Revenue Opportunities For Cooperatives With Fiber Optics And Other Assets

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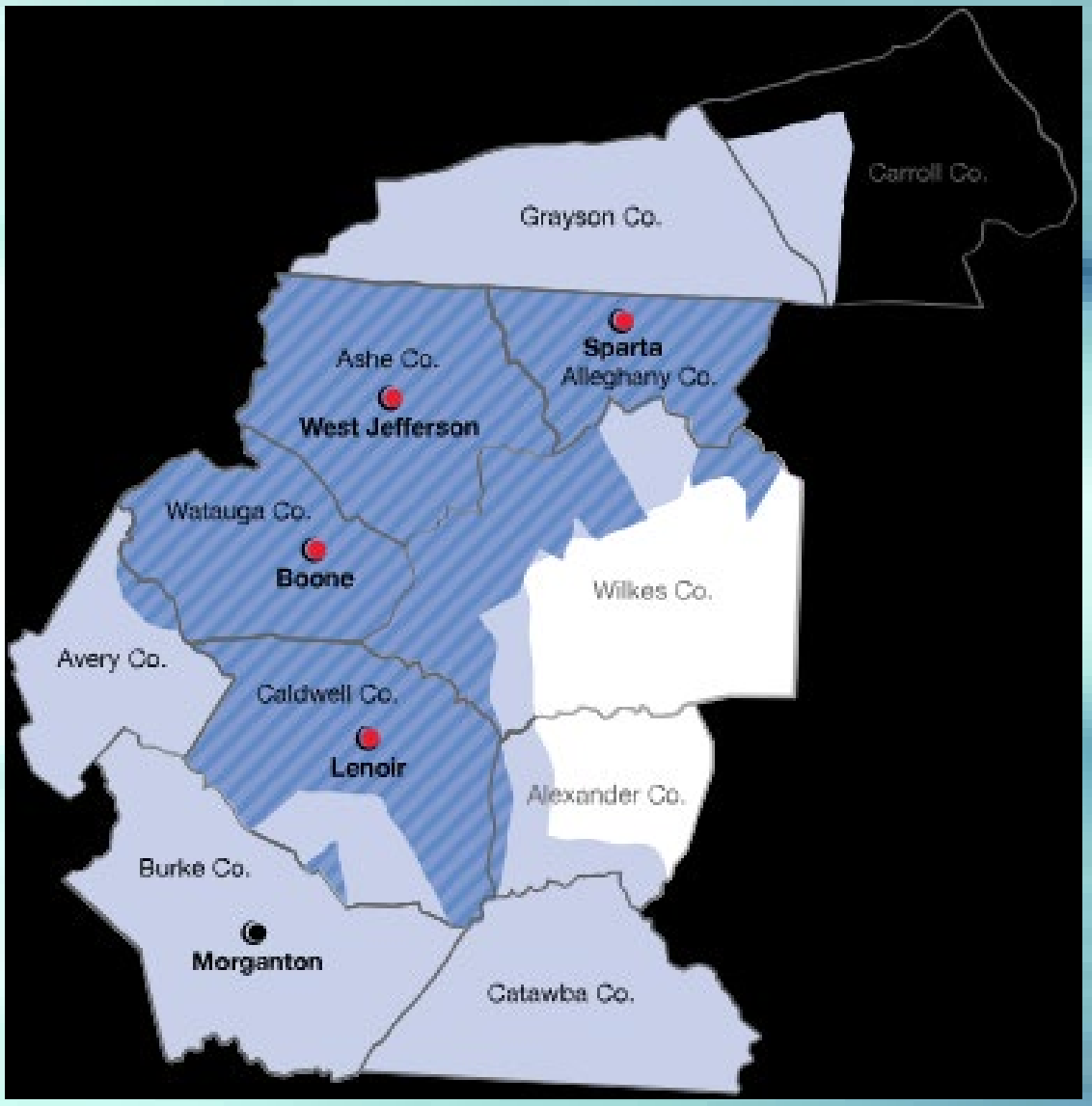
COO – RidgeLink, LLC , Fiber and Cellular Subsidiary

BlueRidge ENERGY™

RidgeLink

Blue Ridge Energy



- 8,262 miles of distribution
- 282 miles of transmission
- 78,133 meters served
- 4 district offices
- 168 Electric employees
- 52 Propane and Fuels employees
- Subsidiaries:
  - Propane and Fuels
  - RidgeLink, LLC

RidgeLink, LLC

Creation and Business Plan

BlueRidge ENERGY

ACS™ Advanced Control Systems

- Entered the fiber optic business in 2001
- Incorporated a fiber and cellular subsidiary in 2009
- Constructed about 450 route miles of fiber in NW NC and NE TN
- 110,000 strand miles of fiber
- Use fiber for SCADA, voice, data and video to district offices
- Lease the fiber not used by the cooperative

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ACLARA

- Fiber is used for backhaul for our AMI/MDM data
- Automating line devices with our fiber
- Undergoing study of new AMI/MDM capabilities currently
- Current AMI is depreciated for 20 years; future AMI will be depreciated for 10 years
  - Fiber optic backbone is key to the success of a possible new RF AMI


TENNESSEE
SULLIVAN
JOHNSON
ASHE
ALLEGHANY
WILKES
WATAUGA
Watauga Lake
CARTER
WASH-
INGTON
GREENE
UNICOI
MITCHELL
AVERY
CALDWELL
JEFFERSON
Douglas Lake
KNOX
COCKE
MADISON
YANCEY
BURKE
Lake James
McDOWELL
BUNCOMBE
HAYWOOD
LOUDON
BLOUNT
SEVIER
EASTERN CHEROKEE
SWAIN
Fontana Lake
GRAHAM
McMINN
MONROE
JACKSON
BRADLEY
POLK
CHEROKEE
CLAY
MACON
Chatuge Lake
0 5 10 15 Kilometers
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MAY 20th 1775
N C
APRIL 12th 1776
NORTH
CAROLINA

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- Initial challenges deploying fiber
  - Very difficult terrain to construct
  - Getting buy in to build and start making money off the fiber infrastructure
  - Class action lawsuit over rights of way and fiber
  - Knew nothing of the fiber business – had to build the expertise

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- RidgeLink, LLC 2019
  - We have no employees – all run with Blue Ridge Energy employees
    - Charge time to RidgeLink to support the business
  - Have not borrowed any money to support RidgeLink. Have assets today of $16M.
  - Offer business internet in partnership with an ISP

BlueRidge ENERGY

- RidgeLink, LLC 2019
  - Do not offer broadband to the home
    - Currently have Charter, Skyline Telephone, CenturyLink, AT&T and ACTV in our area
    - Looked at BTOP and CAF funding to build fiber but saw little opportunity
    - Long-term business model will have to survive on the internet connection

RidgeLink, LLC

- Installed and maintain about 80 small cells within our territory for Verizon, American Tower, AT&T Mobility, Carolina West Wireless
- Own, constructed and maintain about 15 macro cell sites for AT&T Wireless, T- Mobile and Carolina West Wireless

at&t Wireless

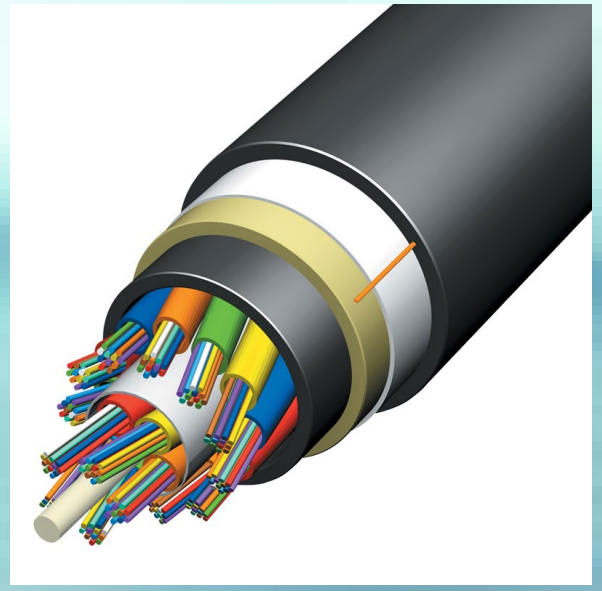
verizon

T-Mobile

RidgeLink, LLC

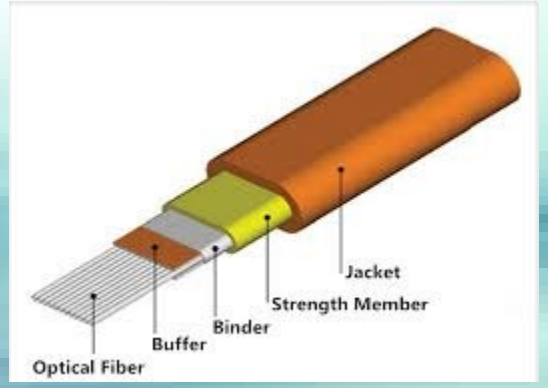
Fiber Optic Specification and Contracts

- Fiber basics
  - Types
    - **ADSS** – All-dielectric self-supporting is ideal for installation in distribution as well as transmission environments, even when live-line installations are required. $1.60 to $3.50/foot



- Fiber basics
  - Types
    - OPGW – Optical Ground Wire -placed in the secure topmost position of the transmission line - as much as $5.00/foot

- Fiber basics
  - Types
    - Loose tube, microfiber, ribbon fiber – for overhead and underground applications for fiber optic cable



RidgeLink, LLC

- Fiber basics
  - Cable sizes
    - 144 fiber strands
    - 288 fiber strands
    - 360 fiber strands
    - 432 fiber strands
  - Depreciation
    - 36 years – could physically last longer

- Easements
  - Need fiber optic easements for your trunk routes – usually will pay landowner by the foot – applies to transmission routes normally
  - Have your attorney review easements for third party leasing rights
- Attorney
  - Have an excellent telecom attorney if entering fiber optic business. The attorney needs to understand the complexity of fiber optic contracts.

RidgeLink, LLC

- Fiber basics
  - Construction of fiber
    - On your electric system - $25,000 to $30,000/mile overhead
    - On another electric system - $50,000 to $70,000/mile overhead
    - Underground construction of fiber - $75,000 to $100,000/mile
    - OPGW construction - $100,000/mile

- Gotchas!
  - City franchise fees
  - Expensive pole attachment fees
  - Unexpected make ready fees for overhead and underground
  - Railroad crossings
  - Lake or river crossings
  - Bridge crossings
  - National Parks, Reservations, State Parks

RidgeLink, LLC

The fun stuff – making money!!

Business opportunities with your fiber optic backbone.

- Monthly leasing of each fiber strand
- Long-term IRUs (Indefeasible Rights Of Use) of each fiber strand
- Fiber to the home (FTTH)
- Small cell construction and maintenance
- Large macro site cellular construction and maintenance
- Collocation income

RidgeLink, LLC

The fun stuff – making money!!

Business opportunities with your fiber optic backbone.

- Monthly leasing of each fiber strand
  - Leases are for 3 to 5 years with 3 to 5 year automatic renewables
  - Leasing amounts per month depend on the number of fiber strands being leased and the mileage of fiber to be leased
  - Leases are paid monthly

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The fun stuff – making money!!

Business opportunities with your fiber optic backbone.

- IRU long-term contracts
  - IRUs are for 20 to 25 years with a 5 to 10 year renewal
  - Price dependent on fiber strands and mileage under contract
  - IRU fees are paid in one lump sum payment at the execution of the contract
  - Yearly maintenance fees apply to an IRU by route mile not strand mile

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The fun stuff – making money!!

Business opportunities with your fiber optic backbone.

- Collocation income
  - Every 50 to 60 miles of fiber will need to have a collocation facility for regeneration of signal on the fiber optic strands
  - Lease out space in your collocation facilities

Collocation Sites

Collocation Sites

RidgeLink, LLC

The fun stuff – making money!!

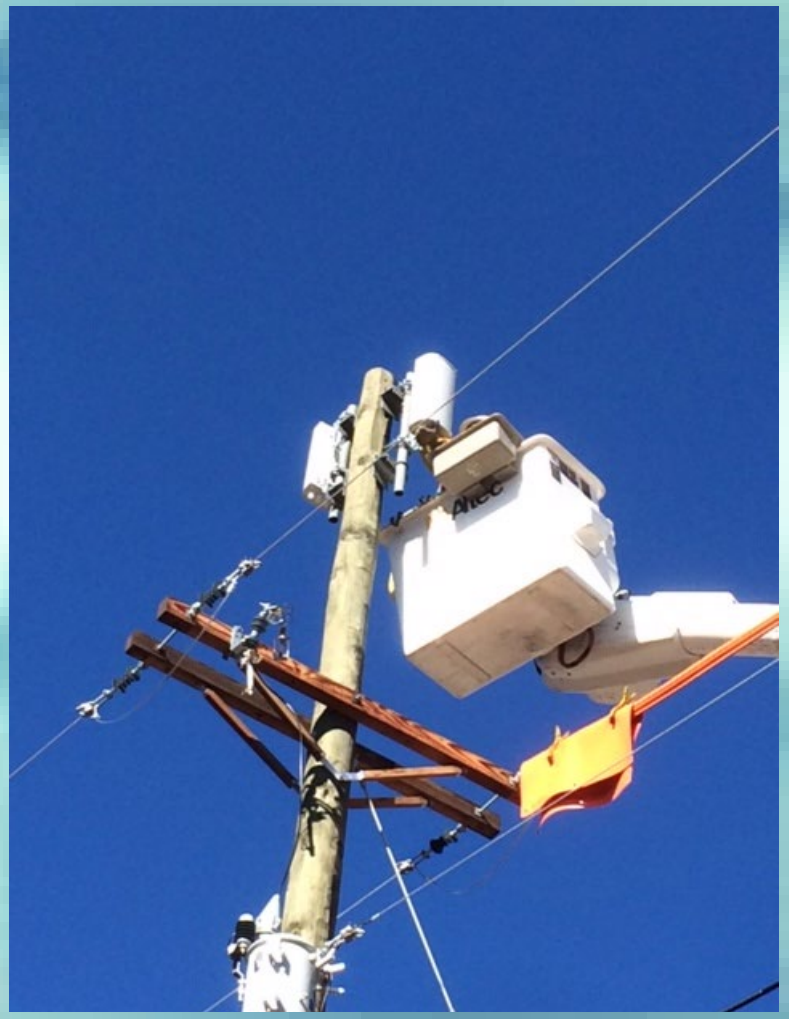
Business opportunities with your fiber optic backbone.

- Cellular opportunities
  - Build macro sites on your transmission and distribution poles
  - Lease collocation space in your substations
  - Build small cell installations on your distribution poles
  - Lease backhaul fiber for the macro sites and small cell installations

Substation Leasing Opportunities

Macro cellular site development

Small Cell and Outdoor DAS



Business Objectives

- Set business model to grow at 6, 8 and 10% yearly (base, target, stretch)
- After the business grew we changed the growth to 3, 4 and 5% yearly growth
- Need to consider the impact of taxes; state and local tax rate of about 27% in NC
- Cellular construction drove quick growth as did IRUs
- Need to watch cash flow – very cash intensive business

Take Aways

- A fiber business can add new income for your cooperative
- Use existing employees to do the work; help offset labor costs for your cooperative
- Do not build fiber on a promise from a customer; have a signed contract before starting construction
- Build your fiber network to support cooperative operations
- Get an excellent attorney
- Have your easement review completed before starting in the fiber business
- Make sure you are open to having small cells on your distribution system