

STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service
Commission held in the City of
Albany on October 18, 2006

COMMISSIONERS PRESENT:

William M. Flynn, Chairman
Patricia L. Acampora
Maureen F. Harris
Cheryl A. Buley

CASE 06-M-0043 - Proceeding on Motion of the Commission to Examine Issues Related
to the Deployment of Broadband Over Power Line Technologies.

STATEMENT OF POLICY ON DEPLOYMENT OF BROADBAND OVER
POWERLINE TECHNOLOGIES

(Issued and Effective October 18, 2006)

BY THE COMMISSION:

Introduction

Broadband over Powerline technology may provide significant benefits to New Yorkers. This Statement of Policy provides our view of how best to maximize benefits and minimize risks posed by the technology.

Background

In our January 25, 2006 Order¹, we found that the provision of broadband services over electric utility power lines and systems (BPL) might soon become economically and commercially feasible and that the provision of broadband services from a competing alternative technological platform could provide significant benefits to New Yorkers. However, we also found that BPL poses a myriad of both traditional and

¹ Case 06-M-0043, Proceeding on Motion of the Commission to Examine Issues Related to the Deployment of Broadband over Power Line Technologies, Order Initiating Proceeding and Inviting Comments (issued January 25, 2006).

unique technical and regulatory challenges. In order to evaluate these challenges, we sought comment from interested parties on four topics and we encouraged parties to raise other issues that they believe are relevant to our overall inquiry. The four avenues of inquiry were:

1. The current status of BPL technology and the implications of likely technological developments, over the next two to three years, on its deployment,
2. The electric and telecommunications safety and reliability issues raised by BPL's use of overhead and underground electric utility facilities (the electric utility system),
3. The most workable business model/arrangements for deploying and providing BPL-based services to the public, and
4. The appropriate regulatory framework to encourage the economic development and deployment of BPL technology.

Eighteen parties, including all of New York's investor owned electric delivery utilities, municipal utilities, BPL Manufacturers/Systems Operators, energy marketers and consumers provided comments. These comments, which are summarized in Appendix A, provide the basis for this Policy Statement

Findings

Industry and Technology Status

BPL is not a single technology but rather a variety of technologies which, when combined, transmit broadband signals over power lines as part of a telecommunications system. BPL technology is one of a number of approaches which can enable the public to receive broadband telecommunications services.

While BPL technology has been deployed on a very limited basis in New York State, it now appears that there is potential for a number of technology and marketing trials. These trials could provide information to the participants about the long run viability of wide scale BPL deployments, as well as information to us regarding the appropriate charge for access to the electric utility system in the long run. We encourage electric utilities, BPL equipment manufacturers, and third party BPL operators to participate in such trials. Given the uncertainty surrounding the technical and economic viability of the technology, trials would be for a limited service territory over a limited period of time.

BPL also has the potential for a number of “smart grid” applications for electric utilities which could improve the efficiency and reliability of the electrical system. Electric utilities should consider the cost and benefits of BPL technology on the quality and reliability of both regulated and competitive electric services.

Safety and Reliability of Service

Most of the parties recognize that while standards and safeguards currently exist which cover the installation, maintenance, and operation of BPL equipment on electric utility networks; many of the standards were written to fit general situations rather than BPL specific applications. While some parties point to a future need for more specific safety requirements for BPL, the general view is that current technical practices and standards are adequate to go forward with BPL deployment. We expect utilities and BPL providers to develop necessary and specific safety requirements when and if the technology proves commercially viable on a wide-scale basis.

Comments were also received regarding worker qualifications for the deployment, upgrade and maintenance of BPL systems. There is general agreement that all personnel working on BPL assets should be appropriately qualified. Any appropriately qualified worker – not necessarily a utility employee – will suffice. There does not appear to be a consensus regarding the definition of a qualified contractor. Utilities and BPL providers should address this topic as part of any contract governing access to and use of the utility’s electric facilities.

Parties noted that the use of smart grid technology can enhance the safety and reliability of the electric system, thereby benefiting utility systems and customers. However, several utilities believe that BPL should be deployed only if it does not interfere with a utility's primary responsibility to provide safe and adequate service and they provide potential examples of how BPL services might affect not only the operation of the electric system but also how the utility responds to outages, maintenance requirements and other electric service issues. We agree with the utilities on this matter. Electric safety and reliability must take precedence over BPL deployment and the provision of BPL service. The deployment of BPL should not degrade the operation of the electric system.

A major issue discussed by almost all of the parties concerned radio wave interference produced by BPL technology for both communications services and other electrical equipment inside the residences of both BPL and non-BPL customers. While most BPL providers and equipment manufacturers/vendors believe that the issue has already been addressed by the FCC through its existing rules, this was not the consensus opinion. Most parties were uneasy about potential interference problems that could arise with the deployment of BPL technology.

At the outset, we find that the incumbent electric utility and its ratepayers should not be financially responsible for mitigating, resolving or compensating any customers for the deleterious effects of interference produced by BPL systems operated by an independent company or an affiliate of the utility. Electric utilities operating BPL systems solely for electric system applications, however, are responsible for interference produced by their equipment. We also note that BPL providers must comply with all applicable federal BPL requirements in this area, including those governing the protection of licensed spectrum users from interference. It is significant, however, that the federal government itself was not only concerned about BPL interference with in-building systems such as fire alarms, security systems and other communications networks, but also specifically urged us to take any actions necessary to ensure that BPL

improves communications and utility services without also impairing telecommunications or electric services²

We expect BPL providers to be responsive to interference complaints from both BPL and non-BPL customers alike. We will take complaints about harmful interference from the public and direct them to the BPL provider and, to the extent not already directed by the complainant, the FCC. Due to the potential for safety and/or other customer impacts, we expect the BPL provider to mitigate or resolve these interference complaints in a timely manner. Although BPL providers are expected to be primarily responsible for addressing complaints related to BPL service, utilities remain ultimately responsible for maintaining safe and reliable electric service. Utilities and BPL providers should address this topic in any contract governing access to and use of the utilities' electric facilities.

Business Model and Regulatory Framework

The comments provided by the parties make it clear that the most likely deployment approach for BPL technology appears to be technology trials and pilot programs in limited geographic areas. Many parties also indicated that the development of the most appropriate business model for the deployment of BPL was in its early stages and, therefore, far from clear. As a result, we received many requests to remain as flexible as possible regarding our business model and regulatory framework determinations.

The fundamental business model issue in this proceeding concerns the extent to which the utility and its affiliates may become involved in BPL technology. We resolve this issue in a manner that provides the parties more flexibility than we initially envisioned in our January Order. We then offer a set of principles governing related business and regulatory issues which are consistent with this determination. While our BPL business model and regulatory framework decisions are intended to provide the

² Comments of The United States Department of Defense and All Other Federal Executive Agencies, March 10, 2006, pp. 7-8.

industry a degree of flexibility in the short run, we recognize that we may have to revisit our determinations when and if BPL technology becomes commercially viable.

We contemplated use of a model where the utility is not the BPL provider but rather leases or sells access rights to its electric system to a BPL provider. Most parties opposed this approach because they believe it was too rigid and would initially inhibit the deployment of BPL technology. Instead, they encouraged us to be flexible in this area and to consider allowing utility affiliates and even utilities themselves to become BPL providers.

The commenting parties have not entirely dissuaded us from our conclusion that BPL deployments to support electric system applications and communications services are best provided through third parties. We continue to believe that regulated electric utilities should not be directly involved in competitive businesses. Thus, we affirm our decision that electric utilities should not be BPL providers. We recognize, however, that the use of that structural approach could have a chilling effect on the development and deployment of a technology in its nascent stage. A structurally separate affiliate of the electric company could be a suitable third party, provided that appropriate affiliate transaction, cost allocation and general business relationship rules are in place to assure that the incumbent utility and its customers do not directly or indirectly subsidize or provide support for the BPL affiliate, and that competition is not harmed. Utilities seeking to provide BPL services through an affiliate should be prepared to demonstrate to the Commission that qualified independent providers were unwilling to enter into a comparable arrangement with the utility. We also recognize that affiliates of the utility could become involved in BPL through alternative arrangements such as a joint venture or similar partnership arrangements. Such arrangements are appropriate provided that there is legal separation from the utility company and that the protections noted previously are in place.

It is necessary for all BPL providers to attach to and use electric utility facilities. Section 70 of Public Service Law requires Commission approval for the use of an electric company's facilities by third parties. While we recognize the need for regulatory flexibility as this new technology goes forward, we also recognize that there

were a number of related business model and regulatory framework issues that should be addressed in any Section 70 filing. We have considered the comments of the parties on these issues and offer the following principles.

1. The deployment of economically viable BPL technology by electric companies solely to support electric system operations does not raise subsidization or cost allocation issues and is, therefore, permitted.
2. The deployment of BPL technology to provide communications services to the public implemented through a landlord model in which an independent party provides BPL services using utility assets is preferred.
3. The deployment of BPL technology to provide communications services to the public may not be implemented by regulated electric utilities but may be implemented through a structurally separated utility affiliate (or similar approach with at least the same degree of separation) subject to acceptable cost allocation, affiliate transaction and related business rules designed to prevent customer and utility subsidization and support of the competitive BPL service provider. Any such arrangements should be presented to us with a showing that customers and competition are not harmed.
4. Circumstances may arise when work related to the BPL system must be performed by utility employees or utility approved contractors. Utilities should have procedures in place to assure that no direct or indirect costs associated with this work, other than costs associated with support of electric operations, shall be collected from ratepayers or charged to utility operations.
5. Utilities remain responsible for ensuring safe and adequate electric service. The BPL provider is primarily responsible for responding to all customer service and collateral service complaints and issues, including any related to interference produced by BPL equipment.
6. The BPL provider and the utility should develop procedures for sharing and protecting customer and system information.

- 7 Pole attachment tariffs will continue to apply to attachments to utility poles by BPL providers.
8. BPL providers should pay a fee for the ability to access the electric utility system. Such a fee could be based on a sharing of revenues or profits. This fee should eventually be based on prevailing market conditions if BPL becomes economically viable and is deployed on wide scale basis.

Conclusion

The use of BPL technology on the electric utility system may provide the public unique benefits. We requested comments from parties to more clearly understand the technology, its potential uses, and the regulatory issues it may create. We have considered these comments and have concluded that deployment of BPL is in the public interest. This Policy Statement provides our guidance on how that deployment may proceed without the potential of undue risk for electric utility customers.

(SIGNED)

JACLYN A. BRILLING
Secretary

Case 06-M-0043 – Proceeding on Motion of the Commission to Examine Issues Related to the Deployment of Broadband Services Over Power Line Technologies

Comments of Interest Parties (due March 13, 2006)

Comments received from 18 interested parties.

1. Ambient Corporation (Ambient)
2. Cable Telecommunications Association of New York, Inc. (CTA)
3. Central Hudson Gas & Electric (CHGE)
4. City of New York (City)
5. Consolidated Edison of New York, Inc. and Orange and Rockland Utilities, Inc. (CECONY)
6. Current Communications Group (Current)
7. International Brotherhood of Electrical Workers (IBEW)
8. Microwave Satellite Technologies, Inc (MST)
9. National Association for Amateur Radio, also know as American Radio Relay League (ARRL)
10. National Energy Marketers Association (NEM)
11. New Visions PLC, LLC (New Visions)
12. New York Association of Public Power (NYAPP)
13. New York State Electric & Gas and Rochester Gas and Electric (NYSEG)
14. New York State Telecommunications Association, Inc. (NYSTA)
15. Niagara Mohawk Power Corporation d/b/a National Grid (Grid)
16. Time-Warner Telecom-NY, LP (TWT)
17. United Power Line Council (UPLC)
18. United States Department of Defense and All Other Federal Agencies (DOD/FEA)

Deployment of Broadband over Power Line Technologies (BPL):

Case: 06-M-0043

Summary of Comments

The National Energy Marketers Association (NEM is a national, non-profit trade association representing wholesale and retail marketers of electricity):

1. Status & Deployment of BPL Technology:

- Current BPL/PLC technology is not radio frequency energy, nor is it broadcast or transmitted by radio or as radio frequency energy. It uses inductive couplers as single phase micro-generators to produce encoded micro-voltages of electrical energy that represent information/content that is transmitted over power lines for either wholesale or retail transmission into, through and/or from interstate commerce.
- Truly advanced BPL with transmission speeds in the multi-gigabyte range could facilitate an entirely new level of technology based economic growth, significant increases in productivity and create disproportionately greater benefits for lower income and rural customers.

2. Safety, Reliability & Quality of Service:

- BPL technology can significantly enhance safety and reliability of the existing electric infrastructure to the benefit of utility systems and consumers.
- BPL can maximize the efficient utilizations of existing infrastructure investments, potentially increase asset valuations and thereby lower the cost of capital needed for reliability upgrades.
- Near term improvements to power line surveillance, grid reliability, blackout prevention, isolation and mitigation as well as homeland security could be significant.

3. Business Model and Regulatory Framework

- It is in the public interest for the Commission to allow BPL providers non-discretionary open access to the electric system at a reasonable price.
- The development of a volumetric usage charge for BPL providers to pay the electric utility is unrealistic given the de minimis amount of electricity and space that BPL requires.
- The BPL market should be protected from a utility's control of the distribution and transmission system.
- The Commission should prohibit utility subsidies of non-regulated activities, such as BPL.

- The Commission should not allow utilities to tie regulated services to products provided by affiliates or non-affiliates in competitive markets.
- Applicable tariffs for BPL attachment should be applied in a non-discriminatory way.
- Utility personnel should function independently of personnel working at an unregulated utility affiliate.

Con Edison / Orange & Rockland Utilities:

1. Status & Deployment of BPL Technology:

The companies largely defer to BPL equipment developers and providers to address the status and development of BPL technology. However, the companies can provide information from three pilot programs;

- O&R Pilot Project: Was solely designed to test utility applications, not commercial. The project provided network connectivity from the network at O&R's Spring Valley Operations Center to a computer at the Monsey substation for monitoring and video surveillance. When a 5 kV rated conductor began fraying from wind stress, it caused some arcing that created significant noise on the BPL system without impact to the electrical system.
- Con Edison and Ambient Corporation undertook a demonstration project in the Village of Briarcliff Manor, NY. This trial operates on two 4-kV circuits spanning a few circuit miles, passing about 700 homes, and has successfully demonstrated utility applications such as load control, remote meter reading, system monitoring, video surveillance, as well as the ability to deliver internet services.
- Manhattan High Rise Trial: In 2005 Con Ed and Ambient Corp. initiated a BPL trial in a 17 story, 213 multi-dwelling (MDU) unit in Manhattan signing up 30 participants. The trial utilized the buildings existing electrical wiring (In-Building) to deliver broadband services to the outlets in the dwelling. The one issue that arose was the potential for theft of electrical service. BPL requires a direct, physical connection to the phase wires of a building's electric service, prior to being metered, which violates Con Edison's terms for electric service and creates a potential point of dispute between the utility and the BPL service provider.

The companies also mention the possible issues that would arise if the FCC were to determine lawfully that BPL enabled Internet Access was a Telecommunication Service, rather than an Information Service. This would subject BPL – enabled Internet Access to the common carrier obligations of Title II of the Communication Act.

2. Safety, Reliability & Quality of Service:

The companies state that there are many concerns with the safety, reliability and quality of service with the deployment of BPL services. Overall the companies state that any future Commission policy involving BPL should make electric utility safety and reliability its top priority. Here is a list of their concerns:

- Utilities should not be required to change their standards and practices in ways that would degrade electric service to accommodate BPL services
- Acceptance of existing electric utility infrastructure "as it is" and "as it evolves" must be part of any BPL system provider's assessments.
- There is no requirement that electric utilities provide "unconditional access" to an electric utility's facilities. Access to an electric utility "poles, ducts, conduit, or right of ways" may be denied "where there is insufficient capacity and for reasons of safety, reliability and general applicable engineering purposes."
- BPL technology must meet electrical utility specifications and therefore the utilities must have approval authority over all aspects of BPL installation.
- The National Electric Safety Code (NESC) should serve as the minimum standards with which all BPL providers must comply.
- Workers involved in BPL projects require unique skills. BPL contractors shall be qualified and trained accordingly and follow all safety requirements (i.e. OSHA).
- Any interference caused by the BPL system or the owner of BPL equipment must be remedied by the BPL provider.
- BPL has many smart grid applications that could improve the quality and reliability of electric service.

3. Business Model and Regulatory Framework

- The Commission should allow utilities to pursue pilots and demonstration projects while technology is still developing.
- BPL technology must stand on its economic merits and receive no subsidies of any kind. This includes make ready work, upgrades of the current system solely for the benefit of the BPL company, and rates for providing space on the electric system.
- Negotiated rates for attachment to electric utility poles should be permitted consistent with Opinion 97-10 treatment of "nonstandard or unique attachment" to utility poles.
- Access fees provide compensation over and above that received through pole attachment fees.
- Theft of electric service may become an issue with BPL.
- There are no direct BPL deployment costs for the incumbent utility unless that utility is a BPL provider.

Central Hudson Gas & Electric:

1. Status & Deployment of BPL Technology:

Central Hudson does not specifically discuss BPL technology in their response comments.

2. Safety, Reliability & Quality of Service:

- Central Hudson recommends that the Commission explicitly acknowledge that the reliability of the NYS electric system is the paramount policy principle and objective, and will not be compromised by such BPL policies as the Commission may adopt.
- Electric outages could occur during the installation activities of BPL providers.
- Safety and operational standards should be adopted that include equipment manufacture and testing, standards for installation and qualifications of workers installing and maintaining equipment (ANSI, IEEE, UL, etc.).
- Any interference mitigation issues shall be the responsibility of the customer and BPL provider.

3. Business Model and Regulatory Framework

- A utility may not, in all situations, have the legal ability to “authorize a third-party to make use of the utility’s facilities for unregulated business”.
- The recognition of value in a BPL provider’s ability to access the electric system limits the usefulness of cost based access charges.

New York City:

1. Status & Deployment of BPL Technology:

The City separates BPL technologies into two categories, Access BPL and In-Building BPL. Access BPL is the service over the utility lines for delivery of telecommunication services and energy management functions. In-Building BPL is the service within the customer's premises. In-Building BPL offers the ability for customers to remotely control their heat, air conditioning, and other energy appliances in order to control energy load and costs.

2. Safety, Reliability & Quality of Service:

The City states the use of access BPL for automated meter reading, load management, outage detection, and other enhanced applications for energy related purposes would help a utility make its network more efficient, reliable, and cost effective. Ultimately, access BPL may offer the potential for such advances as distribution system fault-predictive capabilities, thus making the networks more secure.

3. Business Model and Regulatory Framework

- The Commission should allow utilities to pursue pilots and demonstration projects while technology is still developing.
- The Commission should not bar utilities from developing BPL pilots while the technology develops.

NYSEG and RG&E:

1. Status & Deployment of BPL Technology:

- The main BPL benefit for the utilities is the development of "Smart Grid" technologies, including system outage detection and restoration; power system equipment monitoring; substation security; power quality, as well as, the potential for economic automatic meter reading (electric, Gas and water), and remotely disconnecting and connecting meters. This can be best realized by promoting a cooperative framework within which the BPL providers and utilities can work.
- BPL is not the only technology that could support "Smart Grid" technologies and utilities should consider other technologies as well as BPL deployment.
- Utility implementation of BPL and the location of BPL implementation should be at the utility's sole discretion, and that the utility should not be penalized for deciding to implement or not implement BPL.

2. Safety, Reliability & Quality of Service:

- The interface between any BPL equipment and the electric system must provide safety for utility workers, qualified BPL workers or third party workers, as well as the general public, while not negatively impacting the reliability of the electric system or any customer equipment.
- NESC and UL codes and specific utility standards should be utilized for BPL specific standards.
- The security of data being transferred over the power lines should be compliant with the current internet access protocol standards and be the responsibility of the BPL provider.
- Any customer or equipment interference issues should be the responsibility of the BPL system operator.
- A utility's priority during an interruption of service must be to restore electric service.
- Actions by the utility to do so which negatively affect BPL service are not the utility's responsibility.
- Resolution of interference complaints could in some instances result in the shutdown of the BPL system in a specific area.

3. Business Model and Regulatory Framework

- BPL market trials should be permitted and then expanded as the technology develops.
- BPL usage of electricity should be billed as un-metered use under an appropriate rate structure.
- Existing pole attachment rates may be appropriate for BPL technology.
- The Public Service Law and existing affiliate rules sufficiently protect ratepayers from problems created by direct or indirect utility involvement in the BPL business.
- Utility should be allowed to recover any costs it incurs related to any BPL services it uses for utility purposes.
- The Commission should pre-qualify providers before they can make any application to the Commission to attach to a utility's system. The utility would have a role in determining that whether a BPL proposal should go forward.
- Municipalities should be limited as to their ability to impose additional regulations on BPL systems. No additional easement requirements or payments for BPL service should be added by the municipality because the BPL service would typically use existing utility rights of way.

National Grid:

1. Status & Development of BPL Technology:

- First of all, National Grid believes that BPL should be viewed not as a single technology but rather a combination of technologies that when combined transmit broadband signals over power lines at some point in the telecommunications system. Thus BPL is best viewed as only a part of the communications system that connects the internet to broadband customers.
- Per National Grid's understanding, multiple BPL systems cannot co-exist on the same electric lines; this means that the BPL provider would require exclusive rights to a particular section of electrical line.
- BPL is only one part of the communications link used to connect a broadband customer to the internet. Virtually any other digital communications technology can and will be used to build a complete functioning system to connect broadband customers to the internet.
- A number of BPL related standards are under development such as: NESC Committee, ANSI P.1675 (BPL Equipment Standards) and ANSI P.1775 (BPL Electromagnetic Compatibility).

2. Safety, Reliability & Quality of Service:

- With regard to immediate term effects on safety and reliability, the implementation of BPL is similar to any major installation on the distribution system with the potential for outages for installation, temporary operational changes and accidents during installations.
- With regard to long term effects on distribution systems, one important issue will be the reliability of BPL equipment itself such as couplers adequacy and durability of the insulation.
- The NESC Committee is looking into safety and installation issues but since the 2007 edition will be printed this summer, issues will not be addressed until the 2012 edition is out.
- BPL providers and installers should be required to follow minimum safety and installation requirements such as OSHA and the NESC along with each electric utilities own rules and requirements.
- BPL service provider's employees or the electric utilities employees could be the ones installing and maintaining the BPL equipment, depending on the agreement.
- Prior to BPL installation, a survey should be conducted of the electric utilities assets to evaluate safety and reliability issues with the BPL proposals.
- The FCC regulates interference to licensed and unlicensed users of the electromagnetic spectrum caused by incidental emissions from electronic equipment under its Part 15 Rule. These rules were recently modified to deal with BPL and now established emission limits, frequency notching, tests and measurement standards and regulation of BPL systems.
- In general the entity owning, operating and controlling the equipment would be responsible for any interference issues or required filtering needed due to the BPL system.
- BPL has many smart grid applications that could improve the quality and reliability of electric service. Such applications, however, require small amounts of bandwidth and sporadic use of the BPL systems.

3. Business Model and Regulatory Framework

- The fact that BPL is provided over the electric utility system does not necessarily make electric utilities best suited to be involved in the business.
- Flexible terms and conditions are necessary to go forward with any market trial.
- Pole attachment rates could be used to address the cost of BPL systems attaching to a utility pole.
- Pole attachment rates do not address BPL's use of the electric system and wires. BPL providers should pay a fee for access to these and other utility assets. The formula should be based on sunk costs rather than the economics of BPL technology.

- An ideal system would keep access fees low while the technology is maturing and systems are developed. The fee could increase if BPL proved successful.
- Revenues from access fees could be split between ratepayers and shareholders.

International Brothers of Electric Workers (IBEW):

1. Status & Development of BPL Technology:

- Power lines over which BPL signals would be sent are neither shielded nor well balanced to prevent radio frequency (RF) energy from being radiated and which can become harmful interference. Even with adaptive mitigation interference techniques, it is still possible that unwanted RF radiation interference will vary in significance. Given this, the IBEW believes the Commission should use section 15.615 general administrative requirements information pertaining to the New York jurisdiction in the access BPL notification data base to aid the Commission in effectively identifying and resolving any grid interference or grid operations problems related to BPL deployment in NY.

2. Safety, Reliability & Quality of Service:

- The safety and reliability characteristics of all quality utility services should be first in the minds of the Commissioners when evaluating proposals and recommendations in this proceeding. Whether an alternative is "the least expensive" should clearly be far below that of safety (1st) and reliability (2nd).
- Any obstruction to the climbing path or working area of the electric workers dealing with overhead or underground facilities, be it the result of extension arms, power supplies, etc. to deploy BPL technologies, is dangerous, unacceptable and should not be considered for adoption by the Commission.
- All interference issues should be the responsibility of the BPL provider and not the utility or even the customer.

3. Business Model and Regulatory Framework

- All make ready work or related BPL work must be consistent with the terms of the respective Collective Bargaining Agreement.
- Existing tariffs should be used to set the price for BPL providers to use utility assets. However, if access rights were auctioned off, then the proceeds could be used to reduce the cost of the transmission and distribution system for electric ratepayers.
- Utility personnel should be used to deploy BPL technology and the costs of these employees eliminated from rates.

United Power Line Council (UPLC is an alliance of electric utilities and their technology partners who drive the development of BPL technology):

1. Status & Development of BPL Technology:

- BPL is a last mile technology that delivers symmetrical speeds that are comparable to cable modem and DSL. Signal propagation is dependant on a number of factors, but generally the signal will carry substantially less than a mile before it needs to be repeated. The next generation of equipment is likely to extend this range.
- Recent improvements in technology, speeds and large scale commercial deployments of BPL are an encouraging sign that BPL is nearing commercial production, but equipment performance and availability will vary depending on the provider.
- There are several industry consortia that are in the process of developing standards and specification for BPL system.
- IEEE already has several standards relating to BPL which focus on interoperability, installation, and electromagnetic compatibility. These standards are a positive indication that BPL technology is maturing and the industry continues to grow.

2. Safety, Reliability & Quality of Service:

- It is unnecessary and inappropriate for the Commission to attempt to develop its own set of standards for every type of deployment by every type of BPL technology.
- National and local utility codes and consumer product safety codes apply to BPL equipment and have proven effective for the safe operation of BPL systems in deployments around the country, therefore the Commission does not need to develop new safety standards for BPL, nor does it need to develop new test methodologies.
- BPL equipment has been installed by utility workers and qualified contractors in trials and commercial deployments. The UPLC recommends allowing utilities and BPL operators to continue to develop and/or follow their own worker qualification standards and training requirements.
- Interference issues with respect to BPL equipment have been addressed by, and are within the exclusive jurisdiction of the FCC and Part 15 rules. As such, the Commission should not develop its own rules for resolution of interference between BPL and other electrical devices.
- BPL has potential benefits for utilities and the customer that they serve by enabling "smart grid" applications that could improve electrical system reliability and efficiency. Some of these applications have been demonstrated successfully in various BPL trials. Still, more work on utility applications is necessary to realize the potential for BPL to improve utility reliability and

efficiency. The Commission should encourage utility involvement in these efforts, consistent with national policies.

3. Business Model and Regulatory Framework

- Commission questions about the value to BPL systems of access to the electric system are premature and best wait until the industry and the technology begins to mature. Consideration of these issues now, could delay the initial deployment of the technology.
- The Commission should create incentives for utilities to deploy BPL by streamlining or eliminating regulatory requirements and imposing no requirements on BPL providers than are not imposed on other competitive telecommunications platforms.

New York Association of Public Power (NYAPP represents nine municipal electric utilities):

1. Status & Development of BPL Technology:

- Several of NYAPP's members are currently evaluating BPL as a means of reading meters, outage monitoring and notification, and gaining access to commercial meter information which could be fed back to the associated customer over the internet.
- There are also plans to utilize an integrated BPL/wireless system for security cameras at strategic locations within various systems to address homeland security issues.
- NYAPP encourages the Commission to keep the important utility benefits of BPL in the forefront as it moves forward with this proceeding.

2. Safety, Reliability & Quality of Service:

- As BPL equipment will be deployed and integrated with common systems of both the electric and telecommunication facilities, BPL must be required to adhere to these general standards (NESC, IEEE, ANSI, ASTM, NFPA & OSHA) and be consistent with Commission orders.
- Regarding interference issues, there should be an initial presumption that any issues that arise are attributed to and responsibility of the BPL provide and subject to the FCC Part 15 rules.
- The Commission should limit the number of BPL providers in a network to just one provider in order to avoid any issues with the electrical utilities trying to make changes to their system or delay any switching or restoration efforts.
- Any relocation of electrical utilities equipment needed due to the deployment of BPL systems should be done only by the utilities employees and not any BPL employee or contractor.

- Ultimately, NYAPP believes that the utility must maintain control over its electric distribution system to ensure the safety and reliability of its operation. While BPL has potential as a telecommunication medium, allowing personnel other than electric utility personnel to work on utility owned facilities will only lead to degradation in safety and reliability.
- All medium and low voltage work related to BPL should be done only by utility workers or workers directly under utility supervision and control.
- BPL has many smart grid applications that could improve the quality and reliability of electric service.

3. Business Model and Regulatory Framework

- NYAPP is concerned that in apparently proposing to mandate that utilities cannot be the developer of the BPL network, the Commission may limit BPL innovation for utility purposes.
- Utilities must survey their systems before deploying BPL technology to determine the necessary level of make ready costs and to identify issues related to availability of above and underground space. Issues regarding the availability of space as well as non-traditional attachments should be negotiated between the utility and the BPL provider.
- NYAPP supports the concept of a market based access fee.

United States Department of Defense and All Other Federal Executive Agencies (DOD/FEA):

1. Status and Development of BPL Technology:

- DOD/FEA comments are positive and hopeful on the potential for BPL technology evolving to become another competitive telecommunications provider.
- DOD/FEA expresses hope that BPL may be used to bring broadband services to rural areas as well as urban and suburban areas.
- BPL can potentially cause interference with various types of communications systems both wired and wireless. This issue should be resolved before BPL is broadly deployed. The one document of great significance that is referenced is a late 2004 study conducted on behalf of all Federal agencies by the National Telecommunications Information Agency (NTIA) which comprehensively discusses conducted and radiated interference by BPL systems and power lines in general. The Federal government has great interest in interference potential to Federal, military and civilian radio systems and this study was of great importance to all users of spectrum since BPL has the potential impact many different users. While this study was not attached to the comments, it is a

widely distributed Federal document and copies are in the possession of the Office of Telecommunications.

2. Safety, Reliability and Service Quality:

- Any BPL system "must operate on a noninterference basis relative to wired services in all environments". DOD/FEA urges the Commission to take actions that will serve the interest of better communications and utility services while not impairing telecommunications or electric services in all types and sizes of governmental facilities.

3. Business Model and Regulatory Framework

- The Commission should closely monitor pole attachment charges by electric utilities to assure a level competitive playing field.
- The Commission should take all steps necessary to prevent utility subsidization of BPL affiliates, including proper cost allocations, transaction rules, and limits on the flows of funds between the utility and the BPL affiliate.
- Utilities should give the Commission 30 days notice of any financial arrangement with a BPL company.

ARRL, the National Association for Amateur Radio

1. Status and Development of BPL Technology:

- The ARRL notes that while they are not opposed to BPL technology in concept, there are serious and unresolved technical issues with this technology.
- BPL technology is inferior to other broadband services because of its potential to interfere with and be interfered by other electronic devices. ARRL comments discuss technical problems with radiated and conducted interference to communications systems.
- The ARRL provides specific and detailed technological comments noting serious interference in a variety of locations where BPL has been deployed.
- There are allegations of unresolved interference from the BPL trial in Briarcliff Manor, NY which has been operated for some time by Consolidated Edison. ARRL provides in its comments an extraordinary detail of measurement methodology and documentation of serious levels of radiated interference with impair communications in the vicinity of this community. The ARRL also documents some of their complaints to the FCC as well as the company which have yet to be satisfactorily resolved after many months.
- The FCC has commenced an investigation in Manassas, Virginia about interference effects.

- ARRL has been proactive in the analysis of technical issues with BPL and has worked with several manufacturers of BPL equipment and the FCC in trying to find resolution to some of the problems they have noted. ARRL notes that it has had some success with various technology approaches, filtering schemes and power line architectures used for BPL which have been found to have less impact.

2. Safety, Reliability and Service Quality:

- Certain technology employed by Current Communications exhibited significantly less interference potential than other BPL platforms.
- There are a number of issues with regard to BPL both in terms of BPL's own reliability and that of the impact that BPL may have on other communications systems. While these comments are extensive and highly technical they make some very significant concrete recommendations with regard to BPL equipment, BPL system operations and BPL system design based on both field observations and laboratory tests.
- ARRL recommends that BPL providers be specifically required to respond to interference complaints that may be disrupting communications in a timely fashion. The Commission does not have direct jurisdiction over BPL interference however the Commission can require a quick response to complaints about interference.
- ARRL views the FCC's jurisdiction over BPL to be "skeletal" and despite any FCC jurisdiction there has been little action by many BPL companies or utilities.
- BPL systems are not properly designed they could be subject to operational disruption by FCC licensed and properly operating transmitters in the vicinity of a BPL served neighborhood.
- BPL deployments should be allowed only if the noted technical and operational recommendations are implemented.

3. Business Model and Regulatory Framework

New York State Telecommunications Association

1. Status & Development of BPL Technology:

- No applicable comments.

2. Safety, Reliability and Service Quality:

- The comments of NYSTA do address any specific issues regarding safety, reliability or service quality other than to generally suggest that rules for BPL should be similar to those for telephone.

3. Business Model and Regulatory Framework

- The Commission has a wide array of options to prevent subsidies that might arise from utility involvement in BPL.

Cable Telecommunications Association of New York (CATANY):

1. Status & Development of BPL Technology:

- BPL technology while suggested as a potential competitive provider of telecommunications services is an immature technology still in early stages of development.
- BPL proponent's mention that 40 trials under way. CATANY points out that this number is flat compared with the year before and that there are only 7 commercial deployments at this time.
- The National Association of Regulatory Utility Commissioners issued a report in February which notes several failed BPL trials.
- While BPL may have regulatory concerns, these pale in comparison with issues of technology performance and other business aspects of this technology's potential.
- BPL may hold promise but they believe that pole attachment, economic and technical issues should be resolved before broad BPL deployment.

2. Safety, Reliability & Quality of Service:

- CATANY stresses that technological problems with BPL are significant and they point out the extensive documentation of harmful interference by amateur radio operators.
- NARUC has also observed that BPL can cause interference with other radio services of importance to local municipalities such as police, ambulance and private business communications services such as those used by taxis.
- BPL may also cause interference with other appliances in the home and that this issue is still in need of further study by BPL trials.
- There is a strong need for an efficient and rapid mitigation of such problems with little or no disruption of other services.
- There are also significant pole attachment issues related to the available work space and separation spaces on poles and how BPL might affect the ability to comply with applicable safety codes.

3. Business Model and Regulatory Framework

- The Commission should apply the policies and procedures in its Generic Pole Proceeding Order (C. 03-M-0432) for BPL attachment to poles...

Time Warner Telecom³

1. Status and Development of BPL Technology:

- Time Warner Telecom made no substantive comments on the issue of status or development of BPL Technology.

2. Safety, Reliability and Service Quality:

- Time Warner Telecom made no substantive comments addressing the issue of safety, reliability, or service quality.

3. Business Model and Regulatory Framework

- Time Warner Telecom made no substantive comments addressing the business model and regulatory framework issues.

Microwave Satellite Technologies, Inc. (MST)

1. Status and Development of BPL Technology:

- MST already provides In-House BPL service in the New York City Metropolitan Area and it has done so without the participation of the jurisdictional electric utility.
- MST made significant comments regarding "in building" uses of a variety of non-utility power conductor communications type technologies. Many of these applications within building control building environmental systems, elevator control, and internal building user communications needs as well. MST suggests that these technologies are mature and used significantly in some areas.
- MST suggests specific equipment to limit interference to their power line based communications systems caused by equipment attached to the power line such as florescent lights, dimmer switches and near by radio transmitters which are picked up and conducted by power lines.
- There is a need for policy in the area of interconnection so that the building owners may have a choice to exclude BPL signals so that they may be able to provide their own power line communications services or internal uses of the building wiring.

³ Time Warner Telecom is a business telecommunications service provider and is not the same company as Time Warner Cable. Although there is a small percentage of common ownership they are also competitors in some telecommunications business segments.

2. Safety, Reliability and Service Quality:

- MST comments made in the area of safety, reliability and service quality suggests that building owners have an interest in the use of power line communications within their buildings. It notes that power line control systems used for in building systems and communications are reliable if of proper technical design, including various industry standards.

New Visions PLC, LLC

1. Status and Development of BPL Technology:

- New Visions PLC, LLC states that BPL technology is viable. It also notes that their company has already deployed a BPL service in a portion of Solvey, NY; a suburb of Syracuse. Electric service in this town is provided via a municipality operated electric company that is cooperating with New Visions in this project.
- New Visions indicates that the BPL system is successfully competing with the local telephone company, Verizon and the local CATV company Time Warner Cable Inc.
- At the present time they are not providing video service but they say they expect to offer video via Internet protocol by sometime in 2006.
- New Visions points out that while New York State has the second most broadband lines in the United States, BPL could help meet the needs of the many New Yorkers who still do not have broadband access.

2. Safety, Reliability and Service Quality:

- New Visions indicates that the ways they operate there are no adverse safety, reliability or service quality impacts. It also discusses the steps they take to avoid problems in these areas.
- New Visions also points out that the use of BPL for electric utility applications may enable utilities to save money by reducing their reliance on leases of data circuits and fiber connection from telecommunications companies.
- Existing equipment, installation and maintenance standards adequately cover the use of BPL equipment on electric utility networks.

3. Business Model and Regulatory Framework

- Regulatory certainty is needed for the successful deployment of BPL technology.
- Utilities should be allowed to lease distribution lines without having to go through a lengthy review process.
- Current pole attachment rates should be used for BPL.

- The Commission should reaffirm that it will not asset authority over BPL projects or service.
- BPL shareholders have the right to keep the money they realize from a project.
- BPL contracts should be similar for similarly situated companies.
- Utilities should be allowed to file contracts with the Commission which become effective after a reasonable period, absent Commission action.

Current Communications Group, LLC

1. Status and Development of BPL Technology

- Current Communications comments that the BPL technology it sells is developed and mature.
- There are two fundamental forms of BPL, namely Access BPL which represents broadband services to homes and businesses and In-House BPL which uses electric outlets within a building to transfer information between computers and other household electronic devices.
- Current also describes some of the technical aspects of how its system operates and indicates it can provide a host of telecommunications services and power utility monitoring services.
- Current described several products or services it has developed that include video cameras for security purposes.
- Current states that its brand of BPL service cannot cause interference. It notes that ARRL has commented that Current Communication's BPL systems do not cause interference.
- FCC jurisdiction over interference is stressed,

2. Safety, Reliability and Service Quality

- Existing equipment, installation and maintenance standards adequately cover the use of BPL equipment on electric utility networks.
- BPL can improve electric service reliability and energy efficiency due to improved monitoring of the utility grid, outage detection and monitoring of user premises power usage.
- There are several operating BPL systems that are noted including one in Manassas, Va.

3. Business Model and Regulatory Framework

- Section 119-1 of the Public Service Law governing Commission authority over pole attachments, conduits, trenches and ducts should be applied to BPL businesses in a non-discriminatory manner.
- Applicable pole attachment rates should apply when applicable.

- Current rules about pole attachments, clearances, spacing and related issues are already in place and should be followed.
- It is not economically efficient or fair to have BPL providers pay an access fee for use of an electric utility's wires.
- Charges to the BPL providers should be based on incremental costs.
- Neither Texas nor Ohio has required access charges.
- Commission zero cost determinations in certain telephone company situations involving third party use of the local loop to provide DSL service is analogous to the question about whether an excess fee should exist and suggest that an access charge is not required.
- The close relationship required between an electric utility and a BPL company makes it inappropriate for the utility to auction off rights to its electric lines. A BPL provided imposed on the utility by an auction may not be able to work effectively with the utility.
- Utility employees and facilities may be used to support a BPL company. The BPL company should pay fully allocated costs for these items.
- Transactions between incumbent utilities and their BPL affiliates should be carefully scrutinized.

Ambient Corporation

1. Status and Development of BPL Technology

- Ambient discusses BPL technology and indicates it is a viable technology.
- Ambient discusses differing approaches to BPL infrastructure and architecture; in their case they make use of Medium Voltage and Low Voltage power conductors from the substation to carry BPL signals. With regard to harmonics they indicate that the frequencies used by BPL transmitters are at least 25,000 times higher" than the 60 Hertz power line frequency so no interaction is likely. This indicates that BPL transmitters operates at an "a fraction of a watt" and due to the low levels will not cause interference.
- Ambient thinks that FCC rules alone are sufficient to prevent conducted interference to other communications systems or user equipment.
- Should something cause interference to BPL in a household, a power line noise filter could be added to that equipment.
- Any equipment which was subject to interference from BPL equipment would not be complying with "immunity standards" and that an added filter could be placed on that device to provide additional immunity.
- BPL equipment might be able to deliver data rates of anywhere from 5 to 45 megabits to end users.
- Data security would be provided by the same encryption schemes employed by other networks. Moreover, the voltage of the "MV lines would provide an added security layer as they are not easily accessible".

- BPL has been studied for years by the IEEE and there are suitable standards and working groups in place to create guidance.
- Ambient characterizes its Briarcliff Manor, NY demonstration project with Con Edison as a positive development supporting additional deployment of BPL technology.

2. Safety, Reliability and Service Quality

- Ambient comments include discussion that BPL operations can be subject to certain kind of interference both from existing electrical equipment, other types of power line communications systems and radio communications systems; but it also notes that the impact is likely to not be serious to the BPL system.
- BPL systems may be able to operate during a power outage or even perhaps situations where there could be plant damage if some of the equipment was battery backed up.
- Existing equipment, installation and maintenance standards adequately cover the use of BPL equipment on electric utility networks.
- FCC rules are sufficient to prevent BPL interference with other communications systems or user equipment.

2. Business Model and Regulatory Framework

- Costs incurred by utilities to support BPL deployment could be offset by various value added benefits the utility might derive through its relationship with the BPL provider.
- Utilities should be able to recoup the “fair value” of the right of way it provides a BPL provider. Examples are provided.