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 With Ebon International, LLC	)))	Case No. 2022-00387

INITIAL POST-HEARING BRIEF OF KENTUCKY POWER COMPANY

Katie M. Glass
STITES & HARBISON PLLC
421 West Main Street
P.O. Box 634
Frankfort, Kentucky 40602-0634
Telephone: (502) 223-3477
kglass@stites.com

Hector H. Garcia-Santana (*pro hac vice*)
American Electric Power Service Corporation
1 Riverside Plaza, 29th Floor
Columbus, Ohio 43215
Telephone: (614) 716-3410
hgarcia1@aep.com

COUNSEL FOR
KENTUCKY POWER COMPANY

TABLE OF CONTENTS

Page

I. INTRODUCTION

Kentucky Power Company ("Kentucky Power" or the "Company") requests in this proceeding that the Public Service Commission of Kentucky ("Commission") approve the proposed Special Contract between Kentucky Power and Ebon International, LLC ("Ebon"). The Special Contract provides reasonable discounts modeled after those available under Kentucky Power's Tariff E.D.R. that are intended to cover Ebon's variable costs and make a contribution to fixed costs. The discounts also allow Kentucky to secure Ebon to its service territory, and bring with it hundreds of millions of dollars of economic stimulus to the local economy and employ full-time between 100-125 local people in a region starving for living wage jobs.

Ebon, a blockchain data computing company, is an ideal match for Kentucky and the local region, and will bring economic development to a county that has not seen such a project locate within it since 2008. These prospects of economic development cannot be ignored, as the intervenors do in this proceeding.

All evidence provided by the Company in this proceeding shows that the proposed Special Contract meets the standards for approval. The intervenors raise only hypothetical concerns unsupported by reasonable evidence in opposition to the Special Contract. They also fail to take into account any of the economic benefit expected to result from the Commission's approval of the Special Contract and from Ebon building and operating its facility in Eastern Kentucky.

Put simply, the proposed Special Contract as a whole is reasonable and the rates offered within it are fair, just, and reasonable. The Commission should approve the Special Contract on those grounds alone. However, in addition, the Commission also should take into account the significant economic development benefits that are expected to result.

II. BACKGROUND AND CASE OVERVIEW

A. Factual Background.

1. The Importance Of Economic Development To Kentucky Power's Service Territory.

Kentucky Power's service territory is located in Eastern Kentucky.[1] Economic development is especially important to Kentucky Power's service territory and Eastern Kentucky as a whole. The region has been heavily impacted by the more than a decade-long precipitous decline of the coal industry across the Commonwealth, as well as the decline of large industrial operations.[2] This decline has resulted in devastating job losses.[3] Coal-mining employment in Eastern Kentucky fell from 13,372 in 2007, to 2,797 by the first quarter of 2022.[4] Specifically, the labor shed (an area or region from which an employment center draws its commuting workers) of Lawrence County also faced the closure of AK Steel in Boyd County, losing 263 jobs in 2011 at its Coke Plant facility and another 940 at its blast furnace in 2015.[5]

The whole Eastern Kentucky region is starved for living wage jobs.[6] For example, the median household income in Lawrence County, where Ebon proposes to locate, was $29,167 in 2020.[7] Lawrence County also has an unemployment rate of 5.1%.[8] Neighboring counties, Boyd

---

[1] Direct Testimony of Brian K. West at 4.

[2] *Id.*

[3] Rebuttal Testimony of Amanda C. Clark at R3.

[4] *Id.* at R3-R4.

[5] *Id.* at R4.

[6] *Id.*

[7] *Id.* at R12.

[8] *Id.* at R4.

(5.2%), Carter (7.5%), Elliott (8.8%), Martin (6.9%) and Johnson (6.0%), are all well above the state unemployment rate of 3.4% and the national unemployment rate of 3.3%.[9]

The job losses in Eastern Kentucky are coincident with population loss.[10] Overall, Kentucky Power's service territory has lost around 11,000 customers over the last 15 years.[11] Martin County is adjacent to Lawrence County and is part of its labor shed.[12] Martin County suffered one of the highest rates of population loss in the state (12.7%) from 2010 to 2020.[13] Population losses like those in Martin, Owsley (14.8%), Magoffin (12.7%), Knott (12.8%) and Letcher (12.1%) counties have caused the Company's fixed costs to be spread among fewer ratepayers, increasing the cost of power for everyone.[14]

In addition to higher-than-average unemployment rates and significant population loss, Kentucky Power's service territory is also uniquely challenged in replacing those lost jobs through economic development as compared to other investor-owned utilities in Kentucky.[15] There are certain limitations and challenges with respect to the service territory that the Company must overcome in its efforts to bring much-needed economic development to Eastern Kentucky. For example, economic development efforts generally in Eastern Kentucky lag behind those of other more populous cities and regions in Kentucky.[16] Greater Louisville, Inc., the regional chamber of commerce/economic development organization for the metro-Louisville

---

[9] *Id.*

[10] *See id.* at R12.

[11] Hearing Testimony of Amanda Clark, VR 07/20/2023 16:13:50.

[12] *Id.*

[13] *Id.*

[14] *Id.*

[15] West Direct Test. at 4.

[16] *See* Clark Rebuttal Test. at R4.

area has been involved in economic development activities since 1987.[17] In comparison, One East Kentucky, the largest regional economic development organization in Eastern Kentucky, began operations in 2015.[18]

In addition, Eastern Kentucky faces a particular hardship because of its lack of economic diversity.[19] The decline of coal and the closure of major manufacturers across the region have left Eastern Kentucky in need.[20] It further is difficult for communities to allocate resources specifically to economic development purposes with an ever-declining tax base.[21]

Finally, Eastern Kentucky's terrain makes large, quality sites for economic development scarce.[22] Many of the sites without a significant slope are hindered by flood plain issues.[23] The regional industrial parks in the Company's service territory are reclaimed strip mine sites that face a unique set of challenges as well.[24]

Thus, Kentucky Power starts out at a disadvantage when it comes to economic development in its service territory, despite the greater importance and need for it than more populous areas of the Commonwealth. Importantly, being able to offer discounted rates is essentially the only real tool Kentucky Power has to engage in economic development activity and to bring people and jobs to its service territory.[25]

---

[17] *Id.*

[18] *Id.*

[19] *Id.*

[20] *Id.*

[21] *Id.* at R4-R5.

[22] *Id.* at R5.

[23] *Id.*

[24] *Id.*

[25] Hearing Testimony of Company Witness Clark, Video Record ("VR") 07/20/2023 16:12:20.

B. The General Assembly's Push To Bring Cryptocurrency Companies To Kentucky.

In 2021, the Kentucky General Assembly indicated its intentions to attract and retain cryptocurrency mining companies to the Commonwealth. It enacted laws to entice such companies to the Commonwealth by, among other things, providing for significant tax benefits and other incentives.

HB 230 (2021 RS) notes the importance of the cryptocurrency industry to the Commonwealth:

> [A]ccess to cost-effective energy is critical to the development and growth of blockchain technology, particularly in the commercial mining of cryptocurrency which requires a substantial and constant supply of energy…[t]he General Assembly has actively encouraged the use and growth of blockchain technology in the Commonwealth as evidenced by 2019 House Resolution 171 authorizing a comprehensive study on the growing use of blockchain technology and its economic development potential for a variety of businesses and industries, as well as the passage of 2020 Senate Bill 55 which enacted KRS 42.747 and created a Blockchain Technology Working Group to study the use of blockchain in various sectors…the Commonwealth has an opportunity to become a national leader in the emerging industry of the commercial mining of cryptocurrency given its abundant supply of electricity that can be provided at lower rates than most states, and its established infrastructure to provide such energy.[26]

HB 230 exempts the electricity used in the commercial mining of cryptocurrency from sales and utility gross receipts taxes.[27] SB 155 (2021 RS) provided amendments that would allow cryptocurrency mining companies to take advantage of other incentives for "energy-related" businesses.

C. Ebon International, LLC.

Through its economic development efforts, the Company engaged with Ebon International, LLC ("Ebon") beginning in 2021 to locate and operate a 250 MW blockchain data

---

[26] https://apps.legislature.ky.gov/law/acts/21RS/documents/0122.pdf.

[27] https://apps.legislature.ky.gov/law/acts/21RS/documents/0141.pdf.

center in Lawrence County, Kentucky on the site of the Company's Big Sandy Generating Station, where the coal-fired Big Sandy Unit 2 once stood.

1. About Ebon.

Ebon is the wholly-owned subsidiary of Ebang International Holdings Inc., ("Ebang") a publicly-listed company (NASDAQ: EBON) in the United States focused on the development, deployment, and management of telecommunication and blockchain technology.[28] Ebang was founded in 2010, and engages in the R&D, production, sales and servicing of telecommunications high-tech equipment and services.[29] In addition, Ebang has expanded into the emerging blockchain technology industry with three main segments of operation: the design of proprietary Application-Specific Integrated Circuit (ASIC) chips; the manufacture of specific computing hardware equipment, utilizing its own in-house ASIC chips, that are used in data centers and support underlying technology applications including telecommunications, blockchain and data processing, artificial intelligence (AI), Fintech, and other industrial computer applications; and ownership and operation of its own government-regulated blockchain based cryptocurrency exchange platform, which provides a secure forum for international computing transactions.[30]

Ebon was established by Ebang to develop and operate physical blockchain data centers using the parent company's technology and equipment.[31] Ebon's vertical integration (from technology and chips through data center development and operation) is fairly unique in the data

[28] *See* Clark Rebuttal Test. Exhibit ACC-R2 ("Ebon Letter") at 1.

[29] *Id.*

[30] *Id.*

[31] *Id.* at 2.

center technology space.[32] While other data center developers rely on independent third-parties for technologies, equipment, expertise and capital, Ebon's vertical integration allows it to better manage risk, control costs, maintain supply chain visibility, and access the capital necessary to develop, operate, and maintain its block-chain data centers over the long term.[33]

2. The Proposed Ebon Facility.

Ebon proposes to develop, finance, construct, and operate a blockchain data computing complex in Lawrence County, Kentucky, using its proprietary technologies to provide complex network, computational, and storage services ("Ebon Facility").[34] The Ebon Facility will be located at 23250 US Highway 23, Louisa, Kentucky, on a portion of the site of the Company's Big Sandy Generating Station.[35] The Ebon Facility will be located on an approximately 55-acre site to be leased from Kentucky Power.[36] Ebon will invest over $250 million in order to develop and construct the Ebon Facility at the site.[37] The contract capacity for the Ebon Facility is planned for 250 MW in Phase Two but will have an initial contract capacity of approximately 80 MW to 100 MW in Phase One.[38] Among the services that the Ebon Facility will provide are the mining of cryptocurrencies, as well as blockchain and data processing services to be procured by other businesses in support of artificial intelligence, Fintech, and other industrial computer applications.[39]

---

[32] *Id.*

[33] *Id.*

[34] West Direct Test. at 6.

[35] *Id.*

[36] *Id.*

[37] *Id.*

[38] *Id.*

[39] *Id.*

Ebon's $250 million planned investment will include approximately $85 million of investment in permanent infrastructure at the Ebon Facility.[40] The remainder of the estimated investment in the proposed Ebon Facility, or approximately $165 million, will be for computing equipment that will be delivered, installed, integrated and ultimately electrically interconnected at the Kentucky Power substation. Ebon also estimates that it will hire between 100-125 permanent full-time positions that will be located on-site at the Ebon Facility.[41] Ebon desires to hire as many local persons as possible for these 100-125 positions.[42]

Ebon searched throughout the United States for stable infrastructure in a business-friendly economic situation.[43] Beyond the capital cost of developing the Ebon Facility, the cost of power and predictability of its supply are key criteria for locating its facility.[44] In addition, Ebon was looking for good employees to operate the Ebon Facility.[45] Ultimately, Ebon decided Kentucky, specifically Kentucky Power's service territory, met all of these criteria.

D. The Proposed Special Contract.

In an effort to implement the General Assembly's policy to bring cryptocurrency companies to Kentucky, Kentucky Power helped Ebon recognize its service territory as a great place to invest and build its facility.[46] With Ebon's, the Company's, and Company's customers' interests front of mind, the parties negotiated the Special Contract proposed herein with rates and

---

[40] Company's response to AG-KIUC 1-20(b)-(c) (December 28, 2022).

[41] Clark Hearing Test., VR 07/20/2023 15:11:42; *see also* Company's response to JI 1-3 (December 28, 2022).

[42] Company's response to JI 1-3 (December 28, 2022).

[43] Ebon Letter at 2.

[44] *Id.*

[45] *Id.*

[46] West Direct Test. at 6.

terms that secured Ebon to the Company's service territory in order to bring needed load and jobs to the area.[47]

The Special Contract is for an initial term of 10 years.[48] It sets Ebon's total capacity reservation during Phase One of the contract at 90 MW (beginning on the effective date of the Special Contract and continuing until Ebon's substation begins electrical operation), and sets Ebon's total capacity reservation during Phase Two at 250 MW (beginning when Ebon's substation begins electrical operation until the end of the contract term).[49] The Special Contract is based on Tariff Industrial General Service ("I.G.S.") and Rider Demand Response Service ("D.R.S."), and includes certain discounts modeled after those available under Tariff Economic Development Rider ("E.D.R.").[50]

The Company has an obligation to serve all customers that desire to locate in its service territory, and Ebon is entitled and qualified to take service under Tariff I.G.S.[51] However, with a load of Ebon's magnitude, it is in no one's best interest to serve Ebon under just firm Tariff I.G.S. and allow Ebon's full peak demand levels to cause larger incremental costs for Ebon and other customers.[52] If Ebon were to receive firm service under Tariff I.G.S. it would require Kentucky Power to plan to serve that entire load, which includes firm capacity and a required reserve margin.[53] However, under the Special Contract, Kentucky Power has incorporated provisions that include peak shaving provisions under Rider D.R.S., which can significantly

---

[47] *See id.* at 7.

[48] West Direct Test. Exhibit 1 ("Special Contract") at Article 6.2.

[49] *Id.* at Article 3.1.

[50] Rebuttal Testimony of Brian K. West at R4.

[51] *Id.*

[52] *Id.*

[53] *Id.*

reduce the amount of capacity that the Company must have or procure up front as part of its planning requirements as a Fixed Resource Requirement ("FRR") entity within PJM Interconnection, LLC ("PJM").[54] This was an important requirement of the Special Contract and one that otherwise could not be required of Ebon, absent its agreement.[55] These peak shaving provisions reduce the amount of the potential cost to all customers of any long-term capacity procurement, whether a fixed asset or purchased power, resulting from the service provided to this customer.[56]

The Special Contract sets Ebon's interruptible capacity for purposes of Rider D.R.S. at 90% of its total capacity reservation.[57] Thus, Ebon's interruptible capacity for Phase Two of the contract is 225 MW, leaving 25 MW as Ebon's firm capacity reservation.[58] Discretionary interruption events, by which the Company in its sole discretion calls upon Ebon to interrupt its usage, will be in increments of three hours and shall not total more than six hours per day.[59] In addition, interruptions are not to exceed an aggregate of 60 hours during any Interruption Year.[60] The Company will call for interruptions by providing at least 90 minutes' notice to Ebon.[61]

The Special Contract includes two items not available within Tariff I.G.S. or Rider D.R.S.[62] The first is the rate discount (based on the discounts available through Tariff E.D.R.), which provided the Company a competitive tool by which to secure Ebon to its footprint and

---

[54] *Id.*

[55] *Id.*

[56] *Id.*

[57] Special Contract at Article 3.2.

[58] *Id.*

[59] *Id.* at Article 4.1, 4.5.

[60] *Id.* at Article 4.5.

[61] *Id.* at Article 4.2.

[62] *Id.* at R5.

provide significant economic development benefits therein.[63] The second is a floor price mechanism which provides important protection for the Company and other customers with the purpose of ensuring that Ebon covers its marginal costs and makes a contribution to fixed costs.[64] The floor price mechanism is unique to the Special Contract and is not provided for under the Company's Tariff E.D.R.

In addition to the requirement that Ebon pay the Fuel Cost Amount (as defined in the Special Contract), the floor price mechanism was intended to sufficiently raise Ebon's monthly bill in the event that the discounts modeled after Tariff E.D.R. did not result in rates sufficient to cover the marginal costs to serve Ebon.[65] This is a mechanism that was designed to protect both the Company and other customers. The floor price mechanism also includes a floor price bank, which allows Ebon to bank credits when Ebon's monthly bill is adjusted upward to the Minimum Bill Amount (as defined in the Special Contract).[66] Ebon may also debit the floor price bank in times when its bills are greater than the Minimum Bill Amount.[67] This process also has the effect of smoothing out Ebon's bills over the life of the Special Contract by allowing any credits remaining in the floor price bank after the first five years of the Special Contract to be used to reduce Ebon's bills rendered in the latter five years of the Special Contract.[68] However, the floor price bank does not have the effect of allowing Ebon to receive any discounts greater than those they otherwise could have received under Tariff E.D.R.

---

[63] *Id.*

[64] *Id.*

[65] *See* West Direct Test. Exhibit 1 ("Special Contract") at Article 5.1; West Hearing Testimony, Confidential VR 10:46:58; *see also* Company's responses to KPSC 1-11 and 1-12 (December 28, 2022).

[66] Special Contract at Article 5.1; Company's responses to KPSC 1-11 and 1-12.

[67] *Id.*

[68] *Id.*

The Special Contract also includes certain protections for the Company and other customers in the event that Ebon fails to curtail under the terms of Rider D.R.S., or in the event that Ebon terminates service under the Special Contract prior to the end of the 10-year contract term. First, the Special Contract provides, in accordance with Rider D.R.S., for the DRS Event Failure Charge, which requires Ebon to pay back a portion of its DRS credit in the event that Ebon fails to sufficiently curtail when called upon.[69] Second, the July 23, 2023 Addendum to the Special Contract provides for a full claw back of all Capacity Discounts and Incremental Discounts received by Ebon through the Special Contract in the event that Ebon discontinues service under the Special Contract prior to the end of the contract term.[70] Ebon also would forfeit any amounts in the floor price bank if it were to discontinue service, default, or fail to renew the Special Contract.[71] Third, the Company is requiring Ebon to provide a security deposit or letter of credit in the amount of 2/12ths of Ebon's estimated annual bill to secure payment of bills in accordance with the Company's terms and conditions of service.[72] Finally, outside of and in addition to the protections provided by the Special Contract, the Company also may take advantage of protections provided by Kentucky law in the event that Ebon were to discontinue service under the Special Contract prior to the end of the contract term, including, but not limited to, a breach of contract action.[73]

---

[69] It also would be against Ebon's own interests to fail to curtail when called upon, because it could have the effect of significantly raising Ebon's own costs in the event that the Company may be required to procure additional capacity in the future due to Ebon's failure to curtail.

[70] *See* Addendum to Contract for Firm Electric Service Between Kentucky Power Company and Ebon International, LLC dated July 23, 2023, at 2 (filed July 24, 2023).

[71] Special Contract at Article 5.1.F.

[72] *See* Company's response to KPSC 1-3 (December 28, 2022); Tariff Sheet No. 2-2 and 2-3.

[73] *See* West Direct Test. at 13; *see also* Company's Response to JI 1-35 (December 28, 2022).

E. Ebon's Commitment To The Project And The Service Territory.

Although the Special Contract contains sufficient protections for the Company and other customers in the event that Ebon were to discontinue service prior to the end of the contract term, Ebon has clearly indicated its long-term commitment to the project and staying power in Lawrence County.[74]

Parties in this case have expressed concern related to some developers in the cryptocurrency data mining sector who have built small centers (*e.g.*, $10-20 million in capital expense) only to pull out when cryptocurrency prices go down.[75] Ebon recognizes that unfortunate part of the market, but rejects that characterization of it and its vertically-integrated approach.[76] Ebon is making a significantly larger capital commitment, more than 10 times the size of such small facilities, in the Ebon Facility.[77] Ebon is committing to enter into a 10-year long-term contract and expending more than $10 million for its substation and other infrastructure to support the Ebon Facility.[78] Once the Ebon Facility is built and its total load of 250 MW is operating, Ebon could not simply shut-down, pull out, and move to another site without stranding its significant investment in the Ebon Facility and incurring significant additional expense in site preparation, interconnection, and control systems, which could total in excess of an additional $30 million.[79] Such additional costs would make the Ebon Facility uneconomic.[80]

---

[74] *See* Ebon Letter at 2-3.

[75] *Id.* at 2.

[76] *Id.*

[77] *Id.*

[78] *Id.* at 2-3.

[79] *Id.* at 3.

[80] *Id.*

Ebang has witnessed and survived two cryptocurrency-winters already.[81] Ebon's business model is not tied solely to mining of cryptocurrencies; it is flexible and allows Ebon to pivot within the market when certain ventures may not be as profitable.[82] The Ebon Facility will be able to provide other blockchain and data processing services to be procured by other businesses in support of artificial intelligence, Fintech, and other industrial computer applications.[83] Ebon also has no long-term debt and is not relying upon lenders in a period of rising interest rates.[84] Ebon is confident in its cost structure and business model, and that its first data center in the United States in Lawrence County, Kentucky will be successful.[85]

Ebon has also indicated its commitment to the Ebon Facility and locating within the Company's service territory through its intentions to locate an additional 30-60 MW manufacturing project near the Ebon Facility within the Company's service territory.[86] This project would require two facility sites and would be for solar panel manufacturing.[87] These facilities would bring with them approximately 1,000 job openings and a potential additional $300 million investment in the Company's service territory.[88] Ebon has indicated that it desires to locate these new facilities near its blockchain data computing complex, described in this case

[81] *Id.*

[82] *Id.*

[83] *Id.*

[84] *Id.*

[85] *Id.*

[86] Clark Hearing Testimony, VR 07/20/2023 15:50:53-15:52:35; *see also* Public Comment, VR 07/20/2023 09:11:03.

[87] *Id.*

[88] *Id.*

as the Ebon Facility.[89] If the Ebon Facility does not locate in Louisa, Ebon has indicated it is looking at other locations in Georgia, Alabama, and Mississippi.[90]

Although Ebon is undoubtedly committed to the project, the Ebon Facility, and the Company's service territory, Ebon has made clear that it would not locate in the Company's service territory absent the discounts offered via the Special Contract. Ebon has stated,

> [t]o be clear, we cannot and will not develop the data center in Kentucky Power's service territory without the rates and terms in the proposed special contract. We have other locations under development in the US and it would simply not be prudent for us to spend our capital in a situation with higher costs of power. The cost of electric power is the single most important cost beyond the capital cost of equipment to build a data center.[91]

III. LEGAL STANDARDS

The Commission generally approves special contracts if they are reasonable, and if the rates have the effect of covering the customer's variable costs and make a contribution to fixed costs.[92] In addition to these standards, the Commission also has approved special contracts for large industrial customers in the past, in part, based on the unique competitive circumstances for those customers.[93] Although this Special Contract is not being filed under the Company's Tariff E.D.R., such contracts are considered "special contracts." The Commission recently approved a

---

[89] *Id.*

[90] *Id.*

[91] Ebon Letter at 3.

[92] *See* Order at 6-7, *In The Matter Of: Electronic Application Of Kentucky Power Company For Approval Of A Contract For Electric Service With Mc Mining, LLC*, Case No. 2019-00124 (Ky. P.S.C. August 23, 2019); Order at 9 n. 36, *In The Matter Of: Electronic Application Of Duke Energy Kentucky, Inc. For Approval Of A Special Contract And For Waiver Of 807 KAR 5:041, Section 6(2)(C)*, Case No. 2021-00192 (Ky. P.S.C. March 4, 2022) (*citing* Order, *In The Matter Of: Filing Of Special Industrial Contracts By Atmos Energy Corporation*, Case No. 2017-00035 (Ky. P.S.C. April 12, 2017)).

[93] Order at 9 n. 36, *In The Matter Of: Electronic Application Of Duke Energy Kentucky, Inc. For Approval Of A Special Contract And For Waiver Of 807 KAR 5:041, Section 6(2)(C)*, Case No. 2021-00192 (Ky. P.S.C. March 4, 2022) (*citing* Order, *In The Matter Of: Filing Of Special Industrial Contracts By Atmos Energy Corporation*, Case No. 2017-00035 (Ky. P.S.C. April 12, 2017)).

special contract filed under another utility's economic development tariff in Western Kentucky because it was in the public interest and would result in fair, just, and reasonable rates.[94]

In addition, the Commission also has "recognize[d] the importance of economic development efforts, especially given the economic needs of Kentucky Power's service area."[95]

IV. ARGUMENT

A. The Terms Of The Proposed Special Contract Are Fair, Just, And Reasonable.

The proposed Special Contract with Ebon clearly meets the standards for approval of a special contract. The overall terms of the proposed Special Contract are reasonable. The rates offered within the Special Contract are fair, just, and reasonable. Each marginal cost study submitted by the Company, including those with modifications requested by the Commission, show that the rates offered to Ebon have the effect of covering Ebon's variable costs and making a contribution to fixed costs. Finally, in addition to these minimum standards, the Special Contract enables the Company to secure Ebon to locate within its service territory and to bring with it between 100 to 125 jobs,[96] $250 million of capital investment (including $85 million in permanent infrastructure[97]), and hundreds of millions of dollars of economic development to Lawrence County, Kentucky.

---

[94] Order at 12, *In The Matter Of: Electronic Tariff Filing Of Big Rivers Electric Corporation And Kenergy Corp. For Approval Of A Special Contract With Economic Development Rates With Pratt Paper (KY), LLC*, Case No. 2023-00045 (Ky. P.S.C. February, 10, 2023).

[95] Order at 35, *In The Matter Of: Electronic Application Of Kentucky Power Company For (1) A General Adjustment Of Its Rates For Electric Service; (2) An Order Approving Its 2017 Environmental Compliance Plan; (3) An Order Approving Its Tariffs And Riders; (4) An Order Approving Accounting Practices To Establish Regulatory Assets And Liabilities; And (5) An Order Granting All Other Required Approvals And Relief*, Case No. 2017-00179 (Ky. P.S.C. January 18, 2018).

[96] Clark Hearing Test., VR 07/20/2023 15:11:42.

[97] Company's response to AG-KIUC 1-20(b) (December 28, 2022).

The Company has an obligation to serve each customer desiring to take electric service in its service territory, and Ebon is eligible to take service under the Company's Tariff I.G.S. Further, although Ebon is eligible to, it is not required to also participate in Rider D.R.S. Thus, if Ebon were to request service for its full firm load of 250 MW at Tariff I.G.S. rates, the Company would be required to provide that service and, under PJM's FRR construct, either have or purchase sufficient capacity to cover that full firm load. Doing so would increase substantially the Company's capacity costs, which would be passed on to Ebon and other customers. The Special Contract therefore does two very important things: 1) it provides reasonable discounts sufficient to secure Ebon to the Company's service territory and cover the marginal cost to serve Ebon; and 2) it induces Ebon's agreement to participate in Rider D.R.S. and reduce its firm load requirements to only 25 MW instead of 250 MW.

In addition, the discounted rates themselves are fair, just, reasonable. The discounts offered in the Special Contract are based on those available under Tariff E.D.R., for which Ebon otherwise would qualify, absent the current MW cap. The Special Contract also requires Ebon to pay full tariff rates for fuel costs.[98] The Company also added an additional protection to ensure that the discounted rates offered were fair, just, and reasonable, in the form of the floor price mechanism. The floor price mechanism was intended to sufficiently raise Ebon's monthly bill in the event that the discounts modeled after Tariff E.D.R. did not result in rates sufficient to cover the marginal costs to serve Ebon.[99] This mechanism was designed to protect both the Company and other customers and ensure that Ebon pays fair, just, and reasonable rates.

---

[98] *See* Special Contract at Article 5.1.D; *see also* Company's response to KPSC 1-13 (December 28, 2022).

[99] *See* West Direct Test. Exhibit 1 ("Special Contract") at Article 5.1; West Hearing Testimony, Confidential VR 10:46:58.

Each marginal cost study provided by the Company in this case (Exhibit LMK-R1 and KPCO_R_KPSC_PHDR_4_PublicAttachment1), including those with generation capacity costs and escalated transmission costs added at the request of Commission Staff, demonstrate that the rates offered to Ebon via the proposed Special Contract have the effect of covering all of Ebon's variable fixed costs and making a contribution to fixed costs. Revenue received from new customers that exceed marginal costs contributes to the Company's existing fixed costs that otherwise would have been paid by existing customers. This translates to lower costs for all customers, as fixed costs are spread over a larger total load.[100]

In addition to meeting the minimum criteria for approval of a special contract, the Ebon Facility also will bring with it significant economic development benefits. First, Ebon represents that its Ebon Facility will bring between 100 and 125 jobs to Lawrence County, where those jobs are desperately needed.[101] All of these jobs will be on site, full-time, and permanent, and Ebon has expressed on multiple occasions the desire to hire as many local employees as possible.[102] Each position will pay a competitive, higher-than-average (for Lawrence County) salary or wage.[103] Further, some of those jobs are unskilled positions, and Ebon will conduct on-site training for those positions as well.[104] Ebon therefore will be putting the unskilled to work in Lawrence County.[105]

---

[100] Company's response to JI 1-19 (December 28, 2022).

[101] Company's response to JI 1-3 (December 28, 2022).

[102] *Id.*

[103] *See* Company's response to AG-KIUC 1-19 (December 28, 2022); Clark Hearing Test., VR 07/20/2023 16:14:56.

[104] Clark Hearing Test., VR 07/20/2023 16:15:18.

[105] *Id.*

The last economic development project in Lawrence County was announced around 2008, and that project was expected to bring only 38 jobs.[106] Thus, Ebon's expectation to hire between 100-125 people at the Ebon Facility is a "massive deal" for Lawrence County.[107] According to the Company's IMPLAN model analysis, which takes into account Ebon's specific industry (data processing),[108] the local economy is expected to see over $29.6[109] million annually in total economic benefits from ongoing economic activity as a result of the Ebon Facility locating in Lawrence County, from the production, purchase, or sale of products or services as well as working for a wage or salary in the local area.

Second, Ebon represents that it will be making a $250 million capital investment to construct and make-ready the Ebon Facility. In general, these investments include engineering services, construction of the customer-owned substation, site preparation and container placement, container cooling system, and distribution network buildout for the container layout.[110] The cost of the permanent infrastructure is estimated to total approximately $85 million.[111] The remainder of the estimated investment in the proposed Ebon Facility, or approximately $165 million, is attributed to computing equipment that will be delivered, installed, integrated and ultimately electrically interconnected at the Kentucky Power substation.[112] According to the Company's IMPLAN model analysis with respect to Ebon's

---

[106] Clark Hearing Test., VR 07/20/2023 16:14:29.

[107] Clark Hearing Test., VR 07/20/2023 16:15:36.

[108] Clark Hearing Test., VR 07/20/2023 15:21:01.

[109] *See* Clark Rebuttal Test. at R8-R9, Table 1 "Value Added Total" + Table 2 "State and Local [Taxes]." Over 10 years, the total ongoing economic benefit is projected to be approximately $296 million.

[110] Company's response to AG-KIUC 1-20 (December 28, 2022).

[111] *Id.*

[112] *Id.*

capital investment at the Ebon site, the local economy is projected to see over $66 million[113] in total benefits resulting from Ebon's capital investment, construction, and site preparation and equipment supply activities.

1. The Company's Marginal Cost Study Is Reasonable.

Marginal cost studies, although not required to be submitted in support of a special contract, can be helpful tools to demonstrate at a high level whether the rates in a special contract will result in a net cost or benefit to serve that customer. There is no one right way to perform a marginal cost study. However, in order for the marginal cost study to be reasonable and reliable, the inputs and assumptions used must be reasonable. These studies must be based on information and assumptions known at the time of the development of the study. Marginal cost studies are not intended to predict the future or the actual cost to serve a customer and cannot reasonably include every possible real-world circumstance that may occur in serving the customer over the special contract term.

The Company submitted its marginal cost study (Exhibit LMK-R1 and KPCO_R_KPSC_PHDR_4_PublicAttachment1) using reasonable inputs and assumptions. The Company also updated its marginal cost study by adding generation capacity costs and escalated transmission costs at the request of Commission Staff.[114] In each iteration of the marginal cost study, whether including generation capacity costs and/or escalated transmission costs or not, the Company has demonstrated that the rates offered to Ebon have the effect of covering all of Ebon's variable costs and making a contribution to fixed costs, and that they are fair, just, and reasonable.

---

[113] *See* Clark Rebuttal Test. at R9-R10, Table 3 "Value Added" + Table 4 "State and Local [Taxes]."

[114] The Company maintains that capacity costs should not be assigned to individual customers. The Company must secure capacity to serve all of its customers after the expiration of the Rockport UPA, not just Ebon.

AG-KIUC Witness Baron performed his own calculations for the marginal cost study, which ultimately shifted the marginal cost analysis to a net cost. However, Mr. Baron's calculations were not based on reasonable inputs and assumptions. For example, in Mr. Baron's analysis, revenues are not given the same scrutiny as costs generally. More specifically, with respect to Tariff P.P.A. revenues and transmission costs, Mr. Baron also fails to treat these two items commensurately. Both the Company's marginal cost study (Exhibit LMK-R1) and Mr. Baron set P.P.A. revenues statically throughout the ten-year contract period, which causes an increasing disparity to transmission costs. However, the Company's use of the lower (5%) transmission cost escalation results in a smaller disparity. The disparity was further exacerbated by Mr. Baron's use of an NPV approach. As demonstrated by the Company's updated marginal cost study filed in response to Commission Staff's post-hearing data request number 4, escalating Tariff P.P.A. revenues commensurately with transmission costs, which is more reasonable and reflective of real-world circumstances, still produces a substantial net benefit. In fact, this further illustrates the important fact that Ebon will help to reduce costs for other customers. Specifically in regards to transmission costs, while Ebon will cause an incremental increase based on firm load, they will be paying Tariff P.P.A. rates for their total load (estimated to be 250 MW). Stated another way, the P.P.A. rate will be lower with Ebon, absent a scenario without Ebon, because Ebon's contribution to the numerator (costs to be recovered) will be "outpaced" by its contribution to the denominator (total customer demand and/or energy).[115]

Further, Mr. Baron's approach also relied on fuel conditions at the time that his testimony was developed, and their increased pressure on LMPs at that time. While the Company understands the importance of utilizing known and measurable variables, in this circumstance it

[115] *See* Company's response to Commission Staff's Post-Hearing Data Request 4 (filed July 28, 2023).

is unreasonable given that fuel prices in 2022 were an outlier, based on actual outcomes before and after 2022. These outlier prices were not a reasonable benchmark upon which to base long-term assumptions. Consequently, the Company used a simplified approach to address this volatility and produce a marginal cost study that was more reasonable.

B. Ebon Is A Great Match For The Service Territory, For Lawrence County, And For The Big Sandy Site.

The intervenors in this case raise general concerns about whether the Company should be offering the Special Contract to Ebon. The Joint Intervenors suggest that some other entity would be better suited both to receive discounted rates and locate at the Big Sandy site. However, Ebon is a great, perhaps ideal, match for several reasons.

Ebon is a great match for Kentucky. Ebon is exactly the type of Company that the General Assembly targeted with the economic incentives extended to cryptocurrency mining companies in HB 230 and SB 155. The General Assembly recognized that competitively priced electricity is critical to the Commonwealth "becom[ing] a national leader in the emerging industry of the commercial mining of cryptocurrency…" [116] Thus, the reasonable discounts offered to Ebon via the Special Contract directly implement the General Assembly's policy to bring companies like Ebon to Kentucky.

Ebon is a great match for the Company's service territory. The Company's service territory is constrained by several things when it comes to economic development. The service territory generally has a low availability of large, suitable sites for traditional manufacturing and other industry.[117] Given the topography of the service territory, there is a limited amount of flat land for industry to locate. The land that is flat often is usually either located in a flood plain, or

[116] https://apps.legislature.ky.gov/law/acts/21RS/documents/0122.pdf.

[117] Clark Hearing Test., VR 07/20/2023 16:16:42.

in another undesirable building location like an abandoned coal facility (or in this instance, on the site of a former coal-fired generating unit), which also limits the ability for industry to locate there. Most usable sites in the service territory are often also remote. Traditional manufacturing entities usually desire to locate near a major highway or interstate and do not typically desire a remote location. Ebon, on the other hand, wanted a remote location like the location available at the Big Sandy site and is not hindered by other typical land constraints.

Ebon is a great match for Lawrence County. Ebon will bring much-needed jobs to the area and will train and employ the unskilled. The lowest paying jobs at the Ebon Facility will pay a higher-than-average salary and the highest paying jobs will pay substantially in excess of the average salary for Lawrence County.[118] Lawrence County also benefits from those employees living and/or working in Lawrence County and spending their money on houses, groceries, lunch, or other places in the county. Lawrence County will see increased tax revenue from those people living and working there, as well as from Ebon locating there. The benefits do not stop at Lawrence County. As an employer of this size, the Ebon Facility will also pull and employ people from five or six counties around Lawrence County.[119] Those people also will return to their home counties and spend money on groceries and other goods there.

The Ebon Facility also is an ideal match specifically for the Big Sandy site.[120] Here, the portion of the Big Sandy site where Ebon proposes to locate is where the now-retired and demolished coal-fired Big Sandy Unit 2 once stood. A traditional manufacturing entity, or any other entity that would require to construct a typical building foundation, would require

[118] Company's response to JI 1-6, Attachment 1 (December 28, 2022).

[119] Clark Hearing Test., VR 07/20/2023 16:19:28.

[120] Clark Hearing Test., VR 07/20/2023 16:17:53.

significant upgrades to this site in order to locate there.[121] These significant upgrades also would come at a significant cost, which would be borne by the Company's ratepayers. The Ebon Facility, however, does not require a typical building foundation and it does not require any further upgrade to the site in order to locate there. The site is ready in its current state to serve the needs of the Ebon Facility.

1. Ebon Is Committed To The Project And The Service Territory.

Ebon's words and actions have clearly demonstrated its commitment to the Ebon Facility project and to operating that facility long term in Lawrence County.

Ebon is making a significant capital investment in the Ebon Facility—about $85 million in permanent infrastructure.[122] Ebon is committing to enter into a 10-year long-term contract and expending more than $10 million for its substation and other infrastructure to support the Ebon Facility.[123] Once the Ebon Facility is built and its total load of 250 MW is operating, Ebon could not simply shut-down, pull out, and move to another site without stranding its significant investment in the Ebon Facility and incurring significant additional expense in site preparation, interconnection, and control systems, which could total in excess of an additional $30 million.[124]

Ebon's business model is not tied solely to mining of cryptocurrencies; it is flexible and allows Ebon to pivot within the market when certain ventures may not be as profitable.[125] The Ebon Facility will also be able to provide other blockchain and data processing services to be procured by other businesses in support of artificial intelligence, Fintech, and other industrial

[121] Clark Hearing Test., VR 07/20/2023 16:00:45.

[122] *Id.*

[123] *Id.* at 2-3.

[124] *Id.* at 3.

[125] *Id.*

computer applications.[126] Ebon also has no long-term debt and is not relying upon lenders in a period of rising interest rates.[127] Ebon's business model therefore demonstrates Ebon's staying power in the industry.

Importantly, Ebon has shown its commitment to locating its facility in the Company's service territory by working diligently with the Company for more than two years to bring this project to fruition. The great majority of cryptocurrency customers moved on quickly from locating in the Company's service territory when they determined that the Tariff E.D.R. discounts were not sufficient.[128] Conversely, Ebon has worked with the Company to negotiate a rate and other contract terms that were satisfactory to both parties and has patiently awaited the outcome of this proceeding for nearly nine months so that it can begin business investing and employing people in Eastern Kentucky.

Ebon has also indicated its commitment to the Ebon Facility and locating within the Company's service territory through its intentions to locate an additional 30-60 MW solar panel manufacturing project near the Ebon Facility within the Company's service territory.[129] These facilities would bring with them approximately 1,000 job openings and a potential additional $300 million investment in the Company's service territory.[130] Ebon has indicated that it desires to locate these new facilities near its blockchain data computing complex, described in this case

[126] *Id.*

[127] *Id.*

[128] Clark Hearing Test., VR 07/20/2023 15:27:20.

[129] Clark Hearing Testimony, VR 07/20/2023 15:50:53-15:52:35; *see also* Public Comment, VR 07/20/2023 09:11:03.

[130] *Id.*

as the Ebon Facility.[131] Thus, Ebon's intentions to substantially expand its business in Eastern Kentucky also show that Ebon is committed to this service territory for the long term.

C. The Intervenors Raise Only Hypothetical Concerns And Do Not Take Into Account The Economic Benefits Made Possible By The Proposed Special Contract.

The intervenors raise concerns about hypothetical possibilities when it comes to serving Ebon, when the reality is that the proposed Special Contract sufficiently protects the Company and other customers against reasonable potential risks.

The intervenors raise concerns based on Ebon's involvement in the cryptocurrency mining industry and Ebon's ability to interrupt when called upon. It is unlikely that there would be this kind of opposition to a traditional manufacturing customer boasting the same number of jobs and capital investment seeking to locate in the Company's service territory. The Company has submitted sufficient evidence to show that the risks raised by the intervenors with respect to cryptocurrency companies do not apply the same to Ebon. Ebon's business model actually is similar to a traditional manufacturing customer because of its ability to pivot within the market when certain business ventures may not be as profitable. Its business model therefore is more stable than if it relied solely on the cryptocurrency market. Ebon's industry and business model also provide even more advantages than traditional manufacturing because Ebon is highly interruptible. Ebon has committed to interrupt 90% of its expected 250 MW load. Rather than having to ramp up and ramp down operations over a period of time when called upon to curtail, Ebon can ramp down and back up very quickly, and therefore likely more reliably than a traditional manufacturing customer may be able to. Ebon's ability to interrupt translates to lower capacity costs for all customers.

[131] *Id.*

It also is unlikely that Ebon would choose not to interrupt when called upon and instead mine cryptocurrency, as the intervenors speculate, because it would be economically risky for Ebon to do so.[132] Cryptocurrency mining is akin to a competition, where all cryptocurrency mining operations are competing against each other to "win" the same transactions and be "awarded" cryptocurrency. Whether Ebon could "win" enough cryptocurrency mining transactions to make enough profit to cover the DRS Event Failure Charge and any long-term increased capacity costs resulting from its failure to interrupt, would be virtually impossible to predict.[133] Further, given that the cost of electricity is the single most important cost of doing business behind the capital cost of building the facility, it would be illogical for Ebon to risk long-term cost increases in exchange for a few additional hours of mining cryptocurrency and the chance to make a one-time unknown profit.

Thus, the intervenors concerns about Ebon's business model and its ability to interrupt when called upon are not supported by any evidence and actually are contrary to common sense and logic.

The intervenors also do not take any of the economic benefits into account in their analysis. AG-KIUC rely solely on Mr. Baron's unreasonable marginal cost analysis to state that the proposed Special Contract will result in a net cost to serve Ebon. The Joint Intervenors generally allege that another type of customer in another industry would be better for various subjective and speculative reasons. In reality, there are substantial economic benefits to the service territory and the Company's other customers that must be taken into account when determining whether the Special Contract is reasonable. These benefits, including jobs and

---

[132] West Hearing Test., VR 07/20/2023 13:43:18.

[133] West Hearing Test., VR 07/20/2023 13:44:05.

hundreds of millions of dollars being injected into the local economy, are significant for the residents in the Company's severely economically depressed service territory.

1. The Proposed Special Contract Contains Sufficient Protections For The Company And Other Customers.

The intervenors also raise concerns about the protections for other customers in the event that Ebon discontinues service prior to the end of the Special Contract. The Company also took these issues into consideration and provided for them when negotiating the Special Contract with Ebon. The Special Contract provides, in accordance with Rider D.R.S., for the DRS Event Failure Charge, which requires Ebon to pay back a portion of its DRS credit in the event that Ebon fails to sufficiently curtail when called upon.[134] The July 23, 2023 Addendum to the Special Contract provides for a full claw back of all Capacity Discounts and Incremental Discounts received by Ebon through the Special Contract in the event that Ebon discontinues service under the Special Contract prior to the end of the contract term.[135] Ebon also would forfeit any amounts in the floor price bank if it were to discontinue service, default, or fail to renew the Special Contract.[136] The Company also is requiring Ebon to provide a security deposit or letter of credit in the amount of 2/12ths of Ebon's estimated annual bill (without discounts) to secure payment of bills in accordance with the Company's terms and conditions of service.[137] Finally, outside of and in addition to the protections provided by the Special Contract, the Company also may take advantage of protections provided by Kentucky law in the event that

---

[134] It also would be against Ebon's own interests to fail to curtail when called upon, because it could have the effect of significantly raising Ebon's own costs in the event that the Company may be required to procure additional capacity in the future due to Ebon's failure to curtail.

[135] *See* Addendum to Contract for Firm Electric Service Between Kentucky Power Company and Ebon International, LLC dated July 23, 2023, at 2 (filed July 24, 2023).

[136] Special Contract at Article 5.1.F.

[137] *See* Company's response to KPSC 1-3 (December 28, 2022); Tariff Sheet No. 2-2 and 2-3.

Ebon were to discontinue service under the Special Contract prior to the end of the contract term, including, but not limited to, a breach of contract action.[138] All of these things provide meaningful protection for the Company and its other customers in the unlikely event that Ebon fails to curtail under Rider D.R.S. or discontinues service under the Special Contract.

2. The Risks Of Not Approving The Proposed Special Contract Far Outweigh Any Perceived Hypothetical Risks Of Approving The Proposed Special Contract.

Ebon has made very clear that it will not locate in the service territory absent the discounts offered in the Special Contract. The cost of electricity is central to Ebon's ability to successfully operate. Although it has made significant investment in both time and money already at the Big Sandy site, absent reasonably-priced electricity, Ebon will locate elsewhere. As stated previously, the rates offered in the proposed Special Contract are reasonable. The risk in not approving those reasonable rates is that Ebon chooses to locate its facility elsewhere. All economic development benefits described in this proceeding, all of the jobs and the hundreds of millions of dollars circulating through the local economy, would leave with Ebon. In addition, Ebon's planned future facilities (with the potential to bring another 1,000 jobs to the service territory) also go with Ebon to wherever it ends up locating in another state.

The Commission should not rely on the intervenors' hypothetical and unsupported concerns when evaluating the reasonableness or fairness of the Special Contract. The Commission should look holistically at the evidence provided in this case, that each marginal cost study provided by the Company demonstrates a net benefit to serving Ebon and that significant economic benefits will be seen by local economies as a result of the Ebon Facility locating in Lawrence County, and approve the Special Contract.

---

[138] *See* West Direct Test. at 13; *see also* Company's Response to JI 1-35 (December 28, 2022).

D. Ebon Must Not Be Unreasonably Discriminated Against Based On Its Industry.

KRS 278.170(1) proscribes unreasonable discrimination by prohibiting utilities from granting an "unreasonable preference or advantage" or maintaining an "unreasonable difference" between classes of service "for doing a like and contemporaneous service under the same or substantially the same conditions."[139] Ebon cannot be unreasonably discriminated againt here, as suggested by the intervenors, based on its business model or the industry in which it operates. In any event, none of the perceived risks of Ebon's business model asserted by the intervenors are supported by evidence, and are contradicted by logic and common sense. Nor is Ebon being given unreasonable preference or advantage. The Company has offered to Ebon essentially the same discounts that otherwise would be available under its Tariff E.D.R. The Company also included the floor price mechanism as an additional protection so that the rates charged to Ebon have the effect of covering all variable costs and contributing to fixed costs. Ebon is still exposed to the same price risks that other large industrial customers are, including fuel costs and purchase power costs. Simply put, taken holistically, the Special Contract provides Ebon with reasonable discounts and the Company and its other customers with meaningful protections in the event of a default, while also providing significant economic benefits to the local economy.

V. CONCLUSION

For the reasons set forth above, the Company has demonstrated the proposed Special Contract with Ebon is reasonable, and that the rates contained therein are fair, just, and reasonable. The Company has also demonstrated that the rates contained in the Special Contract have the effect of covering Ebon's variable costs and make a contribution to existing fixed costs.

---

[139] *Riverside Generating Appellant Company, L.L.C. v. Kentucky Public Service Commission*, 2020-CA-0678-MR, 2021 WL 527705, at *4 (Ky. App. Feb. 12, 2021), review denied (Aug. 18, 2021).

In addition, the Ebon Special Contract allows the Company to secure Ebon and significant and desperately needed economic development to the Company's service territory, to the benefit of all customers and local residents. The Commission should approve the proposed Special Contract for these reasons.

Respectfully submitted,

Katie M. Glass
STITES & HARBISON PLLC
421 West Main Street
P. O. Box 634
Frankfort, Kentucky 40602-0634
Telephone: (502) 223-3477
kglass@stites.com

Hector H. Garcia-Santana (*pro hac vice*)
American Electric Power Service Corporation
1 Riverside Plaza, 29th Floor
Columbus, Ohio 43215
Telephone: (614) 716-3410
hgarcia1@aep.com

Counsel for Kentucky Power Company