

Broadband USA Applications Database

Applicant Name: DQE Communications, LLC

Project Title: Greenlight Economic Stimulus Network (GESN)

Project Type: Middle Mile

Executive Summary

DQE Communications (a for profit corporation) in collaboration with AKRC (a not-for-profit regional economic development corporation) seeks stimulus funding for a middle-mile build-out of state-of-the-art, dark-fiber telecommunications infrastructure serving areas that are 80% rural. This project will put in place 270 miles of very-high-capacity broadband fiber in a loop that cuts through a wide swathe of unserved and underserved areas in rural Western Pennsylvania. The project will create over 900 new broadband interconnection points along the region's major highway rights of way. They will be accessible to critical institutions and businesses desiring direct connection with public internet and/or private networks, as well as to other wireline or wireless carriers introducing or expanding last-mile services in the area. It will enable high-speed connections by public safety agencies and community anchor institutions serving vulnerable populations. As an open-access system it will also encourage investment and strengthen competition among last-mile providers, thus expanding broadband access at reasonable prices for all consumers in presently unserved and underserved areas. By closing the broadband access gap in a significant portion of rural Western Pennsylvania, the project will stimulate economic growth and job creation in these rural areas. The fiber-optic loop design will put in place high-reliability broadband fiber extending to county seats of a 4,996 square mile area stretching out more than 50 miles from Pittsburgh, passing through a multiplicity of rural communities. These rural areas of Beaver, Lawrence, Butler, Armstrong, Indiana, Washington and Westmoreland counties presently have no advertised high-speed, middle-mile broadband service. The loop will follow the region's main business-route highway rights of way along Routes 18, 422, 119, 22, and 66 among others, creating convenient access by most institutions and businesses in the region, while also maximizing backhaul opportunities for wireless carriers. The project area encompasses a population of over 1,185,000 with over 505,000 households, 20,246 businesses, and 971 critical community facilities. Community institutions eligible for interconnections in the service area include seven county governments, 298 fire department and EMS centers, 111 police stations, 14 hospitals, 56 libraries, 403 schools, 32 institutions of higher education, six 911 centers, five Red Cross emergency response offices, and 46 Keystone Opportunity Zones. The fiber-optic network is technology- and carrier-neutral, allowing link-up with wireless, cable, telephony and other systems. It will be able to service all present applications with ample capacity to scale up to meet future needs, including requirements of customers seeking very-high-speed linkages to the public internet, and those who require closed point-to-point configurations, such as for telecommuting, telemedicine, distance learning, automated manufacturing processes, or the Internet 2. Capacity and speeds will also meet needs of businesses seeking remote data center site locations for data mirroring and back-up. CLECS, ILECS, and backhaul providers will be able to avail the

network to enhance their offerings in terms of speeds and feeds for their customers, expanding the range and sophistication of applications they can support. DQE Communications will maintain its current company policy of non-invasive approaches to the delivery of connections to customers. It offers services on a non-discriminatory basis, to all carriers, ISPs, ILECs, CLECs, DLECs as well as private connections, with no restrictions on the amount of bandwidth available or the uses thereof. The project will utilize a technology that enables massive potential bandwidth (multiple terabits per strand, and 140 strands in the cable), with some of that capacity to be lighted immediately in link-ups to public institutions and other customers ready to connect, and the remainder to be lighted over time based on evolving demand from institutions, businesses, and last-mile providers. No exclusive agreements will exist to reduce the availability of access to lawful users. The proposed network has no interest or ability to monitor content. The end user whether it be an ISP, carrier, CLEC, etc, will control the policies and lawful use terms and conditions. In the project areas, special rate discounts up to 25% will be extended to critical facilities. AKRC will use its regional centers of influence, institutional linkages and area economic development expertise to publicize and promote the newly available broadband capacities as drivers of new economic opportunity. The network being deployed is a fiber-optic middle-mile solution which will use Corning LEAF fiber. The cable construction will be overlashed on 10M messenger or ADSS where applicable. This design will allow for the highest speeds and maximum distance transmission as well as highest strength for survival in weather conditions typically encountered in Pennsylvania. Access points every 1,400 feet make for maximum availability, translating to more access for last mile providers and minimized access costs through shorter distances to the backbone. Use of LEAF type fiber reduces the number of regeneration sites needed thus reducing equipment costs for last mile providers as well as giving maximum speed delivery capability for the network. DQE Communications has successfully implemented middle-mile broadband solutions in the Pittsburgh metropolitan area for over 10 years, through a strategy focusing on sustainable growth determined by local business realities. In designing and delivering, on time, its reliable, secure high bandwidth systems to over 135 customers, the company has already built out a network of 1,100 route miles (110,000 fiber miles). The company has also provided carrier access for CLECS and ISPs in the local loop around Pittsburgh, contributing to competition that has enhanced quality and competitiveness of urban broadband services in the region. The project investment in the rural broadband loops will be leveraged by interlinkage into DQE Communications' existing \$40 million short-haul fiber network (the largest in Pittsburgh), providing smooth integration into the nearby urban as well as national internet backbone systems. The multiple loop structure used within the metropolitan area and in the build-out enhances redundancy to reroute traffic when necessary, protecting against any wide-scale service outages even during maintenance and repair. Because many of DQE Communications' urban projects directly link major business clients to middle-mile infrastructure, the company is experienced in meeting last-mile-user requirements for state-of-art applications, and also understands the constraints that rural institutions and businesses face when they are cut off from these. The company has been a leader in advocating for regional efforts to extend broadband from Pittsburgh to outlying rural areas. The collaboration to develop the current project proposal with AKRC is an outgrowth of an earlier, highly successful collaboration that brought fiber to the Northpointe Business Park in rural, unserved Armstrong County, an initiative that has created hundreds of jobs. The deep experience of DQE Communications' management and engineering teams together with their already established relationships with contractors and suppliers ensure they

can implement this project within the accelerated time-frame required by BIP/BTOP time-frames. With support in the form of a grant to cover 80% of the infrastructure build-out's capital cost, DQE Communications would also commit to shoulder costs of ongoing maintenance, operation and quality-control of the network, including during the construction and early operation periods, taking advantage of operational efficiencies that arise by integration of the loop into the company's existing urban fiber network and maintenance systems. DQE Communications has no business case to justify the outreach of broadband to these areas without supplementing the capital investment not otherwise available. In addition, by providing approximately \$2.9 in capital investments to bolster the stimulus investment through match, the Company is taking substantial risks to make the vision of ubiquitous broadband available to rural and underserved areas a long sought reality. DQE Communications thus requests a BIP and/or BTOP stimulus grant of \$12.9 million, which it will complement with its own capital investment of \$2.58 million, towards the overall 270 fiber-mile (12,960 route-miles) of dark-fiber build-out estimated to cost \$12.9 million. This estimate projects an average cost of \$40,000 per route-mile, based on the company's previous experience with projects in the region. The middle-mile infrastructure serves nearly the entire population of the counties through which the broadband loop will pass, including 971 critical community facilities that can be direct clients. Nearly 20,000 business and 500,000 households in the area will benefit from enhanced access provided by new as well as existing last-mile-providers as a result of the new infrastructure, and from the increased competition that should bring lower rates as well as greater variety of available applications. Starting with the project construction and network operation, and extending to the savings of existing information intensive IT-related jobs and then enabling the creation of new jobs resulting from availability of this middle mile network to interconnected last mile providers and directly connected businesses and institutions, GESN will retain or create thousands of new jobs in the newly served areas. Based upon the experience of Northpointe in Armstrong County alone, hundreds of new jobs have been created in what was originally an empty enterprise park.