Current Communications Group

Broadband over Powerline (BPL) Communications

CITI Presentation

March 18, 2005

Current Communications Group

is a BPL communications company focused on both BPL services and equipment.

Current's Highlights to Date

- Fully-funded for first joint ventures (JVs)
  - Current Communications – first commercial BPL deployment in U.S. Created JV with Cinergy to pass more than 250,000 homes and thousands of small businesses in 3 years throughout Cinergy's electric distribution territories.
  - Commercial service launched in May 2004
  - ACcess Broadband – Cinergy/Current JV. Offers service to small municipal-owned and rural cooperative utility markets throughout the U.S.
- Initial pilot deployments with Cinergy and Pepco conducted in 2003
  - 700+ homes passed and 200+ subscribers
  - Safe and cost effective. Successfully provided broadband data, voice and streaming video
  - Pilot with Hawaiian Electric Company ongoing
- Current was founded in July 2000

Current uses BPL to provide end-to-end communications services and enhanced utility services using the existing power grid.

Communication services to residential / business customers

- Broadband data
  - Up to 6 Mbps net symmetrical data rate today
  - As much as 50+ Mbps in next generation
- Voice (VoIP) services
- REAL plug-and-play with NO truck roll to the customer premises
- All electrical outlets in home / office form a single local area network (LAN)
- Other applications include Internet gaming and Internet radio
- Next generation of BPL will support digital video programming services.

Enhanced Power Distribution Services to Electric Utilities

- Modernization of power distribution network
- Improved reliability
- Outage and overload detection
- Power quality monitoring
- Network security and monitoring
- Substation monitoring
- Improved efficiency
- Automated meter reading
- Remote connect/disconnect
- Optimized Capacity
- Demand-side management
- Direct load control

Current's BPL solution overlays on the distribution portion of the electric utility network to provide communications services.

The Power Distribution Network

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Current’s BPL Overlay Solution

1. CT Couplers
2. CT Backhaul Points
3. CT Bridges
4. Third-party HomePlug BPL Modem
5. HomePlug Modem at Premises
6. Internet
7. Video
8. VoIP/PSTN

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**Current’s BPL Products**

- **CT Coupler®**
  - Safely couples signal onto medium-voltage power lines

- **CT Backhaul-Point®**
  - Aggregates traffic from multiple CT Bridges® and connects to the metro-area network

- **CT Bridge®**
  - Deployed next to a transformer as gateway between low- and medium-voltage lines

**Actual installation of CT Coupler® and CT Bridge® at an aerial transformer**

**Installed CT Bridge® Pole Assembly at an aerial transformer**

**Actual installation of CT Coupler® and CT Bridge® at an underground transformer**

**In the home or office all a customer need install is an off-the-shelf Powerline Modem**

- **Third-party HomePlug® Powerline Modem**
  - HomePlug® standard developed in U.S and provided by third-party vendors
  - Linksys, Netgear, etc.
  - Available now from retailers with three interfaces
    - USB, Ethernet and Wireless / 802.11x
  - Small size
    - Plugs easily into any socket
  - Present generation uses HomePlug® 1.0 with a raw data rate of 14 Mbps and a net data rate of 2.4 Mbps
  - Wholesale cost under $30 and declining
  - At least one PC maker has announced it is including HomePlug® chips in PCs

**Current’s Cincinnati deployment status**

- Current Communications manages BPL system deployment, sales and marketing, customer support, billing and collection, and all other Back Office functions
- Commenced marketing commercial service in May 2004
  - Initial footprint in greater Cincinnati area
  - Plan covers all three states in the Cinergy territory (OH, IN and KY)
- Customer acceptance rate high for direct marketing campaign; customer satisfaction rate high, especially for a new technology
- Four service tiers, with more than half of customers choosing something higher than the basic tier
- VoIP service commercially available later this year
- Consumer web site is [www.current.net](http://www.current.net)
Enhanced Power Distribution Services

Current's BPL system already can assist in Automated Outage/Restoration Detection and Power Quality Monitoring through Current Look™

Current's BPL system already can assist critical infrastructure and Homeland Security monitoring through Current Cam™

BPL regulatory overview

- Work within the existing regulatory frameworks
  - Use of regulated utility resources follows local, state and federal rules
    - Poles, line crews, joint marketing / billing and rights of way (ROWs)
  - Enhanced Power Distribution Services (EPDS) improve network reliability, security, efficiency and consumer services
    - EPDS examples include power outage / restoration detection, automated meter reading (AMR), power quality monitoring and demand-side management
- FCC’s Part 15 rules regarding RF emissions apply
  - FCC has confirmed that interference potential for properly designed BPL systems is low
  - ALL of Current’s BPL equipment fully complies with FCC emissions rules