

Law Offices

# HOLLAND & KNIGHT LLP

315 South Calhoun Street  
Suite 600  
P.O. Drawer 810 (ZIP 32302-0810)  
Tallahassee, Florida 32301

850-224-7000  
FAX 850-224-8832  
www.hklaw.com

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December 22, 2000

D. BRUCE MAY, JR.  
850-425-5607

Internet Address:  
dbmay@hklaw.com

Blanca S. Bayo  
Director, Division of Records & Reporting  
Florida Public Service Commission  
Capital Circle Office Center  
2540 Shumard Oak Boulevard  
Tallahassee, Florida 32399-0850

Via Hand-Delivery

001814-EI

Re: In re: Complaint of Metricom, Inc. against Florida Power & Light Company for Violation of Sections 366.03 and 366.06(2), Florida Statutes

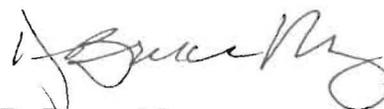
Dear Ms. Bayo:

Enclosed for filing are the original and seven (7) copies of Metricom, Inc.'s Complaint against Florida Power & Light Company for violation of Sections 366.03 and 366.06(2), Florida Statutes. Also enclosed is a diskette containing Metricom, Inc.'s Complaint in Wordperfect format.

For our records, please acknowledge your receipt of the filing on the enclosed copy of this letter. Thank you for your consideration.

Sincerely,

HOLLAND & KNIGHT LLP



D. Bruce May

DBM:kjg  
Enclosures

cc: Mr. Bill Walker  
Ms. Jean Howard  
Ms. Beverlee Demello

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FPSC-BUREAU OF RECORDS

DOCUMENT NUMBER-DATE

16388 DEC 22 8

FPSC - RECORDS & REPORTING

**BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

In re: Complaint of Metricom, Inc.  
Against Florida Power & Light  
Company for Violation of Sections  
366.03 and 366.06(2), Florida Statutes

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Docket No. 001814-EL

Filed: December 22, 2000

**COMPLAINT OF METRICOM, INC. AGAINST  
FLORIDA POWER & LIGHT COMPANY FOR VIOLATION  
OF SECTIONS 366.03 AND 366.06(2), FLORIDA STATUTES**

Metricom, Inc. ("Metricom"), by and through undersigned counsel, and pursuant to Rule 25-22.036, Florida Administrative Code, files this complaint against Florida Power & Light Company ("FPL") for violation of Sections 366.03 and 366.06(2), Florida Statutes, by refusing to offer Metricom adequate and efficient electric service at fair and reasonable rates.

Metricom provides wide-area, advanced wireless mobile data communications service ("Ricochet Service") that enables users of portable and desktop computers and hand held e-commerce appliances to have high-performance, cost-effective mobile access to the Internet, private intranets, e-mail and other on-line services. Subscribers of Metricom's Ricochet Service are provided with continuous, unlimited access to data networks for a low, flat monthly fee, regardless of usage. Metricom's Ricochet Service is provided through a network of strategically placed Microcell Radio repeaters ("Microcell Radios"). A small amount of electric power is needed to operate each Microcell Radio. Therefore, Metricom's ability to offer its Ricochet Service is directly dependent on electric utilities furnishing Metricom with efficient electric service at reasonable rates, terms, and conditions.

DOCUMENT NUMBER-DATE

16388 DEC 22 8

FPSC-RECORDS/REPORTING

Metricom seeks to expand its Ricochet Service into Florida and has requested electric service from FPL. FPL, however, has conditioned the provision of electric service to Metricom on: (i) Metricom paying the rates and charges set forth in FPL's General Services Non-Demand ("GSND") Tariff, and (ii) each of Metricom's Microcell Radios located in FPL's service area being metered and billed as a separate account. FPL's requirement that Metricom take and pay for electric service under its GSND Tariff, and treatment of each of Metricom's Microcell Radios as a separate customer, is impractical, inefficient, and unreasonable. Furthermore, allowing the rates and charges in FPL's GSND Tariff to be imposed on, and collected from, Metricom would provide FPL excessive compensation for services actually provided by FPL to Metricom's Microcell Radios.

**Procedural Background and Information**

1. The name and address of the Complainant are:

Metricom, Inc.  
333 West Julian Street  
San Jose, California 95110

Metricom is a corporation organized and existing under the laws of the Delaware, and is authorized to do business in the State of Florida.

2. All pleadings, motions, orders, and other documents directed to Metricom are to be served on the following:

D. Bruce May  
Karen D. Walker  
HOLLAND & KNIGHT LLP  
P.O. Drawer 810  
Tallahassee, Florida 32302  
E-mail: dbmay@hklaw.com  
Phone: (850) 224-7000  
Fax: (850) 224-8832

3. The name and address of the utility against which Metricom lodges the complaint are:

Florida Power & Light Company  
9250 West Flagler Street  
Miami, Florida 33174

FPL is a public utility under Florida law and its rates, terms, and conditions for electric service are subject to the Florida Public Service Commission's (the "Commission"s) jurisdiction under Chapter 366, Florida Statutes.

#### **Background**

4. As noted above, the network used by Metricom to provide its Ricochet Service is built around frequency-hopping, spread spectrum, packet-switched Microcell Radios that are strategically installed in a meshed topology. The Microcell Radios are shoebox-sized radio transceivers that are typically mounted to above-ground structures like traffic signals, street lights, or utility poles. A small amount of electric power is needed to operate each Microcell Radio. The Microcell Radios are either self-contained wireless units that typically do not require wiring or connections, or the radios can be installed using traditional wiring. A copy of Metricom's Microcell Radio installation guide is attached as Exhibit "A". A picture of a Microcell Radio mounted on a pole is attached as Exhibit "B".

5. A Metricom Microcell Radio operates on a minimal amount of electric power that can be taken directly from an existing source. Power consumption for each Microcell Radio is uniform, and consumption can be predicted with relative certainty. A Microcell Radio Energy Consumption Report is attached as Exhibit "C." This power consumption report shows that the average consumption for a Microcell Radio is projected to be 230.212 kWh per year or 19.184 kWh per month.

6. Because Microcell Radios use only minimal amounts of power, and usage can be predicted in advance with relative certainty, Metricom's consumption profile is similar to that of customers subscribing to electric utility tariffs governing outdoor lighting and traffic signal services. Accordingly, Metricom's typical practice in other states has been to request that an electric utility provide it with unmetered electric service under a utility's outdoor lighting tariff, traffic signal tariff, or a similarly designed and priced tariff.<sup>1</sup>

**Deployment of Metricom Microcell Radios  
in FPL's Service Territory**

7. Metricom seeks to offer its Ricochet Service in Florida and currently is in the process of negotiating attachment agreements with governmental and private entities throughout the state.

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<sup>1</sup> For example, Baltimore Gas & Electric Company ("BG&E") has designed and offers a telecommunications network service tariff that allows companies like Metricom to take unmetered service at multiple telecommunications network devices with monthly kWh usage computed on the basis of average wattage rating for the installed devices. A copy of BG&E's Telecommunications Network Service Tariff Schedule TN is attached as Exhibit "D".

8. In order to deploy its Ricochet Service in southeast Florida, Metricom projects that it will need to install approximately 3500 Microcell Radios in FPL's service territory.

9. Metricom has requested that FPL supply it with unmetered electric power for its Microcell Radios with usage determined on the basis of verifiable assumptions regarding power consumption. Metricom has further requested that FPL issue one monthly bill to Metricom with one monthly customer charge for service provided by FPL to Metricom for use in operating the Microcell Radios.

10. The rates, terms, and conditions under which Metricom has sought such services match the rates, terms, and conditions under FPL's Outdoor Lighting Tariff (attached as Exhibit "E") and FPL's Traffic Signal Service Tariff (attached as Exhibit "F"). The usage of power by Metricom is similar to the usage of power by customers subscribing to FPL's Outdoor Lighting and Traffic Signal Service Tariffs, except that the power is used by radios instead of street lights and traffic signals.

11. FPL has refused to offer Metricom electric service under rates, terms and conditions that are the same as, or comparable to, those in FPL's Outdoor Lighting and Traffic Signal Service Tariffs. Instead, FPL has stated that it will require Metricom to take service under FPL's GSND Tariff, with each Microcell Radio separately metered and billed.

12. Under FPL's Outdoor Lighting Tariff, when the customer supplies the lamp fixture rated at 70 watts, FPL imposes a flat monthly energy-only charge of 60¢ per unit. The service is unmetered and the flat rate is calculated based on the

lamp's estimated energy consumption of 29 kWh per month, which is the FPL consumption estimate closest to that of a Microcell Radio ( i.e., 19.184 kWh). Metricom's power supply costs under FPL's Outdoor Lighting Tariff would be roughly 4.22¢ per kWh plus franchise fees and taxes.<sup>2</sup> Thus, based on 3500 Microcell Radios, Metricom would pay only \$2,833.48 per month, or \$34,001.72 per year, if service were offered to Metricom under FPL's Outdoor Lighting Tariff or a similarly designed rate schedule.

13. Under FPL's Traffic Signal Service Tariff, when a customer installs and maintains traffic signals, FPL imposes a base energy charge of 3.615¢ per kWh. The service is not metered. Instead, FPL calculates usage at each point of delivery, based on operating tests using manufacturer's ratings and specifications. FPL charges a minimum of \$2.85 at each point of delivery. Using the Microcell Radio average consumption of 19.184 kWh, Metricom's power supply costs under FPL's Traffic Signal Service Tariff would be roughly 5.77¢ per kWh plus franchise fees and taxes.<sup>3</sup> Using the consumption estimate for a Microcell Radio of 19.184 kWh, the charge calculated under FPL's Traffic Signal Service Tariff would fall below the \$2.85 minimum charge for each point of delivery. Thus, based on 3,500 Microcell Radios and a minimum charge of \$2.85 for each Microcell Radio, Metricom would

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<sup>2</sup> The 4.22¢ per kWh is calculated under FPL's Outdoor Lighting Tariff by adding the non-fuel energy charge (2.062¢), the conservation charge (0.112¢), the capacity payment charge (0.198¢), the environmental charge (0.014¢), the fuel charge (1.834¢) multiplied by 19.184 kWh divided by 19.184 kWh.

<sup>3</sup> The 5.77¢ per kWh is calculated under FPL's Traffic Signal Service Tariff by adding the non-fuel energy charge (2.062¢), the conservation charge (0.112¢), the capacity payment charge (0.198¢), the environmental charge (0.014¢), the fuel charge (1.834¢) multiplied by 19.184 kWh divided by 19.184 kWh.

pay approximately \$9,975 per month, or \$119,700 per year, if service were offered to Metricom under the FPL's Traffic Signal Service Tariff or a similarly designed rate schedule.

14. In contrast, service under FPL's GSND Tariff would require Metricom to receive a bill and pay a monthly Customer Charge of \$9.00, and a metered Non-Fuel Energy Charge of 4.152¢ per kWh per month, plus fuel cost, for each of the estimated 3,500 Microcell Radios to be installed in FPL's service area. Metricom's effective power supply costs would be 53.62¢ per kWh for each Microcell Radio based on radio usage estimates of 19.184 kWh per month.<sup>4</sup> Thus, rigid application of the GSND Tariff would require Metricom to pay a total charge for electricity of approximately \$36,002.61 per month, or \$432,031.35 per year. These rates and charges would exceed those charged under FPL's Outdoor Lighting Tariff by \$33,169.13 per month, or \$398,029.63 per year, and would exceed those charged under FPL's Traffic Signal Service Tariff by \$26,027.61 per month or \$312,331.35 per year. Therefore, the rates and charges that FPL proposes to apply to Metricom are excessive and unreasonable.<sup>5</sup>

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<sup>4</sup> The 53.62¢ per kWh equals the sum of the non-fuel energy charge (4.152¢), the conservation charge (0.184¢), the capacity payment charge (0.482¢), the environmental charge (0.016¢), and the fuel charge (1.870¢) multiplied by the estimated energy usage of 19.184 kWh plus the \$9.00 customer charge divided by 19.184 kWh.

<sup>5</sup> The \$9.00 per month customer service charge would comprise the vast majority of the rates and charges to be paid by Metricom for each Microcell Radio under FPL's GSND tariff. However, FPL will incur minimal costs associated with providing electric service to Metricom's Microcell Radios, which are passive devices. The costs of FPL providing service to the Microcell Radios will not amount to anywhere near \$9.00 per Microcell Radio. Accordingly, the \$9.00 customer service charge proposed by FPL is unreasonable.

15. Metricom has attempted in good faith to resolve its differences with FPL for over a year. Metricom first approached FPL in September of 1999 to discuss the provision of electric service to Metricom's Microcell Radios. By April, 2000, it was clear that Metricom and FPL had reached an impasse in their negotiations on the rates, terms and conditions under which FPL would provide service to Metricom. On September 11, 2000, FPL confirmed in writing that it would only provide service to Metricom under its GSND Tariff, and that it would require each Microcell Radio to be metered and billed as a separate account. A copy of the September 11, 2000 correspondence from FPL is attached as Exhibit "G."

**FPL's Violation of Sections 366.03 and 366.06(2)**

16. The rates, terms and conditions under which FPL proposes to provide electric service to Metricom are impractical, inefficient, and unreasonable, and breach FPL's duties as a public utility set forth in Section 366.03, Florida Statutes. Moreover, the rates and charges that FPL seeks to impose under its GSND Tariff are unfair, unreasonable, and would yield excessive compensation to FPL in violation of Sections 366.03 and 366.06(2), Florida Statutes.

17. Section 366.03, Florida Statutes, states:

Each public utility shall furnish to each person applying therefore reasonably sufficient, adequate, and efficient service upon terms as required by the [C]ommission. . . . All rates and charges made, demanded, or received by any public utility for any service rendered, or to be rendered by it, and each rule and regulation of such public utility, shall be fair and reasonable. No public utility shall make or give any undue or unreasonable preference or advantage to any person or locality, or subject the same to any undue or unreasonable prejudice or disadvantage in any respect.

§ 366.03, Fla. Stat. (2000).

18. Section 366.06(2) empowers the Commission to investigate, upon a customer complaint, or upon its own motion, whether:

[t]he rates demanded, charged, or collected by any public utility for public utility service, or [whether] the rules, regulations, or practices of any public utility effecting such rates, are unjust, unreasonable, unjustly discriminatory, or in violation of law. . . .

§ 366.06(2), Fla. Stat. (2000). Section 366.06(2) also authorizes the Commission to investigate whether rates demanded, charged, or collected by a public utility, such as FPL, would "yield excessive compensation for services rendered" or that service is inadequate or cannot be obtained. § 366.06(2), Fla. Stat. (2000).

**FPL Has Violated Sections 366.03 and 366.06(2) By Requiring Separate Metering and Billing for Each Microcell Radio**

19. FPL's requirement to separately meter the electric power usage for each Metricom Microcell Radio in its service territory is impractical, inefficient and wasteful. The Commission's rules specifically authorize unmetered service in situations such as this where it is impractical to meter loads and where energy consumption can be predicted with reasonable accuracy. See Fla. Admin. Code R. 25-6.049(1) ("All energy sold to customers shall be measured by commercially acceptable measuring devices owned and maintained by the utility, except where it is impractical to meter loads, such as street lighting, temporary or special installations, in which case the consumption may be calculated, or billed on demand or connected load rate . . .").

20. In this case, it would be impractical and unnecessary to separately meter each of Metricom's Microcell Radios deployed in FPL's service area. This is

especially true because the energy consumption for each Microcell Radio is readily ascertainable and can be accurately estimated in the same manner as outdoor lighting service and traffic signal service. See Microcell Radio Energy Consumption Report attached as Exhibit "C."

21. Moreover, the projected annual energy usage for each Microcell Radio is too low to necessitate individual metering. Not only would metering this usage be impractical and inefficient, it would waste valuable FPL resources that could be used to enhance the quality of customer services in other areas.

22. Because Metricom qualifies for unmetered service under Rule 25-6.049(1), each Microcell Radio should be billed by multiplying the applicable energy rate by the predetermined energy consumption of the Microcell Radios. FPL can simply multiply that amount by the number of Microcell Radios that have been installed and are operating to determine the total amount to be billed to Metricom.

23. Upon information and belief, FPL does not separately meter and bill customers subscribing to its Outdoor Lighting Tariff for each outdoor lamp installation to which FPL supplies power, or to customers subscribing to its Traffic Signal Service Tariff for each traffic signal to which FPL supplies power. Metricom's Microcell Radios should be treated in a manner similar to outdoor lighting or traffic signal installations – unmetered service with one bill to Metricom for all Microcell Radios in operation in FPL's service territory.

**FPL Has Violated Sections 366.03 and 366.06(2) By Requiring  
Metricom to Subscribe to Its GSND Tariff**

24. Requiring Metricom to pay the rates and charges under FPL's GSND Tariff would enable FPL to obtain excessive compensation for electric services supplied to Metricom's Microcell Radios. As described above, under the GSND Tariff, Metricom would pay 53.62¢ per kWh for each Microcell Radio based on energy usage estimates of 19.184 kWh per month. That cost is excessive, particularly when Metricom would pay approximately 4.22¢ per kWh for each Microcell Radio under FPL's Outdoor Lighting Tariff and a flat rate of \$2.85 for each Microcell Radio under FPL's Traffic Signal Service Tariff.

25. Virtually every cost that FPL recovers through its base rates and charges in its GSND Tariff would not be applicable to the supply of electric service to Metricom's Microcell Radios. Because the Microcell Radios should not require metering, FPL will not incur the cost of installing or maintaining meters, and it will not incur the associated cost of meter reading and billing. Microcell Radios that cannot take advantage of street lighting power supply will require minimal service drop and transformation equipment. Metricom has agreed to pay FPL to install and maintain this equipment. In all cases, the connection would be far shorter than the typical individual line serving a customer's premises.

26. Finally, because FPL will be able to issue a single bill to Metricom for the electric services needed for operation of the Microcell Radios, FPL will not incur billing costs, including postage and handling, for each of the Microcell Radios.

Indeed, it makes no sense for FPL to issue, or for Metricom to receive and process, 3,500 bills on a monthly basis.

27. The service Metricom seeks from FPL is similar to that provided by FPL under its Outdoor Lighting and Traffic Signal Service Tariffs. Service under these Tariffs is unmetered and kWh consumption is estimated by FPL based on the manufacturer's rated voltage and consumption reports. FPL's refusal to offer Metricom service under its Outdoor Lighting and Traffic Signal Service Tariffs, or a similarly designed tariff, is unreasonable and discriminatory.

**FPL's Actions Inhibit the Development of  
Advanced Communications Networks in Florida**

28. Metricom respectfully submits that its Ricochet Service technology will benefit the State of Florida by providing its citizens with easy mobile access to the Internet over a system that is separate from the existing switched network. Metricom's system will therefore enhance competition among communications carriers that provide Internet access. No trenching of the streets is required for installation of the Microcell Radios. Accordingly, Ricochet Service will offer significant benefits to the citizens of Florida with minimal adverse impact on the State's resources.

29. The Florida Legislature has directed the Commission to "encourage all providers of telecommunications services to introduce new or experimental telecommunications services free of unnecessary regulatory restraints." See § 364.01(4)(e), Fla. Stat. (2000) (emphasis added). Metricom's Ricochet Service is

precisely the type of service that the Legislature intended the Commission to encourage.

30. Now, just as it is about to begin to construct its system, Metricom finds that FPL intends to require Metricom to take and pay for electric services under FPL's GSND Tariff at a price per kWh over twelve times that of FPL's Outdoor Lighting and over three times that of FPL's Traffic Signal Service Tariffs. Under the GSND Tariff, FPL intends to force Metricom to pay approximately \$432,031.35 per year in electricity charges, with little or no cost or public policy justification. Monthly charges of this magnitude seriously impact the economics of Metricom's ability to provide Ricochet Service and weigh heavily against the company's decision to install the system necessary to offer such service in Florida.

31. FPL's inflexibility with respect to its tariff service offering is inconsistent with the Florida Legislature's recent mandate to promote the development of advanced communications networks and information technology in Florida. See HB 2123, Ch. 99-354, Laws of Fla. FPL's position could deprive Florida's citizens of an exciting technology that will enhance their ability to reap the benefits of the Internet. FPL's unreasonableness also makes Florida appear to be an unattractive location for new and innovative businesses that depend on reasonable and rational electric rates. Furthermore, the unreasonable rates and charges proposed by FPL deprive local governments of long-term fiscal benefits to be derived from franchise agreements with entities such as Metricom, and deprive

both businesses and local governments of costs savings gained through the use of leading edge technology.

WHEREFORE, Metricom respectfully requests that the Commission:

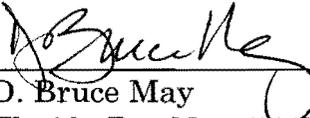
(a) order FPL to amend its Outdoor Lighting Tariff to allow Metricom and other similarly situated customers installing telecommunications equipment on pole-top structures in multiple locations, to take service under that tariff without paying a separate customer charge for each location; or

(b) order FPL to amend its Traffic Signal Service Tariff to allow Metricom and other similarly situated customers installing telecommunications equipment on pole-top structures in multiple locations to take service under that tariff without paying a separate customer charge for each location; or

(c) order FPL to develop a new tariff service classification under which customers with low power requirements and multiple unmetered service locations are allowed to take service and receive one bill under a tariff design comparable to FPL's Outdoor Lighting and Traffic Signal Service Tariffs; and

(d) grant such other relief as the Commission deems appropriate.

Respectfully submitted this 22<sup>nd</sup> day of December, 2000.



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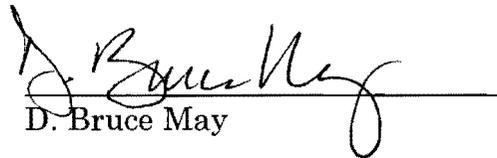
D. Bruce May  
Florida Bar No. 354473  
Karen D. Walker  
Florida Bar No. 0982921  
HOLLAND & KNIGHT LLP  
P.O. Drawer 810  
Tallahassee, Florida 32302  
Phone: (850) 224-7000  
Fax: (850) 224-8832

**Attorneys for Metricom, Inc.**

TAL1 #225464 v6

**CERTIFICATE OF SERVICE**

I HEREBY CERTIFY that a true and correct copy of the foregoing was furnished by hand-delivery to: Beverlee Demello, Division of Consumer Affairs, Florida Public Service Commission, 2540 Shumard Oak Boulevard, Room 144-A, Tallahassee, Florida and by Certified Mail to Bill Walker, Vice President, Regulatory Affairs, Florida Power & Light Company, 215 South Monroe Street, Suite 810, Tallahassee, Florida; and to Jean Howard, Esquire, General Counsel, Florida Power & Light Company, 9250 W. Flagler Street, Miami, Florida 33174; all on this 22<sup>nd</sup> day of December, 2000.

  
D. Bruce May

# Metricom Ricochet<sup>2</sup> Poletop Radio Installation Guide

December, 1999

ver. 1.07

## Contents

### I. Resources Required

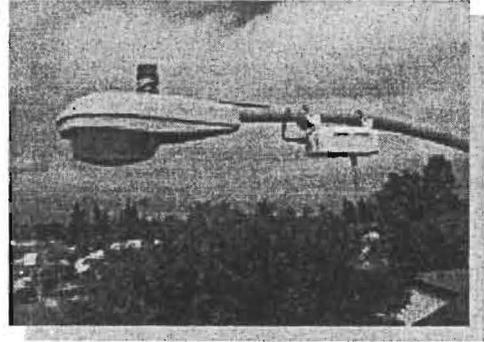
### II. Installing Network Radios

#### A. Installing Standard Network Radio

#### B. Installing Vertical Mount Radio

#### C. Installing Bracket Arm and Radio

### III. Completing the Paperwork

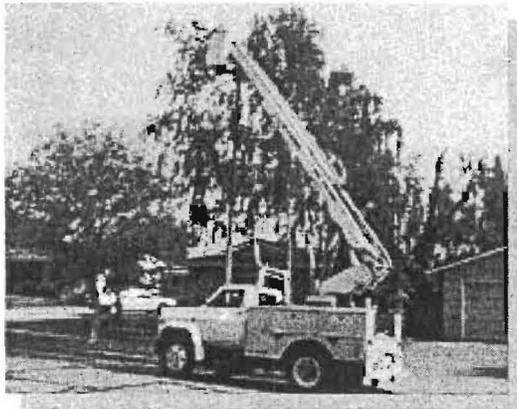


## I. Resources Required

For a standard poletop installation, either horizontal or vertical, you will need the following manpower, equipment and material.

### A. Typical Manpower and Equipment

1.	One utility-qualified overhead installer, streetlight technician (min.)
2.	Bucket truck, single lift, 40-ft max working ht., to support technician and 25-lb of material typ.
3.	One flag person (opt. where required by permit or safety warrants)



### B. Installer Tools (provided by contractor)

#### 1. Personal Safety

a.	Hart hat, standard utility
b.	Body harness w/ lanyard rope tether
c.	Work gloves
d.	Safety eyewear
e.	Safety reflective vest
f.	Long sleeved shirt, non-blended cotton

#### 2. Tools

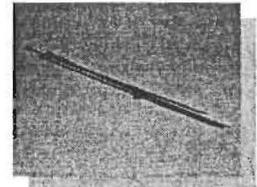
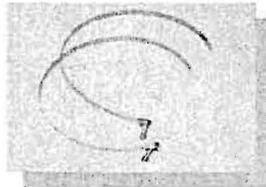
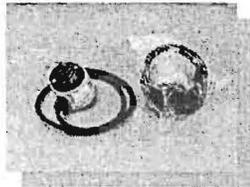
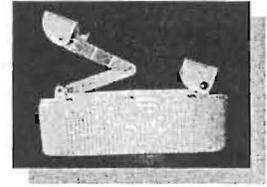
a.	Allen wrench, long T-handled, 3/16"
b.	Nut driver, 7/16"
c.	Nut driver, 3/8"
d.	Level, Torpedo 6-8"
e.	Wire cutter, small
f.	Magnetic compass
g.	Pager or mobile phone
h.	Voltmeter
g.	From II,C,I - Cupric Green (treatment)

**C. Radio and Mounting Hardware**

**1. Standard Radio Installation (Part 108780-000):**

**Note: Part number includes the radio (108746-100) and installation kit (108780-000).**

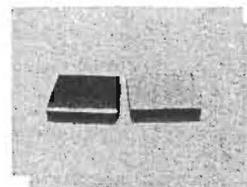
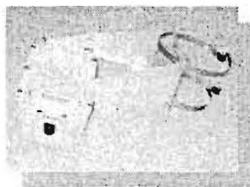
ITEM	PART NO.	QTY
Kit, Mounting, Pole, Viper	108210-000	1 ea.
Clamp, Worm Drive, Quick Rel., 12.25 In.	107988-000	2 ea.
Antenna, Whip, 5dB, 915 MHZ, N Conn.	106119-000	1 ea.
Tie-Wrap, Nylon, 0.18 Wide, 16 In. Long	106462-000	2 ea.
Street Light Adapter, 48 In.	103826-001	1 ea.



**2. Vertically mounted Standard Radio Installation (Part 108225-001):**

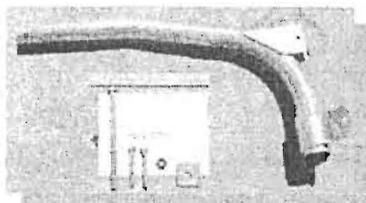
**Note: Part number includes the radio (108746-100) and installation kit (108437-001).**

ITEM	PART NO.	QTY
Network radio	108746-100	1 ea.
Vert. Install Kit (includes the below items)	108437-001	1 ea.
Kit, Mounting, Pole with Vertical Mount	108613-000	1 ea.
Clamp, Worm Drive, Quick Rel., 7 In.	107988-001	2 ea.
A, F, Street Light Adapter, 48 In.	103826-001	1 ea.
Antenna, Whip, 5 dB, 915 MHZ, N Conn.	106119-000	1 ea.
Tie-Wrap, Nylon, 0.18 Wide, 16 In. Long	106462-000	2 ea.
Foam, Pad, Radio Leveling, PoleTop	106546-000	2 ea.



**3. Bracket Arm Installation Kit (Part 107573-000): For use with 108225-000**

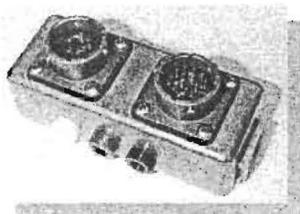
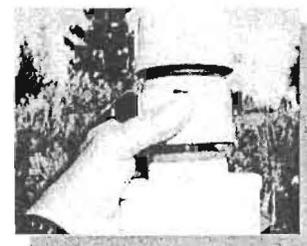
ITEM	PART NO.	QTY
Streetlight arm, RIC, poletops	107573-000	1 ea.
Bolt, machine, 5/8" x 10", galvanized	Incl.	1 ea.
Screw, lag, 1/2" x 4", galvanized	Incl.	2 ea.
Washer, 2-1/2", galvanized	Incl.	1 ea.
Cable, Power, MS, 2 Wire, 20 Ft, #10 AWG	103514-100	1 ea.



## II. Installing Standard Network Radio

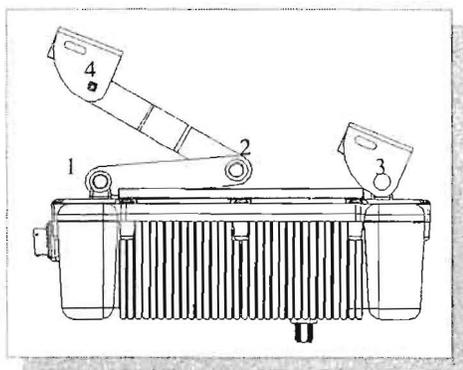
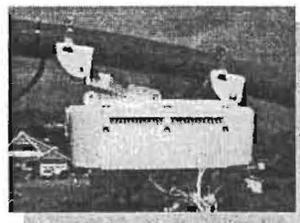
### A. Standard Radio Installation

1. **Test Photocell and Install the Photocell Power Adapter.** Test the photocell switch for proper luminaire operation by covering the lens of the photocell. Twist off the photocell to remove it from the luminaire. Twist the power adapter until its bayonet lock is fully engaged. Reinstall the photocell switch. Test the switch for proper operation by covering the lens on the photocell. If the streetlight does not illuminate, remove the photocell adapter, reinstall the photocell and test again. If the streetlight works without the photocell adapter, try reinstalling the photocell adapter and test again. If the streetlight does not work when the photocell adapter is installed the second time, mark the photocell adapter as defective and try with a new one.
2. **Test Power at Cable End.** Once the power adapter has been installed, plug the MS connector from the photocell adapter into the poletop connector on the Buzz Box, (5 pin female connector pictured below), Metricom part 108653-000. If the power is live, the Buzz Box will emit a buzzing sound. Wiggle the photocell connector while the buzzer is buzzing. This will let you know if the photocell connection is good or intermittent.



To check the voltage reading, plug your voltmeter or multimeter probes into the red and white jacks on the side of the Buzz Box. The voltage must be between 100 and 277 volts AC (the radio operates on 110VAC or 220VAC, there is no external switch to change the input voltage). If the voltage at the pole does not meet this specification, do not install the radio. Mark the Work Order indicating the voltage at the pole.

3. **Mount and Level the Radio.** Attach the radio to the streetlight bracket arm, utilizing the stainless steel clamps provided, between 6-12" behind the luminaire so that the light can be serviced. Make sure that the radio will not block the swinging action of the light cover or lens.



**Example Leveling Method.** Firmly tighten the stainless steel clamp holding the right pivot seat (above 3 in diagram to the left). While holding the radio eyeball level, firmly tighten the clamp holding the left pivot (above 4 in diagram to the left). Using your Torpedo level, check for level both in-line (parallel) with the pole and across (perpendicular to) the pole. With your 3/16" Allen wrench and nut driver, partially tighten bolts (1) and (2) in that respective order until snug. Tighten the bolt at the pivot location (3) until snug. Again check for radio level in both directions. Slide radio to achieve final position. Tighten the bolt at pivot location (4). Apply torque to all bolts until firm.

**Important:** A small deviation from level can result in a significant signal loss.

4. **Dress the Cable.** Use a tie wrap to dress the cable and to provide a drip loop to keep water from running into either the M/S connector on the radio or to the photocell adapter. Any moisture on the cable will make its way to the radio connector and possibly corrode the M/S connector.
5. **Install the antenna.** Be sure to engage the threads properly. A cross-threaded antenna will cause a loss of both receive sensitivity and output power.

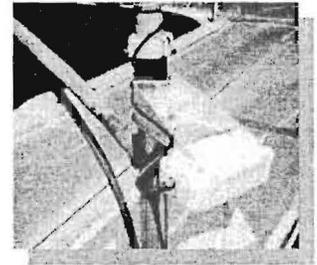
**RF EXPOSURE WARNING**

*In order for this device to comply with FCC rules under the provision of Part 15.247 (B) (4), it must be operated in a manner that ensures that the installer and the general public are not exposed to radio frequency energy levels in excess of the Maximum Permissible Exposure (MPE) Limits. It is recommended that the installer of this device keep at least 9-inches away from the antennas once the radio has been powered on.*

6. **Connect the Power Cable.** Insert the male end of the M/S connector to the side of the radio. Twist the connector until it locks into place.

**B. Installing Vertical Mount Radio**

1. **Install the Photocell Adapter and Test for Power.** Test the power at the pole before attempting installation. Same procedure as II.A.1 and II.A.2.
2. **Attach the Vertical Antenna Mount.** Using the two 5-in carriage bolts, connect the radio to the vertical mounting bracket, as pictured to the right.
3. **Clamp the Assembly.** Use two stainless steel clamps to strap the mount assembly to the light pole so that the radio faces down as with a standard installation.
4. **Dress the Cable.** Use a tie wrap to dress the cable and to provide a drip loop to keep water from running into either the M/S connector on the radio or to the photocell adapter. Any moisture on the cable will make its way to the radio connector and possibly corrode the M/S connector.

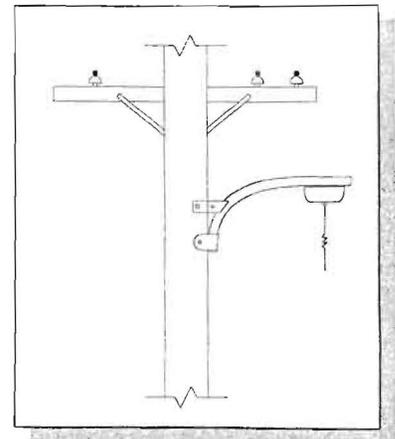
**RF EXPOSURE WARNING**

*In order for this device to comply with FCC rules under the provision of Part 15.247 (B) (4), it must be operated in a manner that ensures that the installer and the general public are not exposed to radio frequency energy levels in excess of the Maximum Permissible Exposure (MPE) Limits. It is recommended that the installer of this device keep at least 9-inches away from the antennas once the radio has been powered on.*

5. **Connect the Power Cable.** Insert the male end of the M/S connector to the side of the radio. Twist the connector until it locks into place.

**C. Installing Bracket Arm and Radio**

1. **Attach the Bracket Arm.** Secure the mount to wooden utility poles by bolting through the core of the pole. If the furnished bolt is not long enough to secure the mount, replace it with Bolt, 5/8" dia., 14" L, HD galv., streetlight arm (Part No. 107572-014). Treat all cuts on wooden poles with Cupric Green.
2. **Attach the Radio to the Bracket Arm.** Same procedure as II.A.3.
3. **Attach the Power Cord to the Radio.** Snake the power cord into the open end of the streetlight arm and out through the hole and grommet.



4. **Run the Cable.** Depending on the nature of Metricom's agreement with the pole owner, perform one of the following tasks.
  - (a) Run a conduit up the pole. Use MC straps at each end of the conduit to fix the conduit to the pole. If the conduit is longer than 4', use an additional MC strap midway between the ends of the conduit. Use 3" or longer galvanized nails to attach the MC straps to wooden poles. Snake the cable through the conduit. Loop and zip-tie the cable where it exists the conduit for utility connection to secondary power.
  - (b) Loop and zip-tie the cable where it exits the arm.
5. **Tag the Pole.** Place an identifying marker or tag as required by the pole owner. If required, notify the pole owner that the installation is ready for inspection and connection to secondary power.

### III. Completing the Paperwork

The paperwork will come in ONE of the following methods:

- **Work Order (see A below)**
- **Color Tags (see B Below)**

#### A. Completing the Work Order:

Peel off the removable serial number sticker from the Pole Top Radio and affix it to the indicated space on the Work Order. Verify the data on the Work Order by checking off each "Verified" box.

Record any installation changes or data in the "Notes" field.

#### B. Completing the manila Tag

**Important:** Information that you record on the blue tag must be correct and complete. Each element of information is critical to the correct configuration of the radio and directly affects network performance.

The manila tag is attached to the radio at the factory. The serial number of the radio is preprinted on both sides of the blue tag. Make sure that the serial number printed on the tag matches the serial number on the radio. You use one side of the tag (below left) to record details of a typical pole installation. Use the other side (below right) to record building-mounted, house-mounted, or tower-mounted radios of any type.

**Poletop Radio Install Tag**

Serial number label: \_\_\_\_\_ Install Date: \_\_\_\_\_

Address: \_\_\_\_\_

Cross Street: \_\_\_\_\_

City: \_\_\_\_\_

Pole #: \_\_\_\_\_ Pole Type: \_\_\_\_\_

Install Map #: \_\_\_\_\_ Pole Owner: \_\_\_\_\_

Other info: \_\_\_\_\_

Antenna type: Whip  Horizontal Mount  Fiberglass  Vertical Mount

Rev 2

Front: Poletop Radio Install Tag

**Building mounted Radio Install Tag**

Serial number label: \_\_\_\_\_ Install Date: \_\_\_\_\_

Address: \_\_\_\_\_

Cross Street: \_\_\_\_\_

City: \_\_\_\_\_

Indicate the direction the antenna faces: N E S W

Power: AC  DC  Yagi  Other  Tower

Ph # (Day): \_\_\_\_\_ Panel  Building top

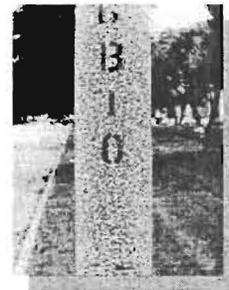
Ph # (Eve): \_\_\_\_\_ Sinclair  House mount

Contact Name: \_\_\_\_\_

Rear: Building mounted Radio Install Tag

1. Enter the installation date in the "Install Date" field, using MM/DD/YY format.
2. Enter the street address where the radio is installed in the "Address" field. If there are no street numbers where the installation is, write the street name here.
3. Enter the name of the nearest cross street in the "Cross Street" field. This is the nearest street that intersects with the street named in the "Address" field. Also note an approximate distance from the closest cross street.

4. Enter the name of the city where the radio is actually installed in the "City" field. Refer to the install map to make sure that the city name is correct.
5. Enter the compass direction from the intersection to the radio in the "Direction" field. In the case of a building mounted or directional antenna, enter the direction the antenna is pointed.
6. Enter the pole number in the "Pole Number" field. If you are using a streetlight or pole location map, and the number written on the pole does not agree with the number on the map, write the number on the pole, a slash "/" and the number of the pole on the map.
7. Draw a sketch in the "Illustration Box" to show the intersection of the street address, the cross street and where the radio is hanging in relation to that intersection. Also, indicate North in the sketch.
8. Record the construction material of the pole in the "Pole Type" field. The three most common types of material are wood, metal, and marblelite (marblelite is shown in picture).
9. Enter the number of the installation map in the "Install Map #" field.
10. If known, enter the name of the party who actually owns the pole in the "Pole Owner" field. Typically this would be the name of the city, the local utility company or a joint pole with more than one owner.
11. Check the boxes that apply to this installation. Does the installation use the standard whip antenna or a Fiberglas antenna? Is the installation a vertical or a horizontal mounting?
12. Write any other pertinent information on the tag in the "Other Info" field. For example, if the radio is installed with the vertical mount hardware or if the antenna is other than a standard whip or Fiberglass.



#### **Additional Information Required for Building Mounted Radio**

13. Check the appropriate "Power" box to indicate the power source for the radio.
14. Check the appropriate "Antenna" boxes to indicate which type of antenna is installed and the type of installation performed.
15. Use the "Other" box when the antenna or the type of installation is not one of the check box choices.
16. Enter the name of the primary contact for access to the structure in the "Contact Name" field. This is the person who can permit access to that particular structure.
17. Enter the appropriate phone numbers for the contact in the two "Phone #" fields, "Day" and "Eve."
18. Send completed tags and their associated installation maps to GEOCODE as soon as possible. See the section on maps below.

#### **B. Returning the Paperwork**

Return original Work Orders or Color Tags affixed to the Maps, whichever system was used, to the Metricom Radio Deployment Coordinator – as instructed (daily, weekly, etc.).

Note: Key for Asset tracking, billing, permitting, etc. Must not be sent to Houston by contractor.

Installers are encouraged to communicate better methods or practices to the local Metricom Radio Deployment Coordinator.

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Send comments or suggestions regarding this document to Pat Eagan, Network Operations Construction at:

[peagan@metricom.com](mailto:peagan@metricom.com)

Updated 12/07/99





**POWER CONSUMPTION REPORT  
METRICOM HIGH SPEED RICOCHET<sup>2</sup> NETWORK RADIOS**

Power consumption tests were conducted on four Metricom High Speed Ricochet<sup>2</sup> Network radios to determine their power consumption in network applications.

Power consumption measurements were taken under the following:

- Conditions:
  - Voltage inputs: 120 & 240 VAC
  - Temperature: 23 C
  
- Radio modes:
  - Standby/receive 26.02 watts @ 120 VAC (26.15 @ 240 VAC)
  - Transmit 900 MHz 37.0 watts @ 120 VAC (36.8 @ 240 VAC)
  - Transmit 2.4 GHz 36.6 watts @ 120 VAC (36.4 @ 240 VAC)

Note: Under normal network operation, the network radio will be in the transmit mode between 1-4% of the time depending on traffic (average 2.5%).

- Average power consumptions were computed based on an analytical derivation and empirical measurements of the present Ricochet network (note that the results are essentially the same for 120 VAC or 240 VAC):
  - Transmit duty cycle: 2.5%
  - Receive mode: 97.5%
  - Transmit 900 MHz: 75% of transmit
  - Transmit 2.4 GHz: 25% of transmit

$$26.02 \text{ W} \times 97.5\% + 37.0 \text{ W} \times (2.5\% \times 0.25\%) + 36.6 \text{ W} \times (2.5\% \times 0.75\%) = 26.28 \text{ W}$$

- Yearly consumption and costs (based on 10c/kWhr) are projected at:

$$26.28 \text{ W} \times 8760 \text{ hrs/year} \times \$0.1/\text{kWhr} = 230.212 \text{ kWhrs/year and } \$23.02/\text{year}.$$

To determine the appropriate annual cost at a different per kWh rate, simply substitute the applicable rate for \$0.1/kWhr.

Mike Cunningham  
Director Research & Quality Assurance  
Metricom, Inc.

1/29/99

**GENERAL SERVICE -- ELECTRIC****SCHEDULE G**

**Availability:** For use for Traffic Signal Service, Telecommunications Network Service and for all purposes where the Customer does not qualify for any of the Company's other rate schedules.

**Delivery Voltage:** Service at Secondary Distribution Systems voltages, or at Primary Systems voltages for customers receiving Primary service under this Schedule on or before January 1, 1987.

**Monthly Net Rates:**

**Delivery Service Customer Charge:** \$11.50 per month,  
**Less: Competitive Billing (where applicable)** \$ 0.47 per month, plus,  
 (see Section 7.7 for details)

**Energy Charges:**

(Option 1 is the Standard for new Customers and those Customers who do not elect a specific option. Rates for generation will be determined by the Customer's CTC.)

**Generation ( ¢ per kWh):**

	Generation Price Freeze Service		CTC (see Rider 2 for details)
	Summer	Non-Summer	
<b>Option 1 (July 2000 to June 2001)</b>	<b>5.356</b>	<b>3.731</b>	<b>0.576</b>
<b>Option 2 (July 2000 to June 2001)</b>	<b>5.258</b>	<b>3.633</b>	<b>0.674</b>

**Transmission Price Freeze Service Charge:** 0.298 ¢ / kWh

**Delivery Service Charge:** 2.241 ¢ / kWh

**Minimum Charge:** Net Delivery Service Customer Charge.

**Billing Seasons:** Summer rates are billed for the four billing periods ending June through September. Non-Summer rates are billed for the eight billing periods ending October through May.

**Average Shopping Credit (Price to Compare):** includes Generation and Transmission ( ¢/kWh)

<b>Option 1 (July 2000 to June 2001)</b>	<b>4.62</b>
<b>Option 2 (July 2000 to June 2001)</b>	<b>4.53</b>

**Late Payment Charge:** Standard. (Sec. 7.4)

**Payment Terms:** Standard. (Sec. 7)

**Traffic Signal Service:** Unmetered service is available under conditions specified by the Company to governmental authorities for the lighting and operation of traffic signals and other traffic control devices which are located within public roadways and owned, operated and maintained by the governmental authority requesting service. Charges for Traffic Signal Service are based on the application of Schedule G - General Service to each signalized intersection, with the Schedule's Fixed Monthly Charge adjusted to \$5.90. The kilowatt-hours applied to the Schedule's Usage Charge are predetermined average monthly uses of Company selected categories and groupings of signal equipment, with one signalized intersection of thoroughfares as the largest category or grouping available for billing purpose. Traffic Signal Service is not available until the requesting governmental authority provides all information regarding its signal system deemed necessary by the Company, and agrees to the control and audit provision selected by the Company.

(Continued on Next Page)

**Schedule G continued**

**Primary Service Credit:** For customers taking service at Primary Systems voltages as defined above, the Energy Charge rates, excluding CTC, are reduced by 4 percent.

**Term Of Contract:** The initial term of contract is 2 years where additional main facilities are required for supply. Otherwise, the term of contract is one year. After the initial term of contract, the contract may be terminated by at least 30 days' notice from the Customer.

**Subject to Riders applicable as listed below:**

- |   |  |
|---|--|
| 1. Standard Offer Service                         | 18. Net Energy Metering                      |
| 2. Competitive Transition Charge                  | 19. Demonstration and Trial Installations    |
| 3. Miscellaneous Taxes and Surcharges             | 21. Billing in Event of Service Interruption |
| 4. Budget Billing                                 | 22. Minimum Charge for Short-Term Uses       |
| 5. Controlled Air Conditioning Service            | 23. Advanced Meter Services                  |
| 9. Customer Billing and Consumption Data Requests | 25. Deferred Fuel Costs Surcharge            |

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**TELECOMMUNICATIONS NETWORK SERVICE**

**SCHEDULE T N**

**Availability:** Unmetered service is available to multiple telecommunications network devices served directly by the Company not exceeding 15 watts per device. Monthly kilowatt-hour usage will be computed on the basis of manufacturer's average wattage ratings of installed devices, with no allowances for outages.

**Character of Service:** The service supplied under this schedule normally will be single phase, 120 volts.

**Monthly Net Rates:**

**Energy Charges:**

**Generation (¢ per kWh): (Option 1 is the standard[] option.)**

	Generation Price Freeze Service		
	Summer	Non-Summer	CTC
Option 1 (July 2000 to June 2001)	5.356	3.731	0.576
Option 2 (July 2000 to June 2001)	5.258	3.633	0.674

**Transmission Price Freeze Service Charge:** 0.298 ¢ / kWh

**Competitive Transition Charge:** See Rider 2 for details.

**Delivery Service Charge:** 2.398 ¢ / kWh

**Late Payment Charge:** Standard. (Sec. 7.4)

**Payment Terms:** Standard. (Sec. 7)

**Term Of Contract:** The initial term of contract is 2 years where additional main facilities are required for supply. Otherwise, the term of contract is one year. After the initial term of contract, the contract may be terminated by at least 30 days' notice from the Customer.

**Subject to Riders applicable as listed below:**

- |  |                                   |
|--|-----------------------------------|
| 1. Standard Offer Service                    | 25. Deferred Fuel Costs Surcharge |
| 2. Competitive Transition Charge             |                                   |
| 3. Miscellaneous Taxes and Surcharges        |                                   |
| 21. Billing in Event of Service Interruption |                                   |

OUTDOOR LIGHTING

RATE SCHEDULE OL-1

AVAILABLE:

In all territory served.

APPLICATION:

For year-round outdoor security lighting of yards, walkways and other areas. Lights to be served hereunder shall be at locations which are easily and economically accessible to Company equipment and personnel for construction and maintenance.

It is intended that Company-owned security lights will be installed on existing Company-owned electric facilities, or short extension thereto, in areas where a street lighting system is not provided or is not sufficient to cover the security lighting needs of a particular individual or location. Where more extensive security lighting is required, such as for large parking lots or other commercial areas, the Customer will provide the fixtures, supports and connecting wiring; the Company will connect to the Customer's system and provide the services indicated below.

SERVICE:

Service includes lamp renewals, energy from approximately dusk each day until approximately dawn the following day, and maintenance of Company-owned facilities. The Company will replace all burned-out lamps and will maintain its facilities during regular daytime working hours as soon as practicable following notification by the Customer that such work is necessary. The Company shall be permitted to enter the Customer's premises at all reasonable times for the purpose of inspecting, maintaining, installing and removing any or all of its equipment and facilities.

The Company, while exercising reasonable diligence at all times to furnish service hereunder, does not guarantee continuous lighting and will not be liable for damages for any interruption, deficiency or failure of service, and reserves the right to interrupt service at any time for necessary repairs to lines or equipment.

LIMITATION OF SERVICE:

This schedule is not available for service normally supplied on the Company's standard street lighting schedules. Company-owned facilities will be installed only on Company-owned poles. Customer-owned facilities will be installed only on Customer-owned poles. Overhead conductors will not be installed in any area designated as an underground distribution area, or any area, premises or location served from an underground source. Stand-by or resale service not permitted hereunder.

MONTHLY RATE:

Luminaire Type	Lamp Size		KWH/Mo. Estimate	Charge for Company-Owned Unit (\$)				Charge for Customer-Owned Unit (\$)	
	Initial Lumens/Watts			Fixtures	Mainte- nance	Energy Non-Fuel **	Total	Relamping/ Energy	Energy Only
High Pressure Sodium Vapor	5,800	70	29	4.06	1.36	.60	6.02	1.29	.60
" "	9,500	100	41	4.17	1.37	.85	6.39	1.55	.85
" "	16,000	150	60	4.31	1.40	1.24	6.95	1.94	1.24
" "	22,000	200	88	6.27	1.79	1.81	9.87	2.51	1.81
" "	50,000	400	168	6.67	1.76	3.46	11.89	4.17	3.46
" "	* 12,000	150	60	4.61	1.56	1.24	7.41	2.17	1.24
Mercury Vapor	* 6,000	140	62	3.12	1.23	1.28	5.63	1.97	1.28
" "	* 8,600	175	77	3.14	1.23	1.59	5.96	2.28	1.59
" "	* 21,500	400	160	5.16	1.75	3.30	10.21	4.02	3.30

\*These units are closed to new Company installations.

\*\*The non-fuel energy charge is 2.06¢ per kwh.

(Continued on Sheet No. 8.726)

(Continued from Sheet No. 8.725)

Charges for other Company-owned facilities:

Wood pole and span of conductors:	\$ 3.18
Concrete pole and span of conductors:	\$ 4.29
Fiberglass pole and span of conductors:	\$ 5.03
Underground conductors (excluding trenching)	\$ .015 per foot
Down-guy, Anchor and Protector	\$ 1.85

For Customer-owned outdoor lights, where the Customer contracts to relamp at no cost to FPL, the monthly rate for non-fuel energy shall be 2.062¢ per kWh of estimated usage of each unit plus adjustments.

Conservation Charge	See Sheet No. 8.030
Capacity Payment Clause	See Sheet No. 8.030
Environmental Charge	See Sheet No. 8.030
Fuel Charge	See Sheet No. 8.030
Franchise Fee	See Sheet No. 8.031
Tax Clause	See Sheet No. 8.031

TERM OF SERVICE:

Not less than one year. In the event the Company installs any facilities for which there is an added monthly charge, the agreement shall be for a term of not less than three years.

If the Customer terminates service before the expiration of the initial term of the agreement, the Company may require reimbursement for the total expenditures made to provide such service, plus the cost of removal of the facilities installed less the salvage value thereof, and less credit for all monthly payments made for Company-owned facilities.

RULES AND REGULATIONS:

Service under this schedule is subject to orders of governmental bodies having jurisdiction and to the currently effective "General Rules and Regulations for Electric Service" on file with the Florida Public Service Commission. In case of conflict between any provision of this schedule and said "General Rules and Regulations for Electric Service", the provision of this schedule shall apply.

INSTALLATION AND FACILITIES

COMPANY-OWNED FACILITIES:

Company-owned luminaires normally will be mounted on Company's existing distribution poles and served from existing overhead wires. The Company will provide one span of secondary conductor from existing secondary facilities to a Company-owned light at the Company's expense. When requested by the Customer, and at the option of the Company, additional spans of wire or additional poles or underground conductors may be installed by the Company upon agreement by the Customer to use the facilities for a minimum of three years and pay each month the charges specified under MONTHLY RATE.

The Customer will make a lump sum payment for the cost of changes in the height of existing poles or the installation of additional poles in the Company's distribution lines or the cost of any other facilities required for the installation of lights to be served hereunder.

At the Customer's request, the Company will upgrade to a higher level of illumination without a service charge when the changes are consistent with good engineering practices. The Customer will pay the Company the net costs incurred in making other lamp size changes. In all cases where luminaires are replaced, the Customer will sign a new service agreement. Billing on the rate for the new luminaire or lamp size will begin as of the next regular billing date.

A luminaire may be relocated at the Customer's request upon payment by the Customer of the costs of removal and reinstallation.

The Company will not be required to install equipment at any location where the service may be objectionable to others. If it is found after installation that the light is objectionable, the Company may terminate the service.

(Continued on Sheet No. 8.727)

Issued by: P. J. Evanson, President

Effective: APR 15 1999

(Continued from Sheet No. 8.726)

When the Company relocates or removes its facilities to comply with governmental requirements, or for any other reason, either the Company or the Customer shall have the right, upon written notice, to discontinue service hereunder without obligation or liability.

**CUSTOMER-OWNED FACILITIES:**

Customer-owned luminaires and other facilities will be of a type and design specified by the Company to permit servicing and lamp replacement at no abnormal cost. The Customer will provide all poles, fixtures, initial lamps and controls, and circuits up to the point of connection to the Company's supply lines, and an adequate support for the Company-owned service conductors.

The Company will provide an overhead service drop from its existing secondary conductors to the point of service designated by the Company for Customer-owned lights. Underground service conductors will be installed in lieu of the overhead conductors at the Customer's request, and upon payment by the Customer of the installed cost of the underground conductors after allowance for the cost of equivalent overhead service conductors and any trenching and backfilling provided by the Customer.

**DEFINITIONS:**

A "Luminaire," as defined by the Illuminating Engineering Society, is a complete lighting unit consisting of a lamp (bulb), together with parts designed to distribute the light, to position and protect the lamp, and connect the lamp to the power supply.

A "Conventional" luminaire is supported by a bracket that is mounted on the side of an ordinary wood pole or an ornamental pole. This is the only type of luminaire offered where service is to be supplied from overhead conductors, although this luminaire may also be used when service is supplied from underground conductors.

A "Contemporary" luminaire is of modern design and is mounted on top of an ornamental pole. Underground conductors are required.

A "Traditional" luminaire resembles an Early American carriage lantern and is mounted on top of a pole. It requires an ornamental pole and underground conductors to a source of supply.

An "Ornamental" pole is one made of concrete or fiberglass.

TRAFFIC SIGNAL SERVICERATE SCHEDULE: SL-2AVAILABLE:

In all territory served.

APPLICATION:

Service for traffic signal lighting where the signal system and the circuit to connect with Company's existing supply lines are installed, owned and maintained by Customer.

SERVICE:

Single phase, 60 hertz and approximately 120/240 volts or higher, at Company's option.

MONTHLY RATE:

## Non-Fuel Energy Charges:

Base Energy Charge	3.615¢ per kwh
Conservation Charge	See Sheet No. 8.030
Capacity Payment Charge	See Sheet No. 8.030
Environmental Charge	See Sheet No. 8.030

## Additional Charges:

Fuel Charge	See Sheet No. 8.030
Franchise Fee	See Sheet No. 8.031
Tax Clause	See Sheet No. 8.031

Minimum: \$2.85 at each point of delivery.

Note: During the initial installation period of facilities:

- Lights and facilities in service for 15 days or less will not be billed;
- Lights and facilities in service for 16 days or more will be billed for a full month.

CALCULATED USAGE:

The Calculated Usage at each point of delivery shall be determined by operating tests or utilization of manufacturers' ratings and specifications. The monthly operation shall be based on a standard of 730 hours; however, that portion of the operation which is on a noncontinuous basis shall be adjusted to reflect such operation.

TERM OF SERVICE:

Open Order.

NOTICE OF CHANGES:

The Customer shall notify the Company at least 30 days prior to any change in rating of the equipment served or the period of operation.

RULES AND REGULATIONS:

Service under this schedule is subject to orders of governmental bodies having jurisdiction and to the currently effective "General Rules and Regulations for Electric Service" on file with the Florida Public Service Commission. In case of conflict between any provision of this schedule and said "General Rules and Regulations for Electric Service" the provision of this schedule shall apply.

Issued by: P. J. Evanson, President

Effective:

APR 15 1999

SEP 11 2000

P.O. Box 029100, Miami, FL 33102



Mr. Paul Rozeman  
Consultant, Metricom, Inc.  
One Premier Plaza  
5605 Glenridge Dr. Suite 870  
Atlanta, GA 30342

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In response to your letter dated August 21, 2000 and our conversation on September 5, 2000, attached are two FPL tariffs that would apply to your planned pole-top radio installations, which you stated would initially take place in Palm Beach County. Sheet No. 6.060 provides information on summary billing and Sheet No. 8.101 provides information on the rates that would apply for each of the installations.

In order to determine electric service requirements, costs, the appropriate rate application, etc., FPL will need certain information from Metricom. This would include specifications, load information, as well as the planned locations of your installations.

In order to coordinate this effort, please have your engineer(s) contact Erik Dillenkofer at 561-691-7734.

If you have any additional questions, you can contact me at 305-552-2323.

A handwritten signature in cursive script that reads "Dave Bromley".

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Dave Bromley  
Manager, Regulatory Strategy

cc: Erik Dillenkofer  
Bruce Martinez  
Rosemary Morley

GENERAL SERVICE - NON DEMAND

RATE SCHEDULE: GS-1

AVAILABLE:

In all territory served.

APPLICATION:

For electric service required for commercial or industrial lighting, power and any other purpose with a Demand of 20 kw or less.

SERVICE:

Single phase, 60 hertz and at any available standard voltage. Three phase service will be provided without additional charge unless the Company's line extension policy is applicable thereto. All service required on premises by Customer shall be furnished through one meter. Resale of service is not permitted hereunder.

MONTHLY RATE:

Customer Charge:	\$9.00
Non-Fuel Energy Charges:	
Base Energy Charge	4.152¢ per kwh
Conservation Charge	See Sheet No. 8.030
Capacity Payment Charge	See Sheet No. 8.030
Environmental Charge	See Sheet No. 8.030
Additional Charges:	
Fuel Charge	See Sheet No. 8.030
Franchise Fee	See Sheet No. 8.031
Tax Clause	See Sheet No. 8.031

Minimum: \$9.00

Non-Metered Accounts: A customer charge of \$6.00 will apply to those accounts which are billed on an estimated basis and, at the Company's option, do not have an installed meter for measuring electric service. The minimum charge shall be \$6.00.

SPECIAL PROVISIONS:

Energy used by commonly owned facilities of condominium, cooperative and homeowners' associations may qualify for the residential rate schedule as set forth on Sheet No. 8.211. Rider CU.

TERM OF SERVICE:

Open Order.

RULES AND REGULATIONS:

Service under this schedule is subject to orders of governmental bodies having jurisdiction and to the currently effective "General Rules and Regulations for Electric Service" on file with the Florida Public Service Commission. In case of conflict between any provision of this schedule and said "General Rules and Regulations for Electric Service" the provision of this schedule shall apply.

7.15 Summary Billing. A customer with ten (10) or more FPL accounts may request a single statement for the billing and payment of those accounts under Summary Billing. With Summary Billing, the Customer designates the accounts to be included and the cycle day each month when the Summary Bill is to be rendered. FPL will read each meter and calculate the billing amount for each account separately. The billing amount for each of the designated accounts will be totaled on the Summary Billing Statement, with each of the individual account bills attached as backup. Summary Bills are due when rendered and Customers are subject to removal from the program if bills are not paid within ten (10) days from the date of mailing.

7.2 Non-Receipt of Bills. Non-receipt of bills by the Customer shall not release or diminish the obligation of the Customer with respect to payment thereof.

7.3 Evidence of Consumption. When service used is measured by meters, the Company's accounts thereof shall be accepted and received at all times, places and courts as prima facie evidence of the quantity of electricity used by the Customer unless it is established that the meter is not accurate within the limits specified by the Commission.

7.4 Application of Rate Schedules. Electric service will be measured by a single metering installation for each point of delivery. The Company will establish one point of delivery for each Customer and calculate the bill accordingly. Two or more points of delivery shall be considered as separate services and bills separately calculated for each point of delivery.

The Company may adjust the measured kilowatt-demand (kwd) of a Customer to compensate for registration of an abnormal demand level due to testing of electrically-operated equipment prior to general operation provided that the Customer contacts the Company in advance and schedules the testing at a mutually agreed upon time.

7.5 Optional Rate. Where a Customer is eligible to take service at a given location under one of two or more optional rate schedules, the Company will, on request, assist in the selection of the most advantageous rate on an annual basis. If the Customer applies in writing for another applicable schedule, the Company will bill on such elected schedule from and after the date of the next meter reading. However, a Customer having made such a change of rate may not make another change until an interval of 12 months has elapsed.

7.6 Taxes and Charges. All of the Company's rates, including minimum and demand charges and service guarantees, are dependent upon Federal, State, County, Municipal, District, and other Governmental taxes, license fees or other impositions, and may be increased or a surcharge added if and when the cost per kilowatt hour, or per Customer, or per unit of demand or other applicable unit of charge, is increased because of an increase in any or all such taxes, license fees or other impositions. A franchise charge shall be added to the bills of all Florida Public Service Commission jurisdictional customers, as determined by the franchise agreements between Florida Power & Light Company and governmental authorities. The charge shall be computed as a percentage of the bill for energy including fuel delivered within the franchise area, excluding separately stated taxes and the franchise charge itself. This charge shall reflect the estimated amount of the annual franchise payment to that specified governmental authority in which the Customer's account is located, plus adjustment for the gross receipts tax and the regulatory assessment fee, and shall be corrected at least annually for any differences between the actual collections and actual payments.

7.7 Disconnection and Reconnection of Residential Service.

7.71 Disconnection of Residential Service. When a residential Customer orders service discontinued, the Company may ask the Customer to open the main switch upon vacating the premises. This will allow the use of electric service until the time of departure and will insure that no energy is used or charges accrue after the Customer leaves. As convenient, after the date of disconnection, a Company employee will visit the premises to read the meter.

7.72 Reconnection of Residential Service. A Customer who reconnects service by closing the switch should give immediate notice thereof to the Company so that proper records may be maintained. Should the Customer neglect to give such notice, the regular meter reader will note this fact and reconnection will be recorded as of the date when the switch was closed. If this date cannot be readily determined, reconnection shall be recorded as of the next preceding meter reading date.

7.8 Change of Occupancy. When change of occupancy takes place on any premises supplied by the Company with electric service, notice should be given at the nearest office of the Company not less than three (3) days prior to the date of change by the outgoing party who will be held responsible for all electric service used on such premises until such notice is received and the Company has had a reasonable time to discontinue service. However, if such notice has not been received prior thereto, the application of the succeeding occupant for the electric service will automatically terminate the prior account.

7.9 Delinquent Bills. Bills are due when rendered and become delinquent if not paid within twenty (20) days from the mailing or delivery date. Thereafter, following five (5) working days' written notice, service may be discontinued and the deposit applied toward settlement of the bill. For purposes of this subsection, "working day" means any day on which the Company's business offices are open and the U.S. Mail is delivered.