

**UNITIL ENERGY SYSTEMS, INC.**

**DIRECT TESTIMONY OF  
JOHN F. CLOSSON**

**New Hampshire Public Utilities Commission**

**Docket No. DE 16-384**

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**I. INTRODUCTION**

**Q. Please state your name and business address.**

A. My name is John F. Closson. My business address is 6 Liberty Lane West, Hampton, New Hampshire 03842.

**Q. What is your position and what are your responsibilities?**

A. I am the Director, Shared Services for Unitil Service Corp. (“Unitil Service”), which provides centralized utility management services to Unitil Corporation’s utility operating subsidiaries Unitil Energy Systems, Inc. (“Unitil Energy” or the “Company”), Northern Utilities, Inc., Granite State Gas Transmission, Inc. and Fitchburg Gas and Electric Light Company. The responsibilities of the Shared Services department include procurement, inventory management, fleet management, facilities management, and administrative services.

**Q. Please describe your business experience and qualifications..**

A. I have over 12 years of professional experience in the utility industry supporting electric and gas operational business units. I joined Unitil Service in 2008 as Manager, Procurement and Supply Chain. In this position, among other responsibilities, I have had direct exposure to costs associated with Outdoor Lighting including: (1) material and equipment costs, (2) direct labor costs, and (3) traffic control costs. Prior to joining Unitil Service, I was employed for four years at National Grid, USA where I held various positions supporting National Grid’s Supply Chain Management teams.

1 **Q. Have you previously testified before the Public Utilities Commission, or other**  
2 **regulatory agencies?**

3 A. No, this is my first appearance before the Public Utilities Commission or other  
4 regulatory agency.

5 **Q. What is the purpose of your testimony?**

6 A. The purpose of my testimony is to describe the Company's decision to expand its  
7 Outdoor Lighting offerings to include a tariff for Light Emitting Diode (LED)  
8 luminaires.

9 **Q. Please summarize your testimony.**

10 A. In recognition of the considerable energy efficiencies available from LED Outdoor  
11 Lighting technologies, coupled with the reduced maintenance requirements of LED  
12 luminaires, the Company has decided to augment its existing Outdoor Lighting tariff to  
13 include an LED Outdoor Lighting schedule for our customers. The Company's tariff is  
14 constructed such that it will allow customers the opportunity to take advantage of the  
15 benefits of LED Outdoor Lighting at their discretion.

16 **Q. How have you organized your testimony?**

17 A. My testimony will first discuss the benefits of LED Outdoor Lighting which contributed  
18 to the Company's decision to offer an LED Outdoor Lighting schedule. I will then  
19 discuss why the Company's tariff and schedule will provide customers the ability to

1 realize the benefits of LED Outdoor Lighting solutions in a simple cost effective  
2 manner.

3 **II. BENEFITS OF LIGHT EMITTING DIODE (LED) OUTDOOR LIGHTING**  
4 **TECHNOLOGY**

5  
6 **Q. What are the benefits of LED Outdoor Lighting?**

7 A. LED Outdoor Lighting provides customers with a number of benefits, including: energy  
8 efficiency, reduced maintenance, greater public safety, and reduced environmental  
9 impact.

10  
11 Energy efficiencies associated with LED Outdoor Lighting have been well lauded by  
12 Outdoor Lighting manufactures. The number of lumens produced per watt is greater for  
13 LED fixtures compared to conventional high-intensity discharge (HID) fixtures. The  
14 LED luminaires evaluated by the Company achieve in excess of 100 lumens per watt  
15 for most fixtures. Comparatively, a 50 Watt high-pressure sodium lamp will provide  
16 80 lumens per watt initially and degrade in efficacy over time. As an example, over the  
17 course of one year a conversion from an existing 50 Watt high-pressure sodium street  
18 light to its LED equivalent (25 Watt) will result in over 103 kWh of energy savings.

19 LED Outdoor Lighting efficiencies go beyond energy savings. The “designed life” of  
20 LED luminaires is 100,000 hours, or 24 years.<sup>1</sup> This extended operating life means that  
21 normal Company maintenance cycles for Outdoor Lighting would not be required for

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<sup>1</sup> Total operating hours for street lighting in the northeast is 4150 annually.

1 LED luminaires. Typically, conventional HID lamps have a rated life of 24,000 hours,  
2 or 5.7 years; therefore, these lamps must be replaced on a regular interval to avoid  
3 service interruptions. At the time HID lamps are replaced, the Company also cleans  
4 the luminaire (lens) and replaces the photometric control. LED luminaires, outfitted  
5 with photometric controls designed to operate for approximately 20 years, may be  
6 installed with no scheduled maintenance requirements.

7 An ancillary benefit of LED Outdoor Lighting relates to public safety. Unlike  
8 conventional roadway and area lighting, LED luminaires provide a light that is uniform  
9 and may be directed to provide desired illumination to the surface area around the utility  
10 pole. Conventional roadway lighting focuses the majority of the light directly under the  
11 luminaire. Additionally, the white color of the light from LED luminaires allows for  
12 improved contrast when viewing colors. Evenly distributed light and improved color  
13 contrast provide motorists and pedestrians better overall visibility from LED luminaires.  
14 This increased visibility creates a safer environment for traveling into and through areas  
15 illuminated by LED luminaires.

16 Environmental impacts are lower for LED Outdoor Lighting compared to conventional  
17 HID Outdoor Lighting. LED luminaires do not contain mercury or other potentially  
18 hazardous chemicals present in some HID luminaires and lamps. LED luminaires  
19 reduced energy consumption correlates to a reduction in overall greenhouse gas  
20 emissions. Additionally, the directional nature of LED light combined with roadway  
21 luminaires that are classified as “full cutoff” greatly reduces light pollution.

1 In assessing the many benefits associated with LED Outdoor Lighting the Company  
2 was compelled to offer a way to provide the technology to its customers.

3 **Q. What other factors did the Company consider when deciding to offer LED**  
4 **Outdoor Lighting?**

5 A. Two additional factors were considered when deciding to offer an LED Outdoor  
6 Lighting schedule; (1) increased pricing for existing HID Outdoor Lighting and (2)  
7 customer requests to procure Company Outdoor Lighting assets.

8 Over the past two years the Company has seen a substantial increase in the cost of HID  
9 Outdoor Lighting luminaires and lamps. In some cases price increases have been as  
10 high as 22%. These price increases are due in part to planned obsolescence of existing  
11 HID Outdoor Lighting products by manufacturers who are retiring HID Outdoor  
12 Lighting products in favor of LED equivalents.

13 In addition to HID Outdoor Lighting obsolescence, the Company has also received  
14 requests from Municipal customers to procure the Company's Outdoor Lighting assets  
15 with the intent of replacing those assets with LED technologies. In consideration of  
16 these requests the Company evaluated various LED Outdoor Lighting products and  
17 conversion strategies to develop its offering.

18 **Q. Is this the first time the Company has considered Light Emitting Diode Outdoor**  
19 **Lighting Offering?**

1 A. No, the Company has continuously reviewed various LED Outdoor Lighting solutions.  
2 Until recently, the Company determined that LED equipment costs were too high to  
3 warrant the development of a tariff for this technology; furthermore, LED technology,  
4 specifically the efficacy of the diodes, has continued to evolve making a commitment to  
5 any product difficult. Over the past twelve months prices for LED equipment have  
6 been reduced; however, there still is a substantial capital investment required to install  
7 LED luminaires. Although LED technology continues to evolve, the performance and  
8 the reliability of street light fixtures have stabilized to the point where multiple products  
9 can be reviewed with confidence. The reduced fluctuation of LED Outdoor Lighting  
10 equipment pricing and increased customer inquiry have driven the Company to pursue  
11 the development of this new Outdoor Lighting schedule.

12 **III. UNITIL ENERGY SYSTEMS, INC. LED OUTDOOR LIGHTING SCHEDULE**  
13 **OFFERING.**

14 **Q. Can you describe how customers can take advantage of the Company's LED**  
15 **Outdoor Lighting Schedule?**

16 A. Customers that wish to take advantage of the Company's LED Outdoor Lighting  
17 Schedule will be responsible for the following: (1) the total cost of LED Outdoor  
18 Lighting equipment including, as applicable, luminaire, photometric control device,  
19 street light bracket/arm, and utility pole, (2) total installation costs for LED equipment,  
20 including costs to remove existing fixtures, (3) net book value of any fixture replaced.  
21 Customers may coordinate with the Company for the installation of new LED Outdoor  
22 Lighting equipment or engage private Line Contractors to complete this work.



1 **Q. Do customers procure LED Outdoor Lighting equipment from the Company?**

2 A. The Customer will have the discretion whether to choose to procure LED Outdoor  
3 Lighting equipment from the Company or a third party. In recognition of the significant  
4 capital investment associated with LED Outdoor Lighting equipment, the Company  
5 wants to provide every opportunity possible for Customers to take advantage of this  
6 technology in the most cost effective manner. The Company also acknowledges that  
7 Customers may have access to funding mechanisms not available to the Company for  
8 projects of this nature. Municipal customers are encouraged to review the United States  
9 Department of Energy's Municipal Solid-State Street Light Consortium (MSSLC)  
10 website for suggestions regarding various grants and funding opportunities. All the  
11 Company requires is that LED Outdoor Lighting equipment be approved by the  
12 Company prior to installation to ensure it is compatible with existing line voltage and to  
13 certify it can be maintained by Company personnel.

14 **Q. Does the Company own the new LED Fixture once installed?**

15 A. Yes, the title of the LED Outdoor Lighting equipment will be held by the Company  
16 following installation in all cases. Also, in instances where a payment is made by the  
17 customer to the Company for the LED Outdoor Lighting equipment and/or installation,  
18 the payment will be treated as a contribution-in-aid of construction.

19 **Q. In consideration of your previous testimony regarding the reduced maintenance**  
20 **requirements for LED Outdoor Lighting equipment how will the Company**  
21 **address unplanned maintenance requirements?**

1    **A.**     Customers will be billed a “per fixture per visit” service fee of \$115.00, plus the cost of  
2           materials.

3    **Q.**     **What advantages are realized by Customers who elect to coordinate their own**  
4           **installation?**

5    **A.**     Customers who choose to hire private Line Contractors may be able to complete the  
6           installation at a cost savings. Furthermore, the Customer will be able to dictate the  
7           timing of the installation, or conversion, to a schedule that best suits their needs.

8  
9    **Q.**     **Does the Company expect to work closely with customers who wish to have LED**  
10          **service?**

11   **A.**     Yes. The customer will need to coordinate with the Company its transition to LED  
12          service. Thus, before a customer decides to install LED Outdoor Lighting equipment,  
13          the Company will offer its expertise on best-practices decision making and expects to  
14          work closely with these customers in order to make an appropriate decision.

15   **Q.**     **Has the Company proposed a new LED Outdoor Lighting Service Rate Schedule?**

16   **A.**     Yes. The Company has proposed Schedule LED. The proposed rates for service are  
17          included in the testimony of Mr. Edwin Overcast.

18   **Q.**     **Does this conclude your testimony?**

19   **A.**     Yes, it does.