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INDIANA UTILITY
REGULATORY COMMISSION

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF THE CITY OF RICHMOND, INDIANA, BY AND THROUGH ITS MUNICIPAL ELECTRIC UTILITY, RICHMOND POWER AND LIGHT, FOR APPROVAL OF A NEW SCHEDULE OF RATES AND CHARGES FOR ELECTRIC SERVICE AND FOR APPROVAL TO MODIFY ITS ENERGY COST ADJUSTMENT PROCEDURES	)	**CAUSE NO. 45361**

PRE-FILED VERIFIED DIRECT TESTIMONY OF

ANDREW J. REGER

AND ATTACHMENTS AJR-1 THROUGH AJR-4

ON BEHALF OF PETITIONER

RICHMOND POWER & LIGHT

PETITIONER'S EXHIBIT 4

March 25, 2020

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I. INTRODUCTION AND QUALIFICATIONS

Q.1. PLEASE STATE YOUR NAME AND ON WHOSE BEHALF YOU ARE TESTIFYING.

A. My name is Andrew J. Reger. I am an Executive Consultant at NewGen Strategies and Solutions, LLC ("NewGen"). My business address is 225 Union Boulevard, Suite 305, Lakewood, Colorado, 80228. NewGen is a consulting firm that specializes in utility rates, engineering economics, financial accounting, asset valuation, appraisals, and business strategy for electric, natural gas, water, and wastewater utilities. I am testifying on behalf of the Petitioner, Richmond Power & Light ("RP&L" or the "Utility"), which is the electric utility owned and operated by the City of Richmond, Indiana ("Richmond").

Q.2. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE.

A. My expertise includes cost of service and rate design, distributed energy resource market analysis, electric vehicle ("EV") and solar rate design, community solar program evaluation, and power supply planning. A summary of my qualifications is provided within Attachment AJR-1 to this testimony.

Q.3. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. No. However, I have filed testimony before the California Public Utilities Commission.

Q.4. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to explain RP&L's proposed rate design specific to lighting service, a new EV charging rate, electric heating school and general electric heating, as well

as the Utility's proposed miscellaneous non-recurring fees and charges in RP&L's proposed Schedule B.

Q.5. WHAT ATTACHMENTS AND WORK PAPERS ARE YOU SPONSORING IN THIS CAUSE?

A. I am sponsoring four attachments as part of this testimony: my professional resume and record of testimony, and three sets of workpapers including the methodology I followed to calculate proposed Light Emitting Diode ("LED") lighting rates, the public EV charging rate, and Non-Recurring Charges. The attachments I am sponsoring are listed below:

- Attachment AJR-1 – Andrew Reger Resume and Record of Past Testimony
- Attachment AJR-2 – Calculations to Develop LED Lighting Rates
- Attachment AJR-3 – Calculations to Develop an EV Charging Pilot Program – Public Location ("EV-PP") Rate
- Attachment AJR-4 – Calculations to Develop Non-Recurring Charges

Q.6. WERE THESE EXHIBITS, ATTACHMENTS AND WORKPAPERS PREPARED BY YOU OR UNDER YOUR SUPERVISION?

A. Yes.

II. <u>OVERVIEW OF TESTIMONY</u>

Q.7. PLEASE PROVIDE AN OVERVIEW OF YOUR TESTIMONY AND RECOMMENDATONS.

A. In this testimony, I will provide several recommendations on adjustments to be made to current rates and fees RP&L charges its customers, as well as the creation of two new rate or service

offerings. The types of service for which I am providing recommendations are lighting rates, General Electric Heating and Electric Heating Schools rates, a public EV charging rate, and adjustments to RP&L's Non-Recurring Charges assessed to customers for various services. The two new rates I am proposing pertain to lighting service to LED fixtures served under both RP&L's Street Lighting and Area Lighting tariffs, as well as the public EV charging rate.

Q.8. DO YOU BELIEVE RP&L'S PROPOSED RATE DESIGN IS REASONABLE?

A. Yes. The rates designed for RP&L and described in my testimony herein are reasonable given underlying cost and energy usage information provided to me by RP&L. Where such data was not available, I have relied upon reasonable assumptions based on my experience in the industry and/or based on alignment with other industry precedent as detailed below.

III. LIGHTING SERVICE TARIFF

Q.9. WHAT IS INCLUDED IN RP&L'S PROPOSED LIGHTING RATE DESIGN?

A. As part of the proposed lighting rate design, I have reviewed and updated RP&L's existing Outdoor Area Lighting (also referred to as "Dusk to Dawn" lighting) and Street Lighting service rates. In addition, I have developed new rates for lighting service including LED lamps and fixtures, delineated between Outdoor Area Lighting and Street Lighting service as RP&L currently offers its customers.

Q.10. WHAT TYPES OF CUSTOMERS ARE SERVED BY THESE LIGHTING RATES?

A. Outdoor Lighting is available only for continuous year-round service to individual Customers on private property. Street Lighting and Area Lighting are available for the lighting of any City of Richmond (City) street, alley, or park, within the corporate limits. This rate schedule is applicable for service when it is supplied through existing, new, or rebuilt street lighting

systems, including extensions of such street lighting system to additional locations where service is requested by the City, provided that the equipment to be installed at such new location is comparable to the equipment utilized on the existing system.

Q.11. WHY HAS THE LIGHTING SERVICE OFFERED BY RP&L CHANGED?

A. For energy efficiency reasons, the type of fixtures available for lighting service has modernized and changed across the country, and some are in the process of elimination because of their inherent inefficiencies. RP&L will continue to support its existing lighting offerings for as long as the technology and related equipment and materials remain available.

Q.12. WHY DID RP&L DECIDE TO OFFER LED LIGHTING RATES?

A. Most utilities have moved to offering an LED lighting rate because of associated benefits, and RP&L's customers are inquiring on the availability of such lighting service.

Q.13. HOW DOES LED LIGHTING BENEFIT CUSTOMERS?

A. LED lights are more efficient and provide customers with savings on energy usage. Further, LED lights tend to last longer than other types of lighting, reducing the frequency of operations and maintenance events and related costs of providing LED lighting service.

Q.14. HOW DID YOU DEVELOP THE LED LIGHTING RATES?

A. In developing the LED lighting rates, I relied on detailed cost estimates for non-LED lighting rates and services, estimates of materials, labor, and installation costs for different types of LED fixtures, poles, and other elements of a lighting install. In addition to cost of service information, and LED materials and installation costs, I also estimated the energy consumption

of each LED fixture based on the rated wattage. Attachment AJR-2 provides the workpapers used to develop the LED lighting rates proposed for RP&L.

III. ELECTRIC VEHICLE RATE

Q.15. WHY DOES RP&L WISH TO CREATE AN EV RATE?

A. RP&L and the City wish to support the deployment of EVs for private, business and government uses throughout Richmond and surrounding areas.

Q.16. WHY IS IT IMPORTANT FOR UTILITIES TO OFFER EV RATE STRUCTURES?

A. EV charging can add a substantial amount of capacity to a utility's system, which may result in higher costs borne by the electric utility. However, higher rates of EV adoption represent an opportunity for RP&L to serve customer demand for EVs and improve utility load growth. For several years, RP&L's load has been declining. EV adoption could potentially restore some amount of load growth and reduce upward rate pressure for all electric customers, all else being equal. A separately developed EV rate design allows the utility to monitor the performance of this unique electric class given a current lack of data and expectations that usage patterns will evolve as EV adoption increases over time. As future EV charging patterns are monitored and better understood, separately metering and monitoring such load(s) will allow RP&L to refine its EV charging rate(s) in accordance to the utility's approach to developing an allocated cost of service, and subject to Commission approval.

Q.17. WHAT SPECIFIC EV RATE DESIGN DID YOU DEVELOP?

A. I developed an EV-PP rate for service to a separately metered EV charging station operating in a public location within RP&L's service territory with peak load that does not exceed 60 kilowatts ("kW").

Q.18. HOW DID YOU DESIGN THE EV RATE?

A. The EV-PP rate is designed as an energy-only rate in dollars per kilowatt-hour ($/kWh) to be charged to end-users of the public EV charging facility. The rate was designed based on RP&L's proposed General Power (GP) rate, which would otherwise be applicable if the EV public charging load were treated like any other load. To develop an energy-only rate, I assumed a utilization rate, or load factor, in order to determine the number of kilowatt-hours ("kWh") that would be the denominator in dividing the cost of a unit of capacity by the assumed amount of energy consumption. I also assumed a peak demand or capacity value for the charger.

Q.19. WHAT LOAD FACTOR AND PEAK DEMAND VALUES DID YOU ASSUME TO DEVELOP THE EV-PP RATE?

A. I assumed a load factor of 10%, which is reasonable given the limited number of EVs in RP&L's territory. Also, I assumed a peak demand or capacity value for the EV charger of 20 kW. It is difficult to predict exactly what charging voltage public chargers will be, but currently, many Level 2 EV chargers fall between 6 and 12 kW each. Public chargers may have one or two plugs available, thus a peak demand would likely run between 6 and 24 kW for a single or two-plug charger. The peak demand applicable for the EV-PP class is 60 kW, thus 20 kW is reasonably in the middle of the class both in terms of peak demand applicability and likely charger voltages to be installed in RP&L's territory.

Q.20. COULD YOU PLEASE PROVIDE ADDITIONAL DETAIL ON THE METHODOLOGY USED TO DEVELOP THE EV-PP RATE.

A. Yes. Attachment AJR-3 provides the methodology I used to calculate the recommended EV-PP rate.

Q.21. WHAT IS THE BENEFIT OF USING THE GENERAL POWER RATE AS A BASIS FROM WHICH TO DESIGN THE EV-PP RATE?

A. The benefit of using the GP rate as a guide is that the proposed implementation plan for the GP rate is to collapse the current four-tier declining block energy rate to a two tier energy rate, and to collapse the current two-tier demand rate to a single demand rate. A declining block tiered energy rate incentivizes incremental energy consumption as additional kWh consumed over a given tier becomes cheaper. This incentivizes the manager of the public EV charger to increase utilization of the charger. Further, under current circumstances where the number of EVs in RP&L's territory is relatively small, a large full cost of service-based demand charge for EV charging may prove prohibitively expensive until EVs more frequently utilize the charger, thus increasing the number of kWh over which a given demand charge may be amortized. The proposed GP implementation plan thus coincides with a reasonable approach to phasing in a public EV charging program that can be refined if and when EV usage and its associated data increases over time.

Q.22. HOW DOES RP&L'S PROPOSED EV RATE STRUCTURE COMPARE TO HOW OTHER UTILITIES STRUCTURE THEIR EV RATES?

A. It is common industry practice to base a public charging EV rate on the commercial rate that would otherwise be applicable to a load of similar size to the public EV charger. In taking this

approach to designing the proposed EV-PP rate, RP&L's rate design aligns with general industry practice.

Q.23. HOW DOES THIS PROPOSED EV RATE COMPARE WITH OTHER EV RATE DESIGNS YOU HAVE SEEN?

A. Given the relatively nascent stage of the EV market, I have seen variability across the country in how electric utilities design EV charging rates. One of the most common approaches for developing a public charging rate is to design the rate to align with a current commercial rate class as we have done here. Consequently, my EV-PP rate design proposal is very similar to other utility approaches to developing an EV rate design.

Q.24. DO YOU SUGGEST THAT RP&L RESERVE THE RIGHT TO USE ITS 30-DAY FILING PROCESS TO ADJUST THE EV RATE IN THE FUTURE IF NEEDED?

A. I do. The basis for the EV-PP rate relies on the 10% load factor and 20 kW demand assumptions. RP&L has no data on actual EV usage yet, and while it may be relatively unlikely that actual usage patterns and charger capacities vary substantially from these assumptions, if EV adoption were to progress at a pace greater than expected and load factor was consequently much higher than 10%, then the proposed EV-PP rate would need to be adjusted accordingly. While the 10% load factor and 20 kW charger demand assumptions are reasonable as a starting point, especially in years two and three of the proposed rate implementation period, it may be prudent for RP&L to use its 30-day Filing Process pursuant to 170 IAC 1-6-3(8) to adjust the EV-PP rate design to reflect actual charging data as it becomes available.

IV. <u>GENERAL ELECTRIC HEATING</u>

Q.25. WHAT CUSTOMERS ARE SERVED UNDER THE GENERAL ELECTRIC HEATING ("GEH") RATE?

A. RP&L's GEH rate serves customers who operate permanently installed electric space heating of 3 kW or more used as the principal source of space heating. Based on data provided by RP&L, this rate class currently has twenty-nine (29) customers. This rate schedule was closed to new Customers after October 31, 1980.

Q.26. HOW DID YOU DESIGN THE GENERAL ELECTRIC HEATING RATE?

A. Based on the allocated class-level cost of service, and in conjunction with achieving RP&L's overall revenue objectives stemming from this study, and using historical billing units provided by RP&L, I designed the GEH rate to increase revenue from the class by 3.26%, 3.23%, and 3.19% in 2021, 2022, and 2023, respectively. Further, similar to the rate design proposed for the General Power class, I designed the GEH rate with two goals in mind: to collapse the current four-tiered energy rate down into two tiers, and to collapse the current two-tiered demand rate down into one charge for all customer demand. Collapsing the tiered energy and demand rates charged to the GEH class simplify the rate offering. This simplified structure also sends a clearer signal to customers to improve the efficiency with which customers use RP&L's system by increasing energy consumption as a function of delivered demand, or improving the customer's load factor. In addition, I increased the monthly Facilities Charge from the current $0.00 per month up to the allocated Customer-related cost of service of $58.90 per month. As indicated in Attachment JAM-3 (page 41) to the Direct Testimony of Joseph Mancinelli, the GEH rate will increase by 11.13% in total after the three-year implementation period. As indicated in JAM-3 (page 2), the proposed changes in rates after the three-year rate

implementation period will increase the monthly bill by $108 per month for an average bill today equal to $973 dollars per month.

V. ELECTRIC HEATING SCHOOLS

Q.27. WHAT CUSTOMERS ARE PRESENTLY SERVED UNDER THE ELECTRIC HEATING SCHOOLS (EHS) RATE?

A. RP&L's EHS service is provided to customers operating facilities related to providing education services whose primary form of space heating is electric in nature. Based on data provided by RP&L, this rate class currently has three (3) customers. The EHS rates are only available to schools that were served under the rate prior to October 31, 1980.

Q.28. HOW DID YOU DESIGN THE EHS RATE?

A. Based on the allocated class-level cost of service, RP&L is currently under-recovering its costs of serving the EHS class. Based on one of the guiding principles of RP&L's proposed rate design – limiting annual increases to any given class at 5% per year – I have designed rates for the EHS class that increase revenues to RP&L from this class at 5% in each of 2021, 2022, and 2023. Beyond increasing revenue by 5% in each year, I have also increased the monthly Facilities Charge from the current $0.00 per month to the full unbundled cost of service Facilities Charge rate of $84.00 per month. I have also increased the energy rate based on billing units provided by RP&L such that targeted revenues for the class represent a 5% increase in each year after the impact of increasing the monthly Facilities Charge. As indicated in Attachment JAM-3 (page 41) to the Direct Testimony of Joseph Mancinelli, the EHS rate will increase by 15.75%.

VI. MISCELLANEOUS NON-RECURRING CHARGES

Q.29. PLEASE EXPLAIN THE PROPOSED CHANGES TO SCHEDULE B, WHICH CONTAINS THE UTILITY'S PROPOSED NON-RECURRING CHARGES.

A. The changes I am proposing to RP&L's Schedule B – Non-Recurring Charges (referred to collectively as "Non-Recurring Charges") involve updating fees for current labor and materials costs.[1] Such fees include charges for dishonored checks, connect/disconnect service, meter testing, service calls, meter tampering charges, and minimum trip charges for service visits.

Q.30. ARE THE PROPOSED NON-RECURRING CHARGES BASED ON COST OF SERVICE?

A. Yes. RP&L's existing Non-Recurring Charges have not been updated for 15 years. In that time, the cost of labor and materials has increased. My recommended Non-Recurring Charges are based on updated cost information for RP&L providing each service for which a Non-Recurring Charge is assessed upon one of RP&L's customers.

Q.31. DID YOU BASE YOUR RECOMMENDED NON-RECURRING CHARGES ON ANY OTHER INFORMATION BEYOND COST OF SERVICE?

A. Yes. In developing the recommended Non-Recurring Charges, I also analyzed neighboring utilities' similar fees and charges to provide a benchmarking check against the fees I have proposed. Attachment AJR-4 provides a summary of the current and proposed Non-Recurring Charges (columns (b) and (d), respective), the estimated cost of service for each (column (c)),

[1] See Attachment JAM-4 of the Direct Testimony of Mr. Mancinelli for a copy of the proposed tariff, including non-recurring charges.

and the average and range of benchmark fees of a similar nature (columns (e) and (f), respectively).

Q.32. ARE YOUR RECOMMENDED NON-RECURRING CHARGES REASONABLE AS COMPARED TO THE ESTIMATED COST OF SERVICE AND IN COMPARISON TO NEIGHBORING UTILITIES?

A. Yes. As Attachment AJR-4 demonstrates, the recommended Non-Recurring Charges are in-line with cost of service, and are similar to the range of fees assessed by neighboring utilities for similar services.

VII. SUMMARY AND CONCLUSION

Q.33. PLEASE PROVIDE A SUMMARY OF YOUR RECOMMENDATIONS.

A. As described in my testimony, I recommend the IURC adopt the following recommendations

- Adopt proposed rate modifications for the following existing rate classes:
  - Street Lighting and Area Lighting service
  - General Electric Heating and Electric Heating Schools
- Create a new rates and service classes for:
  - LED Street Lighting and Area Lighting service
  - Public EV Charging

A. Adopt proposed changes to RP&L's Non-Recurring Charges

Q.34. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

VERIFICATION

I affirm under the penalties of perjury that the foregoing prefiled verified direct testimony is true to the best of my knowledge, information and belief as of the date here filed.

Andrew J. Reger

NewGen Strategies & Solutions

Andrew Reger
Executive Consultant
areger@newgenstrategies.net

Andy Reger joined NewGen Strategies and Solutions, LLC (NewGen) in July 2016. He offers eight years of experience in the energy industry with a focus on providing strategic and financial advisory services to electric utility clients related to cost of service (COS) and rate design, distributed energy resource strategy and market analysis, solar and other distributed generation rate design, integrated resource planning, and electric load forecasting.

Mr. Reger has also worked with electric utilities and developers of large-scale renewable energy projects on various components of financial pro forma analysis and valuation, resource procurement, and regulatory compliance.

Prior to NewGen, Mr. Reger worked with the National Renewable Energy Laboratory's (NREL) Markets and Policy group. At NREL, Mr. Reger conducted a comprehensive analysis of best practices in utility solar program administration, as well as analyses of the integration challenges posed by increasing amounts of variable renewable generation.

EDUCATION

- Master of Business Administration in Finance/Energy, University of Denver
- Bachelor of Arts, University of Colorado

KEY EXPERTISE

- Cost of Service and Rate Design
- Solar/Distributed Generation Rates
- Community Solar Program Evaluation and Development
- Distributed Energy Resources
- Integrated Resource Planning and Procurement
- Large-Scale Renewable Energy Project Assessment and Analysis

RELEVANT EXPERIENCE

Cost of Service and Rate Design

Mr. Reger develops and reviews cost of service (COS) analyses and retail rate design studies for electric utilities. Mr. Reger leads the collection of data from clients to inform revenue requirement development, and has developed class load estimates from modeled and actual sub-hourly circuit load data for the purposes of demand cost allocation. Additionally, he has developed multiple customized, spreadsheet-based rate design tools to create a comparison of utility competitiveness with neighboring utility rates, to estimate customer bill impacts, and to assess the effect of rate design on the customer economics of installing distributed generation.

Mr. Reger has also provided guidance to clients regarding the development of rates for customers with installed distributed generation, supported the development of recommendations and presentations to city councils, and has engaged with industrial customers through a formalized stakeholder engagement forum.

Mr. Reger's COS and rate design clients include:

- City of Pasadena Water & Power, California
- City of Riverside Public Utilities, California
- Redding Electric Utility, California
- South Carolina Public Service Authority (Santee Cooper), South Carolina
- Farmington Electric Utility System, New Mexico
- Los Alamos Department of Public Utilities, New Mexico
- City of Fort Collins Utilities, Colorado

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Solar/Distributed Generation Rates

Mr. Reger supports clients through the development of rates specific to solar and other distributed generation (DG) technologies. Such rates and feed-in tariffs (FIT) are designed to balance concerns over utility fixed cost recovery with customers' interest in taking a more active role in managing energy consumption. His work has entailed analyses to quantify the value of solar generation to a given utility, leveraging the value of solar to develop a revenue requirement for a solar customer class, and designing solar rates to ensure appropriate utility fixed cost recovery from both rooftop solar and community solar customers.

Mr. Reger has assisted a large generation and transmission cooperative in developing a wholesale standby rate for both dispatchable and non-dispatchable customer-sited distributed generation technologies. This project included substantial stakeholder engagement across the cooperatives membership, and consideration for how such rates would be implemented at the retail level. The project included a robust review of state regulation of standby rates throughout the Midwest, and consideration of how standby rate design is impacted by utility participation in an organized RTO/ISO market.

Mr. Reger also provided analytical support to one of the first California utilities to meet its Net Metering cap, necessitating the development of a rate design alternative to Net Metering. Mr. Reger provided insight into the development of cost and operational profiles for photovoltaic (PV) systems in the region and analyzed the impacts of PV installation from the perspective of the utility (fixed cost recovery) and the customer (bill savings and payback) under different rate scenarios. This analysis was used to inform a proposed, adopted, and implemented solar rate design that included a new "time-of-use" component and a demand charge for Residential PV customers.

Additionally, Mr. Reger provided analysis of proposed FIT legislation mandating that a specific amount of solar generation be installed within a client's service territory. Mr. Reger provided a line-by-line critique of the proposed FIT legislation to support the preparation of responsive testimony by the utility. He also provided an analysis of proposed legislation compared to solar incentive programs around the U.S., as well as an analysis of the economics of the proposed FIT from the perspective of the utility, the solar customer, and a solar developer participating in the program.

Mr. Reger's solar and DG rate projects include the following:

- Farmington Electric Utility System, New Mexico
- South Carolina Public Service Authority (Santee Cooper), South Carolina
- Turlock Irrigation District, California
- Tri-State Generation and Transmission
- Virgin Islands Water and Power Authority, U.S. Virgin Islands

Community Solar Program Evaluation and Development

Mr. Reger has facilitated a client's strategic development of a community solar program within its service territory. As part of this effort, Mr. Reger attended on-site meetings with the city council and public utilities commission, offering his expertise related to solar program design and issues of fixed cost recovery. The project included a market survey of the utility's customers to assess demand for a community solar program, and communicating the results of that survey to local stakeholders. Mr. Reger also developed a Request for Proposals document issued to the solar developer community soliciting project bids, and the evaluation of such bids for the utility client.

Mr. Reger worked with a utility to assess the financial and technical feasibility of installing solar at public school locations to be leveraged into development of a community solar program. The project was designed to utilize the marketing value of such central and public locations as schools to improve customer outreach and ultimately participation in the program.

Mr. Reger also co-authored a white paper for the American Public Power Administration (APPA) entitled Community Solar A to Z, which provided a comprehensive primer to utilities considering evaluating and developing a community solar project.

Mr. Reger's solar projects include the following:

- Farmington Electric Utility System, New Mexico
- South Carolina Public Service Authority (Santee Cooper), South Carolina
- Anaheim Public Utilities, California

Distributed Energy Resources

Mr. Reger offers expertise in DG market analysis. He has compiled multiple capital and operating cost assumptions for DG and storage technologies and developed a database of retail electric rates from around the U.S. to derive a comprehensive DG parity analysis. Mr. Reger has also developed three proprietary software-based modeling tools to be used by a client in its assessment of the DG market, supporting the client's ability to make future modifications to organizational strategy based on market conditions.

To support a client's strategic approach to identifying optimized site-technology combinations to achieve its DG implementation goals, Mr. Reger characterized the operational and economic features of 14 distributed generation technologies at various scales of installed capacity.

Additionally, Mr. Reger was a lead author of a *Distributed Generation Guidebook* published by the American Public Power Association in 2015. The guidebook describes the various DG technologies (renewable, thermal, and energy storage), and highlights what is driving the DG market from a customer's perspective. The document suggests ways in which public utilities can manage DG impacts as well as defines actions they can take to leverage emerging business opportunities. Mr. Reger's distributed generation analysis clients include:

- American Public Power Association, Washington DC
- Anaheim Public Utilities, California
- Confidential Investor Owner Utility
- Farmington Electric Utilities System, New Mexico
- South Carolina Public Service Authority (Santee Cooper), South Carolina

Utility Sales and Revenue Forecasting

Mr. Reger develops and reviews forecasts of utility sales and revenue to quantify and manage risk in resource procurement and cost recovery based on future fluctuation in weather and economic circumstances. Mr. Reger leads the collection and compilation of data and the aggregation of such data into an explanatory and statistically significant regression equations to explain fluctuations in past sales as a function of variables external to the utility's operation, and to forecast such variables and corresponding sales into the future. He has extensively modeled the impact of customer-sited solar generation and energy storage, as well as the impacts of electric vehicle charging on utility load shapes and sales forecasting.

Mr. Reger develops base case forecasts using deterministic forecasting approaches as well as stochastic forecast results stemming from monte carlo simulations of independent variables that produce forecast results that vary based on statistically-determined confidence intervals. Such stochastic results allow utilities to quantify the risk of variance in weather or economic circumstances impacting resource needs or cost recovery.

Mr. Reger's past utility sales and revenue forecasting clients include:

- Kentucky Municipal Energy Agency
- Cleveland Public Power
- Riverside Public Utilities, California
- AMP Ohio
- Florida Municipal Power Agency
- South Carolina Public Service Authority

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(Santee Cooper), South Carolina

Integrated Resource Planning and Procurement

Mr. Reger offers experience in integrated resource planning (IRP) garnered through endeavors with utilities and joint power agencies. He has provided quality assurance / quality control (QA/QC) review of the results of a client's extensive resource modeling for numerous scenarios in support of the creation of a final report for each of client's 132 wholesale member utilities. He has also identified and quantified the risks a client could face over its IRP's 20-year planning horizon, and helped develop the data needed to complete the IRP scenario modeling. Mr. Reger has analyzed a client's long-term generation fuel and energy market price projections, including multiple scenarios designed to analyze the early retirement of a large coal-fired generation asset, compared to market forecasts.

Additionally, as part of a resource plan and procurement project, Mr. Reger developed an initial list of developers to whom notices of procurement could be delivered to optimize the number and quality of bids the client would receive in response to the clients RFP for generation resources. Mr. Reger also provided QA/QC in the development of a spreadsheet-based levelized cost model designed to rank the all-in costs of bids received in response to its request for generation resources. He has also led the development of a levelized cost comparison between an investor owned utility's costs of self-developing a large-scale wind project and procuring wind energy through various power purchase agreements. This analysis was submitted as part of an Independent Evaluator's report to the Colorado State Public Utilities Commission. His resource planning and procurement clients include:

- American Municipal Power, Inc. (AMP), Ohio
- Burbank Water and Power, California
- Xcel Energy, Colorado and Minnesota
- Commonwealth Utilities Company (CUC)
- Owensboro Municipal Utilities, Kentucky
- Farmington Electric Utilities System, New Mexico

Large-Scale Renewable Energy Project Assessment and Analysis

Mr. Reger has substantial experience working with large-scale renewable project developers, regulators, and investor-owned electric utilities in various facets of renewable project development, procurement, financial evaluation, and regulatory compliance.

Mr. Reger worked with a large investor-owned electric utility in its effort to build and own a large wind project in northeastern Colorado. The project included evaluating the estimated costs of constructing the project, levelizing said costs over time against forecast energy production at different statistical confidence levels, and comparing the levelized costs to estimated market prices for power purchase agreement arrangements if the utility were to go out for bid to procure such an arrangement. The analysis included consideration for the timing of Production Tax Credits, and the impact of varying levels of wind production on project financials.

Mr. Reger also worked with a project developer bidding into the Maryland state offshore wind program, which involved a robust analysis and forecast of how the proposed wind project would impact electric ratepayers in the state. The analysis required forecasting long-term energy consumption for the state, the developer's proposed energy price, and the project's energy production over time. The project also included an analysis of how the proposed project would impact energy market prices, and prices for renewable energy credits in the state.

As part of a technical and economic review of a client's methodology for estimating the residual value of large-scale solar projects, Mr. Reger developed a model to compare solar module degradation rates, future merchant power prices, and minimum system performance requirements against operations and maintenance and major maintenance schedules to optimize the residual value of a PV system's in a discounted cash flow valuation.

Mr. Reger has also supported large-scale solar energy procurement for an investor owned utility, and has conducted substantial pro forma financial analyses around valuation of renewable energy projects.

Mr. Reger's large-scale renewable energy project assessment and analysis clients include:

- Xcel Energy – Public Service Company of Colorado
- U.S. Wind/Renexia, Maryland (Maryland Offshore Wind Program Bidder)
- Xcel Energy – Northern States Power Company, Minnesota
- NRG Energy, Texas

Andrew Reger

Executive Consultant

WORKSHOPS AND PRESENTATIONS

Mr. Reger has given numerous presentations to industry groups. These activities have focused on distributed generation and solar energy. Host organizations and the topics Mr. Reger presented are displayed below.

Electric Utility Consultants, Inc. (EUCI)

- Pre-conference workshop: *Solar Operations & Maintenance*
- *Utility Solar Business Opportunities*
- Pre-Conference Workshop: *Solar Rates*

American Public Power Association

- Multiple APPA Conference Presentations, including Pre-Conference Seminars (half-day) at 2016, 2017, 2018, and 2019 National Conferences
- Presentations at APPA's Business & Finance Conference in 2018 and 2019
- Co-authored APPA's *Community Solar A to Z*
- Co-authored APPA's *Distributed Generation Handbook*
- Co-authored APPA's *Understanding Energy Storage: Technology, Costs, and Potential Value*
- Co-authored APPA's *Behind-the-Meter Energy Storage: What Utilities Should Know*

Municipal Electric System of Oklahoma (MESO)

- *Distributed Energy Resources Workshop*

Record of Testimony Submitted by Andy Reger

Utility	Proceeding	Subject	Before	Client	Date
1. Pacific Gas & Electric Company	Application No. 18-12-009	Application of Pacific Gas & Electric Company (U 39-M) for Authority, Among Other Things, To Increase Rates for Electric and Gas Service Effective on January 1, 2020	Public Utility Commission of the State of California	Joint Community Choice Aggregators	2019

RPL - Lighting LED Rate Summary

Line No. A B C D E F G H I J K

1

2 Source: LED COS

3 **Streetlighting**

4	~HPS Equiv	LED Wattage	Pole Type	Pole Material	Overhead / Underground	Power Supply	Overhead / Other	Depreciation	Return	Iteration Adjustment Factor	Rate ($/Bulb-Month)
5	100	72	Post	Metal	UG	$1.64	$4.80	$10.69	$4.70	0.96	$21.03
6	100	72	Post	Decorative	UG	$1.64	$4.80	$13.82	$6.76	0.97	$26.26
7	150	71	Single Pendant	Wood	OH	$1.62	$4.80	$9.07	$3.57	0.96	$18.31
8	250	111	Single Pendant	Wood	OH	$2.53	$4.80	$9.69	$3.98	0.95	$20.01
9	400	278	Single Pendant	Wood	OH	$6.34	$4.80	$10.02	$4.19	0.92	$23.25
10	150	71	Single Pendant	Metal	OH	$1.62	$4.80	$11.17	$6.33	0.97	$23.22
11	250	111	Single Pendant	Metal	OH	$2.53	$4.80	$11.79	$6.74	0.96	$24.90
12	400	278	Single Pendant	Metal	OH	$6.34	$4.80	$12.11	$6.96	0.93	$28.18
13	150	71	Single Pendant	Metal	UG	$1.62	$4.80	$12.41	$6.56	0.97	$24.71
14	250	111	Single Pendant	Metal	UG	$2.53	$4.80	$13.03	$6.96	0.97	$26.40
15	400	278	Single Pendant	Metal	UG	$6.34	$4.80	$13.36	$7.18	0.94	$29.74
16	150	71	Twin Pendant	Metal	OH	$1.62	$4.80	$13.10	$7.66	0.98	$26.52
17	250	111	Twin Pendant	Metal	OH	$2.53	$4.80	$14.33	$8.47	0.97	$29.25
18	400	278	Twin Pendant	Metal	OH	$6.34	$4.80	$14.99	$8.90	0.94	$33.07
19	150	71	Twin Pendant	Metal	UG	$1.62	$4.80	$14.34	$7.88	0.98	$27.98
20	250	111	Twin Pendant	Metal	UG	$2.53	$4.80	$15.57	$8.69	0.97	$30.71
21	400	278	Twin Pendant	Metal	UG	$6.34	$4.80	$16.23	$9.12	0.95	$34.51
22	250	111	Decorative	Metal	UG	$2.53	$4.80	$49.23	$35.77	0.99	$91.41
23	400	242	Decorative	Metal	UG	$5.52	$4.80	$26.28	$20.64	0.97	$55.36

24 **Dusk to Dawn - Outdoor Area Lighting**

25	~HPS Equiv	LED Wattage	Pole Type	Pole Material	Overhead / Underground	Power Supply	Overhead / Other	Depreciation	Return	Iteration Adjustment Factor	Rate ($/Bulb-Month)
26	100	50	n/a	n/a	n/a	$1.14	$3.81	$2.89	$0.50	0.93	$7.74
27	250	111	n/a	n/a	n/a	$2.53	$3.81	$4.02	$1.24	0.92	$10.62
28	400	243	n/a	n/a	n/a	$5.54	$3.81	$4.89	$1.82	0.89	$14.25

RPL - LED Lighting Cost of Service

Line No. 1 Sources: Non-LED Lighting COS, COS, T&D, LED Installed Costs

COS Energy ($/kWh)	COS PP Demand ($/kW)
$ 0.02882	$ 8.48810

Assumptions Relative to Non-LED Costs						
25.00%	100%	100%	100%	100%	100%	100%

LED Life (yrs)	20.00

Return on Dep.
6.59%

Pole Depreciable Life	
UG Metal	40
UG Wood	40
OH Metal	40
OH Wood	40

Energy Consumption
Line Losses
5.01%

Line No.	Service	~HPS Equiv	LED Wattage	Pole Type	Pole Material	OH/UG	Power Supply Energy	Power Supply Demand	DA O&M Exp	Other Dist O&M	A&G	Taxes	Debt - Interest	Payments in Lieu	Misc. Income / Other	Depreciation and Amortization	Return	Iteration Adjustment Factor	**Rate $/Bulb-Month**	Capital Cost: Bulb Cost	Capital Cost: Pole Cost	Truck + Labor Install: Bulb	Truck + Labor Install: Pole	Total: Bulb	Total: Pole	kWh/Month
3	Street Lighting	100	72	Post	Metal	UG	$ 1.03	$ 0.61	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 10.69	$ 4.70	0.96	$ 21.03	$ 455	$ 1,255	$ 513	$ 1,939	$ 968	$ 3,194	35.73
4	Street Lighting	Discontinued, no LED	0	Post	Fiber	UG																				
5	Street Lighting	100	72	Post	Metal	UG	$ 1.03	$ 0.61	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 13.82	$ 6.76	0.97	$ 26.26	$ 1,206	$ 1,255	$ 513	$ 1,939	$ 1,719	$ 3,194	35.73
6	Street Lighting	150	71	Single Pendant	Wood	OH	$ 1.02	$ 0.60	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 9.07	$ 3.57	0.96	$ 18.31	$ 283	$ 1,017	$ 513	$ 1,746	$ 796	$ 2,763	35.24
7	Street Lighting	250	111	Single Pendant	Wood	OH	$ 1.59	$ 0.94	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 9.69	$ 3.98	0.95	$ 20.01	$ 431	$ 1,017	$ 513	$ 1,746	$ 944	$ 2,763	55.09
8	Street Lighting	400	278	Single Pendant	Wood	OH	$ 3.98	$ 2.36	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 10.02	$ 4.19	0.92	$ 23.25	$ 509	$ 1,017	$ 513	$ 1,746	$ 1,022	$ 2,763	137.97
9	Street Lighting	150	71	Single Pendant	Metal	OH	$ 1.02	$ 0.60	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 11.17	$ 6.33	0.97	$ 23.22	$ 283	$ 2,024	$ 513	$ 1,746	$ 796	$ 3,770	35.24
10	Street Lighting	250	111	Single Pendant	Metal	OH	$ 1.59	$ 0.94	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 11.79	$ 6.74	0.96	$ 24.90	$ 431	$ 2,024	$ 513	$ 1,746	$ 944	$ 3,770	55.09
11	Street Lighting	400	278	Single Pendant	Metal	OH	$ 3.98	$ 2.36	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 12.11	$ 6.96	0.93	$ 28.18	$ 509	$ 2,024	$ 513	$ 1,746	$ 1,022	$ 3,770	137.97
12	Street Lighting	Discontinued, no LED	0	Single Pendant	Wood	UG																				
13	Street Lighting	150	71	Single Pendant	Metal	UG	$ 1.02	$ 0.60	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 12.41	$ 6.56	0.97	$ 24.71	$ 283	$ 2,104	$ 513	$ 2,262	$ 796	$ 4,366	35.24
14	Street Lighting	250	111	Single Pendant	Metal	UG	$ 1.59	$ 0.94	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 13.03	$ 6.96	0.97	$ 26.40	$ 431	$ 2,104	$ 513	$ 2,262	$ 944	$ 4,366	55.09
15	Street Lighting	400	278	Single Pendant	Metal	UG	$ 3.98	$ 2.36	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 13.36	$ 7.18	0.94	$ 29.74	$ 509	$ 2,104	$ 513	$ 2,262	$ 1,022	$ 4,366	137.97
16	Street Lighting	150	71	Twin Pendant	Metal	OH	$ 1.02	$ 0.60	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 13.10	$ 7.66	0.98	$ 26.52	$ 566	$ 2,223	$ 513	$ 1,908	$ 1,079	$ 4,131	35.24
17	Street Lighting	250	111	Twin Pendant	Metal	OH	$ 1.59	$ 0.94	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 14.33	$ 8.47	0.97	$ 29.25	$ 862	$ 2,223	$ 513	$ 1,908	$ 1,374	$ 4,131	55.09
18	Street Lighting	400	278	Twin Pendant	Metal	OH	$ 3.98	$ 2.36	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 14.99	$ 8.90	0.94	$ 33.07	$ 1,019	$ 2,223	$ 513	$ 1,908	$ 1,532	$ 4,131	137.97
19	Street Lighting	150	71	Twin Pendant	Metal	UG	$ 1.02	$ 0.60	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 14.34	$ 7.88	0.98	$ 27.98	$ 566	$ 2,304	$ 513	$ 2,423	$ 1,079	$ 4,727	35.24
20	Street Lighting	250	111	Twin Pendant	Metal	UG	$ 1.59	$ 0.94	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 15.57	$ 8.69	0.97	$ 30.71	$ 862	$ 2,304	$ 513	$ 2,423	$ 1,374	$ 4,727	55.09
21	Street Lighting	400	278	Twin Pendant	Metal	UG	$ 3.98	$ 2.36	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 16.23	$ 9.12	0.95	$ 34.51	$ 1,019	$ 2,304	$ 513	$ 2,423	$ 1,532	$ 4,727	137.97
22	Street Lighting	250	111	Decorative	Metal	UG	$ 1.59	$ 0.94	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 49.23	$ 35.77	0.99	$ 91.41	$ 7,318	$ 5,709	$ 513	$ 2,262	$ 7,831	$ 7,971	55.09
23	Street Lighting	400	242	Decorative	Metal	UG	$ 3.46	$ 2.05	$ 0.69	$ 0.97	$ 2.79	$ 0.31	$ -	$ 0.06	$ (0.03)	$ 26.28	$ 20.64	0.97	$ 55.36	$ 1,809	$ 5,709	$ 513	$ 2,262	$ 2,322	$ 7,971	120.10
24	Area Lighting	100	50	n/a	n/a	n/a	$ 0.72	$ 0.42	$ 0.38	$ 1.16	$ 2.06	$ 0.24	$ -	$ 0.05	$ (0.08)	$ 2.89	$ 0.50	0.93	$ 7.74	$ 181	$ -	$ 513	$ -	$ 694	$ -	24.81
25	Area Lighting	250	111	n/a	n/a	n/a	$ 1.59	$ 0.94	$ 0.38	$ 1.16	$ 2.06	$ 0.24	$ -	$ 0.05	$ (0.08)	$ 4.02	$ 1.24	0.92	$ 10.62	$ 453	$ -	$ 513	$ -	$ 965	$ -	55.09
26	Area Lighting	400	243	n/a	n/a	n/a	$ 3.48	$ 2.06	$ 0.38	$ 1.16	$ 2.06	$ 0.24	$ -	$ 0.05	$ (0.08)	$ 4.89	$ 1.82	0.89	$ 14.25	$ 661	$ -	$ 513	$ -	$ 1,174	$ -	120.60

RPL - Lighting Data

Line No.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
										Monthly Energy																		
1	Source Document		26						Burn Facto	1.208194	1.1540358	1.044236	0.945783	0.858153	0.767982	0.778412	0.861497	0.95533	1.066838	1.159977	1.208957							
2								0.58561625	48	0.721107262	0.62212666	0.623249	0.546279	0.512186	0.443582	0.464593	0.514182	0.551793	0.636739	0.669996	0.721562							
3	**MFG_CD**	**MODEL_CD**	**ITEM_TYPE_CD**	**DESCR**		**Count**	**ON**	**Off**	**DAILY_KWH**	**Jan-18**	**Feb-18**	**Mar-18**	**Apr-18**	**May-18**	**Jun-18**	**Jul-18**	**Aug-18**	**Sep-18**	**Oct-18**	**Nov-18**	**Dec-18**	**Demand (kW)**	**Daily kWh/Lighting Watts**					
4	DD	DD	100OLSV	100 Watt Sodium Vapor OL		602	476	126	1.41	25,057	21,618	21,657	18,982	17,797	15,414	16,144	17,867	19,174	22,125	23,281	25,073	47.60	0.014055					
5	DD	DD	150OLSV	150 Watt Sodium Vapor OL		1,226	990	236	1.99	73,956	63,804	63,920	56,026	52,529	45,493	47,648	52,734	56,591	65,303	68,714	74,002	148.50	0.013297					
6	DD	DD	175OLMV	175 Watt Mercury Vapor OL		332	178	154	2.50	16,676	14,387	14,413	12,633	11,845	10,258	10,744	11,891	12,761	14,725	15,494	16,687	31.15	0.014294					
7	DD	DD	250OLHF	250 Watt Metal Halide Flood OL		19	17	2	3.39	2,160	1,863	1,867	1,636	1,534	1,328	1,391	1,540	1,653	1,907	2,007	2,161	4.25	0.013567					
8	DD	DD	250OLMV	250 Watt Mercury Vapor OL		171	90	81	3.53	11,913	10,278	10,297	9,025	8,462	7,328	7,676	8,495	9,116	10,520	11,069	11,921	22.50	0.014137					
9	DD	DD	250OLVF	250 Watt Sodium Vapor Flood OL		55	42	13	3.53	5,560	4,796	4,805	4,212	3,949	3,420	3,582	3,964	4,254	4,909	5,166	5,563	10.50	0.014137					
10	DD	DD	250SVOL	250 Watt Sodium Vapor OL		362	299	63	3.53	39,579	34,146	34,208	29,983	28,112	24,347	25,500	28,222	30,286	34,948	36,774	39,604	74.75	0.014137					
11	DD	DD	400OLHF	400 Watt Metal Halide Flood OL		773	620	153	5.49	127,495	109,995	110,194	96,585	90,557	78,428	82,142	90,910	97,560	112,579	118,459	127,576	248.00	0.013726					
12	DD	DD	400OLMV	400 Watt Mercury Vapor OL		102	68	34	5.49	13,976	12,058	12,080	10,588	9,927	8,597	9,005	9,966	10,695	12,341	12,986	13,985	27.20	0.013719					
13	DD	DD	400OLSF	400 Watt Sodium Vapor Flood OL		48	42	6	5.68	8,930	7,704	7,718	6,765	6,343	5,493	5,753	6,367	6,833	7,885	8,297	8,935	16.80	0.014192					
14	DD	DD	LED-DD	LED DDs for RPL Subs		30	-	30	-	-	-	-	-	-	-	-	-	-	-	-	-	#N/A						
15	STL	STL	100UFSV	100 W Sodium Vapor-UG-Fiber		42	42	-	1.43	2,256	1,946	1,950	1,709	1,602	1,388	1,453	1,609	1,726	1,992	2,096	2,257	4.20	0.014341					
16	STL	STL	100UMSV	100 W Sodium Vapor-UG-Metal		1,638	1,619	19	1.43	86,964	75,027	75,162	65,880	61,768	53,495	56,029	62,009	66,545	76,789	80,800	87,019	161.90	0.014341					
17	STL	STL	150OMSV	150 W Sodium Vapor-OH-Metal		156	155	1	2.00	11,588	9,998	10,016	8,779	8,231	7,128	7,466	8,263	8,867	10,233	10,767	11,596	23.25	0.013308					
18	STL	STL	150OMSVT	150 W Sodium Vapor-OH-Metal-T		8	8	-	3.99	1,196	1,032	1,034	906	850	736	771	853	915	1,056	1,111	1,197	1.20	0.026615					
19	STL	STL	150OWSV	150 W Sodium Vapor-OH-Wood		853	848	5	2.00	63,399	54,697	54,796	48,029	45,031	39,000	40,847	45,207	48,513	55,982	58,906	63,439	127.20	0.013308					
20	STL	STL	150UMSV	150 W Sodium Vapor-UG-Metal		56	54	2	2.00	4,037	3,483	3,489	3,058	2,868	2,483	2,601	2,879	3,089	3,565	3,751	4,040	8.10	0.013308					
21	STL	STL	150UMSVT	150 W Sodium Vapor-UG-Metal-T		9	9	-	3.99	1,346	1,161	1,163	1,019	956	828	867	960	1,030	1,188	1,250	1,347	1.35	0.026615					
22	STL	STL	175UMHCS	175 W Metal Hal-UG-Metal-C-S		11	6	5	2.50	563	485	486	426	400	346	362	401	431	497	523	563	1.05	0.014306					
23	STL	STL	175UMHCT	175 W Metal Hal-UG-Metal-C-T		65	65	-	5.01	12,190	10,517	10,536	9,234	8,658	7,498	7,854	8,692	9,328	10,764	11,326	12,198	11.38	0.028612					
24	STL	STL	175UMMH	175 W Metal Halide-UG-Metal		85	85	-	2.50	7,970	6,876	6,889	6,038	5,661	4,903	5,135	5,683	6,099	7,038	7,405	7,975	14.88	0.014306					
25	STL	STL	175UMMV	175 W Mercury Vapor UG-Metal		2	2	-	2.50	188	162	162	142	133	115	121	134	144	166	174	188	0.35	0.014306					
26	STL	STL	175UMMVS	175 W Mercury Vapor-UG-Metal-S		936	928	8	2.50	87,017	75,072	75,208	65,920	61,806	53,527	56,063	62,047	66,585	76,836	80,849	87,071	162.40	0.014306					
27	STL	STL	175UWMV	175 W Mercury Vapor-UG-Wood		2	2	-	2.50	188	162	162	142	133	115	121	134	144	166	174	188	0.35	0.014306					
28	STL	STL	250OMMV	250 W Mercury Vapor-OH-Metal		128	127	1	3.54	16,826	14,516	14,543	12,747	11,951	10,350	10,841	11,998	12,875	14,857	15,633	16,837	31.75	0.014149					
29	STL	STL	250OMSV	250 W Sodium Vapor-OH-Metal		818	777	41	3.54	102,943	88,813	88,973	77,985	73,118	63,324	66,324	73,403	78,772	90,899	95,647	103,008	194.25	0.014149					
30	STL	STL	250OWMV	250 W Mercury Vapor-OH-Wood		436	432	4	3.54	57,235	49,379	49,468	43,359	40,653	35,207	36,875	40,811	43,796	50,538	53,178	57,271	108.00	0.014149					
31	STL	STL	250OWSV	250 W Sodium Vapor-OH-Wood		610	608	2	3.54	80,553	69,496	69,621	61,023	57,215	49,551	51,898	57,438	61,639	71,128	74,843	80,604	152.00	0.014149					
32	STL	STL	250UMMVS	250 W Mercury Vapor-UG-Metal-S		8	8	-	3.54	1,060	914	916	803	753	652	683	756	811	936	985	1,061	2.00	0.014149					
33	STL	STL	250UMSV	250 W Sodium Vapor-UG-Metal		220	216	4	3.54	28,617	24,689	24,734	21,679	20,326	17,604	18,438	20,406	21,898	25,269	26,589	28,635	54.00	0.014149					
34	STL	STL	250UMSVT	250 W Sodium Vapor-UG-Metal-T		59	59	-	7.07	15,634	13,488	13,512	11,843	11,104	9,617	10,072	11,147	11,963	13,804	14,525	15,643	14.75	0.028299					
35	STL	STL	400OWSV	400 W Sodium Vapor-OH-Wood		63	63	-	5.33	12,572	10,846	10,866	9,524	8,930	7,734	8,100	8,964	9,620	11,101	11,681	12,580	25.20	0.013320					
36	STL	STL	400UMMCS	400 W Metal Hal-UG-Metal-C-S		62	61	1	5.39	12,315	10,624	10,643	9,329	8,747	7,575	7,934	8,781	9,423	10,874	11,442	12,322	24.40	0.013475					
37	STL	STL	400UMSV	400 W Sodium Vapor-UG-Metal		165	162	3	5.49	33,326	28,752	28,804	25,246	23,671	20,500	21,471	23,763	25,501	29,427	30,964	33,347	64.80	0.013731					
38	STL	STL	SL150UM	150 Sodium Vapor-UG-Metal		63	61	2	2.00	4,561	3,935	3,942	3,455	3,239	2,805	2,938	3,252	3,490	4,027	4,237	4,563	9.15	0.013308					
39	STL	STL	SL400UMN	2-400 W Sodium Vapor-UG-Met-N		36	32	4	10.99	13,166	11,359	11,379	9,974	9,351	8,099	8,482	9,388	10,075	11,626	12,233	13,174	12.80						
40	STL	STL	SL400USV	400 W Sodium Vapor-UG-Metal-N		14	14	-	10.99	5,760	4,969	4,978	4,364	4,091	3,543	3,711	4,107	4,408	5,086	5,352	5,764	5.60	0.027463					
41	STL	STL	SL70UM	70 W Sodium Vapor-UG-Metal		123	120	3	1.09	4,877	4,207	4,215	3,694	3,464	3,000	3,142	3,477	3,732	4,306	4,531	4,880	8.40	0.015500					
42	STL	STL	SL70UMT	70 W-Sodium Vapor-UG-Metal-T		1	1	-	2.17	81	70	70	62	58	50	52	58	62	72	76	81	0.07	0.031001					
43	STL	STL	SLOHW	SL <400W -OH-Wood		40	40	-	3.54	5,300	4,572	4,580	4,015	3,764	3,260	3,414	3,779	4,055	4,679	4,924	5,303	16.00						

Month	BF_CD	DESCR	VAL
4	OL-APR	Hours of Burn Factor - April	0.945783
8	OL-AUG	Hours of Burn Factor - August	0.861497
12	OL-DEC	Hours of Burn Factor - Dec	1.208957
2	OL-FEB	Hours of Burn Factor - Feb	1.154036
1	OL-JAN	Hours of Burn Factor - January	1.208194
7	OL-JUL	Hours of Burn Factor - July	0.778412
6	OL-JUN	Hours of Burn Factor - June	0.767982
3	OL-MAR	Hours of Burn Factor - March	1.044236
5	OL-MAY	Hours of Burn Factor - May	0.858153
11	OL-NOV	Hours of Burn Factor - Nov	1.159977
10	OL-OCT	Hours of Burn Factor - October	1.066838
9	OL-SEP	Hours of Burn Factor - Sept	0.95533

RPL - Lighting Cost of Service for LED Rates

Line No.	A	B	C	D	E
1					
2	**Item**	**Source Document**	**DD Area Lighting**	**STL Street Lighting**	**Total**
3	Bulb Count	WP 9, 9.3	2,822	6,604	9,426
4					
5	Total Power Supply	COS, WP 9, 9.3	$ 155,658	$ 315,596	$ 471,254
6	DA O&M Exp	T&D, WP 9, 9.3	$ 50,922	$ 217,727	$ 268,649
7	Other Dist O&M	COS, WP 9, 9.3	$ 39,299	$ 77,250	$ 116,549
8	A&G	T&D, WP 9, 9.3	$ 69,885	$ 221,049	$ 290,934
9	Taxes	T&D, WP 9, 9.3	$ 8,084	$ 24,938	$ 33,022
10	Debt - Interest				
11	Payments in Lieu	T&D, WP 9, 9.3	$ 1,770	$ 4,636	$ 6,406
12	Depreciation	T&D, WP 9, 9.3	$ 45,451	$ 35,312	$ 80,762
13	Misc. Income / Other	T&D, WP 9, 9.3	$ (2,796)	$ (2,015)	$ (4,811)
14	Return	T&D, WP 9, 9.3	$ 27,924	$ 25,581	$ 53,505
15					
16	**Total COS**		$ 396,197	$ 920,073	$ 1,316,270
17					
18				*Total COS Check*	
19	**Total COS**	COS, WP 9, 9.3	$ 396,197	$ 920,073	$ 1,316,270
20	Difference		$ -	$ -	$ -
21					
22					
23	$/Bulb-Month				
24					
25	Total Power Supply	Calculated	$ 4.60	$ 3.98	$ 4.17
26	DA O&M Exp	Calculated	$ 1.50	$ 2.75	$ 2.38
27	Other Dist O&M	Calculated	$ 1.16	$ 0.97	$ 1.03
28	A&G	Calculated	$ 2.06	$ 2.79	$ 2.57
29	Taxes	Calculated	$ 0.24	$ 0.31	$ 0.29
30	Debt - Interest	Calculated	$ -	$ -	$ -
31	Payments in Lieu	Calculated	$ 0.05	$ 0.06	$ 0.06
32	Depreciation	Calculated	$ 1.34	$ 0.45	$ 0.71
33	Misc. Income / Other	Calculated	$ (0.08)	$ (0.03)	$ (0.04)
34	Return	Calculated	$ 0.82	$ 0.32	$ 0.47
35					
36	**Total COS**	Calculated	$ 11.70	$ 11.61	$ 11.64
37					
38	**Power Supply Demand $/kW**	COS, WP 9, 9.3	**$ 8.4881**	**$ 8.4881**	
39					

RPL - Lighting LED Rate Development

Source Documents: 27, 34

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Line No.								Material		Fixture plus Pole		Fixture		Pole	
1	Service	OH/UG	Type	Material/Other	Source Document	Watt Equiv	Watt Input	Fixture	Pole	Truck	Labor	Truck	Labor	Truck	Labor
2	Streetlight	UG	Post	Metal	27	100	72	$ 455	$ 1,255	$ 666	$ 1,786	$ 124	$ 389	$ 542	$ 1,397
3	Streetlight	UG	Post	Fiber	27	Discontinued, no LED									
4	Streetlight	UG	Post	Decorative	27	100	unknown	$ 1,206	$ 1,255	$ 666	$ 1,786	$ 124	$ 389	$ 542	$ 1,397
5	Streetlight	OH	Single Pendant	Wood	27	150	71	$ 283	$ 1,017	$ 553	$ 1,706	$ 124	$ 389	$ 429	$ 1,317
6	Streetlight	OH	Single Pendant	Wood	27	250	111	$ 431	$ 1,017	$ 553	$ 1,706	$ 124	$ 389	$ 429	$ 1,317
7	Streetlight	OH	Single Pendant	Wood	27	400	278	$ 509	$ 1,017	$ 553	$ 1,706	$ 124	$ 389	$ 429	$ 1,317
8	Streetlight	OH	Single Pendant	Metal	27	150	71	$ 283	$ 2,024	$ 553	$ 1,706	$ 124	$ 389	$ 429	$ 1,317
9	Streetlight	OH	Single Pendant	Metal	27	250	111	$ 431	$ 2,024	$ 553	$ 1,706	$ 124	$ 389	$ 429	$ 1,317
10	Streetlight	OH	Single Pendant	Metal	27	400	278	$ 509	$ 2,024	$ 553	$ 1,706	$ 124	$ 389	$ 429	$ 1,317
11	Streetlight	UG	Single Pendant	Wood	27	Discontinued, no LED									
12	Streetlight	UG	Single Pendant	Metal	27	150	71	$ 283	$ 2,104	$ 745	$ 2,030	$ 124	$ 389	$ 621	$ 1,641
13	Streetlight	UG	Single Pendant	Metal	27	250	111	$ 431	$ 2,104	$ 745	$ 2,030	$ 124	$ 389	$ 621	$ 1,641
14	Streetlight	UG	Single Pendant	Metal	27	400	278	$ 509	$ 2,104	$ 745	$ 2,030	$ 124	$ 389	$ 621	$ 1,641
15	Streetlight	OH	Twin Pendant	Metal	27	150	71	$ 566	$ 2,223	$ 593	$ 1,828	$ 124	$ 389	$ 469	$ 1,439
16	Streetlight	OH	Twin Pendant	Metal	27	250	111	$ 862	$ 2,223	$ 593	$ 1,828	$ 124	$ 389	$ 469	$ 1,439
17	Streetlight	OH	Twin Pendant	Metal	27	400	278	$ 1,019	$ 2,223	$ 593	$ 1,828	$ 124	$ 389	$ 469	$ 1,439
18	Streetlight	UG	Twin Pendant	Metal	27	150	71	$ 566	$ 2,304	$ 785	$ 2,152	$ 124	$ 389	$ 661	$ 1,763
19	Streetlight	UG	Twin Pendant	Metal	27	250	111	$ 862	$ 2,304	$ 785	$ 2,152	$ 124	$ 389	$ 661	$ 1,763
20	Streetlight	UG	Twin Pendant	Metal	27	400	278	$ 1,019	$ 2,304	$ 785	$ 2,152	$ 124	$ 389	$ 661	$ 1,763
21	Streetlight	UG	Decorative		27	250	111	$ 7,318	$ 5,709	$ 745	$ 2,030	$ 124	$ 389	$ 621	$ 1,641
22	Streetlight	UG	Decorative		27	400	242	$ 1,809	$ 5,709	$ 745	$ 2,030	$ 124	$ 389	$ 621	$ 1,641
23	Dusk to Dawn	n/a	n/a	n/a	34	100	50	$ 181				$ 124	$ 389		
24	Dusk to Dawn	n/a	n/a	n/a	34	250	111	$ 453				$ 124	$ 389		
25	Dusk to Dawn	n/a	n/a	n/a	34	400	243	$ 661				$ 124	$ 389		

RPL - EV Rate Design Options

Charger Input Assumptions	Demand/Month	20 kW

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
			GP Rate Design Approach				
Row	Component	Tier Cutoff	Current	Phase 1	Phase 2	Phase 3	Calculation Methodology
1	Facilities Charge		$ 20.00	$ 38.00	$ 55.50	$ 73.00	Current and proposed GP rate design
2	Tier 1 Demand Charge (<=25kW)	25	$ -	$ 1.40	$ 3.95	$ 6.50	Current and proposed GP rate design
3	Tier 2 Demand Charge (>25kW)	25	$ 2.80	$ 2.80	$ 4.65	$ 6.50	Current and proposed GP rate design
4	Energy Charge - First 500 kWh	500	$ 0.0772	$0.10752	$0.09291	$0.07832	Current and proposed GP rate design
5	Energy Charge - Next 1,500 kWh	1,500	$ 0.0605	$0.10085	$0.08958	$0.07832	Current and proposed GP rate design
6	Energy Charge - Next 3,000 kWh	3,000	$ 0.0558	$0.09419	$0.08624	$0.07832	Current and proposed GP rate design
7	Energy Charge - Over 5,000 kWh	5,000	$ 0.0506	$0.08752	$0.08291	$0.07832	Current and proposed GP rate design
8	Assumed LF		10.0%	10.0%	10.0%	10.0%	Assumption
9	Demand / Month		20	20	20	20	Assumption
10	Energy / Month		1,460	1,460	1,460	1,460	Row 8 * Row 9 * 730 hours/month
11	Facilities Charge		$ 20.00	$ 38.00	$ 55.50	$ 73.00	Row 1 from GP Rate Design
12	Tier 1 Demand		20	20	20	20	Row 2 from GP Rate Design and Assumed Charger Demand
13	Tier 2 Demand		0	0	0	0	Row 3 from GP Rate Design and Assumed Charger Demand
14	Total Demand Charge		$ -	$ 28.00	$ 79.00	$ 130.00	Row 2 * Row 23 + Row 3 * Row 24
15	Tier 1 Energy		500	500	500	500	Row 10 energy/month compared to Row 4 Tier 1 Energy
16	Tier 2 Energy		960	960	960	960	Row 10 energy/month compared to Row 4 Tier 2 Energy
17	Tier 3 Energy		-	-	-	-	Row 10 energy/month compared to Row 4 Tier 3 Energy
18	Tier 4 Energy		-	-	-	-	Row 10 energy/month compared to Row 4 Tier 4 Energy
19	2018Q4 ECA	$ 0.04166	$ 60.82	$ -	$ -	$ -	Row 10 energy/month
20	Total Energy Charge		$ 157.47	$ 150.58	$ 132.45	$ 114.35	Row 4 * Row 15 + Row 5 * Row 16 + Row 6 * Row 17 + Row 7 * Row 18 + Row 10 * Column B, Row 19
21	Total Charges		$ 177.47	$ 216.58	$ 266.95	$ 317.35	Row 11 + Row 14 + Row 20
22	Energy-Only Rate ($/kWh)		$ 0.12155	$ 0.14834	$ 0.18284	$ 0.21736	Row 21 / Row 10

RPL - Non-Recurring Charges and Misc. Fees

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
							Benchmarking Against Regional Utilities								
Row	Charge Name	Current Charge	Estimated Cost of Service	Recommended	Avg. Benchmark	Benchmark Range	Frankfort	Crawfordsville	Tipton	Lebanon	Anderson	Peru	NIPSCO	Indiana Michigan Power	Indianapolis Power and Light
1	**Dishonored Check Charge**	$ 20.00	$ 28.97	$30.00	$ 23.89	$15.00 - $40.00	$ 25.00	$ 25.00	$ 25.00	$ 15.00	$ 40.00	$ 25.00	$ 20.00	$ 20.00	$ 20.00
2	**Connect/Disconnect**														
3	At the Meter (Normal Hours)	$ 30.00	$ 42.76	$40.00	$ 31.05	$20.00 - $44.00	$ 33.33	$ 40.00	$ 20.00	$ 20.00	$ 35.00	$ 25.00			$ 44.00
4	At the Meter (After Hours - Non-Sunday and Non-Holiday)	$ 30.00	$ 70.23	$70.00	$ 84.07	$50.00 - $140.00	$ 91.33	$ 140.00			$ 75.00	$ 50.00			$ 64.00
5	At the Meter (After Hours - Sunday or Holiday)	$ 30.00	$ 88.46	$90.00	$ 90.92	$90.50 - $91.33	$ 91.33								$ 90.50
6	At the Pole (Normal Hours)	$ 50.00	$ 204.05	$100.00	$ 57.08	$33.33 - $75.00	$ 33.33				$ 75.00	$ 50.00			$ 70.00
7	At the Pole (After Hours - Non-Sunday and Non-Holiday)	$ 70.00	$ 269.31	$150.00	$ 120.33	$91.33 - $150.00	$ 91.33	$ 140.00			$ 150.00	$ 100.00			
8	At the Pole (After Hours - Sunday or Holiday)	$ 70.00	$ 465.10	$150.00	$ 91.33	$91.33 - $91.33	$ 91.33								
9	Initiate service - Same day connect - Customer requested after 12pm	$ 30.00	$ 42.76	$40.00											
10	**Meter Test**														
11	1ph SC (Res/Com)	$ 35.00	$ 80.64	2 x free / 24 months, 3x is $100	$ 38.00	$15.00 - $65.00		$ 40.00	$ 40.00		$ 30.00	$ 15.00		$ 65.00	
12	3ph SC (Com/GP)	$ 35.00	$ 105.15		$ 38.00	$15.00 - $65.00		$ 40.00	$ 40.00		$ 30.00	$ 15.00		$ 65.00	
13	CT rated meter (Com/GP/LPS or IS)	$ 35.00	$ 230.31		$ 38.00	$15.00 - $65.00		$ 40.00	$ 40.00		$ 30.00	$ 15.00		$ 65.00	
14	**Meter Tampering Charge**	As needed	$ 92.15	Actual labor, materials, vehicle, and estimated energy usage	$ 85.00	$20.00 - $150.00				$ 20.00	$ 150.00				
15	**Trip charge ($/hr)**	$ 15.00	$ 23.63	$25.00	$ 38.00	$36.00 - $40.00							$ 40.00	$ 38.00	$ 36.00

RPL - Non-Recurring Charges and Misc. Fees

	A	B	C	D	E	F	Q	R	S	T	U	V	W
							RPL Cost Data						
							Labor				Other		
Row	Charge Name	Current Charge	Estimated Cost of Service	Recommended	Avg. Benchmark	Benchmark Range	Personnel	Personnel	Hours	Raw Labor Rate	Materials	Vehicle	Other
1	**Dishonored Check Charge**	$ 20.00	$ 28.97	$30.00	$ 23.89	$15.00 - $40.00	Office	1	0.333333333	$ 25.02	$ -	$ -	$ 5.00
2	**Connect/Disconnect**												
3	At the Meter (Normal Hours)	$ 30.00	$ 42.76	$40.00	$ 31.05	$20.00 - $44.00	Field	1	0.5	$ 26.63	$ -	$ 4.50	$ -
4	At the Meter (After Hours - Non-Sunday and Non-Holiday)	$ 30.00	$ 70.23	$70.00	$ 84.07	$50.00 - $140.00	Field	1	0.5	$ 49.59	$ -	$ 4.50	$ -
5	At the Meter (After Hours - Sunday or Holiday)	$ 30.00	$ 88.46	$90.00	$ 90.92	$90.50 - $91.33	Field	1	0.5	$ 66.12	$ -	$ 4.50	$ -
6	At the Pole (Normal Hours)	$ 50.00	$ 204.05	$100.00	$ 57.08	$33.33 - $75.00	Field	1	1.79	$ 33.06	$ -	$ 34.00	$ -
7	At the Pole (After Hours - Non-Sunday and Non-Holiday)	$ 70.00	$ 269.31	$150.00	$ 120.33	$91.33 - $150.00	Field	1	1.79	$ 49.59	$ -	$ 34.00	$ -
8	At the Pole (After Hours - Sunday or Holiday)	$ 70.00	$ 465.10	$150.00	$ 91.33	$91.33 - $91.33	Field	1	1.79	$ 66.12	$ -	$ 34.00	$ -
9	Initiate service - Same day connect - Customer requested after 12pm	$ 30.00	$ 42.76	$40.00									
10	**Meter Test**												
11	1ph SC (Res/Com)	$ 35.00	$ 80.64	2 x free / 24 months, 3x is $100	$ 38.00	$15.00 - $65.00	Field	1	1.00	$ 25.28	$ -	$ 8.00	$ -
12	3ph SC (Com/GP)	$ 35.00	$ 105.15		$ 38.00	$15.00 - $65.00	Field	1	1.00	$ 32.07	$ -	$ 13.00	$ -
13	CT rated meter (Com/GP/LPS or IS)	$ 35.00	$ 230.31		$ 38.00	$15.00 - $65.00	Field	1	2.00	$ 32.07	$ -	$ 46.00	$ -
14	**Meter Tampering Charge**	As needed	$ 92.15	Actual labor, materials, vehicle, and estimated energy usage	$ 85.00	$20.00 - $150.00				$ 50.00			
15	**Trip charge ($/hr)**	$ 15.00	$ 23.63	$25.00	$ 38.00	$36.00 - $40.00							

RPL - Non-Recurring Charges and Misc. Fees

	A	B	C	D	E	F	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI
									Benefits Adder	1.3028			A&G Adder	1.2057				
							NewGen Cost Build-Up											
											Labor				Other			
Row	Charge Name	Current Charge	Estimated Cost of Service	Recommended	Avg. Benchmark	Benchmark Range	Personnel	Hours	Raw Labor Rate	Labor Rate w/ Benefits	OT Adj	OT labor Rate	Total Labor Cost	With A&G Adder	Materials	Vehicle	Other	Total Cost
1	**Dishonored Check Charge**	$ 20.00	$ 28.97	$30.00	$ 23.89	$15.00 - $40.00	1	0.3	$ 25.02	$ 32.60			$ 10.87	$ 13.10	$ -	$ -	$ 5.00	$ 28.97
2	**Connect/Disconnect**																	
3	At the Meter (Normal Hours)	$ 30.00	$ 42.76	$40.00	$ 31.05	$20.00 - $44.00	1	0.5	$ 26.63	$ 34.69			$ 17.35	$ 20.91	$ -	$ 4.50	$ -	$ 42.76
4	At the Meter (After Hours - Non-Sunday and Non-Holiday)	$ 30.00	$ 70.23	$70.00	$ 84.07	$50.00 - $140.00	1	0.5	$ 33.06	$ 43.07	$ 16.53	$ 59.60	$ 29.80	$ 35.93	$ -	$ 4.50	$ -	$ 70.23
5	At the Meter (After Hours - Sunday or Holiday)	$ 30.00	$ 88.46	$90.00	$ 90.92	$90.50 - $91.33	1	0.5	$ 33.06	$ 43.07	$ 33.06	$ 76.13	$ 38.06	$ 45.89	$ -	$ 4.50	$ -	$ 88.46
6	At the Pole (Normal Hours)	$ 50.00	$ 204.05	$100.00	$ 57.08	$33.33 - $75.00	1	1.8	$ 33.06	$ 43.07			$ 77.09	$ 92.95	$ -	$ 34.00	$ -	$ 204.05
7	At the Pole (After Hours - Non-Sunday and Non-Holiday)	$ 70.00	$ 269.31	$150.00	$ 120.33	$91.33 - $150.00	1	1.8	$ 33.06	$ 43.07	$ 16.53	$ 59.60	$ 106.68	$ 128.63	$ -	$ 34.00	$ -	$ 269.31
8	At the Pole (After Hours - Sunday or Holiday)	$ 70.00	$ 465.10	$150.00	$ 91.33	$91.33 - $91.33	1	1.8	$ 33.06	$ 43.07	$ 66.12	$ 109.19	$ 195.45	$ 235.65	$ -	$ 34.00	$ -	$ 465.10
9	Initiate service - Same day connect - Customer requested after 12pm	$ 30.00	$ 42.76	$40.00														
10	**Meter Test**																	
11	1ph SC (Res/Com)	$ 35.00	$ 80.64	2 x free / 24 months, 3x is $100	$ 38.00	$15.00 - $65.00	1	1.0	$ 25.28	$ 32.93			$ 32.93	$ 39.71	$ -	$ 8.00	$ -	$ 80.64
12	3ph SC (Com/GP)	$ 35.00	$ 105.15		$ 38.00	$15.00 - $65.00	1	1.0	$ 32.07	$ 41.78			$ 41.78	$ 50.37	$ -	$ 13.00	$ -	$ 105.15
13	CT rated meter (Com/GP/LPS or IS)	$ 35.00	$ 230.31		$ 38.00	$15.00 - $65.00	1	2.0	$ 32.07	$ 41.78			$ 83.56	$ 100.75	$ -	$ 46.00	$ -	$ 230.31
14	**Meter Tampering Charge**	As needed	$ 92.15	Actual labor, materials, vehicle, and estimated energy usage	$ 85.00	$20.00 - $150.00	1	1.0	$ 32.07	$ 41.78			$ 41.78	$ 50.37	$ -		$ -	$ 92.15
15	**Trip charge ($/hr)**	$ 15.00	$ 23.63	$25.00	$ 38.00	$36.00 - $40.00	1	0.3	$ 26.63	$ 34.69			$ 8.67	$ 10.46	$ -	$ 4.50	$ -	$ 23.63

RAW DATA PROVIDED BY RP&L

Descriptions	Conditions	CURRENT		
Dishonored Check Charge		$	20.00	
Reconnect after disconnect for Non-Payment of Charges				
At the Meter	8am-4:30 PM	$	30.00	
At the Pole	8am-2:00 PM	$	50.00	
Line Dept reconnect	**After Normal Hours**	$	70.00	
Connect Service				
Same day - Customer requested after 12pm		$	30.00	
Meter Test		$	35.00	
Service Call	Labor (1 hr min)	$	40.00	per hour
	Material	As needed		
	Vehicle Charges			
Meter Tampering Charge	Labor (1 hr min)	$	50.00	per hour
	Material	As needed		
	Vehicle Charges			
	Electric Usage	Estimated usage at appropriate rate		
Trip charge	Labor	$	15.00	Per Trip

RAW DATA PROVIDED BY RP&L

RECONNECT at Daytime hours
Person running reconnects during the day is a Service person.

METER:

	Hourly Rate	15 min	30 min	INCL OVERHEAD:	
Labor Office	$ 23.26	$ 5.82		$ 8.55	
Labor Service	$ 26.63		$ 13.32	$ 19.57	
Vehicle Charge	$ 9.00		$ 4.50	$ 4.50	
		Total		$ 32.62	**PER TRIP**
					This is our COST estimate to either Disconnect or reconnect at the meter.
					but not both. Both would be 2x

AMI

	Hourly Rate	15 min	15 min	INCL OVERHEAD:	
Labor Office	$ 23.26	$ 5.82		$ 8.55	
Labor Service	$ 26.63		$ 6.66	$ 9.79	
		Total		$ 18.33	**PER Event (on/off)**
					This is our COST estimate to either Disconnect or reconnect at the meter. But not both. Both would be 2x
					but not both. Both would be 2x

We have 4,200 AMI meters. Should we include this as a separate fee, 40 per disconnect for non payment or wait until we have more deployed?
I'm concerned with having two separte charges being confused and also people saying we are discrimnating against them because they don't have an AMI meter yet.

RAW DATA PROVIDED BY RP&L

Bank Charge	$	5.00	
Processing			
Hourly	$	25.02	
Overhead		47%	
Total Hourly Rate	$	36.78	
20 Minutes	$	12.26	It takes approximately 20 minutes per check to process.
Total	**$**	**17.26**	
Current charge	$	20.00	no change requested

RAW DATA PROVIDED BY RP&L

Normal Hours

	Hourly Rate	Number of crew members	Total Rate @ 1.79 Hours	With Overhead	
Labor	$ 33.06	1	$ 59.18	$ 86.99	
Vehicle Charge	$ 34.00		$ 34.00	$ 34.00	
		Total	$ 93.18	$ 120.99	**PER TRIP**
					This is our COST estimate to either Disconnect or reconnect at the pole 8am-2pm but not both. Both would be 2x
				OUR COST	
				$ 120.99	

Notes: Person running reconnects at the pole during the day is a Journaman Lineman typically with two on the crew

RAW DATA PROVIDED BY RP&L

After Hours

	Hourly Rate	OT = x 1.5	Total Rate @ 1.79 Hours	With Overhead	
Labor	$ 33.06	$ 49.59	$ 88.77	$ 130.49	
Vehicle Charge (#13)	$ 34.00		$ 60.86	$ 60.86	
		Total	$ 149.63	**$ 191.35**	**PER TRIP**
					This is our COST estimate to either Disconnect or reconnect at the pole after hours but not both.

Notes: Person running Trouble for after hours reconnects is a Journaman Lineman who is on Overtime (Doubletime if a Sunday or Holiday). Besides the normal overtime rate, they are paid $192 per week to be on Trouble, that is not included in the costs below.
Besides the normal overtime rate, they are paid **$192 per week** to be on Trouble, that is not included in the costs below.

RAW DATA PROVIDED BY RP&L

METER TEST CHARGE
Time and equipment it takes to test a meter actually varies by meter type

	Old Charge	**New Charge**
	$ 35.00	**$ 50.00** See note below

1ph SC (Res/Com)	Hourly Rate	1 Hour
Labor (Tech C)	$ 25.28	$ 37.16
Vehicle Charge #42	$ 8.00	$ 8.00
	Total	**$ 45.16**

3ph SC (Com/GP)	Hourly Rate	1 Hour
Labor (Tech A)	$ 32.07	$ 47.14
Vehicle Charge #21	$ 13.00	$ 13.00
	Total	**$ 60.14**

Average of SC Meters	**$ 52.65**

CT rated meter (Com/GP/LPS or IS)	Hourly Rate	2 Hours
Labor (Tech A)	$ 32.07	$ 94.29
Vehicle Charge #8	$ 23.00	$ 46.00
	Total	**$ 140.29**

NOTE:
It is likely that one of the A Techs would be the one testing a 1ph meter with their vehicle so
That charge could vary between the 45 and 60 even for the residential meter.

We have never actually charged a customer to test their meter since I have been here
so I'm not sure it would be worth our time to try to break up these charges by meter type.

IURC regs which we also try to follow state we must test it at no cost, then if the customer requests
it again after 12 months we must test it again at no cost, the third test within 36 mos there would be a charge.

RAW DATA PROVIDED BY RP&L

Meter Tampering Charge	Labor (1 hr min)	$	50.00	per hour	As needed
	Material	As needed			As needed
	Vehicle Charges				As needed
	Electric Usage	Estimated usage at appropriate rate			Measured or Estimated usage at appropriate rate

RPL - Labor Expenses (YE 9/30/19 and TY19 Adjustments)

RPL Source: COS Model WP 2 - Payroll and Benefits

Account	Description	YE 9/30/2019	Budget 2020	Difference	Adjustment	TY YE 9/30/2020
Labor Expenses						
	Distribution Operation					
58000	Supervision Of Oper-Dist	734,685	766,970	32,285	24,214	758,899
58100	Load Dispatching-Dist	88,487	95,844	7,357	5,518	94,005
58200	Station Exp-Dist	1,491	-	(1,491)	(1,118)	373
58300	Oh Line Expense-General	14,806	-	(14,806)	(11,104)	3,701
58320	Oh Line Expense-Patrol-Test	2,341	6,000	3,659	2,744	5,085
58330	Oh Line-Remove/Reset Trans	-	-	-	-	-
58400	Ug Line Expense-General	14,779	-	(14,779)	(11,084)	3,695
58600	Meter Expense-General	130,210	138,000	7,790	5,843	136,052
58610	Set & Remove Sp Meters	53,177	25,000	(28,177)	(21,133)	32,044
58611	Set & Remove-Pp Meters	-	-	-	-	-
58612	Set & Remove-Solid St Rec	-	-	-	-	-
58620	Meter Systems Analyses	-	-	-	-	-
58630	Meter Records	73,546	80,000	6,454	4,840	78,387
58700	Customer Install-General	136,204	140,000	3,796	2,847	139,051
58710	Field Inv Of Meter Malfunct	-	-	-	-	-
58720	Current Diversion	15,759	19,000	3,241	2,431	18,190
58800	Misc Dist Expense-General	19,117	22,000	2,883	2,162	21,279
	Total Distribution Operation	1,284,601	1,292,814	8,213	6,159	1,290,761
	Distribution Maintenance					
59000	Supervision Of Maint-Dist	171,383	199,753	28,370	21,278	192,660
59100	Maint Of Structures	3,769	1,500	(2,269)	(1,702)	2,067
59110	Care Of Grounds-Dist	-	3,000	3,000	2,250	2,250
59200	Maint Of Station Equip-Gen	544,910	662,986	118,076	88,557	633,467
59210	Maint Of Transf & Regulator	-	-	-	-	-
59250	Maint Of Switchboards	-	-	-	-	-
59300	Maint Of Oh Lines-General	613,277	556,000	(57,277)	(42,958)	570,319
59310	Maint Of Oh Lines-Tree Trim	143,969	255,200	111,231	83,423	227,392
59330	Maint Of Oh Lines-Poles & Fix	-	-	-	-	-
59400	Maint Of Ug Lines-General	118,445	155,000	36,555	27,416	145,861
59410	Maint Of Ug Lines-Vault & Mh	-	-	-	-	-
59440	Maint Of Ug Lines-Ug Serv	-	-	-	-	-
59450	Maint Of Ug Lines-Network	-	-	-	-	-
59500	Maint Of Line Transf-Oh	11,566	56,131	44,565	33,423	44,990
59520	Maint Of Line Transf-Ug	-	-	-	-	-
59600	Maint Of St. Light-Pend-Gen	113,923	150,000	36,077	27,058	140,981
59610	Maint Of St. Light-Pend-Oh Li	-	-	-	-	-
59620	Maint Of St. Light-Pend-Col	-	-	-	-	-
59640	Maint Of St. Light-Orn-Gen	-	-	-	-	-
59680	Maint Of Dusk To Dawn Light	39,623	40,000	377	283	39,906
59700	Maint Of Meters-General	20,247	40,000	19,753	14,815	35,062
59800	Maint Of Misc Dist Plant	484	1,000	516	387	871
	Total Distribution Maintenance	1,781,595	2,120,570	338,975	254,231	2,035,826
	Customer Accounts & Service					
90200	Meter Reading Expense	61,344	55,000	(6,344)	(4,758)	56,586
90300	Cust Records & Collect-Gen	347,889	371,905	24,016	18,012	365,901
90310	Cash Over And Short	-	-	-	-	-
90400	Uncollect Accts Expense	-	-	-	-	-
90600	Cust Serv & Informational Exp	-	-	-	-	-
90800	Customer Assistance Expenses	-	-	-	-	-
90900	Supv Of Customer Service	129,529	136,000	6,471	4,853	134,382
91000	Customer Assist Exp	16,835	8,000	(8,835)	(6,627)	10,209
91100	Inform Advertise Exp	-	-	-	-	-
91200	Misc Customer Service Exp	143,850	173,117	29,267	21,950	165,800
91600	Demonstration Exp	-	-	-	-	-
91610	Demo Exp-Res-Misc	-	-	-	-	-
	Total Customer Accounts & Service	699,448	744,022	44,574	33,431	732,878

RPL - Labor Expenses (YE 9/30/19 and TY19 Adjustments)

RPL Source: COS Model WP 2 - Payroll and Benefits

Account	Description	YE 9/30/2019	Budget 2020	Difference	Adjustment	TY YE 9/30/2020
Labor Expenses						
	Administrative and General					
92000	Salaries-Gen Mgr & Staff	297,597	307,839	10,242	7,681	305,279
92005	Salaries-Energy Services	-	-	-	-	-
92010	Salaries-Other City Official	59,387	61,493	2,106	1,579	60,967
92015	Salaries-Telecomm	94,245	-	(94,245)	(70,684)	23,561
92020	Salaries-Engr	73,340	77,000	3,660	2,745	76,085
92030	Salaries-Finance & Account	212,648	218,530	5,882	4,411	217,060
92035	Salaries-Purch And Stores	189,474	175,671	(13,803)	(10,352)	179,122
92040	Salaries-Personnel	208,336	213,786	5,450	4,088	212,423
92045	Salaries - Summer / Intern	21,016	25,000	3,984	2,988	24,004
92060	Salaries-Information Sys	372,749	387,000	14,251	10,688	383,437
92100	Office Supp-Adm & Gen	-	-	-	-	-
92110	Office Supp-Other City Offic	-	-	-	-	-
92130	Association Membership Dues	-	-	-	-	-
92135	APPA - Rodeo	22,327	25,000	2,673	2,004	24,332
92140	Computer Hardware and Support	-	-	-	-	-
92145	Network Hardware and Maintenance	-	-	-	-	-
92150	Computer Software and Support	-	-	-	-	-
92160	Clothing	-	-	-	-	-
92170	Employee Empowerment Committee	-	-	-	-	-
92175	Safety Council	-	-	-	-	-
92300	Outside Services Employed	-	-	-	-	-
92400	Property Insurance	-	-	-	-	-
92500	Injuries & Damage-Insurance	-	-	-	-	-
92520	Injuries & Damage-Wc	-	-	-	-	-
92530	Injuries & Damage-Damage Se	-	-	-	-	-
92600	Empl Benefits-General	(51)	-	51	39	(13)
92610	Empl Benefits-Pension	-	-	-	-	-
92615	Employee Benefit - Defined Contribution	-	-	-	-	-
92620	Empl Benefits-Health Ins	-	-	-	-	-
92621	Empl Benefits-Life Ins	-	-	-	-	-
92622	Empl Benefits-Disability Ins	-	-	-	-	-
92630	Empl Benefits-Recreation	-	-	-	-	-
92640	Empl Benefits-Educat Assist	-	-	-	-	-
92695	Vacation Earned	-	-	-	-	-
92800	Reg Commission Exp-General	-	-	-	-	-
92820	State Board Of Accts Exp	-	-	-	-	-
93020	Misc General Exp	-	-	-	-	-
93021	Memberships And Dues	-	-	-	-	-
93100	Rents	-	-	-	-	-
93200	Maint Of Gen Pl-Structures	127,024	126,000	(1,024)	(768)	126,256
93210	Maint Of Gen Pl-Office Furn	-	-	-	-	-
93220	Maint Of Gen Pl-Misc	-	-	-	-	-
93230	Maint Of Gen Pl-Communicat	-	-	-	-	-
93235	Maint Of Gen Pl-Electrical	-	-	-	-	-
93240	Maint Of Gen Pl-Com Soft	-	-	-	-	-
93245	Maint Of Gen Pl-Com Hard	-	-	-	-	-
93300	Transportation Expenses	46,706	54,600	7,894	5,920	52,627
	Total Administrative and General	1,724,799	1,671,919	(52,880)	(39,660)	1,685,139
	Capitalized Labor	831,034	973,841	142,807	107,105	938,139
	Total Labor Expenses	**6,321,477**	**6,803,166**	**481,689**	**361,266**	**6,682,744**

RPL - Calculated Benefits Adder

		YE 9/30/19	Budget 2020	Ave % of Labor Exp	Adjustment	TY 2019
Emplyee Benefits						
92600	Empl Benefits-General	26,785	30,835	0.5%	3,287	30,072
92610	Empl Benefits-Pension	2,192,884	2,166,061	32.6%	(17,650)	2,175,233
92615	Employee Benefit - Defined Contribution Plan	79,585	111,000	1.5%	23,330	102,914
92620	Empl Benefits-Health Ins	1,403,026	1,566,000	22.8%	121,308	1,524,334
92621	Empl Benefits-Life Ins	11,468	12,000	0.2%	561	12,029
92622	Empl Benefits-Disability Ins	14,161	17,000	0.2%	1,878	16,039
92630	Empl Benefits-Recreation	-	-	0.0%	-	-
92640	Empl Benefits-Educat Assist	1,908	10,000	0.1%	6,111	8,019
92695	Vacation Earned	34,628	-	0.1%	(25,272)	9,356
Total Benefits		3,764,443	3,912,896		113,553	3,877,996
	Direct Labor	6,321,477	6,803,166		361,266	13,485,910
	Straight-Time Labor	5,992,285	6,473,973		342,453	12,808,712
	Overtime Labor	329,193	329,193		18,813	677,198
	Indirect Labor	3,764,443	3,912,896		113,553	3,877,996
	Total Straight-Time Labor Cost	9,756,728	10,386,869		456,006	16,686,708
	Straight-Time to Benefit Adder	1.628	1.604		1.332	1.303

RPL - Calculated A&G Adder

	Total	Labor & Benefits	Expenses
T&D Expenses			
Total O&M	10,031,745	6,535,967	3,495,778
A&G	5,730,330	3,209,380	2,520,950
T&D non-A&G O&M	**4,301,415**	**3,326,587**	**974,828**

T&D Expenses	Admin Cost
A&G	5,730,330
Less Labor & Benefits	3,209,380
Direct A&G Labor Cost	2,520,950
A&G Labor	1,143,685
Benefits Adder	1.30
A&G Labor w/ Benefits	1,489,950
Adjusted A&G	4,010,900
Direct O&M Labor	3,326,587
A&G Adjustment	1.21

RPL - Benchmarking Data on Neighboring Utilities' Non-Recurring Charges

Raw Data compilied from each utility's website

	Richmond	Frankfort	Crawfordsville	Tipton	Lebanon	Anderson	Peru	NIPSCO	Indiana Michigan Power	Indianapolis Power and Light
Dishonored Check Charge	20	25	25	25	15	40	25	20	20	20
Reconnect after disconnect or Non-Payment of Charges		See Frankfort table below						See NIPSCO Table	See Table below	
At Meter - regular hours	30		40	20	20	35	25			44
At pole - regular hours	50					75	50			70
At Meter - After Hours	70		140			75	50			64
At Meter - Sunday										63
At Meter - Holiday										118
At Pole - After Hours	70		140			150	100			
Connect Service	30					20		55		
Meter Test	35		40	40		30	15		65	
Service Call			200	n/a						
Labor	40					35, 75 after hours				
Material	As needed									
Vehicle										
Meter Tampering Charge	50			Job Cost Basis	20	150	As needed			
Material	As needed					As needed	As needed			
Vehicle							As needed			
Electric Usage	Estimate					Estimate	Estimate			
Trip Charge	15							40	38	See table below

RPL - Benchmarking Data on Neighboring Utilities' Non-Recurring Charges

Raw Data compiled from each utility's website

Frankfort		
Discontinuance of service for non-payment	Normal Hours	After Hours
Commercial	20	82
General Power	20	96
Primary	60	96
Discontinuance of service for non-payment requiring removal of service	45	96
Customer request seasonal disconnection		
Meter Only	32	
Transformer	60	

Crawfordsville	
Security Deposit	
Residential	50 to 2 months of anticipated usage
Business	100 to 2 months of anticipated usage
Temporary Service Charge	100

Lebanon		
Meter Deposits	25	residential and commercial
After hours	35	Sunday and Holidays
	25	Monday - Saturday

Anderson		
Meter Test		
Twice every 36 months	Free	
More than twice single phase	30	
More than twice three phase	30	
Application Fee		
Residential	5	
Commercial	5	
Industrial	5	
Service Deposit		
Medium Risk (gas heat)	100	
Medium Risk (all electric)	150	
EAP Discount (gas heat)	50	
EAP Discount (all electric)	75	

NIPSCO			
Reconnection	Normal Hours	After Hours	Sundays and Holidays
Meter	70	150	210
Pole	85	180	250
Pole with Easement	100	210	290
AMR Opt-Out Charge	15		

Indiana Michigan Power			
Reconnection	Normal Hours	After Hours	Sundays and Holidays
Meter	76	92	181
Pole	136	157	210
Service Box	441		
AMR Opt-Out Ch	15		

Indianapolis	
Trip Charge	
No Disconnect	17
Disconnect at Meter	22
Disconnect at Pole	69
Lights	
Control point Disconnect	22
Control point Reconnect	44