

## **PROPOSAL CONCERNING REVISIONS TO THE RATES, TERMS AND CONDITIONS FOR POLE ATTACHMENTS**

### **Requested Action**

Staff proposes that LIPA's rates for wireline communications attachments be changed in order to bring them more in line with the appropriate share of the costs incurred by LIPA associated with its infrastructure system of poles and rights-of-way utilized by these attachments. That infrastructure system ("system"), which is part of LIPA's overall electric transmission and distribution (T&D) system, is currently funded disproportionately more by LIPA's electric service customers as compared to the entities making these communications attachments. The costs of planning, overseeing installation and providing and maintaining that system for the rapidly growing number of communications attachments being sought are increasing, and the charges for attachments should therefore more fairly and accurately reflect these costs. Additionally, communications entities – including cable television systems and providers of communications services and facilities – that have (or will) attach to LIPA's system enjoy substantial economic benefits from being able to attach, and the attachment rates should reflect an appropriate contribution to the management and upkeep of the system.

This proposal discusses the proposed charges for wireline attachments and related matters, and provides supporting information and analyses for the tariff revisions. It also discusses staff's recommendation concerning wireless communications attachments.

### **Background**

In May 1998, the Long Island Power Authority ("Authority") acquired the Long Island Lighting Company ("LILCO"), which had applied its own pole attachment tariff and policies.<sup>1</sup> At that time, the Authority adopted a tariff provision on pole attachments to LIPA poles by cable television systems which applied the same rate level (\$9.68 per pole per year) that LILCO had been charging since 1996. Pending finalization of its own policies on pole attachments, LIPA has not entered into any new pole attachment agreements since the acquisition of LILCO. Certain attachments have been made subsequent to the acquisition of LILCO, pursuant to pre-existing agreements.<sup>2</sup>

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<sup>1</sup> Since the acquisition, the Authority's subsidiary, the Long Island Lighting Company d/b/a LIPA, has been the owner of the electric T&D system that was owned by the former LILCO.

<sup>2</sup> For example, LIPA has carried out the wireless attachment agreements with providers that had executed contracts with LILCO prior to the acquisition.

Since 1996, a number of critical developments in the evolution of the communications industry have materially increased the demand for pole attachments, the costs to LIPA related to these attachments, and the benefits conferred on communications entities making attachments to the system. It has been projected that in excess of 300,000 additional wireline attachments to LIPA's system will be sought in the next 5-7 years. Ever larger bundles of strands are also being attached, increasing the weight loading factor. As recently as five years ago, the highest strand count for a fiber-optic cable attached to a LIPA pole was 48. Now, metropolitan area network providers, cable television "overbuilders" and others may be expected to attach cables as large as 432 strands of fibers. Today, due to a number of technological advances, fiber-optic cable carries hundreds or even thousands of times more data than in 1996, vastly increasing the economic value of the benefits conferred by LIPA on communications entities making attachments. Three key trends underlie the transformation of the market for attachments.

First, although local telephone competition was envisioned in the federal Telecommunications Act of 1996, it has taken considerable time to evolve into a meaningful reality in the marketplace. Today, the State of New York has over 100 registered competitive local exchange carriers (CLECs). Although many of these competitors are still only resellers, investment in facilities (i.e., fiber) is increasing rapidly and is expected to result in demand for hundreds of thousands of new attachments over the next five years. These new attachments will generate costs system-wide, but will also create disproportionate costs due to their uneven distribution. As an example, new attachments can be expected to be heavily concentrated around Verizon central offices with high business densities that are already nearly saturated with existing attachments.

Second, new "last mile" broadband access technologies (i.e., cable modem and direct fiber connections) have emerged and are expected to drive even greater demand for attachments in the coming years, further straining the capacity of the system. Demand for ever higher bandwidth connections to the Internet by both residences and businesses, as well as a desire by many enterprises and building owners for dedicated data connections, have created a push to redevelop the "last mile" of the communications infrastructure. This will create at least three new sources of attachment demand on the LIPA system: 1) incumbent cable television operators will be replacing coaxial cable with heavier fiber-optic cables or with higher bandwidth coaxial cable, in many cases overlapping existing attachments; 2) one or more new cable television overbuilders are expected to enter the market, replicating the extensive infrastructure of the incumbent operator with nearly 10,000 miles of new hybrid fiber-coaxial cabling; and 3) a variety of providers will be competing to build direct fiber-optic connections to large enterprises and institutions as well as to large office buildings, retail centers, business campuses and industrial parks.

Third, a new breed of competitors is developing metropolitan area fiber networks to aggregate the massive demand for bandwidth described above and create channels to move it efficiently through the metropolitan area over a fiber infrastructure alternative to that provided by Verizon. These providers can also be expected to generate demand for

hundreds of thousands of attachments over the next 5-7 years. These attachments will generally be along routes that interconnect important communications traffic aggregation points such as Verizon central offices, CLEC switch sites, long distance company switch sites, cable television system head-ends, “telecom hotels” and Internet data centers. The fiber-optic cables installed by these providers can be expected to be physically larger and heavier and carry vastly higher capacity than equipment previously attached to LIPA poles.

In summary, LIPA staff anticipates that communications providers will seek hundreds of thousands of new attachments over the next 5-7 years and that those attachments will, on average, be heavier than those in the past. The demand for these attachments will be driven by the opening of true local competition in the telephony market, the increasing demand for broadband access for both businesses and residences and the development of new high-bandwidth metropolitan area transport capacity. This flood of new attachments will increase the complexity and costs of managing the installation process and maintaining the system. It will also confer on the communications entities economic benefits far exceeding their current contribution to the costs of the LIPA system supporting those attachments.

### **Basis for New Wireline Rate Structure**

Rates charged to communications entities with wireline attachments to LIPA poles should cover four critical cost elements: 1) an equitable share of costs associated with maintaining LIPA’s system which supports the wireline attachments; 2) an equitable share of the costs for the replacement of aging and damaged T&D poles; 3) enhancements to the system necessitated by the addition of new wireline attachments consistent with requirements related to the capacity of the system (i.e., spacing, weight and wind resistance); and 4) the costs associated with oversight and planning required to insure that the large volume of new wireline attachments is installed consistent with efficient and effective management of the overall T&D system. Current wireline attachment rates do not fully reflect a fair and balanced allocation of these costs.

The proposed approach seeks a better apportionment of costs by distributing those costs on a proportionate basis to both the electric and communications systems that utilize LIPA’s system. The portion of costs attributable to communications systems is 18.2%, and is based on the proportion of vertical space dedicated to those systems on a typical LIPA pole as compared to the overall pole length.

Maintenance of the system (cost element 1), including shoring up of poles, installation of guy wires and other related expenses similarly benefit both the electric and communications systems. As a result, 18.2% of LIPA’s total system maintenance costs has been apportioned to the annual charges for communication attachments.

Poles have an estimated useful life of 30 years, not including the likelihood of early replacement due to damage from accidents or natural disasters. Electric service customers now finance replacement of poles, even though a significant portion of pole value accrues to communications providers who now use the system. Since both electric and

communications providers benefit, 18.2% of LIPA's estimated annual replacement costs for poles (cost element 2) has been apportioned to the annual charges for communications attachments.

LIPA also expects to incur costs to add communications space capacity to poles in dense areas where additional attachment space is limited. Poles surrounding certain Verizon central offices are already at or close to capacity. Approximately 5,000 poles are anticipated to be at or near capacity in high-density areas and many others may reach this point as new attachments are put in place. These 35-foot poles will need to be replaced with higher capacity 45-foot poles at an expense of approximately \$4,000 per pole in order to avoid over-loading or higher cost rerouting of cables. Addition of guy wiring and other associated system costs are also anticipated. Currently, costs associated with expanding this capacity would be either funded by LIPA's electric service customers or charged individually to new communications providers as incurred. The former is clearly unfair. The latter may create a prohibitive cost situation for a new communications provider proposing to add the attachments that, on the margin, overburden some portion of the system rather than sharing an incremental cost among all communications entities that are collectively exhausting the available capacity. Staff believes that expanding pole capacity is preferable to restricting it, since it will provide economic benefits accruing to the body of communication providers making attachments as well as enhance competition and consumer choice. It is appropriate to better spread those costs among all communications providers making attachments. As a result, the annual charges for communication attachments include the total costs for replacing these poles (cost element 3).

Finally, there is a compelling public interest in ensuring that the installation of the vast number of anticipated new attachments be managed to maximize the efficiency of routing and minimize the risk of damage and loss that would result from over-loading or from unsupervised "wildcatting" (i.e., unauthorized attachments) by communications providers. This requires that LIPA receive adequate pole attachment revenue in order to dedicate reasonable resources to planning and overseeing the infrastructure installation and maintaining the system as its value and importance increases. Expenses will include addition of dedicated staff and significant time allocation of existing staff to manage the overseeing and planning of existing and new attachments, including assistance to communications entities regarding optimal routing. Regular attachment audits will be performed to ensure that attachments are in good condition and meet requirements for safety and security as well as to prevent unauthorized attachments. Since this work effort is purely driven by the communications attachments, all costs associated with this incremental work effort have been included in the annual charges for communications attachments (cost element 4).

### **Proposed Rates**

LIPA staff proposes the following rate schedule for wireline attachments:

The new charge for fiber-optic cable attachments in the communications space will be \$36.00 per attachment per pole per year.

The new charge for coaxial or copper cable or wire attachments will be \$18.00 per attachment per pole per year.

Wireline attachments, whether coaxial cable, copper cable or wire or fiber-optic cable, made on or after the effective date of the revised tariff, will be permitted only in the “communications space”<sup>3</sup> of LIPA’s poles.

LIPA will assess a 25% per pole rate differential (i.e., \$9.00 for a total of \$45.00 per attachment per pole per year) for fiber-optic cable attachments in the “power space”<sup>4</sup> made before the Authority’s acquisition of LILCO.

All pole attachment rates in the revised tariff will be linked to the Consumer Price Index for annual adjustments going forward in order to stay current with related cost changes. LIPA also intends to periodically review the pole attachment rate structure and underlying costs, and to make changes as appropriate.

Further, to avoid undue customer disruption, staff proposes to grandfather the pole attachment charges provided in specified written agreements (wireline and wireless) existing as of the effective date of the revised tariff, in the event of conflict with the revised tariff, until those agreements are modified, expire or are terminated in accordance with their terms. Upon implementation of the proposed tariff revisions, LIPA intends to enter into new pole attachment agreements with various entities.

### **Basis for Proposed Rates**

In determining a fair and balanced approach to setting pole attachment rates, several factors were considered. First, the rates must address the four critical elements of cost highlighted above. Second, as the number and mix of pole attachments will change dramatically over the next five years, stability in pricing should be attained during this period of rapid build-up in the number of communications attachments.<sup>5</sup> Third,

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<sup>3</sup> For LIPA, the “communications space” for a standard 35-foot distribution pole is currently defined as the 76.6 inches immediately above a point on the pole that is a minimum of 18 feet above ground. See Attachment 1.

<sup>4</sup> For LIPA, the power space for a standard 35-foot distribution pole is currently defined as all of the pole space above the communications space. The power space is traditionally dedicated to electric lines and buffer space.

<sup>5</sup> LIPA estimates that the number of attachments will rise from about 320,000 in 2001 to about 588,000 in 2006.

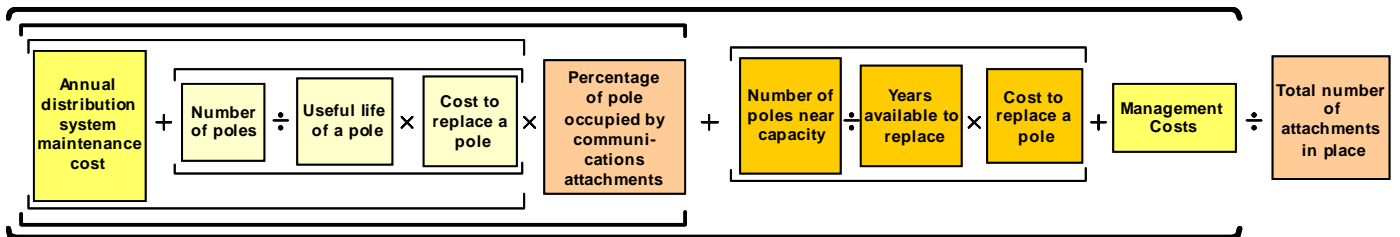
consideration should be given to the economic value that accrues to the entity making attachments based on the type of attachment and capacity of the facilities being attached. Finally, the rate impact of the revised tariff with respect to current attachments should be weighed, given that greater than 95% of these attachments currently fall in the coaxial/copper category.

With consideration to the above, the proposed rates have been designed to phase-in the cost recovery from communications pole attachments to allow for approximate full recovery of the projected annual costs by the year 2006. The purpose of the phase-in is to afford rate stability over the next five years, equitably reflect the economic value that accrues to the attacher, and mitigate to the extent possible the rate impacts with respect to the vast majority of current pole attachments.

### Calculation of Pole Attachment Rates

Figure 1 provides a simplified depiction of the pole attachment rate calculation employed for the revised tariff. Attachment 2 provides a detailed calculation of projected annual costs that are attributed to communications pole attachments. Attachment 3 provides a detailed calculation of the projected revenue from communications pole attachments for the years 2002 through 2006. These Attachments provide amounts in current year dollars (exclusive of escalation) for analysis purposes. As the Attachments indicate, the revenue generated by the proposed approach will not immediately recover projected costs – indeed the \$36.00 rate does not fully cover costs for fiber-optic attachments. Instead, this approach will gradually recover a larger percentage of the projected costs of all wireline attachments as those attachments are added until 2006 when projected annual costs and revenues should be in approximate balance.

Figure 1.



The cost of annual maintenance of the LIPA infrastructure system supporting attachments was approximately \$11.8 million in 1999. This covers all requisite upkeep for the poles and ancillary equipment, as well as maintenance of the rights-of-way and easements on which the poles are located. The costs also include tree trimming, which is a critical preventative measure that protects both the electric and the communications assets attached to the poles from potential damage. As indicated in Attachment 2, the

pole attachment costs for communications attachments was apportioned at 18.2%<sup>6</sup> of the total, and was utilized in the calculation of the attachment rate.

LIPA's most recent data show that it owns approximately 298,236 distribution poles within its service area. These poles typically alternate with Verizon poles to support both the electric and telephone distribution systems on Long Island. As previously indicated, the useful life of a pole is estimated to be no longer than 30 years under normal conditions. This does not account for accidental damage or destruction or the need to move or replace a pole due to construction, and so probably overstates the real average life of a pole. The cost to replace a pole is approximately \$4,000 including labor and materials. As a result, 18.2% of the annual replacement cost for poles has been included in the calculation of the attachment rate, as shown in Attachment 2.

Over and above aging poles imminently requiring replacement in the normal course of business, it is estimated that 5,000 LIPA poles are currently at or near their maximum capacity strictly due to communications attachments. It is projected that these poles will reach that capacity constraint during the next five years. This will necessitate either rerouting communications assets along less efficient routes in order to avoid these poles, replacing the poles with larger ones (i.e., 45 feet), or providing underground conduits to expand the available communications space in a given area. The rate calculation is designed to recover the costs associated with replacing all 5,000 poles during the next five years at a cost of \$4,000 per pole.<sup>7</sup> These 5,000 poles are included in the total population of LIPA poles that have an estimated useful life of no longer than 30 years. However, unlike the replacement of aging poles, the replacement of poles that are depleted of communications attachment capacity is considered a cost driven entirely by communications entities and is therefore to be covered 100% in the attachment rates.

Additional management and audit costs are estimated at a minimum of \$1 million annually. This estimate is based upon projections for labor, equipment, facilities and other resources required to review and validate plans, oversee and inspect installations, conduct periodic surveys and perform other functions needed for the efficient and effective management of LIPA's system related to attachments. These costs are also to be covered entirely by communications entities as they result directly from communications attachments.

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<sup>6</sup> Currently, 76.6 inches of the 420-inch length of a typical 35-foot LIPA distribution pole is reserved for communications attachments. This represents 18.2% of the length of the pole. This 18.2% factor was used to calculate the proportion of system costs to be distributed to communications entities making attachments. It should be noted that this is the least aggressive of a number of possible formulations for calculating this proportion including: 1) proportion of usable space, which yields  $76''/161'' = 48\%$ ; or 2) use of a definition of communications space generally prevailing elsewhere in the industry, which yields either  $94''/420'' = 22\%$  or  $94''/178'' = 53\%$ . (See Attachment 2 for measurements and explanation.)

<sup>7</sup> Construction of underground conduit is substantially more expensive than replacing poles.

## **Basis for Rate Differential between Fiber-Optic Cable Attachments and Coaxial or Copper Cable or Wire Attachments**

The proposed lower rate for attachment of coaxial or copper cable/wire is based in part on: 1) the nature of the use of coaxial or copper cable or wire lines; 2) the magnitude and extent of development of these types of communications lines on the LIPA system; 3) the physical characteristics of these types of lines; and 4) the difference in economic value conferred on attachers by virtue of these types of pole attachments in relation to the total respective values of fiber-optic and coaxial or copper cable/wire on a per installed mile basis (see Figure 2).

As previously stated, over 95% of existing communications pole attachments are for coaxial or copper cable/wire. Coaxial cables and new twisted copper pair wires are used almost exclusively for residential “last mile” connections. Because the lines typically serve individual end-users, or small numbers of end-users, and carry vastly less bandwidth than typical fiber-optic cables, an individual coaxial or copper cable or wire attachment confers significantly less economic benefit on the communications entity.

In sum, with respect to economic value considerations, it is clear that communications entities making fiber-optic cable attachments receive substantially greater value from such attachments as compared to coaxial or copper cable/wire attachments. As a policy matter, it is reasonable to apply a lower rate for the latter type of attachments commensurate with that economic value difference.

Furthermore, coaxial or copper lines and the pole attachments required for those lines also tend to be placed in less dense areas with fewer pre-existing communications attachments. This reduces the complexity of LIPA’s requirements with respect to managing system capacity for these types of attachments. In this regard, a new attachment in a residential area with only one or two pre-existing communications attachments is much less likely to trigger system capacity related costs such as pole replacement, additional guy wiring, and the like. Additionally, any work required is generally easier and less costly to perform in residential areas than in dense business districts. Finally, coaxial cables and copper wires are somewhat smaller and lighter than typical fiber-optic cables, and messenger cabling associated with coaxial cables is less likely to trigger a need for additional guying than that for fiber-optic cables.

Moreover, the lower rate is also warranted to mitigate rate impacts with respect to coaxial or copper cable/wire attachments, which, as noted, constitute the great bulk of current attachments. To a large extent, those communications entities having fiber-optic cable attachments today tend also to have coaxial or copper cable/wire attachments, so that the above mitigation of rate effects will redound to the benefit of those entities.

For these reasons, staff believes that the lower rate for coaxial or copper cable or wire attachments is appropriate from the perspectives of cost, economic benefit and value conferred, and mitigation of rate impacts.

### **Basis for Rate Differential for Attachments in the Power Space**

As noted, the power space is the space on the pole above the communications space. The power space is traditionally reserved only for electric lines or otherwise not included in the defined communications space (see Attachment 1). Some LIPA poles are currently carrying certain fiber-optic cable attachments in the power space.

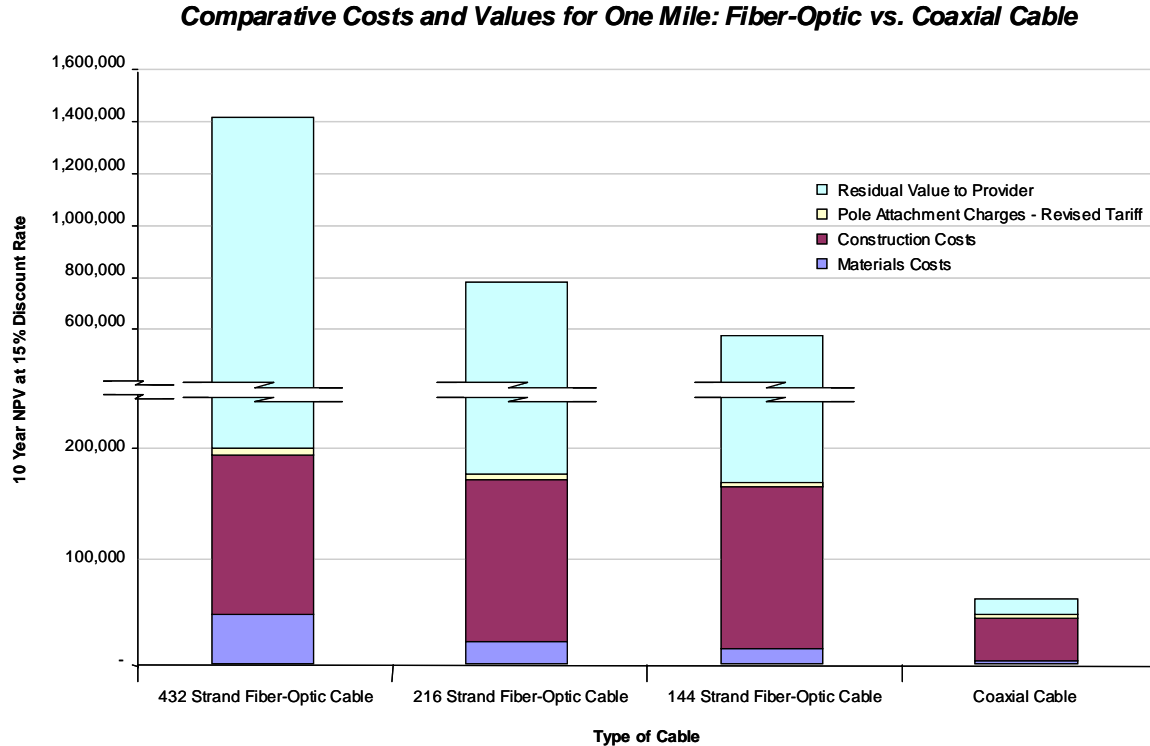
The placement of communications attachments in the power space provides additional buffer space between the attachment and other communications attachments on the same pole. This reduces the risk of problems for the attacher as additional communications attachments are added and provides ease of access for maintenance by the communications provider. The positioning of communications attachments in the power space also reduces risk of tree damage to the communications attachment. All of these factors provide additional benefit for the attacher over and above that which typical communications entities receive. Furthermore, power space attachments increase the complexity and expense of work on electric lines in the power space by correspondingly reducing or eliminating the intended buffer space between electrical and communications lines. In this regard, work done in the power space is inherently dangerous and creates additional potential liability for the system owner, LIPA. Therefore, attachments in the power space both provide additional benefits to the attacher and result in additional costs to the pole owner (LIPA), justifying the proposed rate differential for these specific attachments.

### **Effect of Proposed Rates on Wireline Communications Providers**

The net present value (using a 15% discount rate over ten years) of a \$36.00 annual fee is very small compared to the economic value of the fiber-optic cables being installed, and is a reasonable and incidental cost to the business. It represents between \$11.00 and \$98.00 per strand mile, depending on strand count, with an expected average in the range of \$22.00 per strand mile (calculated using a 216 strand fiber) against a market value of \$5,000-\$6,000 for the same strand mile. Figure 2 below compares the relative significance of pole attachment rates as a proportion of per mile costs and residual value for the communications cable owner for various strand counts of fiber-optic cable and for coaxial cable. These calculations assume that the fiber-optic cable providers are able to sell 50% of the strands in a given fiber-optic cable and that a coaxial cable builder is able to sell services to 20% of the homes passed. The pole attachment cost to a fiber optic-cable provider (again using a 15% discount rate over ten years) is approximately \$4,800 per mile or less than 3% of total costs under the proposed tariff revision. In the case of a communications provider using coaxial cable, the pole attachment cost would be approximately \$2,400 per mile, which represents less than 5% of total costs. This

calculation further illustrates the economic value distinction between fiber-optic cable and coaxial cable discussed above.

**Figure 2.**



### Wireless Attachments

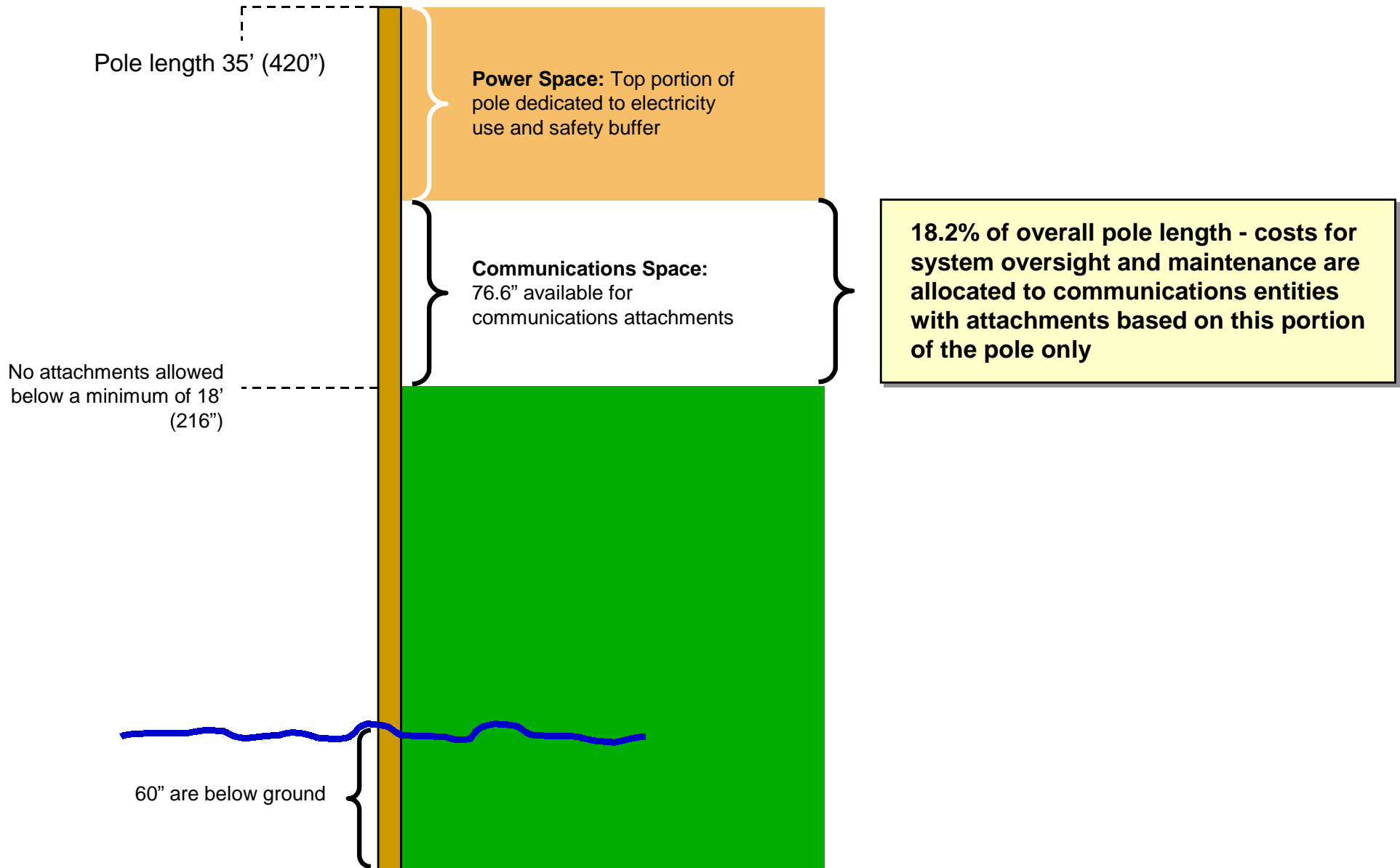
LIPA proposes to apply a policy of negotiated market rates for wireless attachments, a policy that is widely accepted nationwide. This policy was applied by the former LILCO (before May 1998) and is reflected in attachment agreements existing at the time of, and continuing after, the Authority acquired LILCO. Wireless attachments generally are non-standardized both in terms of the types of equipment attached and the location on the pole. This equipment may include antennae, amplifiers, de-modulators, switches and radios, among other possibilities, each of which comes in a variety of sizes and weights and may be located on different areas of the pole depending on the specific technology being employed. Continuing evolution of the technology makes it difficult to project what new types of wireless attachments will be utilized in the future. As a result, an approach of negotiated market rates for wireless attachments is appropriate.

## **Conclusion**

Staff proposes to revise tariff rates, terms and conditions for pole attachments in order to address an increasing imbalance between the revenue generated by pole attachment rates and the costs and value associated with maintaining and managing LIPA's system of poles and rights-of-way required for these attachments. A two-tiered rate structure has been proposed in which communications entities seeking fiber-optic cable attachments pay \$36.00 per attachment per pole per year. Communications entities seeking coaxial or copper cable or wire attachments will be subject to a rate of \$18.00 per attachment per pole per year. Additionally, staff proposes that the limited number of fiber-optic attachments in the power space (made before the Authority's acquisition of LILCO) be subject to a rate differential of 25% above the rate for fiber-optic cable attachments. Staff also proposes that additional attachments not be permitted in the power space and that all tariff rates be adjusted annually by the CPI going forward. Further, it is recommended that LIPA periodically review pole attachment rates and associated costs to assess whether changes should be made. Wireless attachment rates will be negotiated based on market conditions.

These rates have been proposed to achieve the goal of bringing revenues and costs into line gradually over the next five years as new attachments are added. While the \$36.00 rate for fiber-optic attachments would not fully recover the costs for such attachments today, that \$36.00 rate would provide sufficient revenues to cover costs today, if it were applied to coaxial or copper cable/wire attachments as well. Charging the lower \$18.00 rate for coaxial or copper cable/wire attachments is appropriate because these attachments are less costly to LIPA, particularly in terms of exhausting limited capacity in dense areas, and confer significantly less economic benefit on the communications provider. Importantly, the lower rate also serves to mitigate the impact of the new tariff structure, inasmuch as the great bulk of current attachments are coaxial or copper cable or wire. The net effect of the two-tier rate structure is that the desired cost/revenue balance will be achieved gradually over the next five years. As discussed above, staff believes that the proposed rates are set at the lowest level necessary to recover LIPA's costs. Implementation of the proposal will result in a tariff rate structure that is more equitable to LIPA and its electric service customers, is justified by conservative cost projections and economic value considerations, and represents a fair and reasonable expense to the affected communications providers. The proposed tariff revisions reflecting staff's proposal are attached.

## Breakdown of Typical LIPA Distribution Pole (35 Feet)



## Attachment 2 - Projected Communications Pole Attachment Costs

	<u>Factors</u>	<u>Current Yr \$</u>
<b><u>Projected System-Wide Annual Expense:</u></b>		
<b>Annual Maintenance Cost</b>		11,800,000
<b>Annual Pole Replacement Costs:</b>		
Total Number of Poles System Wide	298,236	
Projected Useful Life	30	
Estimated Replacement Cost Per Pole	<u>4,000</u>	
Projected Annual Replacement Cost		<u>39,764,800</u>
Total Projected Annual System-Wide Costs		51,564,800
% of Pole Allocated to Communication Space		<u>18.2%</u>
Annual Amount Attributable to Communication Space		9,384,794
<b><u>Projected Direct Communication Space Annual Costs:</u></b>		
<b>Poles Requiring Replacement to Increase Capacity</b>		
Projected Number of Poles	5,000	
Replacement Period	5	
Estimated Replacement Cost Per Pole	<u>4,000</u>	
Projected Annual 5 Year Replacement Cost		4,000,000
Projected Annual System Mgt & Planning Cost		1,000,000
<b>Grand Total Projected Annual Expense</b>		<b>14,384,794</b>

**Attachment 3 - Projected Communications Pole Attachment Revenues**

	Stated in 2001 \$				
	<u>Year 2002</u>	<u>Year 2003</u>	<u>Year 2004</u>	<u>Year 2005</u>	<u>Year 2006</u>
<b>Projected Coax / Copper Pole Attachment Fees</b>					
Estimated Number of Coax / Copper Attachments	260,000	300,000	340,000	380,000	416,000
Coax Attachment Rate Per Pole	<u>18.00</u>	<u>18.00</u>	<u>18.00</u>	<u>18.00</u>	<u>18.00</u>
Sub-Total Revenue	<u>4,680,000</u>	<u>5,400,000</u>	<u>6,120,000</u>	<u>6,840,000</u>	<u>7,488,000</u>
<b>Projected Fiber Pole Attachment Fees</b>					
Estimated Number of Fiber Attachments	56,100	97,780	126,500	147,300	168,100
Coax Attachment Rate Per Pole	<u>36.00</u>	<u>36.00</u>	<u>36.00</u>	<u>36.00</u>	<u>36.00</u>
Sub-Total Revenue	<u>2,019,600</u>	<u>3,520,080</u>	<u>4,554,000</u>	<u>5,302,800</u>	<u>6,051,600</u>
<b>Projected Power Space Fiber Pole Attachment Fees</b>					
Estimated Number of Fiber Attachments	3,500	3,500	3,500	3,500	3,500
Coax Attachment Rate Per Pole	<u>45.00</u>	<u>45.00</u>	<u>45.00</u>	<u>45.00</u>	<u>45.00</u>
Sub-Total Revenue	<u>157,500</u>	<u>157,500</u>	<u>157,500</u>	<u>157,500</u>	<u>157,500</u>
<b>Grand Total Projected Pole Attachment Revenue</b>	<b>6,857,100</b>	<b>9,077,580</b>	<b>10,831,500</b>	<b>12,300,300</b>	<b>13,697,100</b>

**IV. Billing Process and Payment of Bills (continued):****C. Charges for Miscellaneous Services:**1. Pole Attachment

a) General: Pole attachments to utility poles or towers (“pole(s)”) shall not be made or maintained before a written pole attachment, master lease or joint use agreement is executed by the party seeking the attachment(s) and by the Authority. The charges for pole attachments provided by such written agreement in effect as of [the effective date of this tariff revision] shall control in the event of conflict with this Section C.1, until such agreement is modified, expires or is terminated in accordance with its terms.

b) Coaxial or Copper Cables or Wires: The annual charge for pole attachments to utility poles with respect to coaxial or copper cable or wire attachments by a cable television system, or by a provider of communications service or communications facilities, is \$18 per attachment per pole per year, starting in the year 2001 and adjusted on January 1 of each succeeding year by applying the Consumer Price Index to the prior year’s charge, plus the applicable amounts for payments in lieu of revenue taxes. Coaxial or copper cable or wire attachments to utility poles are permitted only in the communications space.

c) Fiber-Optic Cables: The annual charge for pole attachments to utility poles with respect to fiber-optic cable attachments by a cable television system, or by a provider of communications service or communications facilities, is \$36 per attachment per pole per year, starting in the year 2001 and adjusted on January 1 of each succeeding year by applying the Consumer Price Index to the prior year’s charge, plus the applicable amounts for payments in lieu of revenue taxes. Fiber-optic cable attachments made on or after the effective date of this tariff revision to utility poles are permitted only in the communications space. The annual charge for pole attachments to utility poles with respect to fiber-optic cable attachments made before May 28, 1998 in the utility pole power space is \$45 per attachment per pole per year starting in the year 2001 and adjusted on January 1 of each succeeding year by applying the Consumer Price Index to the prior year’s charge, plus the applicable amounts for payments in lieu of revenue taxes.

d) Communications Space and Power Space: The communications space is as defined by the Authority, which for a standard 35-foot distribution pole is defined as the 76.6 inches immediately above a point on the pole that is a minimum of 18 feet above ground. The power space is as defined by the Authority, which for a standard 35-foot distribution pole is defined as all of the pole above the communications space.

e) Wireless: The charges for attachments of wireless communications facilities to utility poles are subject to negotiation on a case-by-case basis of a written agreement between the party seeking the attachment(s) and the Authority.

f) Additional Charge: Effective three months after the effective date of this tariff revision, for any pole attachment that is not authorized under a written pole attachment, master lease or joint use agreement executed by the Authority and the party responsible for the attachment, such party shall be subject to a charge of three

times the otherwise applicable charge for pole attachments set forth herein in addition to the Authority reserving all its legal rights and remedies.