AGENDA ITEM COVER SHEET

CONSENT AGENDA

No. 02

Meeting Date: August 7, 2018
Requesting Department: Electric
Presenter(s): Eric Neumann

ITEM DESCRIPTION (*Brief*)

Motion to amend the Schedule of Rates and fees, per the attached, to modify outdoor lighting rates and add a new classification for outdoor lighting to reflect the transition to LED fixtures.

ITEM DETAIL (*Expanded from Item Description*)

Approval Recommended? Yes **By:** Finance Committee

Our rates for outdoor lighting have not been adjusted in several years. The attached memorandum explains the changes being proposed and the benefits of transitioning to LED fixtures.

ATTACHMENTS (*Number items if more than one)*

1. Rate and Fee Schedule Amendment
2. Memorandum from Eric Neumann

Outdoor Lighting

Standard Lighting Service Basic Rate The basic rate does not include the monthly charges for additional facilities, outdoor lighting poles, underground service, or any contribution required under this Schedule.

Sodium Vapor Units	Wattage	Monthly Charge	Monthly kWh
5,800 lumen-semi	70	$8.29 ~~$6.84~~ / Fixture	29 / Fixture
9,500 lumen-semi	100	$9.13 ~~$9.23~~ / Fixture	46 / Fixture
9,500 lumen-enclosed/post/ flood	100	$10.41 ~~$11.32~~ / Fixture	46 / Fixture
27,500 lumen-enclosed	250	$18.64 ~~$14.83~~ / Fixture	99 / Fixture
27,500 lumen flood	250	$19.83 ~~$15.54~~ / Fixture	109 / Fixture
50,000 lumen-enclosed	400	$25.12 ~~$21.03~~ / Fixture	152 / Fixture
50,000 lumen flood	400	$27.50 ~~$23.62~~ / Fixture	168 / Fixture
Metal Halide Units (Obsolete)			
~~9,000 lumen-post~~	~~100~~	~~$14.04 / Fixture~~	~~41 / Fixture~~
~~20,000 lumen-shoebox~~	~~250~~	~~$19.40 / Fixture~~	~~99 / Fixture~~
~~40,000 lumen-shoebox/flood~~	~~400~~	~~$26.82 / Fixture~~	~~160 / Fixture~~
~~110,000 flood~~	~~1,000~~	~~$29.82 / Fixture~~	~~370 / Fixture~~
LED Units (New)			
Acorn Fixture	51	$15.70 / Fixture	29 / Fixture
Shoebox - 1	61	$11.49 / Fixture	29 / Fixture
Shoebox - 2	151	$19.04 / Fixture	29 / Fixture
Area Light	51	$7.91 / Fixture	29 / Fixture
Cobrahead -1	51	$9.69 / Fixture	29 / Fixture
Cobrahead -2	151	$17.71 / Fixture	29 / Fixture
Lantern -1 w/ Lens	51	$12.61 / Fixture	29 / Fixture
Lantern -2 w/o Lens	51	$16.09 / Fixture	29 / Fixture

Special Contract Lights *(residential dedicated public streets outside corporate limits)*	Monthly charge	Special Area Lighting Pole	Monthly Charge
100 watt HPS enclosed luminaire on approved wood pole	$2.29 / customer	Wood	$2.51 ~~$2.09~~ /pole
Fiberglass pole or post w/ approved 100 watt HPS luminaire	$2.93 / customer	Metal, fiberglass or post Decorative square metal	$3.51 ~~$4.96~~ /pole $13.01 ~~$10.65~~ /pole

Non-standard Premium Lighting Service The following charges are in addition to Standard Lighting Service Basic Rate identified above.

Premium Lighting Fixtures	Monthly charge	Premium Posts / Brackets	Monthly charge
Prismatic series classic or colony top	$3.63 / Fixture	Decorative shroud w/ standard fiberglass post	$11.74 / post
Prismatic series classic or colony top w/ crown & rib	$4.36 / Fixture	Fluted direct bury post	$18.53 / post
Vandermore series w/o spikes	$2.42 / Fixture	Premium Twin mounting bracket	$4. 84 / bracket

Underground Service For Underground service, the monthly bill will be increased by $3.50 per pole or, in lieu thereof,a one-time contribution of $175.17 per pole. The monthly UG charge, if selected, may be terminated at any time upon payment by Customer of the one-time contribution. The UG charge will be waived if the lighting facilities are installed during the installation of the main electric facilities. The monthly pole charge defined below will also be applicable to underground service.

Additional Facilities

1. Multiple area lighting fixtures may be installed per pole subject to town review and approval. The monthly charge for each additional fixture will be the charge in accordance with the Monthly Rate for that fixture.
2. For distribution transformer and/or primary conductor extension, 2% of the estimated installed cost of the excess circuit.
3. For an underground circuit in excess of 250 feet for an area lighting pole, 2% of the estimated installed cost of the excess circuit.
4. For a metal pole, 2% of the estimated cost of overhead or underground metal poles requiring special construction or features, which are in excess of the estimated, installed cost of standard underground metal poles.

July 20th 2018

Town of Apex Finance Committee
73 Hunter Street
Apex, NC 27502

Dear Drew,

I am requesting review and approval for the newly developed outdoor street and area light rates for the Town of Apex. I developed these rates in response to the recent addition of LED lighting fixture to the towns offering. The intent of these new fixtures is to slowly transition the Town over to energy efficient, lower maintenance devices that will provide immediate cost savings to the town and our citizens.

Background: The outdoor lighting market has transitioned from traditional HID (High Intensity Discharge) fixture technology to LED's. This transition started about 10 years ago and the market has fully matured. Most utilities around the nation have transitioned or are in the process of transitioning over to this new technology. Early on in the process, the industry worked out some of the initial bugs that any new technology faces and have developed products that have been hardened to meet the harsh environment that they are intended to operate in. Costs have steadily come down and have achieved paybacks that are now self-sustaining.

Upon my arrival at the Town in early May, I was surprised to see that the Town had not fully embraced this technology with a few exceptions for some trial samples being pushed by some local vendors. Having worked for previous utilities that had already transitioned to this technology, I was aware of the benefits and decided to pursue lighting alternatives for Apex. During discussions with many of the local citizens in the Town, I quickly realized that there is a significant affinity for "Green" solutions in Apex and felt this was a high priority for me.

Having reviewed the existing offerings and lighting rates, I realized that there has not been a significant change in the program for over 10 years, with the last rate change taking place in 2012. That change was initiated as part of a tax revision that only focused on creatively shifting tax burden to meet new requirements.

Process: The approached taken to provide LED offerings for the Town was to develop options for existing fixtures that would seamlessly integrate into our system without causing any noticeable distinction from a visual and performance perspective. The intent was not to increase warehouse spacing needs by offering additional styles of fixtures. The result being that as existing HID fixtures failed we could replace them with an LED equivalent with no visual differentiation.

I started by developing performance specifications that would allow our purchasing department to be able to bid out future purchases in a competitive environment as opposed to calling out a specific fixture. I polled various utilities around the state and created a base specification. From this I contacted vendors to make sure that I was in line with my requirements such that I did not propose a fixture so unique that only 1 manufacture could meet the spec.

After developing the specification, I ran lighting calculations utilizing software that would allow me to model the lighting distribution pattern to insure that we were obtaining similar performance from a photometric perspective. (Illumination on the road surface would be similar when comparing the existing HID fixture to the new LED fixture) Once I was comfortable with the performance, I completed the specification and provided a list of "acceptable" fixtures that would be allowed during an open bid process. As new manufactures enter the market, they are instructed to provide similar information so that they can be verified by me and will be added if they meet performance criteria.

I shared the draft standards with a few of the manufactures to get their input and adjusted as needed to finalize the specifications. I saved these specifications on the network drive and sent a link to purchasing for their use.

After completing the specifications, I received pricing from vendors on the new offerings and developed rates for each option. The attached Excel worksheet has all the details on how those calculations were performed. I reviewed the mythology with finance to get concurrence on the process to make sure that it passed the initial "sniff test". All the inputs to the calculation were pulled from existing town documents and norms. From this, the new LED rates were developed. As a check, I utilized the calculation methodology to back calculate existing HID rates and was surprised to see that they were not far off. Since the philosophy appears to be sound, I would suggest that in addition to adding the new LED offering, we update our existing HID rates to match the back calculated rates since they possess the most recent cost data.

As an aside, I attempted to locate the worksheets used in 2008 revision to match the calculation philosophy, but was not successful. Barring any previous methodology, I utilized best practices to develop the new rates. The Excel spreadsheet will preserve the formula going forward and allow us to easily update costs as situations dictate the need in the future.

Present Standing: Today we have LED standards and are actively purchasing fixtures for installation on all new jobs. We placed an order for our first job and anticipate that in the next few months we will have our first installation serving our customers. Until we have official rates, we intend to place them under the equivalent HID rate until such time as we are able to transition them over. For existing HID fixtures that require repair and replacement we will take a blended approach. Since the light source will transition from a slight yellow hue to a more white hue, we need to be cautious so that we don't draw attention. Presently, my direction is to review each situation and selectively replace fixtures in "visual" groups. I can provide further discussion on what constitutes a "visual" group at a later date if necessary.

Summary: Transitioning the Town over to LED fixtures is the right thing to do. We are slightly behind the curve on implementing this technology from an industry perspective, but it allowed the market more time to mature, reduce cost and shake out technology issues that plagued it early on.

Generally speaking, this new technology will reduce the energy requirements in half for all fixtures that are converted or installed on the Town's electric grid. The maintenance is also cut in half, further enhancing the payback period. We additionally get a 10 year warrantee on each fixture, so any initial failures will be replaced at cost (minus the labor). The designed break-even point for the fixtures installed and connected to overhead facilities is 3 years, and for underground facilities, 5 years.

I am available to answer any further questions in regard to these rates and am ready to support this effort in front of the Town Council as needed. Please let me know if any additional documentation is needed and what the expected timeline for approval is so I can work with the necessary staff in financing to make this happen.

Sincerely,

Eric Neumann, PE
Director, Electric Utilities