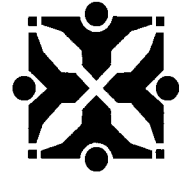


# City of Columbia

701 East Broadway, Columbia, Missouri 65201



**Agenda Item Number:** REP 10-15

**Department Source:** Water & Light

**To:** City Council

**From:** City Manager & Staff

**Council Meeting Date:** 1/20/2015

**Re:** Water and Electric Utility Revenue Philosophy and Recommendations

## Documents Included With This Agenda Item

Council memo

**Supporting documentation includes:** Attachments A, B & C

## Executive Summary

For Council consideration this is a report discussing the current revenue philosophies for water and electric utility infrastructure and recommendations. Staff is requesting support for completion of the below recommendations and for the results of these to be considered as part of the FY16 budget process.

- Ensure water system policies equitably consider new water customers based on the system impacts of their project. Using the latest Water Cost of Service Study, perform the following:
  - Evaluate the current differential payment policies and recommend any changes that result from the review.
  - Evaluate the current System Equity Charge calculation methodology and recommend any changes that result from the review.
- Ensure electric system policies equitably consider new electric customers based on the system impacts of their project. Using the latest Electric Cost of Service Study, perform the following:
  - Evaluate the need for an Electric Line Extension Policy and provide a draft.
  - Evaluate the need for an Electric System Equity Charge and provide a recommended calculation methodology.

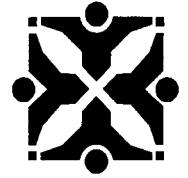
## Discussion

There has been discussion regarding the concept of connection fees for the water and electric utilities and why they are done differently. This report provides an overview of current revenue philosophies for water and electric utility infrastructure and includes some recommendations. This discussion is from the utility customer perspective of how customers pay for water and electric infrastructure.

An important concept in funding for water and electric service infrastructure is that both services sell a commodity through a high cost distributed community asset, the delivery system. From the customer

# City of Columbia

701 East Broadway, Columbia, Missouri 65201



perspective there are two primary revenue philosophies used to pay for water and electric service infrastructure, “pay to build it” or “pay to use it”. The “pay to build it” term is used to describe an approach where capital investments in infrastructure are paid by the customer prior to the equipment being placed in service or as the expenses are incurred, such as building a water line prior to receiving water service. The “pay to use it” term is used to describe an approach where the utility builds the infrastructure and recovers the cost through usage rates, such as using debt to construct a substation then repay debt from usage revenue. Another way to look at this is the “pay to build it” is buying something before you need it and the “pay to use it” approach is leasing something as you use it. Water and electric utility service can be divided into 4 operational areas: startup, maintenance/operations, replacement and expansion.

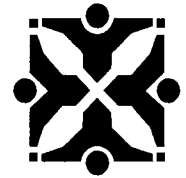
The startup of a water or electric service utility is a costly capital investment, and as such the “pay to build it option” has not historically been an option due to these high startup costs and the limited number of initial customers. Startup cost for water and electric service utilities have typically been paid by issuing debt with repayment from future utility bill revenue. While this document is not intended to discuss rate design, utility bill revenue is typically structured to equitably recover the fixed and variable cost of providing the service.

Maintenance/operations cost for the existing system is the annually budgeted maintenance and operating cost and recovered from utility bill revenue as the cost is incurred. These costs are typically inventory or personnel expenses and are funded as they are incurred. Maintenance/operations are where the cost of providing service starts to take on different operating characteristics for the water and electric systems. While the value of the distribution system is 50% greater for electric than water, the cost to maintain and operate the distribution system is over 150% greater for electric than water. From a per unit perspective, it costs approximately 14 cents to maintain and operate each dollar of electric distribution infrastructure and for water distribution infrastructure the same cost is 8 cents. Typical reasons for this difference are electric systems have greater exposure to natural conditions (wind, ice and lightning), electrical over loading conditions (extreme heat and cold) and thermal damage (heat from fault conditions).

Replacement cost for existing water or electric system equipment currently use either “pay to build it” or the “pay to use it” approach depending on the event driving the replacement. Equipment replacements can be driven by either an end of useful life event or an unexpected damage event to existing equipment. In looking at the two primary financing philosophies for this, replacement due to unexpected damage are funded as they are incurred while replacement due to end of useful life uses the “pay to use it” philosophy. Another important consideration with the “pay to use it” approach is the concept of leasing the delivery service. As mentioned, equitable price structure for water and electric service bills are usually comprised of a fixed and variable monthly charge. Part of the variable monthly charge, based on the commodity consumed, and the fixed monthly charge can be thought of

# City of Columbia

701 East Broadway, Columbia, Missouri 65201



as the charge to lease the delivery system. Over time the replacement value of the delivery system increases and accordingly the lease rate also should increase. This approach provides a smoother transition in customer rates as delivery system replacement costs are incurred and recovered.

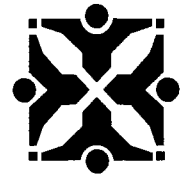
System expansion is another area where providing water and electric service take on different characteristics. Water systems have less interconnectability and as a result, system expansions needed for new projects will provide direct customer benefit but have limited system benefit. Electric systems have a higher interconnectability and as a result the expansion needed for new projects will provide the direct customer benefits and reliability of the entire community system. Conceptually the reliability of an electric system has a community benefit or impact while the reliability of water systems is more individual customer focused impacts. This fact makes it appropriate to use the “pay to build it” philosophy for those directly benefiting from water system expansion while the “pay to use it” philosophy is more appropriate for the electric system expansion. A fee usually associated with system expansion is a one-time initial connection charge or fee. This type of membership connection fees are usually based on the depreciated value of the system divided by the number of system customers. Utility system connection fees have historically been used by water utilities as it fits with the “pay to build it” funding approach. There are limits to where each of these different approaches to water and electric system expansion make sense. For the water system, if the expansion requires addition of production capacity or results in additional system reliability, part of the improvement should use the “pay to use it” philosophy for financing. For the electric system, if the expansion cost is greater than the system benefit, part of the improvement should use the “pay to build it” philosophy for financing part of the expansion.

## Summary:

- Startup cost for both water and electric service utilities commonly use the “pay to use it” philosophy for financing.
- Maintenance/operating costs for both water and electric service utilities use the “pay to build it” philosophy for financing.
- Maintenance/operating cost for the delivery of electric service are significantly higher than for the delivery of water service.
- Planned end of useful life equipment replacement costs primarily use the “pay to use it” philosophy for financing.
- Unexpected equipment replacements replacement costs primarily use the “pay to build it” philosophy for financing.
- Due to lower maintenance/operating cost and more individual customer benefits/impacts the water delivery system primarily relies on a “pay to build it” approach to recover the capital cost of the water delivery system.

# City of Columbia

701 East Broadway, Columbia, Missouri 65201



- Due to higher maintenance/operating cost and greater interconnected community benefits/impacts the electric system relies on a “pay to use it” approach to recover the capital cost of the electric delivery system.

## Recommendations:

- Ensure water system policies equitably consider new water customers based on the system impacts of their project. Using the latest Water Cost of Service Study, perform the following:
  - Evaluate the current differential payment policies and recommend any changes that result from the review.
    - Current Water Main Differential Payment Policies in Attachment A
  - Evaluate the current System Equity Charge calculation methodology and recommend any changes that result from the review.
    - Current Water System Equity Charge Calculation Methodology in Attachment B
- Ensure electric system policies equitably consider new electric customers based on the system impacts of their project. Based on the latest Electric Cost of Service Study, perform the following:
  - Evaluate the need for an Electric Line Extension Policy and provide a draft.
    - Conceptual Electric Line Extension Policy Draft provided in Attachment C
  - Evaluate the need for an Electric System Equity Charge and provide a recommended calculation methodology.

## Fiscal Impact

Short-Term Impact: NA

Long-Term Impact: NA

## Vision, Strategic & Comprehensive Plan Impact

Vision Impact: Not Applicable

Strategic Plan Impact: Infrastructure

Comprehensive Plan Impact: Not Applicable

## Suggested Council Action

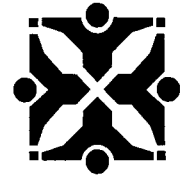
Request completion of Report Recommendations for Consideration in the FY2016 Budget Process

## Legislative History

1/7/15 Water & Light Advisory Board, Consideration of Report

# City of Columbia

701 East Broadway, Columbia, Missouri 65201

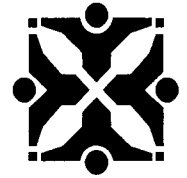


  
Department Approved

  
City Manager Approved

# City of Columbia

701 East Broadway, Columbia, Missouri 65201



## SUPPORTING DOCUMENTS INCLUDED WITH THIS AGENDA ITEM ARE AS FOLLOWS:

Attachments A, B & C

# City of Columbia

701 East Broadway, Columbia, Missouri 65201



## **Attachment A**

### Current Water Main Differential Payment Policies

#### Sec. 27-71 (b) (1)

To construct the entire extension from the end of the existing water main to and across the entire frontage or other dimension of the lot or tract to be served, except as otherwise herein provided. Such extension shall be of pipe size, as determined by the director, which will provide adequate fire protection and service to the area, but in no case shall the pipe size be less than six (6) inches. Should the department require a pipe size larger than that required to provide adequate fire protection and service to the area, then the department shall pay for the difference in cost of such larger size.

# City of Columbia

701 East Broadway, Columbia, Missouri 65201



## Attachment B Current Water System Equity Charge Calculation Methodology

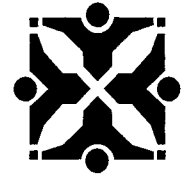
### FY15 System Equity Charge

Total Net Book Value	\$102,810,987	- Depreciated value of capital assets
Less Principal Outstanding on Bonds	(\$70,638,419)	- Bond principal
Add Cash Balance	\$10,634,145	- Cash, inventory, & receivables
Less Hydrants, Meters & Services	(\$13,599,213)	- Depreciated value of listed assets
<b>Net Equity</b>	<b>\$29,207,500</b>	
Meter Equivalents Used	50,724	
<b>Equity Costs per Equivalent</b>	<b>\$576</b>	



# City of Columbia

701 East Broadway, Columbia, Missouri 65201



## Attachment C Electric Line Extension Policy Draft

### Proposed Electric Line Extension Policy

#### 1. Objectives:

- a. To provide a method to extend electric lines and facilities to serve Applicants that have made a written application for electric service within the retail service area of Columbia Water & Light.

#### 2. Policy Content:

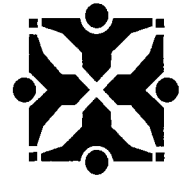
- a. In the event that upgrading, construction, or extension of facilities is required to provide service to the Applicant, Columbia Water & Light will furnish the facilities required but not to exceed a cost greater than the allowable construction credit established for the service being applied for, unless the Applicant makes an in-aid-to-construction contribution.
- b. The estimated construction investment shall include the costs of materials, equipment, engineering and labor, including administration overheads, fringe benefits, and the costs of service transformers and metering equipment, needed to complete the construction for service to the Applicant. The estimated construction investment will include only the non-betterment costs of the construction required to provide service to the Applicant. A non-betterment cost excludes the costs of replacement or addition of facilities solely for the benefit and at the election of Columbia Water & Light.
- c. Where the estimated construction investment exceeds the established allowable construction credit, Columbia Water & Light will request from the Applicant an "In-Aid-To-Construction" contribution. The in-aid-to-construction contribution will be determined as the monetary difference of the non-betterment portion of the estimated construction investment less the allowable construction credit established by this policy.
- d. The allowable construction credits established by this policy are as follows:
  - i. New service is subject to the maximum contributions listed below. Costs estimates in excess of the amounts listed below are subject to an aid-to-construction contribution payment from the customer before construction begins.

Rate Class Combinations	Average Contribution per kWh	Maximum Investment per Customer
Average per Residential Non-Heat Pump	\$ 0.0965 kWh	\$1,094
Average per KWH Heat Pump Residential	\$ 0.0384 kWh	\$3,512
Average General Service	\$ 0.0532 kWh	N/A
Average Industrial	\$ 0.0166 kWh	N/A

Customers who make connections under this policy are required to sign a five-year contract with Columbia Water & Light for service under the proposed rate. Customers are not allowed to change rates during the five year period without prior approval of Columbia Water & Light. Columbia Water & Light may assess a charge equal to the difference between the amount of time serviced under the rate and the remaining time on the five-year contract:

# City of Columbia

701 East Broadway, Columbia, Missouri 65201



For Example: If the initial cost of connection was \$1,500 and a customer disconnects after four years, the following charge will be assessed:

$1/5 \text{ times } 1,500.00 = \$300.00$  charge to the customer

Customers with an existing service who are requesting an upgrade of the facilities to serve additional load, CWL will contribute the following amounts based on the additional (new) load (Amount times the estimated annual usage of added load).

Rate Class Combinations	Average Contribution per kWh	
Average per Residential Non-Heat Pump	\$	0.0965 kWh
Average per KWH Heat Pump Residential	\$	0.0384 kWh
Average General Service	\$	0.0532 kWh
Average Industrial	\$	0.0166 kWh

- e. Columbia Water & Light will connect facilities up to the metering point of the customer. Costs beyond the metering point are the responsibility of the customer and not subjected to contribution from Columbia Water & Light.
- f. The in-aid contributions here are calculated based on class averages. If the customers load is anticipated to vary substantially from the class average due to special circumstances Columbia Water & Light may at their sole discretion use a calculation with results different for this policy however such result must be approved by the Board of Directors.

### 3. Responsibility

- a. The Columbia Water & Light Director shall be responsible for the administration of this.
- b. The Columbia Water & Light Advisory Board shall be responsible for the annual review of this program to determine if the policy continues to meet the objectives of Columbia Water & Light.