

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

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In the Matter of	)	
	)	
Carrier Current Systems, Including	)	
Broadband over Power Line Systems	)	ET Docket No. 03-104
	)	
Amendment of Part 15 Regarding New	)	
Requirements and Measurement	)	ET Docket No. 04-37
Guidelines for Access Broadband	)	
over Power Line Systems	)	
	)	
	)	

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COMMENTS OF HAWAIIAN ELECTRIC CO., INC.

Pursuant to Section 1.415 of the Commission’s Rules, 47 C.F.R. § 1.415, Hawaiian Electric Company, Inc. (“HECO”) files these comments in response to the Commission's Notice of Proposed Rule Making released February 23, 2004 in the above captioned proceeding (“Notice”).<sup>1</sup>

**I. Introduction**

HECO is the primary electrical utility throughout the state of Hawaii, including the islands of Oahu, Maui, Hawaii, Molokai, and Lanai.

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<sup>1</sup> *New Requirements and Measurement Guidelines for Access Broadband over Power Line Systems*, , ET Docket No. 04-37, FCC 04-29 (released Feb. 23, 2004).

HECO has been testing various forms of BPL technology since 2002 and is presently engaged in a limited pilot project using Current Technologies' Broadband over Power Line ("BPL") technology. HECO prefers Current Technologies' BPL system for many reasons, including its leveraging of the HomePlug® standard and its ability to provide symmetrical broadband service in excess of 3 MBps, enabling a multitude of real-time utility applications at the BPL Access level as well as the low voltage (in-home) level. Additional communications services, such as Internet service and Voice over Internet Protocol (VoIP), will readily share the BPL bandwidth with utility applications.

As Cinergy Corp. ("Cinergy") has noted in their response to the Notice, the Commission correctly observes (¶30) that BPL can potentially "improve the safety and efficiency of the electric power distribution system and also further our national homeland security by protecting this vital element of the U.S. critical infrastructure." HECO concurs with Cinergy that BPL has the potential to enable a variety of Enhanced Power Distribution Service ("EPDS") applications, including automated outage detection and restoration confirmation; more efficient demand-side management programs; remote monitoring and operation of electrical line equipment; and proactive power quality monitoring. In its official comments to the BPL NOI (ET Docket No. 03-104), HECO elaborated on BPL's potential to enable numerous enhanced utility customer service and operations, as well as enable further operational cost-reductions. In comparing all other mediums, BPL is the only infrastructure that can truly give the utility cost-effective ubiquitous "customer connectivity" to its entire service territory.

Like Cinergy, HECO strongly supports the Commission's contention that BPL is a nascent and extremely promising technology, and the intent of the Notice not to impose onerous regulatory burdens or to overreact to unsubstantiated fears of potential interference with other

spectrum users. HECO believes the Commission has rightly sought to clear unwarranted or burdensome obstacles and forges a path to establish “technical standards to make possible new broadband technologies, such as the use of high-speed communication directly over power lines.”

## **II. Comments on specific proposals in NPRM**

### BPL Interference Over Miles of Power Line

In typical BPL implementations, such as over HECO’s electrical power line distribution network, there are primary (medium voltage, e.g., 12KV) distribution routes with unbalanced laterals or spurs. Given the design and configuration of BPL devices, such as Current Technologies’ back-haul points and low-voltage transformer bridges, it is highly improbable that the electrical distribution network would become one continuous, aggregated antenna that will cause widespread radio interference. As Current Technologies elaborates in its response to the Notice, several operational features serve to mitigate the likelihood of interference from its BPL systems. From our review of prior test results, HECO understands that emissions rapidly decrease over distance, and that sample *in situ* measurements, as recommended by the Commission, will ensure that emissions within the immediate vicinity of the power line will not exceed FCC guidelines. To date, in two years of limited BPL trials, HECO has not received one substantiated interference complaint within the direct vicinity of our BPL equipment.

### Interference Mitigation Techniques

Section 15.5(c) of the Commission’s Rules requires a Part 15 device to cease operation if it causes harmful interference to an authorized radio service. From a practical standpoint, HECO believes that if the device is in Part 15 “emissions level” compliance, it is unlikely to be a source of interference, and as such, “shut down features” are unwarranted. HECO favors dynamic or

remote controlled-basis control of power levels and/or frequencies, provided the Commission affords existing BPL equipment vendors and service providers sufficient time to come into compliance with any new rules the Commission adopts in this proceeding. HECO asserts, as Current Technologies states in its comments to the Notice, that “applying these measures to BPL devices would be intrusive and discriminatory.” The present radio-frequency environment has numerous emission sources, many of them consumer in nature, and singling out BPL is discriminatory. From a practical nature as well, HECO is also concerned that onerous technology requirements will increase the costs of BPL equipment, when in essence, BPL components needs to continue decreasing in cost.

#### Notification Requirement

The Notice proposes (§43) “to establish a publicly accessible database for Access BPL information” that would provide “information on the location of the [BPL equipment] installation, the type of modulation used and the frequency bands of operation.” HECO would not oppose the creation of such a database, provided that it is maintained by a trusted and secure third party that maintains it as a private data base.

Given the Federal classification of the electric utility infrastructure as a FEMA “Critical Infrastructure,” utility asset security has become essential and is mandated. A secure, independent “custodial” approach to maintaining a database of BPL equipment locations and associated infrastructure is required to guard potential risks to the utilities’ assets. This is especially true once the utility begins to rely on BPL for a variety of utility applications including those that may be security related. The database custodian would comply with specific guidelines concerning when and how utility data can be accessed.

HECO suggests that specific procedures would need to be set forth to ensure a third party reliably handles interference-related inquiries, while ensuring spectrum users only obtain the specific information tied to legitimate interference inquiries. The procedures should safeguard against frivolous interference complaints. For example, HECO received several requests for more information about its BPL testing in 2003, and in the process of obtaining more information from the inquirer about the substantive issues, the inquirer related the specific months that the interference was noted in the area where they believed HECO was undergoing trial testing. Upon further examination, HECO found that the inquirer noted interference concerns for months in which there was no BPL testing underway nor equipment installed. This raises concerns that evolve once a utility, such as HECO, files public comments in such BPL matters or files experimental FCC applications, in that it becomes a target of unmerited efforts to curtail its BPL trials or deployments.

#### Technical Issues

1. Equipment Authorization. HECO concurs with the proposal to require BPL equipment verification.
2. Measurement Guidelines and Antenna Height. HECO generally supports the guidelines suggested in the Notice, however, submits that representative configuration testing would ultimately serve just as well as *in situ* compliance testing and that emissions testing at power line height raises significant safety issues. Normal testing at the height of one to four meters provides sufficient basis to test emissions levels without placing metallic measurement equipment dangerously close to several thousand volt power lines.

#### CONCLUSION

HECO commends the Commission for its pragmatic approach to BPL as a nascent third form of wired technology for broadband services and a potentially transformational technology for numerous utility service improvements. The Commission has proposed reasonable approaches to mitigating potential interference, while limiting unnecessary regulatory impediments.

Respectfully submitted,

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