

In the Matter of the Application of San Diego Gas & Electric Company (U 902 E) for Approval of its Proposals for Dynamic Pricing and Recovery of Incremental Expenditures Required for Implementation.

Application 10-07-009  
(Filed July 6, 2010)

Application of San Diego Gas & Electric Company (U 902 E) for Authority to Update Marginal Costs, Cost Allocation, and Electric Rate Design

Application 19-03-002  
(Filed March 4, 2019)

Application: 10-07-009/A.19-03-002  
Exhibit No: \_\_\_\_\_

**PREPARED SUPPLEMENTAL TESTIMONY  
OF ADRIANNA MAGALLANES**

**ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY**

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

**AUGUST 30, 2019**



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1 describe methodologies, assumptions, data sources and limitations for each proposed  
2 cost estimate.

3 **III. SDG&E RESPONSES TO QUESTIONS IN JULY 26, 2019 RULING**

4 **1. Description of technologies included in the tariff, especially any**  
5 **technologies in addition to LEDs (light emitting diodes). Describe options**  
6 **for more advanced technologies including, at minimum, solar powered**  
7 **streetlights, and streetlights with photosensors.**

8 SDG&E's current Schedule LS-1 (Lighting – Street and Highway – Utility-Owned  
9 Installations) tariff includes traditional technologies such as Mercury Vapor, High Pressure Sodium  
10 Vapor, Low Pressure Sodium Vapor, and Metal Halide. Upon Commission approval of this  
11 Application (“A.19-03-002”), SDG&E will add Light Emitting Diode (“LED”) technology to  
12 Schedule LS-1.

13 A Mercury Vapor light is a specific type of gas-discharge light that uses an electric arc of  
14 vaporized mercury to produce light. A Sodium Vapor light is a gas-discharge light that uses sodium  
15 to produce light. There are two types of Sodium Vapor Lamps - High Pressure and Low Pressure.  
16 The principal difference between the High Pressure and Low Pressure lights is the operating pressure  
17 inside the lamp. A Metal Halide light is an electrical light that produces light by an electric arc  
18 through a gas mixture of vaporized mercury and metal halides. A LED is a semiconductor light  
19 source that emits light when current flows through it.

20 Currently, all of SDG&E's existing LS-1<sup>2</sup> streetlights provide “dusk to daylight” service.  
21 Installations contain photo sensors or, photocells, to detect when light is needed. If the photo  
22 sensors or photocells detect light is needed, the streetlight will turn on, and then similarly turn off,  
23 when it detects light is no longer needed. SDG&E does not currently have company owned  
24 streetlights with more advanced technologies, such as solar powered streetlights, and no cost studies  
25 or economic analyses have been developed to evaluate advanced technologies.

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<sup>2</sup> LS-1 streetlights are the traditional streetlights described in the first paragraph of question 1.

1                   **2.     Number of lamps proposed to be converted and timeframe for**  
2                   **conversion. Identify and describe any and all assumptions, data sources**  
3                   **and limitations for each proposed number.**

4                   There are currently a total of 29,387 active LS-1 streetlights within SDG&E's territory.  
5                   SDG&E's project to convert all existing LS-1 streetlights to LEDs assumes one fifth of the total  
6                   streetlight population per year are converted or, 5,877 streetlights per year, starting once SDG&E  
7                   receives Commission approval of A.19-03-002. At this pace, the changeout project is expected to be  
8                   completed over a 5-year period.

9                   **3.     Installed cost of each proposed energy efficient technology (i.e., current**  
10                   **and forecasted market costs). Identify and describe methodologies,**  
11                   **assumptions, data sources and limitations for each proposed cost**  
12                   **estimate.**

13                   SDG&E developed fully loaded installation costs which are presented in workpaper,  
14                   SDG&E\_Witness Magallanes\_LED Installation Costs – Tabs HPS Class A through Mercury Vapor  
15                   Class A. The fully loaded installation costs include the cost of the LED luminaire plus the cost of  
16                   the photocell. In developing fully loaded cost estimates, material costs are adjusted to include  
17                   overhead allocations consistent with their classification. Overhead allocations are those activities  
18                   and services associated with direct costs, such as costs of purchased materials or administrative and  
19                   general capital costs. Overhead allocations comply with the methodology proposed by the Federal  
20                   Energy Regulatory Commission. Once the overhead allocation adjustment is applied, a fully loaded  
21                   material cost for the LEDs is determined. In addition, I used a total installation labor time  
22                   assumption of 0.5 hours per changeout. This labor time assumption is multiplied by the labor rate of  
23                   \$213.43 per hour, adjusted to include the overhead allocations, to determine a fully loaded labor rate.  
24                   The fully loaded labor rate is then added to the fully loaded costs of the LEDs to determine the total  
25                   fully loaded installed labor and material cost.

1                   **4. Operations and maintenance costs of each technology compared to**  
2                   **traditional technologies (including, but not limited to, high pressure**  
3                   **sodium vapor). Identify and describe methodologies, assumptions, data**  
4                   **sources and limitations for each proposed cost estimate.**

5                   The operations and maintenance (“O&M”) costs for Mercury Vapor, High Pressure Sodium  
6 Vapor, Low Pressure Sodium Vapor and Metal Halide light types are \$21.43 per streetlight per year,  
7 as presented in the direct testimony workpapers of SDG&E witness Saxe, labeled  
8 “Ch\_7\_WP#1\_Lighting Model.”

9                   Assuming the industry standard failure rate for LEDs of 1% per year, the number of annual  
10 maintenance trips required by an SDG&E crew to repair a nonfunctioning light is 294 based on the  
11 current LS-1 streetlight population of 29,387 lights. We also assume a worst-case scenario of 3  
12 hours per crew maintenance trip at the labor rate provided by SDG&E’s Engineering department of  
13 \$213.43 per hour. To calculate the total fully loaded annual O&M costs for LEDs a labor loading  
14 factor of 165% is applied which results in an annual cost of \$498,850. After dividing the total  
15 Annual loaded cost by the total LS-1 streetlight population of 29,387, the O&M costs for LEDs is  
16 calculated at \$16.98 per light<sup>3</sup> compared to \$21.43 per light for the traditional technologies. These  
17 calculations are reflected in workpaper, SDG&E\_Witness Magallanes\_LED Installation Costs – Tab  
18 O&M.

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<sup>3</sup> \$498,850 / 29,387 = \$16.98 O&M per light per year for LED technology.

1 **IV. WITNESS QUALIFICATIONS**

2 My name is Adrianna Magallanes. My business address is 8306 Century park Court, San  
3 Diego, California, 92123.

4 I have been employed by San Diego Gas & Electric Company as a Market Advisor in the  
5 Business Services department since 2015. One of my current roles is to manage the Street Light  
6 program. Prior to my current position and since 2002, I have held various roles of increasing  
7 responsibility within the company. I received a Bachelor of Arts degree in Business Management  
8 from the University of Phoenix in 2008.

9 I have not previously testified before the California Public Utilities Commission.