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Via Electronic Mail
Sherri Golden, Secretary
New Jersey Board of Public Utilities
44 South Clinton Avenue, 1st Floor
PO Box 350
Trenton, NJ 08635-0350

Re: **I/M/O the Implementation of the Light Emitting Diode ("LED") Streetlight Program**
Docket No. QO22110710

Dear Secretary Golden:

Public Service Electric and Gas Company (PSE&G) is pleased to offer the following comments in response to the Request for Comments on the Board of Public Utilities ("Board" or the "BPU") Implementation of the Light Emitting Diode ("LED") Streetlight Program ("Request for Comments"). PSE&G appreciates the Board's leadership on various clean energy initiatives that advance the policy objectives of New Jersey, and we look forward to continued collaboration with the Board, Board Staff, and public and private stakeholders toward the common goal of a clean energy future for New Jersey's residents.

PSE&G also appreciates the Board's collaborative process that allows PSE&G to continuously improve its program offerings, adjust based on valuable stakeholder feedback, and collaborate with other utilities to reduce barriers to customer participation. We are grateful for the time and energy of BPU Staff, NJ Clean Energy Program administrators, utility program administrators and the many other contributors who participate and add value to these processes.

PSE&G believes that utility led LED Streetlight conversion programs would provide a variety of important benefits including, savings, positive environmental impact, increased safety, and ability to utilize smart controller technologies. There are various benefits of LED lighting, including:

- Increases energy efficiency
- Reduces municipal energy costs, consumption, and emissions, keeping in line with Governor Murphy's clean energy goals and executive orders
- Reduces CO2E emissions by about 2,300 tons annually

- Provides better illumination
- Allows for the installation of smart controllers, which in turn would enable automatic detection of outages and malfunctions, as well as local control of dimming and scheduling.
    - Smart controller monitoring can be integrated into a broader suite of data collected by smart city sensors. Smart city sensors can collect data including, air quality, traffic and noise monitoring, when combined with an enhanced software suite.

PSE&G believes that the cleanest, clearest path forward is to enable Utilities to deploy their operational expertise, ability to achieve economies of scale, and ongoing relationships with the municipalities they serve to provide LED conversion services. Utilities are best positioned to carry out LED conversions and continue to own, operate, and maintain streetlights, as these are part of the Utilities' core competencies. Numerous utilities have already begun wide scale conversions to LED with smart controllers, including those in New York and Massachusetts, as well as Southern Companies and Florida Power and Light.

Below, PSE&G's provides responses to the specific questions asked in the Request for Comments.

Questions for EDCs and GDCs as applicable:

1. Do you have a complete inventory of streetlights in your service territory, including type (bulb, light fixture and pole), ownership, vintage, original cost, accumulated depreciation, and remaining service life? Please provide the most granularity possible in narrative form with a level of detail that would explain what information you have with respect to each of the listed items.

Response:

Yes, PSE&G's inventory of streetlights is based on billing records, and includes a breakdown of pole and fixture quantities by fixture type (i.e. cobra, flood, decorative), light source (i.e. LED, HPS, induction), wattage (i.e. 50W, 100W, 250W), and rate class (ownership).

The asset details in the fixed asset ledger include these key attributes:

- Retirement unit (luminaire type)
- Quantity
- Original cost/accumulated depreciation/net book value
- Work order # (project)
- Plant account
- In service date (vintage year)

Streetlights are in a mass property account so streetlights are tracked on a group level and not individually. Streetlight units are retired by vintage year using a statistical curve within the Company's plant accounting system.

Based on PSE&G's latest depreciation study (completed in 2018), the remaining service life for all streetlights (which would be for the entire asset class, including LED and Non-LED streetlights) was estimated to be approximately 33 years.

2. What is your process and schedule for validating the streetlights inventory mentioned in Question #1 above, and when was it most recently validated?

Response:

New installations, removals, and upgrades are processed and updated in our systems on a monthly basis. PSE&G performs periodic field audits of a small samples of fixtures and occasional targeted efforts to satisfy customer requests, though physical validation of comprehensive streetlighting inventory has not been performed recently.

3. How many gas streetlights, if applicable, do you have in your service area? Please provide the breakdown according to the location in each applicable municipality.

Response:

PSE&G owns approximately 2,600 gas streetlights in our service territory most of which (~90%) are in South Orange and Glen Ridge. The other approximately 10% of gas streetlights are scattered throughout the rest of the PSE&G service territory.

4. Of the streetlights in your service area, how many are municipally-owned, and how many are utility owned?

Response:

PSE&G currently has a closed rate class of legacy, municipally-owned streetlights, comprising less than 2%, (~10,000), of luminaries in the company's service territory. PSE&G owns and maintains the remaining 98%, (~463,000), of streetlights.

5. How regularly do you replace the bulbs in the current streetlight fixtures? Please describe your streetlight replacement program(s).

Response:

Streetlight bulbs are currently replaced upon failure, after notice that a repair is necessary. PSE&G proposed a streetlight replacement program as part of CEF EE filing, but the proposal was not included in the final stipulation of settlement that was approved.

6. Physical Lights

A. LED Inventory

i. What is your current LEDs inventory in terms of:

(a) How many you have, & (c) Fixture types

Response:

Please see chart below.

LED Inventory – per PSE&G Billing Data

Type	BPL	PSAL	TOTAL
Cobra	5,360	982	6,342
Flood	5,355	11,157	16,512
Deco	6,285	366	6,651
Deco/T&C	19	46	65
Deco/Traditionaire	0	9	9
Shoebox	322	340	662
Grand Total	**17,341**	**12,900**	**30,241**

(b) Vintage year

Response:

Please see table below.

Year	Qty
2010	4
2011	2
2012	67
2013	175
2014	280
2015	985
2016	1,568
2017	2,352
2018	2,820
2019	4,151
2020	4,767

2021	6,022
2022	8,471
Grand Total	**31,664**

(d) Color temperature (Kelvin)

Response:

5,000k floods, 4,000k deco & cobras, 3,000k Town and Country fixtures.

(e) Brightness levels (lumen output)

Response:

Varies by product but generally ranges from 1,700 lumens - 34,000 lumens.

(f) Costs for each bulb type?

Response:

PSE&G offers a wide variety of LED fixture types and wattages with material costs ranging from approximately $85 to $1300.

ii. What type of LED fixtures and bulb types (brightness level and color) could a municipality in your service territory order? Can municipalities order LED fixture and bulb types of their choice from you?

Response:

Municipalities can order any fixture of their choice that PSE&G offers above.

iii. Do you provide bulk discounts on LED purchases and, if so, what are they?

Response:

PSE&G does not offer bulk discounts.

iv. Do you have a standard contract under which a municipality must procure its streetlights?

Response:

Yes, PSE&G has a standard agreement under which a municipality must procure its streetlights.

6. B. Non-LED Inventory

i. What is your current non-LED inventory? Please describe the models and numbers of each.

Response:

Please see table below.

Non-LED Inventory – per PSE&G Billing Data

Type	BPL	PSAL	POF[1]	TOTAL
Cobra	291,791	25,064	11,143	327,998
Flood	20,131	34,460	3	54,594
Deco	28,729	6,864	160	35,753
Deco/T&C	8,328	10,232	19	18,579
Deco/Traditionaire	382	416	0	798
Shoebox	1,912	3,341	36	5,289
Bollard	150	546	0	696
Grand Total	**351,423**	**80,923**	**11,361**	**443,707**

ii. What are the costs of bulbs for each streetlight fixture type?

Response:

PSE&G offers a wide variety of non-LED fixture types and wattages with a material cost ranging from approximately $62 to $2,031.

7. Poles

A. How does your ownership model for the poles work? Please explain.

Response:

The Company owns all poles that are currently offered specifically under PSE&Gs BPL and PSAL rate schedules. This ownership model provides a comprehensive service, including maintaining and replacing poles. PSE&G's streetlight tariff allows public entities to pay a low monthly fee for this reliable service, and relieves them from the burden of replacement of damaged poles and ongoing maintenance of all poles.

B. Do you ever give municipalities an opportunity to purchase the poles from you?

Response:

The Company does not currently offer pole purchase by municipalities.

[1] Closed Rate Schedule

C. If municipalities do own the poles, what maintenance, replacement, or other pole-related services do you as an EDC provide to those municipalities?

Response:

The company does not currently offer pole ownership to municipalities, thus does not offer maintenance or replacement services.

D. What challenges exist now to installing new technologies on poles such as motion activation, smart streetlight technologies, gunshot detection, traffic cameras, Wi-Fi hotspots, electric vehicle charging equipment, etc.? Please describe.

Response:

Certain third party equipment types can cause technical and operational challenges. As a general matter, any third party equipment with variable electricity usage will require metering, which would require changes to the Utility billing system. In addition, other challenges include:

- Streetlight voltage and power levels may severely limit the ability to install vehicle charging equipment in many locations. Location specific analysis would be required, and in some instances, there could be challenges in physical installation limitations.
- Some technologies, such a cameras or Wi-Fi hotspots, may require a higher bandwidth network than other technologies, which is a challenge that would require further analysis and could result in increased cost.
- Worker safety concerns exist around installing shot spotter and other controversial surveillance technologies where Utility workers can be perceived as part of law enforcement and have been confronted in the past.
- The ongoing maintenance of these devices would require close coordination with the utility given the variety of devices and potential end users. For example, if a pole is replaced or a device is damaged, PSE&G would likely have some responsibility for notifying the municipality, saving the damaged equipment and/or re-installation of the device.

Utility ownership of equipment mitigates concerns, and PSE&G's proposed solution would include ownership of controller enhancements, discussed further in the response to Question 11. However, depending on the full technical solution, back office changes to the Utility's billing system may be required to support enhanced services.

8. Lighting Standards

A. What standards (list all, including Bright Sky standards) do you use to inform which types of lights can be installed along various roadways, as well as in parking areas and around parks, schools, hospitals, universities, other campuses?

Response:

PSE&G offers a wide selection of lighting products to meet the diverse needs and preferences of its outdoor lighting customers. Many of PSE&G's lighting manufacturers are well established and are consistently developing products of every type and style to comply with today's key lighting standards around performance, reliability, and photometrics (i.e. ANSI, IP, RoHS, ISO, UL, Dark Sky, etc.).

B. How does compliance with each of these standards influence the range of fixtures you can offer to municipalities for their usage?

Response:

See response to 8.A. above.

9. Under an accelerated LED replacement program, please describe how the stranded cost issues with respect to the following could be resolved: (a) current inventory regarding spare streetlight bulbs and (b) currently operational bulbs that have been placed in light fixtures but have not yet reached the end of their useful life

Response:

The Company has and will continue to manage the inventory of streetlight bulbs and spare replacement luminaries and gas lamps to minimal inventory levels yet maintain acceptable levels of service to existing streetlights. The Company would expect to recover any reasonably-incurred cost related to spares and installed bulbs, luminaires and other related streetlight equipment. If such assets become stranded as result of a Board approved accelerated replacement program, the Company would propose to work with the Board to develop a reasonable method to recover such costs that minimizes or spreads impacts to utility customers over time. PSE&G notes that LED conversions can benefit all utility customers through reducing electricity usage and emissions reductions.[2]

10. Tariffs

A. What is the current utility tariff and corresponding rate structure under such tariff for electric and gas streetlights, respectively?

Response:

ELECTRIC - PSE&G provides electric streetlighting via two current rate schedules for electric streetlights. Body Politic Lighting ("BPL") for public entities and Private Street Area Lighting ("PSAL") for non-public entities. BPL and PSAL have two components that make up the total bill. Fixed monthly charges per luminaire (light fixture) and pole which is designed to cover the capital costs and maintenance of the equipment, and $/kWh charges for delivery of the electricity and all applicable clauses (SBC, etc.). Electric supply can be sourced from BGS on a $/kWh basis or procured via a third party supplier ("TPS").

[2] Notably, the BPU has approved utility programs for accelerated replacement of conventional meters with smart meters, including utility recovery for stranded costs inherent in this process, recognizing that statewide accelerated smart meter deployment result in benefits for all utility customers.

GAS - PSE&G provides gas streetlighting currently via the Street Lighting Gas ("SLG") rate schedule. It has a similar rate structure as the electric streetlights, with a fixed monthly charge per lamp and pole which is designed to cover the capital costs and maintenance of the equipment, and $/therm charges for delivery of the gas and all applicable clauses (SBC, etc.). Gas supply can be sourced from BGSS on a $/therm basis or supplied via a TPS.

B. What tariff and what rate structure are you using when municipalities seek to pursue an LED streetlight conversion?

Response:

PSE&G's current BPL tariff is applied for current LED conversions.

C. What issues have you encountered with your current tariff structure with municipalities interested in conducting an LED streetlight conversion?

Response:

Most LED luminaires that we currently offer to municipalities are under the "Specialty Luminaire" provision of our BPL rate schedule. They are not available as a "Standard Luminaire" since they were not included in the tariff in our last base rate case. Due to the formula in the tariff used to price Specialty Luminaires, most LED prices result in higher total bills per fixture than non LED luminaries which is one of the barriers to broader adoption. In addition, in order to reduce stranded investment costs, the streetlight tariffs limit the total number of lamp conversions in any year to no more than 5% of the total lamps served per municipality.

D. Some utilities have designed tariffs to allow municipalities that convert streetlights to LEDs to pay the associated purchase, conversion, and/or stranded costs over time at a rate no greater than the electric energy cost savings, thereby avoiding any cost increase for the municipalities or ratepayers in general.

i. Do you have such a tariff to prevent cost impacts for municipalities?

Response:

PSE&G currently does not have a tariff offering that limits cost increases of streetlight conversions for municipalities. PSE&G proposed an LED streetlight replacement program in its 2018 CEF-EE filing, and proposed that customers who opted into our LED replacement program would see a 5% reduction in total bill relative to their existing streetlighting bill due to the efficiency of the newly installed lighting. It proposed to recover all incremental costs not recovered from streetlight customers from all customers. This proposal ultimately was not included in the settlement stipulation that was approved by the BPU.

ii. If not, do you intend to develop one to support LED streetlight conversions?

Response:

PSE&G looks forward to filing a conversion program in the future, based on guidance received from the Board's efforts in this area.

iii. What would be the impact of such a tariff on ratepayers in general?

Response:

The impact is not possible to estimate at this time as it would depend on the cost recovery mechanism and any new filing requirements implemented by the Board.

iv. What do you see as the overall benefits and drawbacks of such a proposal?

Response:

PSE&G believes there are benefits in offering a comprehensive replacement program. A holistic approach allows the Company to:

- Assist municipalities in realizing the available energy savings earlier
- Allow for added security from improved lighting levels
- Achieve lower pricing, including labor
- Lower overall lifetime costs and maintenance
- Lower incidents of streetlight outages
- Create the opportunity for smart controllers and smart cities

E. Would there be a benefit for municipalities to own the streetlights that are converted? In other words, if renting now, they would have the option to purchase and own the streetlights and be responsible for the replacement.

Response:

PSE&G submits that there are not benefits to municipal ownership of streetlights, and utilities should retain ownership. The following are reasons municipal ownership is not beneficial:

Overall, there is a higher cost for municipalities to own streetlights because they lack the scale the PSE&G and the other utilities would have by continuing to own the streetlights. The scalability leads to lower cost to procure the LED bulbs and other materials, lower maintenance costs. It would also be more costly for municipalities to maintain inventory and to provide support and maintenance, particularly in emergency situations as they do not have the internal resources to efficiently take and track calls, or dispatch resources to respond to outage calls or emergency situations. Utilities have

deep experience and resources for rapid mobilization for these types of responses and are best suited to continue to provide these services. Finally, approximately 75% of streetlights are attached to poles that also contain electric distribution wires and equipment, which would complicate the ownership/leasing relationship and create safety concerns during maintenance. Additionally, municipal ownership could result in a patchwork of different types of lights and maintenance requirements across the state which would result in delays in necessary repairs, and customer confusion, in regard to who to contact for streetlight/pole issues. Utilities have been and should continue to be the centralized, comprehensive providers of streetlight services.

F. What are the benefits of the utilities retaining ownership and maintenance of the streetlights that are converted?

Response:

The Company has extensive experience owning, maintaining, and replacing streetlights, including resources to take calls on outages, track calls received, dispatch resources to respond to outages and replace fixtures, and more importantly, to respond to emergency conditions when poles are down and public safety is threatened. Our streetlight tariff allows public entities to pay a low monthly fee for this reliable service. It also relieves municipalities from the burden of maintenance as well as replacing damaged luminaries. Additionally, utility ownership could enable PSE&G to leverage its existing Advanced Metering Infrastructure ("AMI") to add capabilities through utility owned smart controllers and sensors.

11. Please describe any additional services that utilities may provide that are integrated into the conversion of LED fixtures.

Response:

The state has a unique opportunity to enable communities to take advantage of a suite of new, valuable capabilities and services with the conversion of municipal streetlights to LED fixtures. Integrating a network of controllers with the replacement of streetlight fixtures will enable this capability.

PSE&G completed its deployment of the Landis+Gyr Gridstream AMI communications network in June of 2022. The Landis+Gyr Streetlight controllers are fully compatible with the current AMI Network, Command Center, and Meter Data Management systems.
The Landis+Gyr Streetlight controller has the following capabilities:[3]

- Produces billing quality consumption data, monitors voltage, current and power factors.
- Identifying non-functioning streetlights to facilitate corrective maintenance.
- Has the ability to dim, turn on, and turn off the streetlight.

[3] We note that these are capabilities of the controller and are not current services offered.

- Integrates with Landis and Gyr Smart Community Center Software Application (proprietary Landis+Gyr application) that can provide municipalities the ability to control and monitor their streetlights.

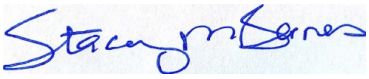
The Landis+Gyr Streetlight controller has the ability to be upgraded to provide additional sensing capabilities without the need to replace the controller in its entirety. The data from the sensors would be available in the Smart Community Center Software Application. The sensors have the following capabilities:

- Speed monitoring and traffic sensing.
- Air quality and particulate matter monitoring.
- Mobility, the sensors can be moved from controller to controller to support various areas of study.

Conclusion

PSE&G thanks the Board and Board Staff for its ongoing efforts to drive New Jersey to achieve the State's ambitious emissions reduction and clean energy goals. PSE&G fully supports these efforts and appreciates the opportunity to work with the Board to continue toward New Jersey's clean energy future. The electric distribution companies (EDCs) can – and should – play an important role in promoting and developing clean energy solutions in New Jersey. PSE&G encourages the Board to take full advantage of the resources that EDCs are ready and willing to offer to help realize these important goals, including their experience, expertise, and trusted customer relationships.

Respectfully submitted,



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