Executive Summary

Introduction

We believe that the LENOWISCO Last Mile - Virginia project represents a replicable solution that can be used nationwide to bring lasting, economical, ultra-high speed broadband connectivity to rural America. It will be one of the few projects that will be able to demonstrate the "end game" for broadband deployment and data from this project will be beneficial to the FCC's strategic plan. It will bring access to 100% of the households in Lee and Wise County Virginia, where Lee is one of the poorest counties in Virginia. It will initially bring connectivity to more than 6,500 homes and businesses utilizing a public/private partnership whose business plan will not only ensure sustainability but also continue to grow, eventually satisfying the total "take rate" demand.

It will utilize 100% fiber optic media over existing community and public service rights of ways, and will ensure near infinite scalability without the need to redeploy fiber for at least forty years while supporting any envisioned bandwidth hungry application. The network uses carrier class electronics suitable for a national infrastructure capable of supporting governmental essential services, including national defense requirements. The electronics will represent today's inexpensive cost/Mbps versus legacy systems, insuring economical transport costs and supporting the drive to commodity pricing of Internet access. The actual grant request of $22,333,566 is relatively inexpensive when compared to traditional infrastructures that have been the drivers for our national economy, such as the electric grid, highway and rail systems.

Because telecommunications crosses all industries, our project synergizes with several others, including a project replicating ours called "Powell Valley Electric Last Mile Tennessee") They are as follows:

- LENOWISCO MIDDLE MILE VIRGINIA – TENNESSEE – GEORGIA
- POWELL VALLEY ELECTRIC SMARTGRID INITIATIVE
- POWELL VALLEY ELECTRIC LAST MILE – TENNESSEE: project will attain nearly the same outcomes as the LENOWISCO project while serving the poorest county in Tennessee. It is the first attempted replication of our model.
- MEOC: RURAL CONNECTION ALTERNATIVES-
- LONESOME PINE LIBRARY: BROADBAND COMPUTING FOR SOUTHWEST VA AT LONESOME PINE REGIONAL LIBRARY

Economic Impact

The Lee and Wise counties of Virginia are nestled in the Appalachians at the far western tip of Virginia, and contain 17 census designated communities. This project would pass all of the 28,812 (structure count) 29,723 (census) homes and businesses in the service area. It would pass 69 anchor institutions. It would directly connect 5,000 homes,

businesses and anchor institutions to the active optical fiber network with equipment capable of supporting 1Gbps per connection. When these 5,000 new connections are combined with our current 1500 existing or funded customer connections, the projected cash flow will support continued drop construction to the eventual total demanded take rate. Ultimately we intend to provide access to 96.94% of the households within 1,500 feet of the fiber, and connect the remaining 3.06% on an on-demand basis.

The required increase in staff to accomplish this task will directly create over 100 jobs for linemen, fiber-optic home installers, and supporting administrative staff over the three year project. Though experienced linemen may move into higher paying jobs ($18 - $21/hr) initially, Sunset Digital's current training allows for the hiring and quick training of capable, unskilled individuals. This is done through a combination of skilled field leadership with financial incentives to encourage the obtaining of new skills (pole climbing, etc.). Using Sunset's current payroll as a basis, we estimate that this should equate to $12 million in payroll over 3 years.

According to statistics gathered from the last 317 customers connected, 15.09% of customers use their connection for their business, and 2.2% use it to work from home. Applying these percentages to the 5,000 connections covered with this grant shows that it will create over 864 work-from-home or cottage industry jobs. In the future we expect the new economy to create a higher percentage of telecommuting jobs, which could double this forecast to 1,728 regular jobs. This is important because regular job salaries have a multiplier of three on the local economy versus service jobs' multiplier of one. This amplifies the effect these jobs will have locally.

Last but not least, this project would create local economic benefits through local vendors that Sunset Digital uses to support a medium to large vehicle fleet, tools and team of work personnel. Using historical data as a guide, we estimate this impact to be over $7.5 million over 3 years.

Public/ Private Partnership

LENOWISCO partnership network has been in successful operation for over 6 years. While it is a successful project, its meager 1500 current and/or funded connections is small compared to the needs and potential of the total households in our service area. This public/private initiative grew from research and development into a public infrastructure construction project. LENOWISCO formed an LLC to own the fiber, and Sunset Digital Communications, Inc was formed to become a certificated carrier and operate the fiber via a lease (IRU) agreement. As part of this agreement, LENOWISCO receives [redacted] of the net revenue from Sunset's services as operator of the network, and Sunset makes transport available to any third party service provider on a nondiscriminatory basis.

As we move forward, a third party service provider Clariti Media, LLC will be used to ensure that network operations are separated from services and the operation of the network remains nondiscriminatory. To ensure that we can continue to leverage all of the

assets of the network to help it grow, we have signed a joint venture agreement between Sunset and Clariti, while continuing to make all of the revenue generated by this network available for collateral or matching funds.

Long term viability is a crucial part of this project. To ensure this, as owner of the network, LENOWISCO will reinvest 30% of its proceeds from the network, and to ensure LENOWISCO's revenue stream, LENOWISCO and Sunset will extend their existing lease (IRU) to have a remaining term of thirty years. We feel that this is a unique way to harness the innovative capabilities of a for-profit company, and an infrastructure-oriented public agency. Sunset and Clariti have also pledged to match LENOWISCO's reinvestment up to 30% of the joint venture's profit after depreciation and before taxes, conditioned on at least 15 years remains on the term of their fiber lease.

Network Services

The services provided on the network would make use of its capabilities. Sunset Digital, through its partnership with Clariti Media, LLC, would provide three broadband levels:

Level 1: 10Mbps down/512Kbps upload
Level 2: 25Mbps down/1Mbps upload
Level 3: 100Mbps down/2Mbps upload

We believe our Level 3 to be a bandwidth record for any rural network in the United States, and only a month behind being a record for the entire country. The Sunset/Clariti partnership would also provide IPTV and telephone services to homes and businesses. It would provide HD television, and interactive processes to make the TV in the home more useful, provide unlimited long-distance, and overall save the average family about $60/month in their Internet/telephone/television bills.

Non-Discrimination and Interconnectivity

The LENOWISCO network provides nondiscriminatory access to bandwidth for anyone who can comply with IEEE 802.3 Ethernet, IEEE 802.3u fast Ethernet, or IEEE 802.3z Gigabit Ethernet. Additionally, Sunset Digital Communications, Inc is required to provide equal and fairly priced transport to any and all with a reasonable creditworthiness as a condition of the Public/Private partnership with LENOWISCO. As a result, Sunset ensures the operation of the network while services are to be provided by third parties. Clariti Media, LLC is one such party. Sunset and Clariti have formed a joint venture for the purposes of this grant, allowing the compilation of their cash flow with Sunsets insuring the ability to display sustainability. Any entity can apply for interconnectivity, and provided they meet the network connectivity standards above, they will not be turned down.

Currently, the LENOWISCO network is interconnected with six other networks, with a seventh planned with the Powell Valley Electric Network in Tennessee if they are successful with their project application.

Network Type and Technology

The LENOWISCO network is an active optical Ethernet network utilizing Ciena switching equipment from the backbone to the subscriber. The network provides connectivity that complies with IEEE 802.3 Ethernet, IEEE 802.3u fast Ethernet, or IEEE 802.3z Gigabit Ethernet standards. Private connectivity is provided between or among multiple locations via secure virtual local area networks (VLAN's). Multiple services can be provided to the premises via different VLAN's. Network topology, customer configuration, fiber availability, and the like are all centrally stored in Sunset Digital's FiberTrac® system.

Qualifications to Implement Project and be a Sustainable Broadband Provider

LENOWISCO and its private partner, Sunset Digital Communications, are one of the most successful public/private fiber optic teams in the United States. They have experience in not only creating FTTP networks, but in having a successful rural strategy and have met all previous network goals, including self-sustainability. The LENOWISCO Rural Area Network has been serving customers for 6 years – connecting customers as cash flow allows. This grant would allow us to expand the network to encompass the entire population of our service area.