TO: Bob McDavid, Mayor

FROM: Water & Light Advisory Board

DATE: April 10, 2014

SUBJECT: City of Columbia Renewable Energy Programs

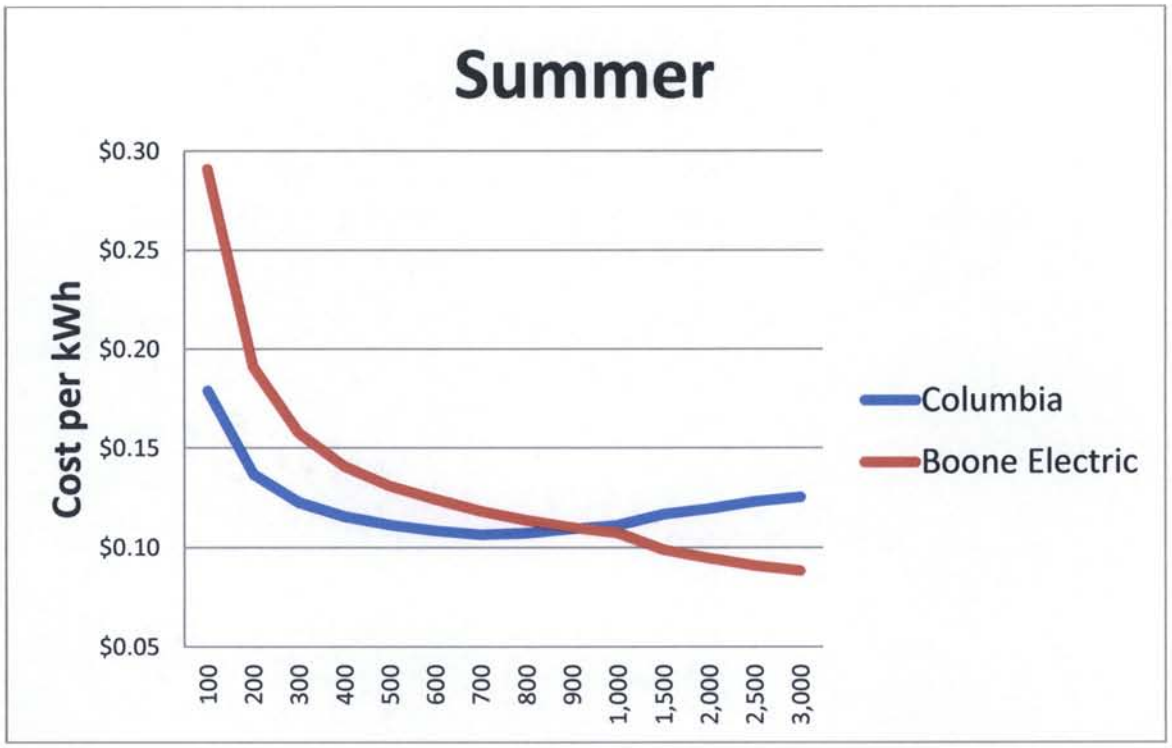
We would like to start by addressing the difference between electric rates charged to Columbia Water & Light Customers vs. Boone Electric Customers. Columbia Water and Light uses an increasing or inverted rate structure while Boone Electric uses a declining rate structure.

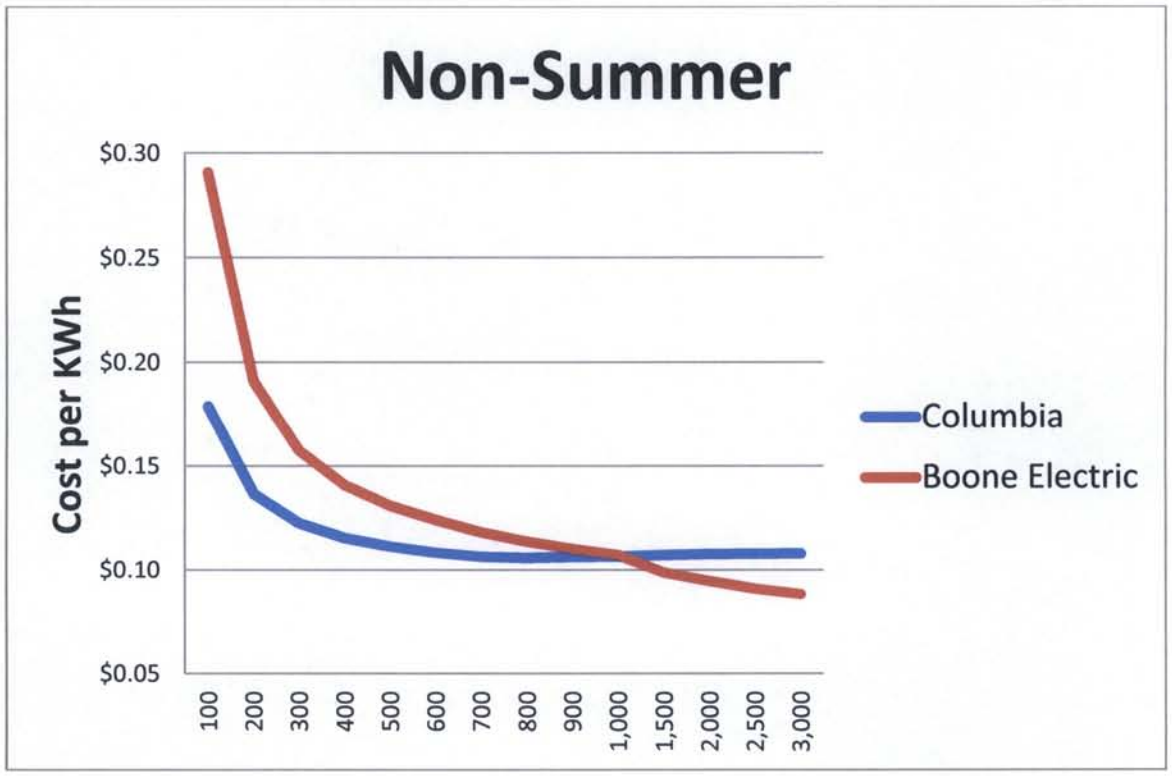
Inverted rate design utilizes a tiered pricing structure where higher usage customers pay a higher marginal rate. Since subsequent quantities of energy have higher per-unit prices as usage rises through the tiers, persons who consume more electricity will pay a higher average rate than those who consume less. This price signal is intended to encourage energy efficiency.

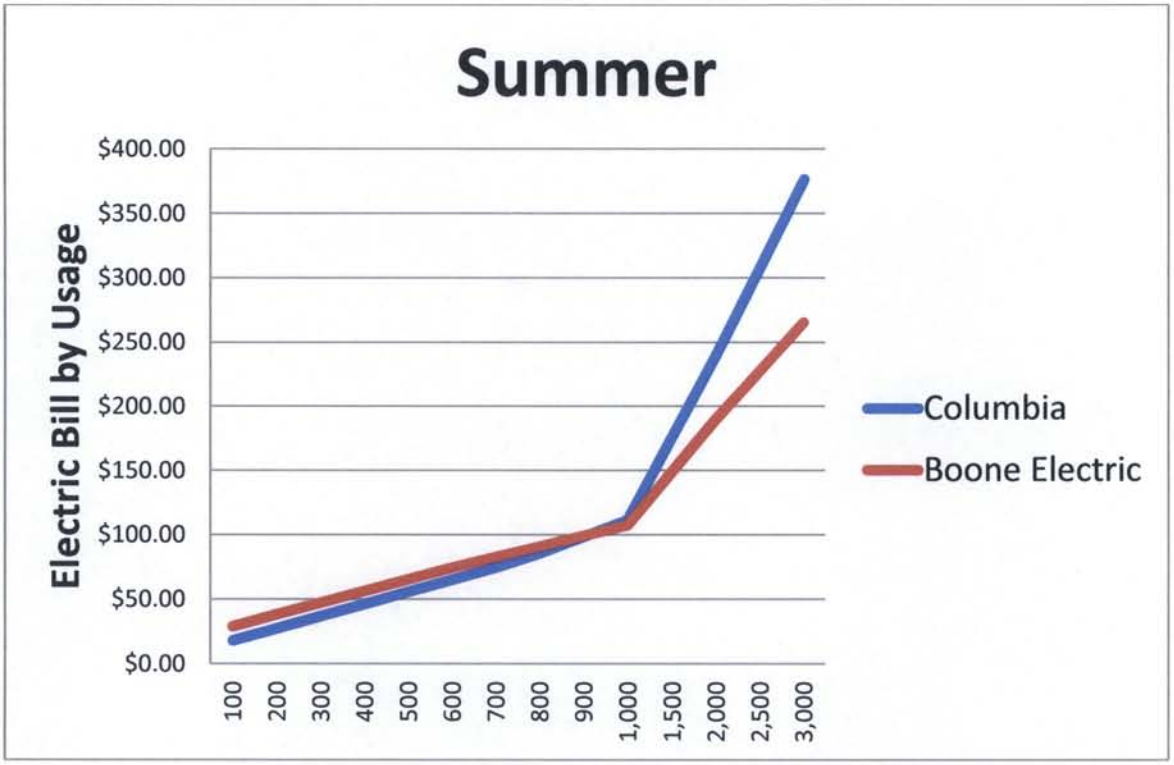
Declining rates is a rate structure in which the unit price of each succeeding block of usage is charged at a lower unit rate than the previous block(s). Declining rates are designed to recover the costs of serving different classes of customers while maintaining reasonable equity among the customer classes. Declining rates assume that customers that have a higher demand also have a more predictable peak demand than do smaller customers. Thus they receive a discounted rate for the higher volumes that they use. Declining rates do not, however, promote efficiency, and many utilities are moving away from this rate structure.

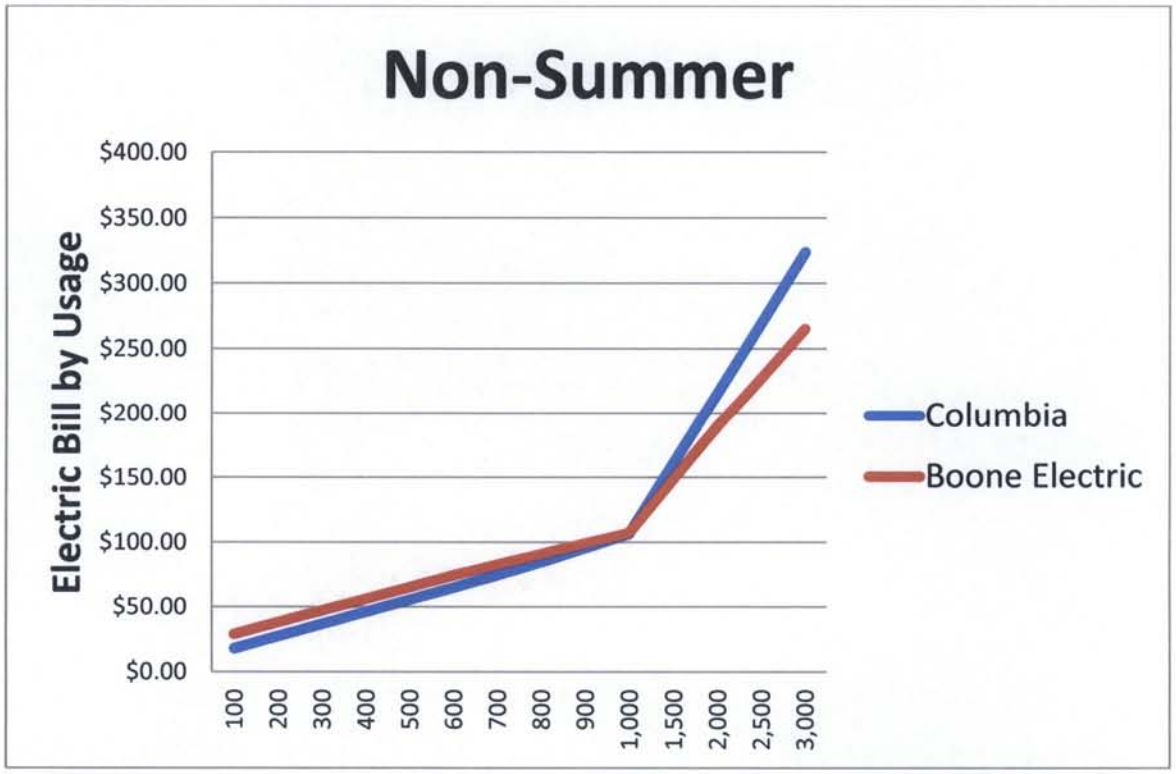
Your request was to validate the following:

1. Columbia Water and Light is in compliance with Section 102, paragraph 2 of the Columbia City Charter.
    a. ***Response:*** *Section 102, paragraph 2 of the Columbia City Charter:* ***"In the fixing of such rates and charges it shall be the policy of the council, so far as feasible and consistent with the above requirements, to fix and maintain the same at a level not to exceed charges made for the same services by privately owned utilities similarly situated."*** *The following chart shows an Electric Rate comparison of residential rates for Columbia Water & Light and Boone Electric. In reference to the Charter wording it should be noted that Boone Electric is not a privately owned utility. While Columbia Water & Light's residential rates are structured differently than Boone Electric's residential rates, we are competitive with similarly situated Missouri utilities. Below are graphs showing comparison of residential electric rates for Water & Light and Boone Electric.*


Summer
Cost per kWh
$0.30
$0.25
$0.20
$0.15
$0.10
$0.05
100
200
300
400
500
600
700
800
900
1,000
1,500
2,000
2,500
3,000
Columbia
Boone Electric


Non-Summer
Cost per KWh
$0.30
$0.25
$0.20
$0.15
$0.10
$0.05
100
200
300
400
500
600
700
800
900
1,000
1,500
2,000
2,500
3,000
Columbia
Boone Electric





Columbia Water & Light rates are less than Boone Electric for usage under 1,000 kWh's. Under 1,000kWh's of usage represents over 70% and under 1,750 kWh's of usage represents over 90% for all residential bills for Water & Light. Boone Electric has a declining rate

structure. Water & Light has an inclining rate structure where higher usage customers pay more in Columbia.

2. The following expenses associated with landfill gas are allocated to the 3% renewable energy cost cap:
    a. Construction costs of the landfill cell.
    b. Staffing – Including labor for emptying black trash bags.
    c. Maintenance and repair of landfill cells.
        i. ***Response:*** *The Water & Light Department purchases landfill methane from the Public Works Department under a fixed rate agreement. Water & Light bid and was awarded this agreement through a competitive bidding process. Costs associated with construction, staffing or maintenance of the landfill are not passed through and do not affect Water & Light's cost of generating electricity from landfill gas. Construction, staffing and maintenance of the landfill gas generators are included in the calculation.*
3. The cost of solar rebates is expensed under the 3% renewable energy cost cap.
    a. ***Response:*** *In prior years, solar rebates were not included in the calculation. In 2013, total rebates for photovoltaic systems were $43,305; however, these rebate costs should be amortized over 20 years to reflect the long-term benefit of capacity.*
4. The differential cost between electricity purchased from net metered clients vs MISO is expensed under the 3% renewable energy cost cap.
    a. ***Response:*** *The Water & Light Board recommended that staff include the impacts of net metered customers in the 2013 Renewable Energy Report. The net metering ordinance allows the utility to take credit for the renewable energy generated from net metered sources. In net metered installations, the energy taken from the utility and the energy provided to the utility are metered; however, the actual production of the photovoltaic system is not metered. Our approach to account for the total generation is to use photovoltaic installations where the full hourly production is metered as an indication of the production for the customers' un-metered installation. Using this approach we can account for the net metered renewable energy production in the 2013 Renewable Energy Report.*
5. The following costs of the low interest loan programs for renewable energy are expensed under the 3% renewable energy cost cap.
    a. Loan losses.
    b. Staffing of low interest loan program.
    c. Opportunity cost of financing.
        i. ***Response:*** *While Columbia Water & Light is completing discussions of how renewable energy projects could be brought into the Energy Efficiency Loan program, no funds have been loaned by Columbia Water & Light for those types of projects. At this time the interest revenue from the Energy Efficiency Loan program exceeds available return on current short-term investments.*
6. The unused redundancy required by intermittent energy sources is cost accounted.
    a. ***Response:*** *Redundancy is not an issue operating within the MISO market. All energy is sold into the MISO market and all energy we purchase is from the MISO energy market. The historic generation system in which we needed to tell each of our external contracts how*

much energy to generate for us at any time no longer applies and thus redundancy is not an issue for energy.

7. Energy from wood burning stoves is considered in Columbia's renewable energy portfolio.
    a. ***Response:*** *Renewable energy standard requires that "The city shall generate or purchase electricity generated from eligible renewable energy sources". Wood burning stoves do not qualify.*