

# City Light Cost Allocation

From a Presentation by Finance Director  
Paula Laschober to the City Light Review  
Panel in 2012

# Policy Direction

## Resolution 31351 (May 2012):

- Rates should cover costs;
- Rates should be predicable and change in an orderly way;
- Use a “marginal cost” approach to allocating costs;
- Rates should send appropriate signals to use energy and resources efficiently;
- Low-income discount at least 50% (it is currently 60%);
- The cost of the low-income discount should be borne by all classes; and
- Conservation expense should be borne by all rate payers, regardless of who gets the most direct benefit.

# Services City Light Provides

## To serve its customers, City Light:

- Generates or acquires the necessary power and balances supply to demand in real time;
- Builds and maintains the infrastructure necessary to deliver the power to its customers; and
- Creates and maintains the business infrastructure needed to support a complex business.

Each one of City Light's 400,000+ customers consumes these services differently, and so imposes a unique set of costs on the utility. Cost Allocation is intended to ensure customers pay the costs they impose on the utility.

# Customer Classes

Since it is impractical to allocate unique costs to more than 400,000 customers, City Light divides them into classes and then allocates the costs to the classes. There are six classes:

Class Name	Key Characteristic	Comments	Typical Annual kWh
<b>Residential</b>	Residential property	Zoning	8,400
<b>Small GS</b>	Peak use < 50 kW	Supply company Car wash Small retail store	4,000 58,000 183,000
<b>Medium GS</b>	Peak use 50 kW – 999 kW	School Hospital Athletic club	109,000 1,800,000 4,500,000
<b>Large GS</b>	Peak use 1,000 kW – 9,999 kW/month	Cruise line Small University Biotech	350,000 15,000,000 30,000,000
<b>High-Demand GS</b>	Peak use > 10,000 kW	Small cement factory Glass factory Steel mill	20,000,000 89,000,000 293,000,000

# Some Observations

1. There is nothing *necessary* about the class determinant (peak use) – it is just common practice;
2. Customers within a class are “similar” on some criterion, but they can (and do) use the underlying services very differently;
3. There can be only one tariff structure for a class. Combine this with (2) and it is clear that some customers within a class will subsidize others in the class; and
4. High-end users in one class can consume more kWh than low-end users in a higher capacity class.

# Revenue & Consumption by Class 2013

	Customers	Total Revenue	% of Rev	Total kWh	% of kWh
<b>Residential</b>	306,602	\$208,869,186	36%	2,483,852,000	31%
<b>Small GS</b>	36,915	\$72,646,167	13%	1,014,087,866	13%
<b>Medium GS</b>	2,696	\$147,158,662	26%	2,179,136,473	27%
<b>Large GS</b>	139	\$95,675,132	17%	1,389,011,922	17%
<b>High Demand</b>	8	\$51,792,968	9%	947,622,908	12%

# Rate Making

## There are Three Basic Steps

1. Determine how much money must be collected from customers. This is called the Revenue Requirement. City Light's Six-Year Strategic Plans are, in essence, its statement of Revenue Requirements for the six year;
2. Decide how to allocate the Revenue Requirement to the Classes (Cost Allocation); and
3. Establish a rate structure for each Class that, given the Class consumption profile, has a high probability of collecting the share of the Revenue Requirement allocated to that Class. This is called Rate Design.

# The Role of Marginal Cost

City Light uses MC to allocate Revenue Requirements.

That is NOT to say that Classes pay the MC to serve them, instead MC shares are used as weights. Thus:

*If Class X is responsible for 10% of the MC of Service Y, then Class X will get 10% of the Revenue Requirement related to service Y*

# How Services are Classified and Measured

Service	Cost Measurement	Data Source
Energy	\$/MWh by time period	Wholesale market price forecasts + environmental adders + transmission costs
Distribution	\$/Peak MW	Engineering data on current replacement cost of a MW of distribution capacity
Customer Service	\$/meter	Accounting cost data for customer services ÷ the number of meters

# Some Observations

- The cost of energy clearly varies with the amount consumed. It also varies by time of day and time of year.
- In contrast, the cost of distribution is, at least in the short run, largely unaffected by consumption. That is because the system must be sized to meet peak demand.
- Similarly for customer service. The basic business infrastructure must be in place regardless of how intensively it is used.

# By The Numbers!

From this point on, we will use actual numbers to show the calculation of the MC for the ***Residential Class*** for each of the three services

Later, we will posit corresponding numbers for a fictitious Non-Residential Class

We will use these numbers throughout the rest of the presentation to show how they are used to allocate costs

# Marginal Cost of Energy

Start with a third-party forecast of the price of a MWh for the year in question: **\$31.01/MWh**

Add the cost of environmental externalities expressed in \$/MWh from the Integrated Resource Plan: **\$5.07/MWh**

Add the cost of long-distance transmission to get the power to the service territory (from BPA): **\$4.42/MWh**

Giving a Total MC of Energy for the Residential Class of

$$\text{\$31.01} + \text{\$5.07} + \text{\$4.42} = \text{\$40.50/MWh}$$

# Marginal Cost of Distribution

There are two types of distribution cost: Capital and O&M. Both are capacity based; i.e., \$/MW.

## Capital

Start with the cost to replace a line segment of in-service territory transmission: **\$80,000/MW**

Add the cost to replace a substation: **\$110,000/MW**

Add the cost to replace a distribution line segment, including poles/vaults: **\$200,000/MW**

Add the cost of a new meter: **\$10,000/MW**

## O&M

Add the labor cost associated with the distribution system: **\$18,000/MW**

Giving a Total MC of Distribution of: **\$418,000/MW**

# Marginal Cost of Customer Service

Start with the cost to read meters: **\$20/meter**

Add Allowance for uncollectable bills: **\$2/meter**

Add cost to keep customer records and customer billing: **\$78/meter**

Giving a Total MC of Customer Service of

**\$100/meter**

# Marginal Cost by Service & by Class

Service	Cost units	Residential	Non-Residential
Energy	\$/MWh	\$40.50	\$37.60
Distribution	\$/MW	\$418,000	\$487,000
Customer Service	\$/meter	\$100	\$150