MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Helgeson, Brown, Mital, Simpson and Carlson

FROM: Mel Damewood, Chief Engineering & Operations Officer

DATE: March 7, 2017

SUBJECT: Dark Fiber Pricing

OBJECTIVE: Board Direction on Dark Fiber Price Schedule

Issue

In February 2017 the Board requested more information around the impacts of modifying the minimum increments and the current risk adder for commercial leases. This memo provides that additional dark fiber pricing information requested by the Board.

Background

Dark Fiber Pricing Update

In anticipation of the Board strategic discussion on dark fiber, staff engaged a consultant to review the methodology for calculating the fiber pricing and provide recommendations. Two key questions related to the methodology include the current risk adder for commercial pricing of two times the public rate and review of the minimum miles increment.

EWEB's Customer Services Policies and Procedures currently stipulates a mile minimum for the first mile and billed at one-half mile for any circuit length in excess of one mile. Revision of the minimum length to one half mile will accommodate shorter distances in high density service areas such as the downtown business district.

The commercial price is the Public Purpose price plus an adder to mitigate risk. The risk adder aids in recovery of the cost of the system over a shorter period of time, uncollectible debt management, and the additional administration costs associated with commercial account maintenance resulting in a higher turn-over rate (5-10 years) compared to public agency customers (20 plus years) that will likely remain customers until the fiber system is fully recovered.

Discussion

Financial Impact

While the majority of the minimum increment discussion centers on the proposed downtown fiber network the same structure will be used across the entire system in almost all situations. To better

show the various impacts each option has to the current fiber system and the proposed downtown network have been separated.

Based on preliminary design, 119 buildings downtown have been identified to be part of the downtown fiber optic network. All 119 buildings would have unique circuit distances but they all are less than ¾ of a mile from the centroid of the network.

The estimated 25 year replacement cost of the fiber (only) is estimated at $1.1 million. Using the proposed pricing, the breakeven point requires leasing of 55 strand miles, over a 25 year annual average, of fiber out of a possible 393 miles at full capacity. The year-one revenue equivalent of that 55 strand miles is approximately $35,000. The differential between the replacement cost and the breakpoint of revenue is assumed to be mitigated through future pricing (increases) and interest.

In order to provide estimated revenue the number of circuits per building has to be assumed. In most cases a conservative 1 circuit per building has been assumed. The 1 circuit per building assumption is modified where needed to more accurately reflect market conditions. Those assumption changes are indicated in the options below.

Option 1 *– 1 mile minimum and 2X adder (current pricing model)*

Option 1 (Current Dark Fiber System) 1 Mile Inc & 2X Commercial Adder	**Est. Annual Revenue**
Education Price - $4.94	$39,540
Public Purpose Price - $26.09	$259,540
Commercial Price - $52.18	$49,470
Subtotal:	$348,550

Option 1 (Downtown Network Only) 1 Mile Inc & 2X Commercial Adder	**1/4 Mile Buildings**	**1/2 Mile Buildings**	**3/4 Mile Buildings**	**1 Mile Buildings**	**Est Circuits Per Building**	**Est. Additional Annual Revenue**
$52.18	0	0	0	119	.5	$37,225
Option 1 Average Downtown Circuit Cost: $52.18					**Estimated Total Revenue:**	**$385,775**

Results: It is believed that continuing the current practice downtown of mile minimum and the two time risk adder the overall utilization rate of the network could reduce significantly. As a result the assumption of 1 circuit per building has been reduced to 0.5 circuits per building. The high tech data intensive users would most likely still pay the higher ISP prices that would result of this option but the less data intensive customers might opt to stay with their current provider. This is important, the downtown fiber network must also be attractive to non-tech businesses to fully subscribe the available fiber circuits. If the 0.5 circuits per building assumption turned out to be less, or .25 circuits per building, the downtown revenue would be $18,630 for the downtown and $367,180 for EWEB's overall fiber system.

Option 2 *– 1/2 mile increments and 2X adder (staff recommended pricing model)*

Option 2 (Current Dark Fiber System) 1/2 Mile Inc & 2X Commercial Adder	Est. Annual Revenue
Education Price - $4.94	$39,420
Public Purpose Price - $26.09	$258,600
Commercial Price - $52.18	$46,650
Sub Total:	$344,670

Option 2 (Downtown Network Only) 1/2 Mile Inc & 2X Commercial Adder	1/4 Mile Buildings	1/2 Mile Buildings	3/4 Mile Buildings	1 Mile Buildings	Est Circuits Per Building	Est. Additional Annual Revenue
$52.18	0	107	0	12	1	$41,010
Option 2 Average Downtown Circuit Cost:	$28.72				Estimated Total Revenue:	**$385,680**

Results: Staff believes this option provides the best balance of EWEB risk mitigation and customer economic development. 90% of the project buildings would fall in the ½ mile pricing which provides the opportunity for the entire network to be successful, including EWEB's direct customer the ISP.

Option 3 and 3a *– 1/4 mile increments and 2X adder*

Option 3 (Current Dark Fiber System) 1/4 Mile Inc & 2X Commercial Adder	Est. Annual Revenue
Education Price - $4.94	$39,420
Public Purpose Price - $26.09	$257,510
Commercial Price - $52.18	$44,300
Sub Total:	$341,230

Option 3 (Downtown Network Only) 1/4 Mile Inc & 2X Commercial Adder	1/4 Mile Buildings	1/2 Mile Buildings	3/4 Mile Buildings	1 Mile Buildings	Est Circuits Per Building	Est. Additional Annual Revenue
$52.18	38	69	12	0	1	$33,190
Option 3 Average Downtown Circuit Cost:	$23.24				Estimated Total Revenue:	**$374,420**

Option 3a (Downtown Network Only) 1/4 Mile Inc & 2X Commercial Adder	1/4 Mile Buildings (Assumes 2 circuits/bldg)	1/2 Mile Buildings	3/4 Mile Buildings	1 Mile Buildings	Est Circuits Per Building (other than 1/4)	Est. Additional Annual Revenue
$52.18	38	69	12	0	1	$39,140
Option 3a Average Downtown Circuit Cost:	$20.77				Estimated Total Revenue:	**$380,370**

Results: Of the 119 buildings downtown 38 of them would qualify for ¼ mile pricing. There is an argument that at the lower pricing an ISP could use less costly optics and in turn would lease 2 strands of fiber. Option 3 keeps the assumption at 1 circuit per building while 3a assumes 2 per

building for the ¼ mile buildings and keeps 1 per building for the rest.

Option 4 *– Flat fee for downtown & current pricing model for current system*

Option 4 (Current Dark Fiber System) 1 Mile Inc & 2X Commercial Adder	Est. Annual Revenue
Education Price - $4.94	$39,540
Public Purpose Price - $26.09	$259,540
Commercial Price - $52.18	$49,470
Sub Total:	$348,550

Option 5 (Downtown Network Only) New Circuit Flat Rate For Downtown	# of Buildings	Est Circuits Per Building	Est. Additional Annual Revenue
$30.00	119	1	$42,840
Option 5 Average Downtown Circuit Cost:	$30.00	**Total Revenue:**	**$391,390**

Results: Option 4 removes the question of increments and adders all together. It would implement a new rate that was a flat rate strictly for downtown circuits. This rate should increase annually per Portland CPI or other similar method, and double checked with COSA results. The overall effect would be similar to option 2. If the flat fee was set more than indicated it would adversely affect the system usage (see option 1).

Multiplier Summary

Staff analyzed the impacts of various multipliers for the commercial rate. Moving the rate either up or down has little impact on the annual revenue amounts, let alone the overall revenue impacts of the entire utility. Management recommends holding the commercial multiplier at two times. This remains consistent with past practice, keeps one multiplier rate equally across the entire fiber network, and does not set up a special pricing structure for the downtown area, and mitigates the more transient nature of private businesses (vs. public agencies) over time.

EWEB Electrical Load Impact

With the construction of the downtown fiber network it is believed that building occupancy will increase due to the ability to obtain high speed affordable internet access. The buildings involved in the fiber pilot project downtown currently have 100% occupancy. While a small sample size it does provide support to the argument that high speed fiber connection will increase downtown occupancy. Staff has evaluated electric revenue, on a per square foot basis, for both occupied and unoccupied spaces. Information provided to staff indicates that current occupancy rate of downtown buildings is 88%. If that number increased to 95%, the increase to annual electric revenue is estimated at $350,000. This does not include the potential of small data centers or upticks in high electric usage due to servers being installed along with the high tech industry. Because of limited growth opportunities for water and its effect on occupancy rates in the downtown area, an estimate of water revenue increase was not conducted.

Social Impact

For the downtown fiber network to have the most social impact possible it needs to be accessible and appealing to the largest number of customers possible. For that to happen EWEB's primary customers, the ISP, has to be able to sell their product at price point that is attractive to the largest number of customers.

The primary social benefit to a successful network is economic development in the city of Eugene. One area that exemplifies that is the potential for creating job growth in the downtown area with high paying positions. Recently, EWEB has received information regarding estimates of jobs added to existing downtown businesses if broadband is widely available and at a reasonable cost. These conservative estimates forecast the creation of 215 new jobs over the next five years, with an average annual salary of $57,600, totaling in excess of $12 million per year in salaries. These estimates were given by 18 businesses who utilize fiber services in the downtown area.

Recommendation

Management recommends adoption the new pricing based on the updated cost of service model and continuation of the risk adder for commercial customers based on the multiplier of two times the public agency pricing. Furthermore, management recommends reducing the minimum distance from one mile to one half mile.

Requested Board Action

Approval of Resolution No. 1705, Dark Fiber Lease Price Revision.

If you have any questions please contact Mel Damewood at mel.damewood@eweb.org or 541-685-7145.

RESOLUTION NO. 1705
March 2017

EUGENE WATER & ELECTRIC BOARD
DARK FIBER LEASE PRICE REVISION

WHEREAS, the Eugene Water & Electric Board (EWEB) offers surplus Dark Fiber optic strands for lease by public agencies, higher and K-12 educational institutions, medical service providers, and commercial entities;

WHEREAS, Dark Fiber Leases are not considered by the Federal Communications Council or the Oregon Public Utilities Commission to be a regulated Telecommunications Service;

WHEREAS, EWEB leases Dark Fiber via "indefeasible Right of Use Agreements" (IRUs) or "Intergovernmental Agreements" (IGAs) that make provision for annual escalation based upon updated Cost of Service Analysis (COSA) or the City of Portland's Consumer Price Index (CPI) if no updated COSA was performed;

WHEREAS, EWEB has developed plans for a municipal high density, compact Dark Fiber network in downtown Eugene in partnership with the City of Eugene, Lane Council of Governments, and Technology Association of Oregon;

WHEREAS, EWEB's current Dark Fiber Lease Schedule (DFL-1) contains mileage-based billing determinants;

WHEREAS, EWEB desires to treat 'short distance' Dark Fiber service customers equitably;

NOW, THEREFORE, BE IT RESOLVED that the Eugene Water & Electric Board hereby authorizes the General Manager to adjust the Dark Fiber Lease Price to revise billing length increments under Section E-V 'Dark Fiber Recurring Charges' to allow one-half mile incremental billing lengths for Dark Fiber services that are under one-mile in total length.

NOW, THEREFORE, BE IT RESOLVED that the Eugene Water & Electric Board hereby authorizes the General Manager to adjust the Dark Fiber Lease Rate for public agencies and higher education institutions and the rate applied to existing leases for medical service providers to $26.09 per strand-mile per month, adjusted annually thereafter based on updated Cost of Service Analysis or the City of Portland CPI if no COSA was performed, beginning with bills rendered on or after April 1, 2017.

NOW, THEREFORE, BE IT RESOLVED that the Eugene Water & Electric Board hereby authorizes the General Manager to adjust the Dark Fiber Lease Rate to for-profit commercial customers to $52.18 per strand-mile per month, adjusted annually thereafter based on updated Cost of Service Analysis or the City of Portland CPI if no COSA was performed, beginning with bills rendered on or after April 1, 2017.

Dated this 7th day of March 2017.

THE CITY OF EUGENE, OREGON
Acting by and through the
Eugene Water & Electric Board

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President

I, ANNE M. KAH, the duly appointed, qualified, and acting Assistant Secretary of the Eugene Water & Electric Board, do hereby certify that the above is a true and exact copy of the Resolution adopted by the Board at its March 7, 2017 Regular Board Meeting.

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Assistant Secretary