

miles of interconnected electric transmission and distribution power lines. PPL Electric provides retail electric service to approximately 1.3 million customers within its service territory consisting of roughly 10,000 square miles in central eastern Pennsylvania. PPL Telcom and PPL Electric are members of the United Telecommunications Council and PPL Telcom is a member of the United Telecommunications Council's United PowerLine Council ("UPLC").¹

II. PPL Telcom's Involvement with Broadband Over Power Lines ("BPL")

PPL Electric and PPL Telcom have been actively evaluating BPL technology and services since late 1999. In late 2001, PPL Electric performed characterization testing and began construction of a technical trial of BPL in Emmaus, Pennsylvania using technology provided by Main.net Communications, Ltd. with eight employee-volunteers as trial participants. BPL service was provided to these participants beginning in February 2002. Results of this technical trial indicated that BPL was viable for both access and in-home high-speed data communications.

¹ UPLC - United Power Line Communications Council is a sub-organization within the United Telecommunications Council (UTC) organization.

Later in 2002, PPL Telcom began to administer the BPL trials with an expanded technical trial in Emmaus. PPL Telcom also initiated testing of another promising medium-voltage BPL technology from Amperion, Inc. in the Whitehall, Pennsylvania area. Both trials have been expanded and now include over 2,500 homes passed. The trials are moving from the technical phase to a market-trial phase.

A detailed BPL business case has been developed by PPL Telcom based on providing retail broadband Internet service to customers within PPL Electric's certificate service territory. Based upon the outcome of the trials presently underway, PPL Telcom intends to make a decision on launching commercial BPL service prior to the end of 2003.

III. Commercial Applications of BPL

BPL has the potential to provide broadband service in areas where there is presently little, or no, broadband service available. Both of PPL Telcom's present trial locations (Emmaus and Whitehall, Pennsylvania) are locations in which existing broadband service is scarce. Moreover, out of a population of approximately 375,000 PPL Electric customers that have been evaluated for potential BPL service, PPL Telcom estimates that more than two-thirds

of these customers do not now have access to equivalent two-way broadband service. If adequate signal backhaul capability is available, BPL can utilize existing electric distribution infrastructure and can be deployed to provide broadband service to under-served areas.

BPL also can provide an alternative means of bringing broadband services to homes and businesses in areas where broadband service already exists in one form or another. BPL's bandwidth and bi-directional capabilities compare favorably with existing two-way cable and DSL services. BPL will diversify the broadband marketplace and provide consumers with all the benefits of competition.

As a basic broadband technology, BPL also offers an opportunity for delivery of a variety of other services to connected customers. These services could include home security, home automation, voice over internet protocol ("VoIP") and, if bandwidths prove adequate, video services.

IV. Potential Utility Applications of BPL

As the PPL Telcom broadband project expands and matures, PPL Electric continues to evaluate potential uses of this technology. In addition to the applications described in Section III, above, possible electric utility-focused applications include outage detection, home energy

management, distribution transformer overload analysis, demand side management, Substation Control and Data Acquisition ("SCADA") data transmission, monitoring of non-SCADA controlled substations, replacement of traditional intra-utility-based communications systems (copper wire and microwave)

safety checks for isolated circuits, power quality monitoring, detection and diagnosis of events at capacitors and regulators, phase loss detection, line testing, outage localization and fault characterization.

While a variety of applications have been studied or are under consideration, no final decisions have been made as to which, if any, of these applications will be appropriate for PPL Electric or its customers. These and other potential applications will continue to be studied, evaluated and, if justified, selected for implementation.

V. Low Risk from BPL interference

For the reasons set forth below, PPL Telcom believes that BPL does not pose significant risks for unintended high frequency radiations that will impair the operation of consumer devices, amateur radio communications, or other forms of commercial communications (e.g. television, radio, mobile radio, etc.):

- *Technology providers will FCC-certify their access and in-home BPL technologies.* The two technology providers presently supplying equipment to PPL Telcom (Main.net and Amperion) have completed extensive FCC testing for compliance certification and have attached FCC stickers on their BPL equipment. BPL technology providers have taken, through product design and independent testing, great efforts to ensure that their technology does not interfere with users of FCC-regulated radio bands and will meet FCC Part 15 requirements.²
- *Consumer products used, as part of a BPL solution, are FCC Part 15 certified.* The BPL solution used by one technology provider (Amperion) uses FCC certified WiFi (802.11b) compliant bridges, routers, and adapters presently commercially available from major telecommunications hardware manufacturers.

² FCC Order 97-Section 157 essentially places the burden on BPL opponents to justify blocking a new entrant or technology that may provide more affordable telecommunications services to a broader base of customers. PPL Telcom believes that the arguments raised by amateur radio forums do not meet this burden and do not provide any direct evidence that BPL vendors' technologies cause interference in excess of approved limitations established by FCC guidelines.

- *No detectable interference with other power line solutions.* PPL Electric has deployed a power line automated meter reading ("AMR") solution to over 600,000 customers in its central-eastern Pennsylvania service territory including the BPL trial locations of Emmaus and Whitehall. This AMR solution utilizes a narrow-band power line Two Way Automated Communication System ("TWACS") technology developed by Distribution Control Systems Incorporated ("DCSI"). PPL Electric's testing and successful operation of both the BPL and AMR equipment in the trial locations indicate that there is no interference from the introduction of BPL technology.

- *Safety is a key element of BPL installation and operation.* PPL Electric has adopted engineering standards based on applicable provisions of the National Electric Safety Code ("NESC") for BPL equipment. These standards establish engineering designs for the safe installation and reliable operation of this equipment. PPL Telcom and our technology providers have worked closely with PPL Electric to develop methods for the installation of BPL equipment with attention to safety concerns such as distribution line coupling, pole attachment

clearances, powering options and appropriate fusing. BPL equipment installed to date has operated safely and has not impacted the reliability of electrical power distribution system.

Safety and interference concerns are further addressed through the application of UL-approved and FCC-certified customer-premise equipment ("CPE") devices. CPE devices are widely available at electric retailers and are similar to commercially available cable and DSL modems.

Conclusion

PPL Telcom supports the application of existing FCC Part 15 radiated compliance rules to govern both BPL access and in-home BPL technologies at this time. Future increases in radiated emission limits for BPL access equipment may be warranted as indicated by ongoing testing and technological developments.

PPL Telcom appreciates the Commission's encouragement of BPL technology and its inquiry through this NOI.. PPL Telcom looks forward to working with the Commission and other interested stakeholders in the development and deployment of this new technology.

Respectfully submitted,

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