time to limit
2 the financial risk.¹⁸

- 3 • The town of Plattsburgh, New York experienced the negative consequences
4 of an influx of cryptocurrency mining operations. Although there was some
5 increased tax revenue, there were minimal jobs or stimulation for the local
6 economy. Furthermore, the increase in electricity demand from crypto
7 mining operations increased the monthly bills for all ratepayers. It was
8 determined that the increase in tax revenues only partially offset the increase
9 in electric bills.¹⁹
- 10 • Idaho Power requested that cryptocurrency mining operations prepay for
11 required infrastructure upgrades to prevent stranded assets for remaining
12 taperers when the economics of cryptocurrency mining change.²⁰

13 **Q. In this proceeding, are you concerned about increased costs for existing customers if**
14 **the EDR is offered to Bitiki?**

15 A. After reviewing the evidence in this case, including KU's responses to data requests, I am
16 not concerned. First, there are no required investments by KU, as Bitiki is utilizing existing
17 grid infrastructure from prior land mining operations at the location. The lack of required
18 investment by KU to bring the expanding Bitiki operation online eliminates the need for

¹⁸ 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.

¹⁹ 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>.

²⁰ 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>.

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 any grid infrastructure related safeguards.²¹ Second, KU is requiring a surety bond, in the
2 amount of \$1,275,000, which is equivalent to 2/12 of the annual bill anticipated for Bitiki.²²
3 This is equivalent to the deposit required of customers served under similar tariffs as Bitiki
4 and should be sufficient for recovering costs related to billing delinquencies unless proven
5 otherwise through experience.²³ Because these two factors are addressed, the Special
6 Contract meets the minimum safeguards noted above to limit financial liabilities on
7 existing companies from the cryptocurrency mining operation.

8 **V. Recommendation for Bitiki-KY, LLC Special Contract**

9 **Q. Do you recommend that the Commission approve the Special Contract between KU**
10 **and Bitiki?**

11 A. After review of the evidence and the findings provided by Witness Hotaling, I find that KU
12 has not met the requirements under the Commission's Order in Administrative Case No.
13 327 for demonstrating that an economic development rate is appropriate. KU has not
14 provided evidence in this proceeding that, absent the Special Contract, Bitiki would not
15 otherwise expand its operations, and KU has not documented that there would be an
16 increase in job creation or economic development specifically as a result of the Special
17 Contract

²¹ KU responses to Joint Intervenors to Question Nos. 1.7 and 1.8.

²² KU response to Joint Intervenors Question No. 1.4 Attachment 3, page 1.

²³ Entergy Arkansas noted in Docket No.22-032-TF that the billing deposit was not sufficient to cover expenses related to infrastructure investment and upgrades. I recommend here that a separate bond or CIAC payment be required to cover upgrades, and therefore the billing deposit policy established by KU should be sufficient.

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 **Q. Please explain your reasoning.**

2 A. The recommendation is made for two reasons. First and foremost, the need for the Special
3 Contract to attract the economic development opportunities offered by the Bitiki facility is
4 not evident. Although Bitiki indicated to KU that the EDR credits were important to
5 establishing their full operations, it does not mean that absent the EDR credits that Bitiki
6 would not have expanded its operations, either fully or incrementally above its current
7 operations.

8 Second, there is no clear indication that any new jobs will be created from this
9 proposed operation expansion. Even if new jobs are created, it is likely to be limited (five
10 jobs or fewer) and the types of jobs and associated pay levels are unknown. Whether or not
11 there is a minimum number of jobs that must be created as a result of the Special Contract,
12 there should be at least some documented economic development that can be specifically
13 attributed to the Special Contract.

14 Finally, the economic development on a local and state level expected in return for
15 extending the EDR discount to Bitiki is limited. Although there is not a minimum
16 threshold, the discount should only be offered in cases where it provides favorable
17 economic development and is needed to gain, maintain, or increase energy load, when the
18 utility has sufficient capacity.

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 **VI. Proposed Requirements for Evaluating Special Contracts for Crypto Mining**
2 **Facilities**

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

5 A. Yes, I do. Establishing more stringent requirements for risky and volatile business
6 operations provides protections for ratepayers and the utility itself. Additionally, requiring
7 more detailed minimum safeguards up front can streamline the evaluation of a special
8 contract offering an EDR discount. Given the volatility and the potential increased risk to
9 existing customers from crypto mining operations, the Commission should consider
10 detailing minimum safeguards relating to required investments in grid infrastructure by a
11 utility and to protect against bankruptcy and abrupt closure of a crypto mining operation.
12 These safeguards should be based on the level of investment required by the EDR applicant
13 for grid infrastructure upgrades and estimated monthly billing.

14 Additionally, even for crypto mining customers who do not seek the EDR discount,
15 the Commission should consider requiring the same safeguards when utilities extend
16 electric service to cryptocurrency mining operations, regardless of the tariff option.

17 **Q. What should be considered when reviewing an EDR Special Contract for a crypto**
18 **mining operation?**

19 A. First, given the influx of EDR contracts for crypto mining operations the Commission
20 should consider requiring a more detailed standardized application to be included with a
21 special contract. A standardized application could provide an efficient way to evaluate all
22 necessary requirements for approval and clearly identify the economic benefits of the EDR
23 with supporting evidence identified. It could potentially limit the number of data requests

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 needed to evaluate a Special Contract. The standardized application should include all
2 elements that the Commission needs to consider extending the EDR discount, including,
3 but not limited to, the level and types of economic development, identification of any costs
4 associated with bringing a facility online, and any requirements placed upon the applicant
5 by the utility, for example a surety bond.

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

- 9 • The utility has the onus of proving that absent the discount that the applicant
10 would not move forward with locating, maintaining, or expanding its energy
11 load within the utility’s service territory.
- 12 • Any evidence provided in the EDR application, including the marginal cost
13 analysis, should be based upon Commission-reviewed analysis that is adjusted
14 only for known and quantifiable new information. For example, the marginal
15 cost analysis should be based upon the most recent Commission-reviewed
16 Integrated Resource Plan (“IRP”) that is adjusted for only known capacity
17 changes or updated cost information. Here, KU has referred in its discovery
18 responses to analysis done for a Certificate of Public Convenience and
19 Necessity application that was only filed in December 2022, has not yet been
20 approved, and is still early in the process of being adjudicated before the
21 Commission. Although KU should have relied on the most recent information
22 available in its marginal cost analysis, as discussed by Witness Hotaling, it

CASE NO. 2022-00371
DIRECT TESTIMONY OF STACY L. SHERWOOD

1 cannot presuppose in its marginal cost analysis that capacity changes that have
2 not yet been approved by the Commission will necessarily be approved.

- 3 • “EDRs should only be offered during periods of excess capacity,” and “the load
4 of EDR customers should not create a need for additional capacity.”²⁴
- 5 • The utility should demonstrate that no financial harm will be incurred by
6 existing customers as a result of the EDR discount. Furthermore, there should
7 be assurance that extending the EDR will accrue a benefit to existing customers
8 related to fixed costs.
- 9 • The applicant should provide a good faith estimated related to economic
10 development, with benefits being accrued to all three areas: jobs, capital
11 investment, and local and state taxes.
- 12 • There should be a documented minimum level of job creation and economic
13 development that is will be achieved.
- 14 • The utility should provide annual documentation, once the special contract is
15 approved, to prove the creation of job, capital investment, and taxes.
- 16 • There should be bond and investment requirements assumed by the applicant to
17 limit the financial risk to a utility’s existing customers related to not only non-
18 payment, but also investment to transmission and distribution facilities that are
19 required to bring the energy load online.

20 **Q. Does this conclude your testimony?**

21 **A. Yes.**

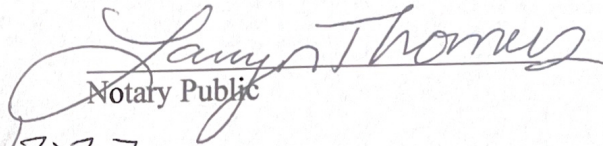
²⁴ Order, *In re: An Investigation into the Implementation of Economic Development Rates by Electric and Gas Utilities*, at 5 (Ky. P.S.C. Sept. 24, 1990).

VERIFICATION

The undersigned, Stacy 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.


LT

Subscribed and sworn to before me by 13 this 13 day of Jan, 2023.
Stacy Sherwood


Notary Public

My commission expires: 12/8/2027



Appendix A

Stacy Sherwood

Managing Consultant



Professional Summary

Stacy Sherwood brings over a decade of experience in the energy industry, specializing in energy efficiency (EE), demand response (DR), automated metering infrastructure (AMI), cost recovery, and renewable energy. Stacy has testified or provided comments before the public service commissions of Louisiana and Maryland and the public utilities commissions of Pennsylvania and Rhode Island on AMI, EE, and reasonableness of revenue increases. Throughout her career, Stacy has evaluated various electric and natural gas EE and DR plans; potential studies; evaluation, measurement, and verification reports; and riders for cost recovery. In particular, she has specialized in the design of low-income EE programs in Arkansas, Maryland, and Pennsylvania. Ms. Sherwood has also testified in 14 cases related to the reasonableness of revenue requirements in Pennsylvania and Rhode Island.

Experience

2021-present: Managing Consultant, Energy Futures Group, Hinesburg, VT

2015-2021: Senior Analyst, Exeter Associates, Inc., Columbia, MD

2013-2015: Assistant Director of Energy, Analysis, and Planning Division, Maryland Public Service Commission, Baltimore, MD

2011-2013: Regulatory Economist II, Maryland Public Service Commission, Baltimore, MD

2009-2011: Regulatory Economist I, Maryland Public Service Commission, Baltimore, MD

Education

B.A., Business Administration, Economics, Accounting/Economics, McDaniel College, 2009

Select Projects

- **Connecticut Energy Efficiency Board.** Senior Technical Lead of the oversight of the state's electric and gas residential energy efficiency programs. Work closely with the state's utilities to develop, implement, and evaluate cost-effective program designs and goals for the Three-Year Conservation and Load Management Plan.
- **Louisiana Public Service Commission.** Filed testimonies evaluating the reasonableness of automated metering infrastructure implementation plans by Concordia Electric Cooperative, Inc., Southwest Louisiana Electric Membership Corporation, and Point Coupee Electric Membership Corporation. (2020-2021)
- **Pennsylvania Office of Consumer Advocate.** Reviewed and commented on potential studies utilized to develop energy efficiency and demand response targets for Phase III and IV of the Act 129 Energy Efficiency and Conservation (EE&C) Program. Provided written testimony on utility EE&C five-year plans. (2015-2021)

Energy Futures Group, Inc

PO Box 587, Hinesburg, VT 05461 – USA | ☎ 410-371-0623 | @ ssherwood@energyfuturesgroup.com

- **Arkansas Attorney General’s Consumer Utility Rate Advocacy Division.** Drafted a dedicated limited income EE program strawman implemented on a pilot basis by the electric and natural gas utilities. (2018-2020)
- **Arkansas Attorney General’s Consumer Utility Rate Advocacy Division.** Participated in Parties Working Collaboratively (PWC) group regarding the electric and natural gas EE programs. Provided comments on three-year plans, annual progress reports, and evaluation, measurement, and verification reports. (2017-2021)
- **U.S. Air Force Civil Engineer Center.** Evaluated the feasibility of geothermal energy production at Edwards Air Force Base. (2015-2016)
- **Maryland Public Service Commission Staff.** Developed templates and directed work groups related to the implementation of the electric and natural gas EmPOWER Maryland EE and DR programs. Evaluated the semi-annual reports and three-year plans filed by the utilities and submitted comments regarding plan recommendations before the Maryland Public Service Commission. (2009-2015)

Select Publications

- Author on Chapter 2.5 Environmental Justice, Final Report Concerning the Maryland Renewable Portfolio Standard as Required by Chapter 393 of the Acts of The Maryland General Assembly of 2017, <https://dnr.maryland.gov/pprp/Documents/FinalRPSReportDecember2019.pdf>.
- Lead Author, Power Plant Research Program, Maryland Department of Natural Resources
 - Electricity in Maryland – Fact Book, 2019
 - Electricity in Maryland – Fact Book, 2016

Expert Testimony

Before the Kansas Corporation Commission, Docket No. 22-EKME-254-TAR *In the Matter of the Application of Evergy Kansas Metro, Inc., Evergy Kansas South, Inc. and Evergy Kansas Central, Inc. for Approval of its Demand-Side Management Portfolio Pursuant to the Kansas Energy Efficiency Investment Act (“KEEIA”), K.S.A. 66-1283*, for Natural Resources Defense Council. Testified regarding reasonableness of the proposed Plan and its compliance with the KEEIA Act.

Before the Louisiana Public Service Commission, Docket No. U-35877 *Pointe Coupee Electric Membership Corporation Application to Acquire and Install an Automated Metering System and Request for Cost Recovery and Related Relief*, February 2021, for the Louisiana Public Service Commission Staff. Testified regarding the implementation of automated metering infrastructure to replace current meters. (Case settled prior to cross-examination.)

Before the Pennsylvania Public Utilities Commission, Docket No. M-2020-3020818, *Petition of Duquesne Light Company for Approval of its Energy Efficiency and Conservation Phase IV Plan*, January 2021, on behalf of the Pennsylvania Office of Consumer Advocate.

Energy Futures Group, Inc

Testified regarding reasonableness of the proposed Plan and its compliance with Pennsylvania Act 129. (Case settled prior to cross-examination.)

Before the Pennsylvania Public Utilities Commission, Docket No. M-2020-3020830, *Petition of PECO Energy Company for Approval of its Energy Efficiency and Conservation Phase IV Plan*, January 2021, on behalf of the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of the proposed Plan and its compliance with Pennsylvania Act 129. (Case settled prior to cross-examination.)

Before the Pennsylvania Public Utilities Commission, Docket No. M-2020-3020824, *Petition of PPL Electric Utilities for Approval of its Energy Efficiency and Conservation Phase IV Plan*, January 2021, on behalf of the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of the proposed Plan and its compliance with Pennsylvania Act 129. (Case settled prior to cross-examination.)

Before the Louisiana Public Service Commission, Docket No. U-35707 Southwest Louisiana Electric Membership Corporation *Application for Approval to Acquire and Install an Automated Metering System and Request for Cost Recovery and Related Relief*, December 2020, for the Louisiana Public Service Commission Staff. Testified regarding the implementation of automated metering infrastructure to replace current meters. (Case settled prior to cross-examination.)

Before the Pennsylvania Public Utilities Commission, Docket No. R-2020-3020919 *Pennsylvania Public Utility Commission v. Audubon Water Company*, November 2020, for the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of the overall revenue increase. (Case settled prior to cross-examination.)

Before the Pennsylvania Public Utilities Commission, Docket No. R-2020-3020256 *Pennsylvania Public Utility Commission v. City of Bethlehem – Water Department*, November 2020, for the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of the overall revenue increase. (Case settled prior to cross-examination.)

Before the Louisiana Public Service Commission, Docket No. U-35456 Concordia Electric Cooperative Inc. *Application for Certification of a Replacement Advanced Metering System and Approval of Related Financing*, November 2020, for the Louisiana Public Service Commission Staff. Testified regarding the implementation of automated metering infrastructure to replace current meters. (Case settled prior to cross-examination.)

Before the Pennsylvania Public Utilities Commission, Docket No. R-2020-3019612 *Pennsylvania Public Utility Commission v. Reynolds Disposal Company*, October 2020, for the Pennsylvania Office of Consumer Advocate. Participated in mediation regarding reasonableness of the overall revenue increase.

Before the Pennsylvania Public Utilities Commission, Docket No. R-2019-3010955
Pennsylvania Public Utility Commission v. City of Lancaster – Sewer Fund, October 2019, for the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of the overall revenue increase.

Before the Pennsylvania Public Utilities Commission, Docket No. R-2019-3008208
Pennsylvania Public Utility Commission v. Wellsboro Electric Company, October 2019, for the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of the overall revenue increase.

Before the Pennsylvania Public Utilities Commission, Docket No. R-2019-3008209
Pennsylvania Public Utility Commission v. Valley Energy, Inc., October 2019, for the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of the overall revenue increase.

Before the Pennsylvania Public Utilities Commission, Docket No. R-2019-3008212,
Pennsylvania Public Utility Commission v. Citizens' Electric Company of Lewisburg, PA, October 2019, for the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of the overall revenue increase.

Before the Pennsylvania Public Utilities Commission, Docket No. R-2019-3009559,
Pennsylvania Public Utility Commission v. Eaton Sewer & Water Company, Inc. – Wastewater Division, August 2019, for the Pennsylvania Office of Consumer Advocate. Participate in mediation regarding reasonableness of the overall revenue increase.

Before the Pennsylvania Public Utilities Commission, Docket No. R-2019-3009567,
Pennsylvania Public Utility Commission v. Eaton Sewer & Water Company, Inc. – Water Division, August 2019, for the Pennsylvania Office of Consumer Advocate. Participate in mediation regarding reasonableness of the overall revenue increase.

Before the Pennsylvania Public Utilities Commission, Docket No. R-2019-3008947,
Pennsylvania Public Utility Commission v. Community Utilities of Pennsylvania Inc. Water Division, July 2019, for the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of the overall revenue increase. (Case settled prior to cross-examination.)

Before the Pennsylvania Public Utilities Commission, Docket No. R-2019-3008948,
Pennsylvania Public Utility Commission v. Community Utilities of Pennsylvania Inc. Wastewater Division, July 2019, for the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of the overall revenue increase. (Case settled prior to cross-examination.)

Before the Pennsylvania Public Utilities Commission, Docket No. R-2019-3006904, *Pennsylvania Public Utility Commission v. The Newtown Artesian Water Company (Supplement No. 136 to Tariff Water – Pa. P.U.C. No. 9)*, March 2019, for the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of the overall revenue increase. (Case settled prior to cross-examination.)

Before the Pennsylvania Public Utilities Commission, Docket No. R-2018-3006814, *Pennsylvania Public Utility Commission v. UGI Utilities, Inc – Gas Division (Utility Code 123100, Filed Tariff Gas- Pa. P.U.C. Nos. 7 and 7S)*, January 2019, on behalf of the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of its proposed consolidated natural gas energy efficiency plan. (Case settled prior to cross-examination.)

Before the Pennsylvania Public Utilities Commission, Docket No. M-2018-3004144, *Petition of UGI Utilities, Inc. – Electric Division for Approval of Phase III of its Energy Efficiency and Conservation Plan*, August 2018, on behalf of the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of proposed Plan. (Case settled prior to cross-examination.)

Before the Pennsylvania Public Utilities Commission, Docket No. R-2018-3001307, *Pennsylvania Public Utility Commission v. Hidden Valley Utility Services, L.P. – Wastewater (General Rate Increase Filed Pursuant to 66 PS. CS 1308, Including Answers to 52 PA. Code 53.52)*, April 2018, on behalf of the Pennsylvania Office of Consumer Advocate. Testified regarding the reasonableness of the overall revenue increase.

Before the Pennsylvania Public Utilities Commission, Docket No. R-2018-3001306, *Pennsylvania Public Utility Commission v. Hidden Valley Utility Services, L.P. – Water (General Rate Increase Filed Pursuant to 66 PS. CS 1308, Including Answers to 52 PA. Code 53.52)*, April 2018, on behalf of the Pennsylvania Office of Consumer Advocate. Testified regarding the reasonableness of the overall revenue increase.

Before the Pennsylvania Public Utilities Commission, Docket No. P-2015-2497267, *Petition of Duquesne Light Company for Approval of its Smart Meter Procurement and Installation Plan*, February 2016, on behalf of the Pennsylvania Office of Consumer Advocate. Testified regarding the inclusion of additional costs related to the Plan’s implementation.

Before the Pennsylvania Public Utilities Commission, Docket No. M-2015-2477174, *Petition of UGI Utilities, Inc. – Electric Division for Approval of Phase II of its Energy Efficiency and Conservation Plan*, February 2016, on behalf of the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of proposed Plan. (Case settled prior to cross-examination.)

Before the Pennsylvania Public Utilities Commission, Docket No. M-2015-2515642, *Petition of PPL Electric Utilities for Approval of its Energy Efficiency and Conservation Phase II Plan*, January 2016, on behalf of the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of the proposed Plan and its compliance with Pennsylvania Act 129. (Case settled prior to cross-examination.)

Before the Pennsylvania Public Utilities Commission, Docket No. M-2015-2515375, *Petition of Duquesne Light Company for Approval of its Energy Efficiency and Conservation Phase II Plan*, January 2016, on behalf of the Pennsylvania Office of Consumer Advocate. Testified regarding reasonableness of the proposed Plan and its compliance with Pennsylvania Act 129. (Case settled prior to cross-examination.)

Before the Public Utilities Commission of Rhode Island, Docket No. 4595, *Newport Water Division – Rate Application to Collect Additional Revenues of \$1,304,595 for a Total Cost of Service of \$20,151,440*, December 2015, on behalf of the Division of Public Utilities and Carriers. Testified regarding reasonableness of the overall rate revenue increase.

Before the Maryland Public Service Commission, Case No. 9311, *In the Matter of the Application of Potomac Electric Power Company for an Increase in its Retail Rates For the Distribution of Electric Energy*, April 2013, on behalf of the Maryland Public Service Commission Staff. Testified regarding the inclusion of advanced metering infrastructure meters and energy advisor and engineer positions in rates.