



## IMPROVING UTILITY LIGHTING TARIFFS

By John Wolfram

**E**lectric utilities are facing a fundamental challenge to the longstanding approach employed to design and maintain rate schedules for street lights, security lights, and area lighting. Utilities have to adapt to the speed and extent of recent improvements in lighting technology, and must decide how to revise their current lighting tariffs to handle those ongoing changes.

Advances in Light Emitting Diode (“LED”) lighting technology are affecting electric utilities in the same way that they impact how individual consumers manage the lighting options in their homes: an expanding selection of increasingly-efficient LED lights are becoming commercially available on a nearly continuous basis. These advances are beginning to drive changes to the way utilities design and maintain their rate schedules for street lights, security lights and area lighting.

### Historical Approach

Historically, utilities have offered particular lamps (also referred to by various utilities as lights, bulbs, fixtures, or devices) to customers and listed the charges for each lamp in the tariff. These lamps were designated by wattage and also by type of bulb, e.g., High Pressure Sodium (“HPS”), Metal Halide (“MH”) and Mercury Vapor (“MV”). The tariffs would state, for example, that the monthly charge for a MV 100W device is \$7.00. This approach went largely unchanged for decades, because bulb wattages were effectively standardized.

Also, the street light devices used to include a fixture with lamps that could be changed out upon failure. The lamp itself was separate and distinct from the fixture on the pole. This was the case for street lights as well as for flood lights of various kinds.

### Changing Times

In 2005, Congress passed a law banning the sale of MV ballasts as of 2008. No new fixtures could be sold, and as existing ballasts failed, they had to be replaced with other lamp types. As a result, manufacturers stopped producing those lights and instead produced other options with similar light-producing capabilities, including the 100 Watt MH option and various LED lighting options, all of which provide a roughly-equivalent amount of lumens as the MV lights that were common up to that point.

Now, manufacturers are developing new, high-efficiency LED lights that produce the same lumens but at lower and lower wattages. Generally, the costs for these LED options are declining and the selection of available options is growing.

Also, the new street light fixture is a single unit that includes the ballast and lamp as an integrated entity. These days, street lights more closely resemble the flashlight on a cell phone than they do any light bulb Edison imagined.

In general the newer lights have a higher initial capital cost and a lower on-going maintenance cost than their predecessors, along with a much longer life.

These developments do not easily mesh with the historic approach for managing utility lighting tariffs. For decades, utility tariffs cited specific lamp wattage and were updated on a relatively infrequent basis. But now, the LED lighting options are changing very rapidly and the current structure of the lighting tariffs makes it difficult for utilities to keep pace with those changes. It is administratively inefficient for utilities to have to update their tariffs every time a more efficient lighting device becomes available.

## Solutions

Utility goals in this area are to keep pace with technology improvements, promote customer satisfaction, encourage energy efficiency and adhere to approved tariffs and related regulatory requirements.

To achieve these aims, many utilities are proposing to revise their lighting rate schedules such that the schedules set forth charges for particular lights by wattage (as they did before), but also allow for the installation of new lights that are similar to the listed wattage bulbs *within a specified range of lumens*. In other words, the “old” lamp language specifying wattage and monthly cost is still included, but a range of lumens is also provided for each so that as new offerings emerge, they can be clearly associated with one of the lamps specifically mentioned in the tariff -- so the utility and the customer will know what the monthly charge will be for a new lamp even when that particular lamp is not explicitly listed in the tariff. Thus customers will be charged for the new lamps based on which of the old lamps the new lamp most closely resembles.

<i>Existing Tariff Language</i>				
<b>LIGHTING RATES:</b>				
Flat rate per light per month for lights of listed wattage as follows:				
175	Watt	\$ 9.25	per month	
400	Watt	\$ 13.50	per month	
400	Watt Flood	\$ 21.25	per month	
<i>New Tariff Language Example</i>				
<b>LIGHTING RATES:</b>				
Flat rate per light per month for lights of listed wattage <i>or for similar lights within a range of approximately equivalent lumens</i> as follows:				
175	Watt	6,000 - 13,000 Lumens	\$ 9.25	per month
400	Watt	13,001 - 25,000 Lumens	\$ 13.50	per month
400	Watt Flood	13,000 - 25,000 Lumens	\$ 21.25	per month

Those opposed to this approach will note that there is the question of costs. How do we know the cost of the new lights should be the same as the cost of the old lights? The utility must demonstrate that the costs of the new lamps are in line with the costs of the lamps listed in the tariff. A lighting cost analysis that takes into account the capital costs, estimated operations and maintenance expenses, energy usage and carrying cost for each type of lamp will provide the necessary support for the lighting charges. The per-unit costs won't match exactly but they should be reasonably close in order to justify charging the same rate for all of the different lamps in the same range of lumens. If they aren't, separate charges are warranted.

Use of a lumens range in this way allows utilities to place new lights into service as they become available, even as the efficiency continues to improve. This also allows utilities to avoid making frequent updates to lighting tariffs while still accommodating the new, more efficient LED products as they emerge.

## **Conclusion**

With the rapid advances in lighting technology comes the need to revisit the way utilities design and maintain their rate schedules for lighting. The simple approach of stating the wattage and rate for a specific type of lamp is beginning to be less effective. As new lighting options emerge, utilities should revise their tariffs to allow for the installation of more efficient options at set prices by specifying a range of lumens for roughly-equivalent lighting options, and without the need to frequently revise the tariffs. This approach is beneficial as long as the costs for various lights do not significantly vary.

Flexibility on lighting tariffs will ensure improved adoption of more efficient lighting, reduced regulatory and administrative burdens, and enhanced customer satisfaction for all aspects of utility street lighting, security lighting and area lighting.

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