

## Broadband USA Applications Database

**Applicant Name:** Paducah Power System

**Project Title:** PPS Broadband Expansion

**Project Type:** Last Mile Non-Remote

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### Executive Summary

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Paducah Power System (PPS) has been actively engaged in helping the community and working to improve the quality of living in the area since its formation in 1961. Constantly seeking and implementing new and innovative ideas and technologies. Julian Carroll, former Kentucky Governor, said in a past interview, "The inauguration of Paducah Power System has contributed substantially to the economic growth and progress of the city of Paducah." Paducah Power System has always enjoyed strong leadership from the citizens of the community which has allowed it to maintain a close relationship between the people serving and the people served." With our past experience and success rate, we believe that we are the ideal candidate to facilitate the initiatives set forth in the BTOP and BIP programs. We have a very strong and proven track record working on collaborative efforts between hospitals, schools, health care providers, emergency services, libraries, and local government agencies. The open access architecture of both the current and proposed networks ensures that the funds from the federal government will be used to create an unimpeded means of access to anyone who wants to use it in the underserved areas of Kentucky.

**1. Opportunity Being Addressed** PPS currently operates an open access fiber optic network serving nearly all businesses within the utility's electric service territory. This system has been operational since 2005 and is currently connected to six retail service providers (RSPs) for the purpose of connecting them to their end user customers. If funded, PPS intends to extend their broadband capabilities into six new service areas with the deployment of fiber optic and WiMax facilities. This new broadband system will employ state of the art broadband wireless (WiMax) technology to deliver much needed broadband services to underserved communities of Heath, Lone Oak, Symsonia, Ledbetter, Calvert City and Smithland. In doing so, PPS would increase the availability, affordability and adoption of wholesale broadband services and speed in rural Ballard, McCracken, Graves, Marshall and Livingston counties.

**2. Service Area Description** This application covers the deployment of WiMax services to six rural service areas surrounding Paducah, Kentucky. The service areas can be characterized as: Rural: The proposed services area are 100% rural and include, or are contiguous to, the following towns, all of which are less than 20,000: Heath, Lone Oak, Symsonia, Ledbetter, Calvert City and Smithland and other portions of rural Ballard, McCracken, Graves, Marshall and Livingston counties. Underserved for Broadband Today: A statistically valid mail survey was sent to 9,402 residents in the proposed service areas in August 2009. Based on the responses received, we can conclude that the known broadband adoption rates of the proposed service areas range from 27.5% to 38.5%, and therefore all qualify as underserved for broadband today even when accounting for the calculated error terms.

**3. Households and Businesses Passed By** expanding the PPS broadband system to the proposed rural and under-served areas, an additional 9,405 households, would have access to the

latest in wireless broadband services. Accurate counts for businesses were available as of this writing. 4. Community anchor institutions involved with project PPS has been able to reach agreements with two anchor institutions – Livingston County Schools and Paducah McCracken E911. The network plan calls for additional partnerships with several school districts by which PPS would provide dark fiber services and 25% discounted wholesale services to qualifying students in exchange for land and building access to place the required WiMax tower sites for each service area. Discussions are also underway with several other health care, library and public safety agencies regarding the possibilities for partnering with PPS on this new network. See the attached letters of support from Livingston County Schools and Paducah McCracken E911 Director for more information on these proposed partnership arrangements.

5. Proposed Services PPS will be offering wholesale services to RSPs on the proposed system. Wholesale rates are expected to average \$15.00 for services ranging from 1.0 to 3.0 Mbps download capabilities. PPS will also offer a 25% for qualifying students in school districts that partner with PPS for this network. Based on the wholesale rates being proposed for this project, it is expected that RSPs will be in a position to offer very competitive services in the new service areas. RSPs will have sole responsibility for setting retail rates for services offered on the new system.

6. Approach to non-discrimination and interconnection obligations PPS intends to operate the proposed network as an open system, just like it currently operates the fiber network in its electric service territory. Six retail service providers (RSPs) currently connect to PPS for the purpose of using the PPS fiber optic network to reach their own voice and data customers. PPS will leverage these existing relationships for the new WiMax systems being deployed in the six new service areas. This should set this proposal apart from others in that PPS has already proven that they can successfully operate an open network and that six RSPs are ready to serve retail WiMax subscribers immediately following the new network installations. PPS also commits to the following Nondiscrimination and Interconnection Obligations:

- Adherence to the principles contained in the FCC's Internet Policy Statement (FCC 05-151, adopted August 5, 2005)
- Not showing favoritism to any lawful Internet applications and content over others
- Displaying any network management policies in a prominent location on its web page and providing notice to customers of changes to these policies (awardees must describe any business practices or technical mechanisms they employ, other than standard best efforts Internet delivery, to allocate capacity; differentiate among applications, providers, or sources; limit usage; and manage illegal or harmful content)
- Connecting to the public Internet directly or indirectly, such that the project is not an entirely private closed network
- Offering interconnection, where technically feasible without exceeding current or reasonably anticipated capacity limitations, on reasonable rates and terms to be negotiated with requesting parties

7. Broadband System The proposed system would use WiMax technology to achieve the optimal cost / coverage balance to serve all households and businesses in the six proposed service areas. PPS will deploy a wireless platform compatible with IEEE 802.16d and provides a full upgrade path to future releases of the WiMax family of standards. WiMax technology offers the capability to deliver up to 23 Mbps services in ideal radio frequency conditions, but the proposed WiMax system has been engineered to comfortably support speeds of 1 Mbps to 5 Mbps best effort to end users within five miles of the closest base station. This level of service will be a marked improvement over what is available to these customers today.

8. Organizational Track Record As an existing wholesale broadband system operator, the PPS staff is highly qualified to deploy BTOP funds to expand the system and deliver upon the stated project goals. The current wholesale broadband system has been supporting the delivery of fiber based

services for more than five years. The same team that has made the current PPS open access network a success will be in charge of deploying and managing the new WiMax based services as well. This will allow PPS to leverage the deep knowledge base that has been developed over the past five years of fiber network operations.

9. Overall infrastructure cost of the broadband system. The total capital requirement for this project is \$3,409,130. This represents all capital required to design and build the proposed fiber backhaul extensions and WiMax base stations to pass all homes and businesses in all proposed service areas. This also includes all subscriber equipment and installation services required to connect the projected number of locations on the system. Based on the most recent estimate of 14,878 potential households, this equates to an average per household investment of approximately \$229 per passing for all service areas combined. Such a cost would make the project infeasible if not for the 80% match offered through the BTOP program. With the BTOP matching contribution, the project is feasible and PPS will actually be able to pay their capital contribution to the project out of operating cash flows reflected in the current budget.

10. Subscriber Projections PPS has developed the subscriber forecast based on the experience gained from operating their existing open access system since 2004 and an in depth understanding of the market for broadband in the target areas. The team has determined that a penetration rate of 20% of homes passed is a reasonable and conservative estimate given. This subscriber forecast is expected to be dispersed across the full rate wholesale service (\$15.00) and the discounted wholesale service (\$11.25) 90% and 10% respectively. The following table shows the project forecast for the three service tiers over the first five years of operation.

|                 | Year1 | Year2 | Year3 | Year4 | Year5 |
|-----------------|-------|-------|-------|-------|-------|
| WiMax Wholesale | 335   | 2,009 | 2,678 | 2,678 | 2,678 |
| WiMax Student   | 37    | 223   | 298   | 298   | 298   |

11. Number of jobs estimated to be created or saved as result of this project. The system would involve the permanent creation of two technician positions and a number of contractor jobs related to the construction of the networks. The construction of the system would bring approximately three full time equivalent contract positions the first 12 months of construction activity.