

**Knoxville Utilities Board
Board Meeting
Minutes
Thursday, March 11, 2021
Noon**

Call to Order

The Knoxville Utilities Board met in regular session in the Mintha E. Roach Corporate Services Building at 4505 Middlebrook Pike, on Thursday, March 11, 2021, pursuant to the public notice published in the January 2, 2021, edition of the *News Sentinel*. Chair Jerry Askew called the meeting to order at 12:00 p.m.

Roll Call

Commissioners Present: Jerry Askew, Claudia Caballero, Kathy Hamilton, Celeste Herbert, Adrienne Simpson-Brown, Tyvi Small, and John Worden.

Commissioners Absent: None

Approval of Minutes

The Minutes of the February 18, 2021 Board meeting were approved as distributed upon a motion by Commissioner Herbert and seconded by Commissioner Small.

Old Business

Resolution 1432, A Resolution Authorizing Participation in the Tennessee Valley Authority's Electric Vehicle Charging Power (EVC) Rate and Amending the Existing Rate Schedules of the Electric Division to Provide for an EVC Rate Schedule

President Gabriel Bolas reminded Commissioners that Mike Bolin, Vice President of Utility Advancement, provided details last month on the new Electric Vehicle Charging Power Rate on first reading. Mr. Bolin provided a brief overview of the resolution for the Board's consideration on second and final reading.

President Bolas recommended adoption of Resolution 1432 on second and final reading. His written recommendation is included in Attachment 1.

March 11, 2021

Upon a motion by Commissioner Small and a second by Commissioner Herbert, Resolution 1432 was adopted by a roll call vote on second and final reading. The following Commissioners voted "aye": Askew, Caballero, Hamilton, Herbert, Small, and Worden. No Commissioner voted "nay".

New Business

TVA Awards

President Bolas welcomed the TVA representatives attending the Board meeting. He recognized Doug Perry, Senior Vice President of Commercial Energy Solutions and Amy Edge, Northeast District General Manager. Mr. Perry presented a TVA Community Champion Award and a 2020 Top Performer award to Chair Askew on behalf of KUB.

Resolution 1433, A Resolution Authorizing the Filing of a Fiber to the Home Business Plan with the Office of the Comptroller of the Treasury for the State of Tennessee

President Bolas reminded Commissioners that KUB has been exploring the potential of offering municipal broadband to its customers. Resolution 1433 requests the Board's approval for submitting a Fiber to the Home Business Plan to the Comptroller of the Treasury for the State of Tennessee. He recognized Jamie Davis, Vice President and Assistant to the CTO, to discuss KUB's proposed enhanced electric grid modernization plan, which includes the deployment of a system-wide fiber network. Mark Walker, Senior Vice President and CFO, provided the financial plan that supports the enhanced electric grid modernization plan. Mr. Davis completed the presentation with an overview of the Fiber to the Home Business Plan being presented for the Board's consideration.

President Bolas recommended adoption of Resolution 1433 on first and final reading. His written recommendation is included in Attachment 2.

Upon a motion by Commissioner Herbert and a second by Commissioner Caballero, Resolution 1433 was adopted by a roll call vote on first and final reading. The following Commissioners voted "aye": Askew, Caballero, Hamilton, Herbert, Simpson-Brown, Small, and Worden. No Commissioner voted "nay".

President's Report

None

March 11, 2021

Other Business

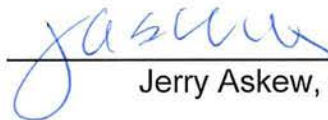
Chair Askew advised Commissioners that the April 15 financial workshop will focus on the details of the fiscal year 22 budget and an update on long-range plans. A brief business meeting will begin at 10:00 a.m. and public comments will be welcome before the meeting is adjourned. Following the conclusion of the business meeting, we will begin the budget workshop. That session should conclude around noon.

Public Comment

None

Adjournment

There being nothing further to come before the Board, Chair Askew declared the Board meeting adjourned at 1:48 p.m.



Jerry Askew, Chair



Mark Walker, Board Secretary

Attachments

Attachment 1	Recommendation Letter and Resolution 1432 – Resolution Authorizing Participation in the Tennessee Valley Authority's Electric Vehicle Charging Power (EVC) Rate and Amending the Existing Rate Schedules of the Electric Division to Provide for an EVC Rate Schedule	Page(s) 10535 – 10543
Attachment 2	Resolution 1433 – A Resolution Authorizing the Filing of a Fiber to the Home Business Plan with the Office of the Comptroller of the Treasury for the State of Tennessee	10544 – 10567



Knoxville Utilities Board

March 5, 2021

Knoxville Utilities Board
445 S. Gay Street
Knoxville, Tennessee 37902-1109

Commissioners:

The March 11 Board meeting agenda includes two official action items, including the adoption of a new rate for electric vehicle (EV) charging stations, on second and final reading, and a resolution authorizing the filing of a business plan for providing broadband services within KUB's electric system territory to the Comptroller of the Treasury of the State of Tennessee for review. An overview of each resolution is provided below.

Resolution 1432 (Second and Final Reading)

As part of its goal to increase and facilitate the use of electric vehicle charging stations in the Tennessee Valley, the TVA Board recently adopted a wholesale rate for charging stations for EVs where the station's demand is greater than 50 kW. It is staff's recommendation that KUB adopt a companion retail rate, as KUB's current electric rates are not designed to accommodate the usage profile of EV charging stations.

Resolution 1432 and the proposed rate schedule are attached for your information. The Board adopted the new EV charging station rate on first reading at the February Board meeting. I recommend the adoption of Resolution 1432 on second and final reading.

Resolution 1433

As you will recall, some time ago Mayor Kincannon requested KUB assess the feasibility of directly providing broadband services (internet service, cable television and other related services) to customers located within its electric system territory. Over the course of the past year or so, KUB staff has performed a full assessment on the feasibility of providing broadband services. This assessment included a thorough examination of costs and potential funding, and individual meetings with local elected officials. We received an overwhelmingly positive response from these meetings. KUB also conducted a public survey of its customers, which indicated a desire for KUB to offer broadband services.

Staff has kept the Board apprised of progress along the way, including one-on-one conversations as well as presentations to the Board on the subject at the September 2020, November 2020, and January 2021 Board meetings. Staff has also prepared a business plan detailing funding requirements, revenue assumptions and other key elements of a new broadband division.

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March 5, 2021

The next step in assessing the viability of this business plan is to submit it for review by the Comptroller of the Treasury of the State of Tennessee.

Resolution 1433 authorizes filing the business plan with the Comptroller, the first step of many that would be required before KUB could enter this line of business. A draft of the resolution is also attached for your review. I recommend the adoption of Resolution 1433 on first and final reading.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Gabriel Bolas". The signature is written in a cursive, flowing style.

Gabriel J. Bolas II
President and CEO

RESOLUTION NO. 1432

A Resolution Authorizing Participation in the Tennessee Valley Authority's Electric Vehicle Charging Power (EVC) Rate and Amending the Existing Rate Schedules of the Electric Division to Provide for an EVC Rate Schedule

Whereas, Knoxville Utilities Board ("KUB") purchases its full electric power requirements from the Tennessee Valley Authority ("TVA"); and

Whereas, KUB supports the environment through numerous programs such as home weatherization assistance, participation in TVA's Green Invest Program, and TVA's Green Switch and Green Switch Match programs; and

Whereas, KUB supports the adoption and utilization of electric vehicles through its participation in Drive Electric Tennessee, its first-in-the-Valley Electric Vehicle (EV) rebate program, and by offering Time of Use rates to support charging EV's at home; and

Whereas, TVA has developed a wholesale rate in support of electric vehicle charging stations which supports public stations as well as business fleets; and

Whereas, the EVC Rate is an optional rate for eligible KUB customers designed to encourage and support EV adoption throughout the Tennessee Valley; and

Whereas, KUB participates in other programs offered by TVA for the benefit of the environment and customer choice; and

Whereas, KUB customers have previously shown great support for electric vehicles as evidenced by their participation in the EV rebate program; and

Whereas, KUB desires to be one of the first local power companies in the Tennessee Valley to provide the EVC Rate to its customers; and

Whereas, the Board previously adopted Resolution 1060, as heretofore amended, providing rate schedules for the Electric Division of KUB; and

Whereas, the Board has determined, upon recommendation from KUB staff, that it is in the best interest of KUB, its customers, and the community to participate in TVA's EVC Rate; and

Whereas, in accordance with Section 1107(L) of the Charter, KUB has provided the required public notice of not less than five (5) days prior to a meeting of the Board when a rate change is to be considered.

Now, Therefore, Be It Hereby Resolved by the Board of Commissioners of the Knoxville Utilities Board as Follows:

Section 1. That the Board hereby authorizes KUB's participation in TVA's EVC Rate.

Section 2. That the President and CEO is hereby authorized on behalf of KUB to enter any agreements or take any actions reasonably necessary for KUB and its customers to participate in the EVC Rate.

Section 3. That the rate schedules of the Electric Division as set forth in section 1 of Resolution No. 1060, as heretofore amended, be amended to include a rate schedule for EVC, as set forth in Exhibit A to this Resolution, to be effective April 1, 2021.

Jerry Askew/s
Jerry Askew, Chair

Mark Walker/s
Mark Walker, Board Secretary

APPROVED ON 1st
READING: 2-18-21
APPROVED ON 2nd
READING: 3-11-21
EFFECTIVE DATE 4-1-21
MINUTE BOOK 43 PAGE 10537-10543

**RESOLUTION 1432
EXHIBIT A
EVC RATE SCHEDULE OF THE ELECTRIC DIVISION
EFFECTIVE APRIL 1, 2021**

ELECTRIC VEHICLE CHARGING POWER RATE - SCHEDULE EVC

Availability

This rate shall exclusively apply to separately metered charging stations for electric vehicles where the charging station's demand is greater than 50 kW but not more than 5,000 kW.

All customers participating under this rate schedule shall agree to a full requirements service from KUB. In addition, customers must agree that the sole use of the electric service is for the purpose of charging electric vehicles used for transportation purposes only.

Unless otherwise provided for in a written agreement between TVA and KUB, the customer's "meter-reading time" shall be 0000 hours Central Standard Time (CST) or Central Daylight Time (CDT), whichever is currently effective, on the first day of the calendar month following the month for which a bill under this rate schedule is being calculated.

Character of Service

Alternating current, single- or three-phase, 60 hertz. Power shall be delivered at a transmission voltage of 161 kV or, if such transmission voltage is not available, at the highest voltage available in the vicinity, unless at the customer's request a lower standard voltage is agreed upon.

Base Charges

Customer Charge: \$100 per delivery point per month

Energy Charge:

All Seasons:

Onpeak 14.225¢ per kWh per month for all metered onpeak kWh, plus

Offpeak 14.225¢ per kWh per month for all metered offpeak kWh, plus

Distribution Delivery Charge: 8.219¢ per total metered kWh per month

Adjustment

Charges under this rate schedule may be increased or decreased to reflect changes in purchased power costs as determined by any purchased power adjustment adopted by the Board.

Facilities Rental Charge

Where the charging station's demand is greater than 50 kW, but not more than 1,000 kW, there shall be no facilities rental charge under this rate schedule.

Where the charging station's demand is greater than 1,000 kW there shall be no facilities rental charge under this rate schedule for delivery at bulk transmission voltage levels of 161 kV or higher. For delivery at less than 161 kV, there shall be added to the customer's bill a facilities rental charge. This charge shall be 37¢ per kW per month except for delivery at voltages below 46 kV, in which case the charge shall be 97¢ per kW per month for the first 10,000 kW and 76¢ per kW per month for the excess over 10,000 kW. Such charge shall be applied to the higher of (1) the highest billing demand established during the latest 12-consecutive-month period or (2) the customer's currently effective onpeak or offpeak contract demand, whichever is higher, and shall be in addition to all other charges under this rate schedule, including minimum bill charges.

Reactive Demand Charges

If the reactive demand (in kVAR) is lagging during the 30-consecutive-minute period beginning or ending on a clock hour of the month in which the customer's highest metered demand occurs, there shall be added to the customer's bill a reactive charge of \$1.46 per kVAR of the amount, if any, by which the reactive demand exceeds 33 percent of such metered demand. If the reactive demand (in kVAR) is leading during the 30-consecutive-minute period beginning or ending on a clock hour of the month in which the customer's lowest metered demand (excluding any metered demands which are less than 25 percent of the highest metered demand) occurs, there shall be added to the customer's bill a reactive charge of \$1.14 per kVAR of the amount of reactive demand. Such charges shall be in addition to all other charges under this rate schedule, including minimum bill charges.

Determination of Seasonal Periods

Summer Period shall mean the June, July, August, and September billing months. Winter Period shall mean the December, January, February, and March billing months. Transition Period shall mean the April, May, October, and November billing months. The Seasonal Periods under this rate schedule are subject to change by KUB. In the event KUB determines that changed Seasonal Periods are appropriate, such decision shall be made at least 11 months prior to the effective date

of such changed periods, and KUB shall promptly notify customer.

Determination of Onpeak and Offpeak Hours

Except for Saturdays, Sundays, November 1, and the weekdays that are observed as Federal holidays for New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day, onpeak hours for each day shall for purposes of this rate schedule be from 1 p.m. to 7 p.m. during the months of April, May, June, July, August, September and October and from 4 a.m. to 10 a.m. during the months of January, February, March, November, and December. For all other hours of each day and all hours of such excepted days shall be offpeak hours. Such times shall be CST or CDT, whichever is then in effect. Said onpeak and offpeak hours are subject to change by KUB. In the event KUB determines that such changed onpeak and offpeak hours are appropriate, such decision shall be made at least 11 months prior to the effective date of such changed hours, and KUB shall promptly notify customer.

Determination of Onpeak and Offpeak Demands, Maximum Metered Demand, and Energy Amounts

The onpeak and offpeak kWh for any month shall be the energy amounts taken during the respective hours of the month designated under this rate schedule as onpeak and offpeak hours; provided, however, that notwithstanding the metered energy amount, the Distribution Delivery energy for any month shall in no case be less than the product of (1) the maximum billing demand as calculated in the paragraph below and (2) 37 hours (reflecting a 5 percent load factor applied to the average number of hours in a month).

KUB shall meter the onpeak and offpeak demands in kW of all customers taking service under this rate schedule. The onpeak metered demand and offpeak metered demand for any month shall be determined separately for the respective hours of the month designated under this rate schedule as onpeak and offpeak hours and, in each case, shall be the highest average during any 30-consecutive-minute period beginning or ending on a clock hour.

Except as provided below, (1) the onpeak billing demand shall be the highest onpeak metered demand in the month, (2) the offpeak billing demand shall be the highest offpeak metered demand in the month, and (3) the maximum billing demand shall be the higher of the onpeak billing demand or offpeak billing demand in the month.

The onpeak billing demand shall in no case be less than the sum of (1) 30 percent of the first 5,000 kW and (2) 40 percent of any kW in excess of 5,000 kW of the higher of the currently effective onpeak contract demand or the highest onpeak billing demand established during the preceding 12 months.

The offpeak billing demand shall in no case be less than the sum of (1) 30 percent of the first 5,000 kW and (2) 40 percent of any kW in excess of 5,000 kW of the higher of the currently effective offpeak contract demand or the highest offpeak billing demand established during the preceding 12 months.

Minimum Bill

The monthly bill under this rate schedule, excluding any facilities rental charges and any reactive charges, shall not be less than the sum of (1) the base customer charge, (2) the base onpeak energy charge, as adjusted, applied to the customer's onpeak energy takings, (3) the base offpeak energy charge, as adjusted, applied to the customer's offpeak energy takings, and (4) the base distribution delivery charge applied to the higher of the customer's total energy takings or the minimum energy takings amount provided for in the first paragraph of the section of this rate schedule entitled "Determination of Onpeak and Offpeak Demands, Maximum Metered Demand, and Energy Amounts."

KUB may require minimum bills higher than those stated above.

Contract Requirement

All customers shall be required to execute contracts and such contracts shall be for an initial term of at least 1 year. The customer shall contract for its maximum requirements, which shall not exceed the amount of power capable of being used by customer, and KUB shall not be obligated to supply power in greater amount at any time than the customer's currently effective contract demand. The customer is prohibited from using any power other than that supplied by KUB under this rate schedule. The contract may include other special provisions. The rate schedule in any power contract shall be subject to adjustment, modification, change, or replacement from time to time as approved by the Board.

After having received service for at least 1 year under this rate schedule, the customer, subject to 90 days prior written notice and appropriate amendments in its power contract with KUB, may receive service under the General Power Rate - Schedule GSA. In such case the term of the power contract shall remain the same and the contract demand for service under the General Power Rate - Schedule GSA shall not be less than the contract demand in effect when service was taken under this rate schedule.

Single-Point Delivery

The charges under this rate schedule are based upon the supply of service through a single delivery and metering point, and at a single voltage. If service is supplied to the same customer through more than one point of delivery or at different voltages, the supply of service at each delivery and metering point and at each different voltage shall be separately metered and billed.

Rules and Regulations

Service is subject to Rules and Regulations of KUB.

RESOLUTION NO. 1433

A Resolution Authorizing the Filing of a Fiber to the Home Business Plan with the Office of the Comptroller of the Treasury for the State of Tennessee

Whereas, Knoxville Utilities Board (“KUB”), a municipal utility created pursuant to the Charter of the City of Knoxville (“City”), provides electric, natural gas, water, and wastewater services to the greater Knoxville area and in parts of seven surrounding counties; and

Whereas, KUB has authority under the laws of the State of Tennessee and the Charter of the City to provide cable television, internet service, and other related services (collectively defined as “broadband services”) to its customers located within the boundaries of KUB’s electric system service territory; and

Whereas, the Mayor of the City previously requested KUB assess the feasibility of providing broadband services to its customers located within the boundaries of its electric system service territory; and

Whereas, KUB has completed a feasibility study, including a public survey of its customers, and prepared a business plan for offering broadband services; and

Whereas, KUB staff reviewed the business plan with the KUB Board of Commissioners at the Board’s meeting of March 11, 2021; and

Whereas, Tennessee Code Annotated, Title 7, Chapter 52, Part 6 requires broadband business plans be submitted to the Tennessee Comptroller of the Treasury for review prior to the provision of broadband services.

Now, Therefore, Be It Hereby Resolved by the Board of Commissioners of the Knoxville Utilities Board as Follows:

Section 1. The Fiber to the Home Business Plan dated March 12, 2021, attached hereto as an exhibit to this resolution, prepared by KUB management for the offering of cable service, two-way video transmission, video programming, Internet services, and other like service, is hereby approved for filing with the Tennessee Comptroller of the Treasury.

Section 2. The President and CEO, or his designee, is authorized and directed to submit the aforementioned Fiber to the Home Business Plan to the Tennessee Comptroller of the Treasury for review and analysis.

Section 3. That this resolution shall take effect immediately upon passage.

Jerry Askew/s
Jerry Askew, Chair

Mark Walker/s
Mark Walker, Board Secretary

APPROVED ON 1st
READING: 3-11-2021
EFFECTIVE DATE 3-11-2021
MINUTE BOOK 43 PAGE 10544-10567



Knoxville Utilities Board

The background of the entire page is a photograph of a cityscape at sunset or sunrise. The sky is a mix of blue, orange, and pink. In the foreground, a street with a white car is visible. In the middle ground, there are several buildings, including a prominent brick church with a tall steeple on the left. In the background, more city buildings and hills are visible under the colorful sky.

Fiber to the Home Business Plan

Submitted to Comptroller of the Treasury
for the State of Tennessee
March 12, 2021

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Introduction

Knoxville Utilities Board (KUB), an independent agency of the City of Knoxville, provides electric, natural gas, water, and wastewater services to more than 468,000 customers in Knoxville and parts of seven surrounding counties.

KUB's electric system spans more than 688 square miles and serves more than 210,000 customers each day. In order to meet the changing needs and expectations of its customers, KUB will need to make upgrades on its electric grid and implement innovative technologies that improve reliability and efficiency.

Many of the applications needed for these improvements depend on fast and reliable communication throughout the service territory that can be best provided by an extensive fiber system.

The future of KUB's electric grid depends upon fiber.

In addition to improving the KUB's electric system, the electric fiber network required for these systems would position KUB to be able to provide broadband services to meet the growing needs of its customers and community.

Since its inception, KUB has been committed to serving its customers and improving their quality of life by providing utility services that are safe, reliable, and affordable. In 2020, that mission became more important than ever. With the world facing a global pandemic, the necessity of vital utilities became much more apparent to utility providers, local and state governments, and customers.

The COVID-19 pandemic also highlighted the Knoxville community's reliance on high-speed broadband services. As the need for remote learning and work rose quickly, so did the demand for high-speed internet. The gaps in current services became evident, as that demand was not met in many households and entire communities, especially in rural areas. These needs and others generated interest in KUB's research from both local and state government officials.

In 2019, KUB recognized there was a potential need for expanded internet access in its community and decided to conduct a feasibility study to provide fiber-based internet, television, and voice services to customers in the electric service area. In July 2020, in the context of the pandemic, KUB conducted a Purchase Intent Survey to assess community needs for high-speed broadband, current satisfaction with existing providers, and potential success of KUB becoming a new entrant into the broadband service market.

The results of that survey (highlighted in detail in this report) emphasized that KUB's electric service territory has a need for increased internet access and that there is a desire for KUB to provide high-speed fiber internet. KUB is also uniquely positioned to provide these services due to recent or planned infrastructure upgrades.

It also became apparent through the survey that many customers, even those who live in densely populated areas, have access to only one provider. Many of those providers are unable to offer symmetrical upload and download speeds, meaning the upload speed is significantly slower than download speeds. This symmetry is something that KUB customers desire and something that KUB would be positioned to offer.

Customers have also recognized that both large and small municipalities across Tennessee offer broadband as a utility service and increasingly expect KUB to take the same position. They, like local government officials and interest groups, recognize the potential economic growth benefits experienced by similar-sized cities in East Tennessee and beyond who have chosen to provide this service.

KUB understands the issues facing our customers and understands their desire to have reliable, fast, and widely available internet service. KUB is also uniquely positioned to provide these services due to infrastructure upgrades that are planned or have already been implemented.

KUB's Grid Modernization: Positioned for Success

KUB's electric system serves a 688-square-mile service area and relies on 5,408 miles of service lines to serve approximately 210,000 customers.

In recent years, KUB's "Century II" capital program has focused on making proactive upgrades and repairs to infrastructure in each of its four utility systems. For the electric system, that means improvements to existing infrastructure and the addition of new technology to modernize the electric system and improve reliability.

In 2015, KUB launched a Grid Modernization effort that included the replacement of all KUB's electric, gas, and water meters with advanced meters. The deployment of advanced meters throughout KUB's service territory was completed in 2020 and is currently utilizing 150 miles of a planned 300 miles of high-speed fiber optic cable. This cable serves as a "backbone" for information sharing across the electric system and connects much of KUB's critical infrastructure, including all of KUB's 72 electric substations.

During the same period, KUB began a pilot of Fault Location Isolation and Restoration (FLISR) devices, a distributed automation technology, to improve electric reliability. The FLISR pilot has also proven successful, with an average improvement in reliability of 40 percent on circuits, reducing customer outage times by 1.8 million minutes in fiscal year 2020 where FLISR technology has been installed. Like the advanced meters, these devices depend on timely and reliable communication and utilize KUB's existing broadband infrastructure.

The success of the FLISR pilot has led to the expansion of the program, and KUB will have installed more than 80 devices on its electric system by the end of February 2021. KUB plans to continue to make improvements to its grid by expanding the reach of FLISR and other applications that improve efficiency and reliability, meeting its customers' needs and offering them more control over their utility experience.

The Future of KUB's Grid

The future of KUB's electric grid depends upon fiber.

Fiber infrastructure plays a critical role for future system applications that require low latency and high reliability communication to make real-time decisions for the electric grid.

Over the next several years, KUB plans to expand its FLISR program from 80 to 1,200 devices across the electric distribution system. These devices will be connected by fiber to create a self-healing, high reliability electric system. In FY 2021 alone, these investments are projected to reduce customer outage

time by 2.1 million minutes. KUB expects reliability to increase year-over-year with the installation of new devices and the expansion of the fiber network.

The reliability and speed offered by an expansive fiber network will position KUB to begin to pilot new applications enhancing operational, financial, and environmental benefits to the electric distribution system.

Fiber infrastructure plays a critical role for future system applications that require low latency and high reliability communication to make real-time decisions for the electric grid. It will eventually connect all KUB infrastructure and improve the reliability of KUB's Supervisory Control and Data Acquisition (SCADA) network.

The electric system will also use the fiber infrastructure to improve communications for Distributed Energy Resources (DER). Solar generating partners are the main provider of these resources today, but this infrastructure would also provide communications for future types of generation. These intelligent controllers will provide real-time visibility to distributed generation devices which would reduce peak demand loads on the electric grid. These devices would also provide an added level of safety to our crews by allowing remote disconnection of these DERs in restoration efforts.

The fiber system will also allow KUB to operate a more efficient electric system, saving energy and money, by allowing Volt/VAR Optimization applications to be deployed onto KUB's electric infrastructure. Based on the successes of other distributors within the TVA service territory, KUB plans to pilot Volt/VAR applications on its own electric system as the fiber network expands.

Finally, the fiber infrastructure will position KUB to implement Demand Response (DR) programs on the electric system and offer customers controllable thermostats, water heaters, and other heavy electric load devices within their homes. These devices reduce peak demand loads on the electric grid and can reduce peak power generation, which ultimately has environmental benefits.

The electric system will use the fiber infrastructure to provide options for our next generation Automated Metering Infrastructure (AMI). KUB has already implemented a wireless AMI solution, which will benefit from the fiber infrastructure. Each AMI base station will be equipped with reliable and low-latency connectivity, improving performance of this network. Having a fiber infrastructure in place provides ultimate flexibility for the next generation of AMI for KUB customers.

The electric fiber network required for these systems positions KUB to be able to provide improved broadband services to meet the growing needs of its customers and community. The Gigabit-speed internet and other broadband services that KUB plans to offer at competitive rates will deliver greater value to its customers, and at the same time will generate new revenues for KUB to help offset the cost of its infrastructure upgrades to the further benefit of its electric utility customers.

Management Statement

KUB has prepared a business plan to provide fiber optic high-speed broadband services within the electric service area, financially separate from the electric, natural gas, water, and wastewater systems. KUB plans to use a third-party voice over IP provider to deliver service through access of KUB's fiber system. In order to show the net financial benefits to KUB of allowing a third-party voice over IP provider to utilize KUB's network, the business plan reflects revenues, collected for and the pass through of voice over IP telephone service costs from a third-party voice over IP provider. The business

plan meets the statutory conditions of T.C. A. 7-52-601. If approved, KUB plans to establish a fifth utility division and establish sufficient control against cross-subsidization of revenues/expenses with the other four utility divisions. The new Fiber Division will adhere to the same organizational policies as other KUB divisions and provide its own audited financial statements.

- ✓ The proposed business plan does not serve any area where a privately held cable television operator is providing cable services over a cable system and in total serves 6,000 or fewer subscribers over one or more cable systems.
- ✓ The proposed business plan does not serve any area where there is an existing telephone cooperative that has been providing cable service for not less than ten (10) years under the authority of the Federal Communications Commission.

As per T.C.A. 7-52-602, KUB's Board of Commissioners provided approval through resolution for submittal of the business plan to the State of Tennessee Comptroller of the Treasury on March 11, 2021. A copy of the resolution can be found in the business plan's appendix.

Also included in the business plan's appendix, are KUB's most current audited consolidated financial statements for the year ended June 30, 2020.

Knoxville Utilities Board of Commissioners:

The Reverend Dr. Jerry Askew, Chair (jerry.askew@kub.org)
John Worden, Vice Chair (john.worden@kub.org)
Claudia Caballero (claudia.caballero@kub.org)
Kathy Hamilton (kathy.hamilton@kub.org)
Celeste Herbert (celeste.herbert@kub.org)
Adrienne Simpson-Brown (adrienne.simpson-brown@kub.org)
Tyvi Small (tyvi.small@kub.org)

Senior Executive Management:

Gabriel Bolas II, President and Chief Executive Officer (bolas@kub.org)
Eddie Black, Senior Vice President and Chief Technology Officer (black@kub.org)
Susan Edwards, Senior Vice President and Chief Administrative Officer (edwards@kub.org)
Derwin Hagood, Senior Vice President of Operations (hagood@kub.org)
Tiffany Martin, Vice President and Chief Customer Officer (martin@kub.org)
Mark Walker, Senior Vice President and Chief Financial Officer (walker@kub.org)
John Williams, Senior Vice President of Engineering and Construction (williams@kub.org)

KUB's Commissioners and Mr. Bolas can be contacted by mail at P.O. Box 59017, Knoxville, Tennessee 37950.

Product Offerings

KUB's Purchase Intent Survey of potential broadband customers highlighted that customer service, reliability, and speed were the main attributes upon which they valued their broadband service. Prices paid for existing service were on average \$76 while the median payment was \$60. A variety of download speeds are available in the market and most consumers have access to a maximum download speed of 400 Mbps. Most internet packages do not have symmetrical upload speeds and most do not exceed 20 Mbps.

Responses to the survey showed that more than 76 percent of responders were interested in KUB providing service and more than 50 percent of the responses stated they would consider switching to a KUB product at a similar price as their current provider.

Based upon this information, KUB has positioned a product lineup that provides superior speeds while maintaining a very competitive market value.

KUB's proposed residential internet services begin at 1 Gbps for both download and upload speeds. The price of \$64.99/month is below the average price of existing competitors and at the entry level of one gigabit speeds, well over the current market's maximum offerings. KUB also seeks to provide an enhanced customer experience with the managed router service that provides optimization of wi-fi service through local technical support.

KUB RESIDENTIAL INTERNET SERVICES	PRICING
RESIDENTIAL 1.0 GBPS	\$ 64.99 monthly
RESIDENTIAL 2.5 GBPS	\$149.99 monthly
RESIDENTIAL MANAGED ROUTER	\$ 14.99 monthly

KUB also plans to provide internet services to business customers ranging from a basic 500 Mbps data symmetrical service for small businesses to professional data services with managed routers beginning at \$899.99 monthly for 1 Gbps symmetrical service. Similar to KUB's residential products, KUB seeks to provide business internet services with superior speeds at a competitive market value. KUB also seeks to provide an enhanced customer experience with the managed router service that provides dedicated local technical support to business internet customers. Professional engineered internet services will include guaranteed service response times and custom solutions based on customer needs.

KUB BUSINESS INTERNET SERVICES	PRICING
BUSINESS 500 MBPS	\$ 84.99 monthly
BUSINESS 1.0 GBPS	\$149.99 monthly
BUSINESS MANAGED ROUTER	\$ 19.99 monthly
BUSINESS PROFESSIONAL 1.0 GBPS	\$899.99 monthly*

**starting rate*

The market for voice over IP and land line telephone has declined with the growth of cellular services over the last decade, especially in customers under the age of 65. Approximately 42 percent of KUB's customers indicated they have a traditional home telephone. Most of those customers pay less than \$35 a month for phone services. Long distance (LD) services are widely varied in the Knoxville market among eligible providers. However, most do provide an unlimited LD package. KUB plans to contract with a third-party voice over IP provider that will utilize KUB's broadband network to provide standard features including caller identification and call waiting as part of the phone service.

VOIP RESIDENTIAL PHONE SERVICES	PRICING
120 MIN LONG DISTANCE	\$30 monthly
UNLIMITED LONG DISTANCE	\$40 monthly

Surveyed KUB customers indicated that reliability and a variety of programming were important aspects of television service. Customers also indicated that pricing was a determinant for low customer satisfaction. The average monthly residential customer payment for television services is \$103. KUB's business plan does not reflect any margin from sales of television services. The prices listed below are starting competitive rates and would reflect the flow through of changes in wholesale costs in future years. KUB acknowledges the likelihood that wholesale television costs increase at an average of 8 - 10% increase annually. Therefore, retail rates would likely also rise in response. For purposes of the business plan the retail rate and correlating cost of service are held flat due to the unknown potential increase in wholesale cost in the future.

KUB TELEVISION SERVICES	PRICING
BRONZE 22 CHANNELS	\$24 monthly
SILVER 95 CHANNELS	\$76 monthly
GOLD 155 CHANNELS	\$94 monthly

In KUB's product model, any electric system customer that desires voice over IP or television services would be required to purchase internet services. However, electric system customers may choose to have internet services without any other product offering. Pricing for bundled services would be derived from aggregate pricing given that phone and television services can only be purchased with internet services.

Competitive Environment

While the majority of the KUB Electric service territory has access to broadband service, many consumers have only a single provider. For both internet and television services, Comcast/Xfinity is the leading provider in the Knoxville market followed by AT&T. This limited competition and the demand for choice was evident in the results of KUB's Purchase Intent Survey. More than half the customers surveyed indicated they purchased internet services from Comcast/Xfinity and a large majority of those customers would be interested in purchasing internet services from KUB if pricing was comparable. Nearly 80 percent of customers surveyed were interested in KUB becoming an option for providing broadband services.

Shown below are current residential retail rates from existing providers and proposed KUB products for comparison. These figures were gathered in the Winter of 2021 (promotional discounts and other fees and charges not reflected). Note that some providers only serve a small portion of KUB's overall electric service territory.

PROVIDER ORDER BY MARKET SHARE	300 MBPS INTERNET ONLY	1,000 MBPS INTERNET ONLY
KUB (PROPOSED)	N/A	\$64.99
COMCAST/XFINITY	\$96 (400 MBPS)	\$116
AT&T	\$65	\$80
WOW!	\$59.99 (500 MBPS)	\$79.99
SPECTRUM	\$69.99 (400 MBPS)	\$129.99
TDS	\$72.95	\$112.95

PROVIDER ORDER BY MARKET SHARE	300 MBPS INTERNET & AVERAGE TV	1,000 MBPS INTERNET & AVERAGE TV
KUB (PROPOSED)	N/A	\$140.99
COMCAST/XFINITY	\$146 (400 MBPS)	\$166
AT&T	\$168	\$183
WOW!	N/A	N/A
SPECTRUM	\$159.98 (400 MBPS)	\$219.98
TDS	\$127.95	\$167.95

PROVIDER ORDER BY MARKET SHARE	300 MBPS INTERNET, AVERAGE TV & PHONE	1,000 MBPS INTERNET, AVERAGE TV & PHONE
KUB (PROPOSED)	N/A	\$170.99
COMCAST/XFINITY	\$156 (400 MBPS)	\$176
AT&T	N/A	N/A
WOW!	N/A	N/A
SPECTRUM	\$169.98 (400 MBPS)	\$229.98
TDS	\$152.95	\$192.95

KUB believes that offering a high-speed internet service with symmetrical download and upload speeds with no limit on data usage will differentiate KUB's service from existing providers. Incumbent providers do not offer these attributes and, as such, KUB's products provide a distinct and unique choice for service in the Knoxville area. These product attributes, along with competitive pricing, position KUB's products well in the competitive environment.

Municipal providers of broadband services in the region have experienced take rates between 50 and 70 percent. In addition, KUB's survey results indicated that 80 percent of respondents are interested in KUB providing broadband services. More than 50 percent of survey responders indicated that with a similar price and product they would switch internet service to KUB. KUB anticipates up to a 50 percent take rate for electric system customers as fiber broadband services become available similar to our peers. KUB anticipates a competitive response to KUB broadband services. Thus, financial projections included in this business plan are based on a conservative 35 percent take rate.

Leading providers in the market often provide promotional discounts for the first year of service. While KUB does not anticipate promotional pricing, the retail rate listed above remains competitive with the market. In addition, many competitors have added costs such as equipment rental, broadcast and sports television fees, and taxes not reflected in the retail rates listed above. KUB anticipates the pass through of taxes only to the retail customer. As a result, the billed rates to customers are anticipated to be at or below the leading providers in the market.

There are areas in our service territory that do not have access to wired internet service because it is not currently economically feasible for the incumbent providers to extend their systems into those areas. There are several examples that have been reported to KUB through our research where the cost to serve individual residences is simply not feasible in the current competitive environment. Details presented in this business case position KUB to serve these customers.

Marketing Plan

KUB's Communications Department, three planned full-time marketing employees, and senior management will execute a marketing plan building on KUB's brand of reliable and affordable services. KUB will launch a marketing program in the fall of 2022 and has budgeted \$12 million over the seven year build out period to fund the program.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
\$ 800,000	\$ 1,900,000	\$ 2,100,000	\$ 2,100,000	\$ 1,800,000	\$ 1,600,000	\$ 1,800,000

KUB will begin to build an awareness campaign in the months leading up to the onset of construction of the broadband system. Existing print and digital platforms – including KUB customer bills, KUB's customer website, Facebook, Instagram, Twitter, and Nextdoor pages – will be used to promote the benefits of KUB fiber, including and not limited to highlighting the community and commercial benefits.

KUB will also work with community partners and utilize existing media partnerships to increase awareness and brand visibility in its electric service territory.

As the system is built, and fiber services become available, KUB will use targeted print and digital advertising to reach customers who are eligible to begin services. A series of concurrent campaigns will be used to focus on the areas where KUB fiber is available through targeted digital advertisements, paid and targeted social media placement, and print bill messaging.

KUB will also use traditional media, like local newspapers and broadcast networks, to advertise KUB broadband internet services. Well-designed print advertisements will be placed in local business journals and a variety of 30-second television commercials will be aired on stations in the Knoxville market, highlighting benefits to both commercial and residential customers.

Direct sales employees will contact newly eligible customers as the system grows to ensure each potential fiber customer understands the capability and benefits of the new product. In total, KUB anticipates the addition of 15 full-time sales employees during the peak of the build out period.

As the system is completed and becomes more universally available, KUB will run consistent campaigns on the previously mentioned platforms to highlight promotions and packages available to eligible customers. KUB will also expand campaign platforms to include billboards, signage, and partnerships that are visible to customers in the fiber service territory. Each message will include a call to action to visit KUB's customer website where they can easily browse packages and sign up for services.

To supplement the newly hired marketing and sales teams, KUB customer service representatives and employees will be educated to share information about the benefits of KUB broadband services and to help promote the products at work and in the community.

Fiber to Home Business Plan

Cost Benefit Analysis

KUB's Fiber Division will provide internet service to both residential and commercial customers with voice over IP and television as optional additional services for residential customers. KUB plans to use a third-party provider for hosting of services. KUB has projected a 35 percent take rate among its electric system residential customers, but market analysis indicates that take rates approaching 50 percent are likely. Projected annual revenue for the Fiber Division is shown below:

Year	Revenue	Internet Customer Count
Year 1	\$4.4 million	6,150
Year 2	\$17.8 million	18,500
Year 3	\$36.4 million	32,000
Year 4	\$55.8 million	45,600
Year 5	\$73.7 million	57,350
Year 6	\$87.2 million	65,000
Year 7	\$96.3 million	70,700

Capital investment for the Fiber Division for communication components of the fiber network totaling \$18.3 million will be made over the seven year build out period. In addition, the Fiber Division will incur Operation and Maintenance (O&M) expenditures estimated at \$337.8 million over the same period which are explained in the sections below. Projections indicate that break even will occur in year eight as cumulative revenues exceed cumulative expenditures.

Cost Allocation

In addition to direct O&M expenditures, KUB's Fiber Division will pay Access and Electric Distribution System Utilization Fees to the Electric Division.

The access fee allocation is derived from the proportional share of fiber related depreciation, O&M expenses, tax equivalents, and cost of capital of the Electric Division based on customer count for each system. (Further detail can be found in the financial statement section)

Fiber Division Access Fee Calculation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Total Expense to Allocate	\$ 4,502,621	\$ 10,274,028	\$ 17,683,086	\$ 24,933,190	\$ 31,825,810	\$ 37,933,881	\$ 44,599,813
Electric Portion of the Costs	4,277,627	8,888,196	13,968,316	18,145,484	21,752,058	24,997,903	28,691,830
Fiber Division Access Fees	224,993	1,385,832	3,714,771	6,787,705	10,073,752	12,935,977	15,907,982
	<u>\$ 4,502,621</u>	<u>\$ 10,274,028</u>	<u>\$ 17,683,086</u>	<u>\$ 24,933,190</u>	<u>\$ 31,825,810</u>	<u>\$ 37,933,881</u>	<u>\$ 44,599,813</u>

KUB's Electric Division will initially use fiber for services at the retail customer level to test and pilot various electric system applications utilizing the fiber network and for other electric system uses outlined in the Introduction section above. KUB's Fiber Division is initially projected to pay the Electric Division 100 percent of annual depreciation for services and the correlating tax equivalents as part of the access fee calculation. However, as the services are more fully utilized by metering or other applications in the future, the proportional shares to the Fiber Division and the Electric Division will be re-evaluated.

Fiber Division Access Fee Calculation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
PILOTs Services	-	131,346	465,848	813,016	1,140,855	1,433,290	1,646,465
Annual Depreciation Services	237,600	850,813	1,507,863	2,152,370	2,754,827	3,234,465	3,798,941
Facilities Rent	27,094	27,094	27,094	27,094	27,094	27,094	27,094

The Electric Distribution System Utilization Fee is calculated at KUB's current \$36 annual pole attachment rate for each fiber related attachment. The electric distribution system utilization rate is derived from the approved Tennessee Valley Authority methodology reflecting depreciation and maintenance expenses of KUB's electric distribution system not related to wire, fiber, or conduit.

A projection of total fees paid to the Electric Division from the Fiber Division by fiscal year is shown below:

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Electric Access Fee Revenue	\$ 489,687	\$ 2,395,084	\$ 5,715,576	\$ 9,780,185	\$ 13,996,527	\$ 17,630,826	\$ 21,380,482
EL Distribution System Utilization Fee	\$ 390,204	\$ 1,099,800	\$ 1,962,036	\$ 2,862,036	\$ 3,473,460	\$ 4,229,532	\$ 5,030,928

KUB's Fiber Division will also pay its proportional share of shared expenses with KUB's other four divisions as explained in detail in the General and Administrative section below. KUB's Fiber Division will reflect the same allocation methodology of KUB's other utility divisions as part of KUB's existing financial controls and financial reporting requirements.

Operations

KUB will leverage experienced professionals and consultants to assist in guidance through the design and setup phase. KUB anticipates that early phases of plant construction will require heavy utilization of experienced third-party construction contractors with internal management oversight. As the build out continues into later phases, KUB will shift from relying heavily on third-party contractors to operations being primarily performed by KUB employees with supplemental support from third party contractors.

During the first year (phase 1), there will be four areas built to serve between 15,000 and 20,000 eligible customers. The infrastructure for the remaining 180,000 customers will be built over the next six years of deployment, which results in a seven-year deployment for our entire electric service territory.

Customer installations will be completed by an installation contractor through the seven-year deployment. Throughout the deployment, KUB will begin hiring KUB employee installation technicians that can install and troubleshoot customer issues. KUB seeks an appropriate balance of KUB employees and contractors that will support future installations and troubleshooting.

Upon the completion of the seven-year plant build, KUB anticipates that its electric system operations (including an expanded fiber network) would continue to be operationally managed and maintained with a combination of both employees and third-party hourly contract labor.

Staffing

With the establishment of the KUB Fiber Division, additional full-time positions in the areas of marketing, sales, technical support, field installations and information technology are planned. The fiber system will fund these new positions as they are directly related to service delivery to the fiber at home customer.

A summary of additional full-time positions to support the fiber system by fiscal year are listed below. A total of 111 full time positions are projected at full fiber deployment in year seven.

Fiber Staffing Plan	CY	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Marketing								
Manager		1						
Analyst		2						
Sales								
Supervisor			1					
Representative		3	7	1		-1		
Commercial Supervisor		1						
Commercial Representative		1	1	1				
Customer Service								
Supervisor		1						
Representative		1	2	3	2	1	1	2
Tech Support Supervisor		1		1				
Tech Support Rep		2	8	8	6	4	3	4
Enterprise Support Supervisor				1				
Enterprise Support Representative		1	2	3				
Field Installations & Repair								
Team Lead		1						
Supervisor			1	1	1			1
Technician		3	6	6	5	4	3	3
Information Technology								
Developer		2				-1		
Web Developer		1					-1	
Total	0	21	28	25	14	7	6	10
Cumulative Total	0	21	49	74	88	95	101	111

Sales

KUB plans to hire four experienced sales employees in the first year of system construction and increase the workforce through the first several years of service. The sales team will be responsible for customer outreach and engagement, building awareness, and adding customers to the KUB network.

The sales team will focus on both commercial and residential customers, supporting marketing efforts and ensuring customers are educated on their purchases, building lasting relationships. The team will use a combination of phone, digital, print, and personal outreach to promote residential and business packages.

The sales team will follow-up on leads generated by marketing campaigns and assist customers with service agreements. They will coordinate with construction team leads to have a detailed understanding of where new customers are being added, focusing their direct outreach in those areas.

General and Administrative

KUB's Fiber Division will participate in the allocation of shared expenditures for general and administrative services including accounting, information services, and human resources. The fiber system's proportional share will be derived from customer count annually until year eight where net assets and revenue from sales will also be a component of the allocation of shared expenses. Shown below are the projected proportional share of allocated expenditures for the Fiber Division by fiscal year.

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
\$ 557,310	\$ 2,287,200	\$ 4,104,030	\$ 5,407,020	\$ 7,383,241	\$ 8,186,882	\$ 9,019,503

The Fiber Division will also incur direct expenses to operate the system including installation of services inside the premise, customer operations, and sales. Reflected in the Fiber Division's direct expenses are salaries and benefits for approximately 107 full time employees at full build out in FY28. Shown below is the projected annual operation and maintenance expenditures for the fiber system by fiscal year (excluding cost of services for television and phone).

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
\$ 6,175,477	\$ 9,907,543	\$12,506,933	\$14,018,771	\$14,582,462	\$15,057,922	\$16,745,993

Network Construction

KUB anticipates more than 5,000 miles of fiber to be constructed by the Electric Division over the seven-year build out period. Most of the build will be aerial (80%) with a remainder of urban build out underground. Aerial construction costs include make ready and pole replacement expenditures for a small portion of the electric system. Capital investment for service installation will lag the build out of the fiber backbone in year one of the project.

Funding Proposal

The Fiber Division will invest \$18.3 million over the seven year build out period on communication equipment to enable fiber to home services.

The Fiber Division will incur approximately \$337.8 million in operating expenses over the seven year build out. Included in the operating expenses for the fiber system are access fee and electric distribution system utilization fees to the electric system annually that reflects its portion of depreciation, cost of capital, taxes, and distribution system maintenance. The fiber system will also contribute its proportional share of organizational shared expenses along with KUB's other divisions.

Taxes and tax equivalents are projected to be \$3.8 million for the fiber system over the seven year build out period. Reflected in projected taxes are Payment in Lieu of Taxes estimated at \$1.3 million over the same period.

Taxes and Equivalents	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
PILOTs on Net Plant	-	24,675	66,941	116,635	219,287	395,909	502,350

Franchise, excise, sales, and local privilege taxes will be paid by the Fiber Division similar to other providers of broadband services. KUB plans to directly flow through the cost for those taxes to the customer.

The Electric Division will provide \$35 million in loans to the Fiber Division over the first two years to fund capital and operational expenses with anticipated re-payment by full build out in year nine.

KUB's Fiber Division projected revenue is based on a 35 percent take rate for eligible electric system customers with all areas reached by the end of year seven. Combined projected customers by product service is shown below by fiscal year:

Video & Internet Services:	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Residential Video	3,345	9,938	16,948	23,817	29,475	32,891	35,182
Residential Internet	6,000	18,000	31,000	44,000	55,000	62,000	67,000
Residential Phone	1,646	4,892	8,345	11,730	14,520	16,207	17,340
Business Professional	-	5	10	15	20	25	30
Business Internet	165	498	1,001	1,677	2,358	3,045	3,737
Total Fiber Division Customers	11,156	33,333	57,304	81,239	101,372	114,167	123,288

The associated projected revenue from sales for the Fiber Division is reflected below:

Video & Internet Services Revenue:	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Residential Video Bronze 22CH	120,470	478,380	968,281	1,468,148	1,919,301	2,246,093	2,451,638
Residential Video Silver 95CH	839,036	3,331,765	6,743,771	10,225,182	13,367,317	15,643,325	17,074,880
Residential Video Gold 155CH	377,356	1,498,459	3,033,007	4,598,770	6,011,943	7,035,577	7,679,417
Total Video	\$ 1,336,863	\$ 5,308,604	\$ 10,745,059	\$ 16,292,100	\$ 21,298,561	\$ 24,924,996	\$ 27,205,935
Residential Internet 1.0 GBPS	2,292,847	9,171,389	18,724,919	28,660,590	37,831,979	44,710,520	49,296,215
Residential Internet 2.5 GBPS	107,993	431,971	881,941	1,349,910	1,781,881	2,105,860	2,321,845
Managed Router Service	269,820	1,079,280	2,203,530	3,372,750	4,452,030	5,261,490	5,801,130
Total Res Internet	\$ 2,670,660	\$ 10,682,640	\$ 21,810,390	\$ 33,383,250	\$ 44,065,890	\$ 52,077,870	\$ 57,419,190
Residential Phone LD120	74,088	588,492	1,191,384	1,806,804	2,362,536	2,765,412	3,019,176
Residential Phone Unlimited	197,568	784,656	1,588,512	2,409,072	3,150,048	3,687,216	4,025,568
Total Res Phone	\$ 271,656	\$ 1,373,148	\$ 2,779,896	\$ 4,215,876	\$ 5,512,584	\$ 6,452,628	\$ 7,044,744
Business Internet 500 MBPS	58,913	236,582	534,881	955,703	1,440,170	1,928,465	2,420,617
Business Internet 1.0 GBPS	44,558	178,937	404,552	722,838	1,089,260	1,458,577	1,830,812
Business Managed Router for 1 G	2,375	11,952	26,431	45,888	65,499	85,265	105,187
Business Internet Professional 1.0 GBPS	-	27,000	81,000	135,000	189,000	243,000	297,000
	\$ 105,846	\$ 454,471	\$ 1,046,863	\$ 1,859,429	\$ 2,783,929	\$ 3,715,306	\$ 4,653,615
	\$ 4,385,025	\$ 17,818,863	\$ 36,382,208	\$ 55,750,654	\$ 73,660,964	\$ 87,170,800	\$ 96,323,484

Loans to Fiber Division

The Electric Division will loan the Fiber Division \$35 million over the first two years.

Year 1 - \$20 million

Year 2 - \$15 million

Use of Proceeds

The Fiber Division will use the \$35 million loan proceeds to fund the purchase of capitalized communication equipment, direct and shared operating expenses, taxes, and access and electric distribution system utilization fees to the Electric Division. The Fiber Division will pay monthly interest to the Electric Division estimated at \$7.8 million over the life of the loan, which will be repaid by June 2030. An interest rate of 3.6 percent was used that reflects the FY20 weighted average cost of debt for the Electric Division.

Loan Payback Schedule

Projected net income and cash position indicates that the Fiber Division will become cash solvent by year seven and will re-pay the loans to the Electric Division in year nine.

Year 2 - \$750 thousand

Year 3 - \$1.56 million

Year 4 - \$1.75 million

Year 5 - \$1.75 million

Year 6 - \$1.75 million

Year 7 - \$8.24 million

Year 8 - \$15 million

Year 9 - \$4.2 million

A copy of the Loan Amortization Schedule is included in Appendix D.

Fiber Division Proforma Financial Statements

The Fiber Division cash position and funds flow statements are shown below and reflects a total of \$35 million in interdivisional loans from the Electric Division.

KUB Fiber Division

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Beginning Cash Balance	\$ -	\$ 13,425,435	\$ 20,331,548	\$ 14,898,898	\$ 11,913,647	\$ 10,242,621	\$ 15,880,346	\$ 17,764,919	\$ 14,815,008	\$ 24,995,531
Total Sales Revenue	\$ 4,385,025	\$ 17,818,863	\$ 36,382,208	\$ 55,750,654	\$ 73,660,964	\$ 87,170,800	\$ 96,323,484	\$ 102,586,385	\$ 105,677,359	\$ 106,611,495
Cash Loan and Repayment	\$ 20,000,000	\$ 14,250,000	\$ (1,562,500)	\$ (1,750,000)	\$ (1,750,000)	\$ (1,750,000)	\$ (8,237,500)	\$ (15,000,000)	\$ (4,200,000)	\$ -
Total Cash Expenditures	\$ (10,959,590)	\$ (25,162,750)	\$ (40,252,359)	\$ (56,985,905)	\$ (73,581,990)	\$ (79,783,075)	\$ (86,201,411)	\$ (90,536,297)	\$ (91,296,836)	\$ (103,060,825)
Net Annual Cash Change	\$ 13,425,435	\$ 6,906,113	\$ (5,432,650)	\$ (2,985,250)	\$ (1,671,026)	\$ 5,637,725	\$ 1,884,573	\$ (2,949,912)	\$ 10,180,524	\$ 3,550,669
Total Net Cash Position	\$ 13,425,435	\$ 20,331,548	\$ 14,898,898	\$ 11,913,647	\$ 10,242,621	\$ 15,880,346	\$ 17,764,919	\$ 14,815,008	\$ 24,995,531	\$ 28,546,201

Fiber Division Proforma Cash Flow Statement

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Cash flows from operating activities										
Cash receipts from customers	\$ 4,385,025	\$ 17,818,863	\$ 36,382,208	\$ 55,750,654	\$ 73,660,964	\$ 87,170,800	\$ 96,323,484	\$ 102,586,385	\$ 105,677,359	\$ 106,611,495
Cash payments to suppliers	\$ (5,955,035)	\$ (13,747,023)	\$ (22,035,665)	\$ (29,622,473)	\$ (36,634,489)	\$ (41,378,248)	\$ (45,248,590)	\$ (49,071,304)	\$ (49,765,688)	\$ (50,099,471)
Cash payments to Electric Division (fees)	\$ (879,891)	\$ (3,494,884)	\$ (7,677,612)	\$ (12,642,221)	\$ (17,469,987)	\$ (21,860,358)	\$ (26,411,410)	\$ (28,192,287)	\$ (28,569,505)	\$ (28,862,614)
Cash payments to employees	\$ (2,223,277)	\$ (4,305,583)	\$ (6,154,326)	\$ (7,360,180)	\$ (8,007,921)	\$ (8,404,708)	\$ (9,272,685)	\$ (8,983,457)	\$ (9,137,070)	\$ (9,290,682)
Payment of taxes and in lieu of taxes	\$ (113,387)	\$ (251,500)	\$ (396,826)	\$ (516,575)	\$ (659,277)	\$ (863,585)	\$ (1,026,691)	\$ (1,064,903)	\$ (1,111,368)	\$ (1,156,722)
Net cash provided from operating activities	\$ (4,786,565)	\$ (3,980,127)	\$ 117,780	\$ 5,609,205	\$ 10,889,289	\$ 14,663,900	\$ 14,364,108	\$ 15,274,433	\$ 17,093,729	\$ 17,202,005
Cash flows from capital and related financing activities										
Net proceeds from interdivisional loan	\$ 20,000,000	\$ 15,000,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Principal payment on interdivisional loan	\$ -	\$ (750,000)	\$ (1,562,500)	\$ (1,750,000)	\$ (1,750,000)	\$ (1,750,000)	\$ (8,237,500)	\$ (15,000,000)	\$ (4,200,000)	\$ -
Interest payment on interdivisional loan	\$ (480,000)	\$ (1,071,000)	\$ (1,209,750)	\$ (1,147,875)	\$ (1,084,875)	\$ (1,021,875)	\$ (958,875)	\$ (662,325)	\$ (122,325)	\$ (0)
Acquisition and construction of fiber plant	\$ (1,308,000)	\$ (2,292,760)	\$ (2,778,180)	\$ (5,696,580)	\$ (9,725,440)	\$ (16,254,300)	\$ (3,283,160)	\$ (2,562,020)	\$ (2,590,880)	\$ (2,619,740)
Net cash used in capital and related financing activities	\$ (18,212,000)	\$ 10,886,240	\$ (5,550,430)	\$ (8,594,455)	\$ (12,560,315)	\$ (9,026,175)	\$ (12,479,535)	\$ (18,224,345)	\$ (6,913,205)	\$ (2,619,740)
Cash flows from investing activities										
Purchase of investment securities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (11,031,596)
Maturities of investment securities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interest received	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Net cash provided by (used in) investing activities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (11,031,596)
Net increase (decrease) in cash and cash equivalents	\$ 13,425,435	\$ 6,906,113	\$ (5,432,650)	\$ (2,985,250)	\$ (1,671,026)	\$ 5,637,725	\$ 1,884,573	\$ (2,949,912)	\$ 10,180,524	\$ 3,550,669
Cash and cash equivalents, beginning of year	\$ -	\$ 13,425,435	\$ 20,331,548	\$ 14,898,898	\$ 11,913,647	\$ 10,242,621	\$ 15,880,346	\$ 17,764,919	\$ 14,815,008	\$ 24,995,531
Cash and cash equivalents, end of year	\$ 13,425,435	\$ 20,331,548	\$ 14,898,898	\$ 11,913,647	\$ 10,242,621	\$ 15,880,346	\$ 17,764,919	\$ 14,815,008	\$ 24,995,531	\$ 28,546,201

KUB Fiber Division - Statement of Net Position

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Current Assets										
Cash	\$ 13,425,435	\$ 20,331,548	\$ 14,898,898	\$ 11,913,647	\$ 10,242,621	\$ 15,860,346	\$ 17,764,919	\$ 14,815,008	\$ 24,995,531	\$ 28,546,201
Operating Contingency Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 11,031,596
Capital Assets										
Plant in Service	\$ 1,308,000	\$ 3,600,760	\$ 6,378,940	\$ 12,075,520	\$ 21,800,960	\$ 28,055,260	\$ 31,338,420	\$ 33,900,440	\$ 36,491,320	\$ 39,111,060
Accumulated Depreciation	-	(52,320)	(196,350)	(451,508)	(814,529)	(1,426,567)	(2,228,778)	(3,162,314)	(4,198,332)	(5,337,985)
Total Assets	\$ 14,733,435	\$ 23,879,988	\$ 21,081,487	\$ 23,537,659	\$ 31,229,052	\$ 42,509,039	\$ 46,874,562	\$ 45,553,133	\$ 57,288,519	\$ 73,350,872
Other Liabilities										
Inter-divisional Loan	\$ 20,000,000	\$ 34,250,000	\$ 32,687,500	\$ 30,937,500	\$ 29,187,500	\$ 27,437,500	\$ 19,200,000	\$ 4,200,000	\$ 0	\$ 0
Total Liabilities	\$ 20,000,000	\$ 34,250,000	\$ 32,687,500	\$ 30,937,500	\$ 29,187,500	\$ 27,437,500	\$ 19,200,000	\$ 4,200,000	\$ 0	\$ 0
Net Position	\$ (5,266,565)	\$ (10,370,012)	\$ (11,606,013)	\$ (7,399,841)	\$ 2,041,552	\$ 15,071,539	\$ 27,674,561	\$ 41,353,133	\$ 57,288,519	\$ 73,350,872
Total liabilities and net position	\$ 14,733,435	\$ 23,879,988	\$ 21,081,487	\$ 23,537,659	\$ 31,229,052	\$ 42,509,039	\$ 46,874,562	\$ 45,553,133	\$ 57,288,519	\$ 73,350,872

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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Video & Internet Services Revenue:										
Residential Video Bronze 22CH	120,470	478,380	968,281	1,468,148	1,919,301	2,246,093	2,451,638	2,577,259	2,617,009	2,610,132
Residential Video Silver 95CH	839,036	3,331,765	6,743,771	10,225,182	13,367,317	15,843,325	17,074,880	17,949,785	18,226,631	18,178,739
Residential Video Gold 155CH	377,356	1,498,459	3,033,007	4,598,770	6,011,943	7,035,577	7,679,417	8,072,906	8,197,417	8,175,878
Total Video	\$ 1,336,863	\$ 5,308,604	\$ 10,745,059	\$ 16,292,100	\$ 21,298,561	\$ 24,924,996	\$ 27,205,935	\$ 28,599,949	\$ 29,041,057	\$ 28,964,749
Residential Internet 1.0 GBPS	2,292,847	9,171,389	18,724,919	28,660,590	37,831,979	44,710,520	49,296,215	52,353,344	53,711,092	54,135,410
Residential Internet 2.5 GBPS	107,993	431,971	881,941	1,349,910	1,781,881	2,105,860	2,321,845	2,465,836	2,529,785	2,549,771
Managed Router Service	269,820	1,079,280	2,203,530	3,372,750	4,452,030	5,261,490	5,801,730	6,160,890	6,320,668	6,370,602
Total Res Internet	\$ 2,670,660	\$ 10,682,640	\$ 21,810,390	\$ 33,383,250	\$ 44,065,890	\$ 52,077,870	\$ 57,419,190	\$ 60,980,070	\$ 62,561,546	\$ 63,055,782
Residential Phone LD120	74,088	588,492	1,191,384	1,806,804	2,362,536	2,765,412	3,019,176	3,174,624	3,224,362	3,216,685
Residential Phone Unlimited	197,568	784,656	1,588,512	2,409,072	3,150,048	3,687,216	4,025,568	4,232,832	4,299,149	4,288,913
Total Res Phone	\$ 271,656	\$ 1,373,148	\$ 2,779,896	\$ 4,215,876	\$ 5,512,584	\$ 6,452,628	\$ 7,044,744	\$ 7,407,456	\$ 7,523,511	\$ 7,505,598
Business Internet 500 MBPS	58,913	236,582	534,881	955,703	1,440,170	1,928,465	2,420,617	2,916,657	3,416,615	3,688,996
Business Internet 1.0 GBPS	44,558	178,937	404,552	722,838	1,089,260	1,458,577	1,830,812	2,205,987	2,584,127	2,790,139
Business Managed Router for 1 G	2,375	11,952	26,431	45,888	65,499	85,265	105,187	125,266	145,504	147,231
Business Internet Professional 1.0 GBPS	-	27,000	81,000	135,000	189,000	243,000	297,000	351,000	405,000	459,000
Total	\$ 105,846	\$ 454,471	\$ 1,046,863	\$ 1,859,429	\$ 2,783,929	\$ 3,715,306	\$ 4,653,615	\$ 5,598,910	\$ 6,551,246	\$ 7,085,366
Total	\$ 4,385,025	\$ 17,818,863	\$ 36,382,208	\$ 55,750,654	\$ 73,660,964	\$ 87,170,800	\$ 96,323,484	\$ 102,586,385	\$ 105,677,359	\$ 106,611,495

The Fiber Division Use of Proceeds is reflected below which includes fees paid to the Electric Division for interest and principal loan repayment, access fees, and electric distribution system utilization fees.

Fiber Division Use of Proceeds

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Capital										
Internet Communication Components	1,308,000	2,292,760	2,778,180	2,696,580	2,725,440	3,254,300	3,283,160	2,562,020	2,590,880	2,619,740
Real Property and Facility		3,000,000		3,000,000	7,000,000	3,000,000				
Total Capital	\$ 1,308,000	\$ 2,292,760	\$ 2,778,180	\$ 5,696,580	\$ 9,725,440	\$ 6,254,300	\$ 3,283,160	\$ 2,562,020	\$ 2,590,880	\$ 2,619,740
O&M Expenses										
Access Fee paid to Electric Division	489,687	2,395,084	5,715,576	9,780,185	13,996,527	17,630,826	21,380,482	23,161,359	23,538,577	23,831,686
EL Distribution System Utilization Fee	390,204	1,099,800	1,962,036	2,862,036	3,473,460	4,229,532	5,030,928	5,030,928	5,030,928	5,030,928
Telephone Cost of Goods Sold	108,662	549,259	833,969	1,264,763	1,378,146	1,613,157	1,549,844	1,629,640	1,504,702	1,501,120
Television Cost of Goods Sold	1,336,863	5,308,604	10,745,059	16,292,100	21,298,561	24,924,996	27,205,935	28,599,949	29,041,057	28,964,749
Allocated Expenses	557,310	2,287,200	4,104,030	5,407,020	7,383,241	8,186,882	9,019,503	11,507,641	11,760,770	12,013,899
Interest Expense on Loan	480,000	1,071,000	1,209,750	1,147,875	1,084,875	1,021,875	958,875	662,325	122,325	0
Direct O&M	6,175,477	9,907,543	12,506,933	14,018,771	14,582,462	15,057,922	16,745,993	16,317,531	16,596,228	16,910,386
Total O&M	\$ 9,538,203	\$ 22,618,490	\$ 37,077,352	\$ 50,772,750	\$ 63,197,273	\$ 72,665,190	\$ 81,891,560	\$ 86,909,374	\$ 87,594,588	\$ 88,252,767
Taxes and Equivalents										
PILOTs on Net Plant	-	24,675	66,941	116,635	219,287	395,909	502,350	549,153	579,875	609,207
Employer Portion of Taxes	113,387	226,825	329,885	399,941	439,990	467,676	524,341	515,749	531,493	547,515
Total Taxes and Equivalents	\$ 113,387	\$ 251,500	\$ 396,826	\$ 516,575	\$ 659,277	\$ 863,585	\$ 1,026,691	\$ 1,064,903	\$ 1,111,368	\$ 1,156,722
Total Cash Expenditures	\$ 10,959,590	\$ 25,162,750	\$ 40,252,359	\$ 56,985,905	\$ 73,581,990	\$ 79,783,075	\$ 86,201,411	\$ 90,536,297	\$ 91,296,936	\$ 92,029,229
Cash Reserves		750,000	1,562,500	1,750,000	1,750,000	1,750,000	8,237,500	15,000,000	4,200,000	\$ 11,031,596
Repayment of Debt to Electric										-
Total Cash Disbursements	\$ 10,959,590	\$ 25,912,750	\$ 41,814,859	\$ 58,735,905	\$ 75,331,990	\$ 81,533,075	\$ 94,438,911	\$ 105,536,297	\$ 95,496,936	\$ 103,060,825

Included in the Use of Proceeds statement above are Access and Electric Distribution System Utilization fees paid by the Fiber Division to the Electric Division annually. Shown below is the calculation of the annual fees.

Fiber Division Access Fee Calculation	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Total Gross Plant Fiber Services	7,200,000	25,782,200	45,692,823	65,223,320	83,479,598	98,014,095	115,119,423	119,514,473	123,057,114	126,674,151
Total Gross Plant EL Distribution System I	31,988,927	69,561,727	114,282,446	161,804,881	208,749,597	255,237,797	300,436,644	307,607,514	315,873,677	324,313,430
Total Accumulated Depreciation	972,714	3,103,084	7,393,416	14,117,083	23,344,105	34,928,554	48,937,007	64,898,451	81,263,636	98,078,830
Net Plant	\$ 38,216,213	\$ 92,240,843	\$ 152,581,853	\$ 212,911,118	\$ 268,885,090	\$ 318,323,338	\$ 366,619,059	\$ 362,223,536	\$ 357,667,156	\$ 352,908,751
Total CWIP	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Less: Capitalized interest	-	-	-	-	-	-	-	-	-	-
Net Value	\$ 39,216,213	\$ 93,240,843	\$ 153,581,853	\$ 213,911,118	\$ 269,885,090	\$ 319,323,338	\$ 367,619,059	\$ 363,223,536	\$ 358,667,156	\$ 353,908,751
Rate from Bond	0.04000	0.04000	0.04000	0.04000	0.04000	0.04000	0.04000	0.04000	0.04000	0.04000
Value of Money	\$ 1,568,649	\$ 3,729,634	\$ 6,143,274	\$ 8,556,445	\$ 10,795,404	\$ 12,772,934	\$ 14,704,762	\$ 14,528,941	\$ 14,346,686	\$ 14,156,350
EL O&M (Network Ops and Fiber Maint)	2,400,000	4,668,300	7,469,200	9,702,000	11,592,000	12,995,000	15,028,000	15,366,000	15,824,800	16,165,400
Annual Depreciation non Services	367,557	1,279,557	2,782,469	4,571,298	6,472,195	8,349,984	10,209,512	12,017,466	12,304,301	12,634,947
Property Tax Non Services	166,415	596,537	1,288,143	2,103,447	2,966,212	3,815,963	4,657,539	5,475,135	5,576,306	5,726,836
Total Expense to Allocate	\$ 4,502,621	\$ 10,274,028	\$ 17,683,086	\$ 24,933,190	\$ 31,825,810	\$ 37,933,881	\$ 44,599,813	\$ 47,387,542	\$ 48,052,093	\$ 48,683,533
Electric Portion of the Costs	4,277,627	8,888,196	13,968,316	18,145,484	21,752,058	24,997,903	28,691,830	30,094,744	30,507,494	30,955,411
Fiber Division Access Fees	224,993	1,385,832	3,714,771	6,787,705	10,073,752	12,935,977	15,907,982	17,292,798	17,544,599	17,728,122
\$ 4,502,621	\$ 10,274,028	\$ 17,683,086	\$ 24,933,190	\$ 31,825,810	\$ 37,933,881	\$ 44,599,813	\$ 47,387,542	\$ 48,052,093	\$ 48,683,533	\$ 48,683,533
PILOTs Services	-	131,346	465,848	813,016	1,140,855	1,433,290	1,646,465	1,897,490	1,905,999	1,896,223
Annual Depreciation Services	237,600	850,813	1,507,863	2,152,370	2,754,827	3,234,465	3,798,941	3,943,978	4,060,885	4,180,247
Facilities Rent	27,094	27,094	27,094	27,094	27,094	27,094	27,094	27,094	27,094	27,094
Electric Access Fee Revenue	\$ 489,687	\$ 2,395,084	\$ 5,715,576	\$ 9,780,185	\$ 13,996,527	\$ 17,630,826	\$ 21,380,482	\$ 23,161,359	\$ 23,538,577	\$ 23,831,686
EL Distribution System Utilization Fee	\$ 390,204	\$ 1,099,800	\$ 1,962,036	\$ 2,862,036	\$ 3,473,460	\$ 4,229,532	\$ 5,030,928	\$ 5,030,928	\$ 5,030,928	\$ 5,030,928
EL Reduction in O&M & CAP Expense	\$ 557,310	\$ 1,263,096	\$ 2,266,433	\$ 2,986,004	\$ 4,077,363	\$ 4,521,171	\$ 4,980,982	\$ 6,420,940	\$ 6,562,179	\$ 6,703,417
Total Cash Impact to Electric Division	\$ 1,437,201	\$ 4,757,981	\$ 9,944,045	\$ 15,628,225	\$ 21,547,351	\$ 26,381,529	\$ 31,392,392	\$ 34,613,227	\$ 35,131,684	\$ 35,566,031
Cash Paid to the Electric Division	\$ 879,891	\$ 3,494,884	\$ 7,677,612	\$ 12,642,221	\$ 17,469,987	\$ 21,860,358	\$ 26,411,410	\$ 28,192,287	\$ 28,569,505	\$ 28,862,614

Conclusion

KUB's proposed Fiber Division, with 35 percent market share, is projected to serve more than 70,000 homes and 4,500 businesses with internet, television, and voice services across the Knox County, Tennessee region and parts of seven surrounding counties. Full deployment is projected to be complete within seven years with a complete repayment of debt by year nine.

Benefits to KUB's electric system from the investment in fiber across its distribution system include enhanced fault location, improved reliability of services, and optimal position for the next generation of automated metering.

KUB is committed to serving the community and its customers with fiber optic technology that will enhance the operation and reliability of its electric service and make Gigabit-speed internet and broadband services available to all of its electric service territory customers.

Appendices

Appendix A – Purchase Intent Study Report

Appendix B – Resolution 1433 – Approval to submit business plan

Appendix C – FY 2020 Consolidated Audited Financial Statements

Appendix D – Loan Amortization Schedule

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