**VERIFIED REBUTTAL TESTIMONY**

**OF**

**BARRY J. FELDMAN**

**ON BEHALF OF**

**INDIANAPOLIS POWER & LIGHT COMPANY**

**IURC CAUSE NOS. 44576 / 44602**

**INCLUDING IPL WITNESS BJF ATTACHMENT 1-R**

**VERIFIED REBUTTAL TESTIMONY OF BARRY J. FELDMAN**
**ON BEHALF OF**
**INDIANAPOLIS POWER & LIGHT COMPANY**

**Q1. Please state your name, employer and business address.**

A1. My name is Barry J. Feldman. I am employed by Indianapolis Power & Light Company ("IPL" or "Company"), whose business address is One Monument Circle, Indianapolis, Indiana 46204.

**Q2. What is your position with IPL?**

A2. I am Director, Transmission and Distribution ("T&D") Asset Management.

**Q3. Please describe your duties as Director, T&D Asset Management.**

A3. I oversee the asset management and standards processes for the DP&L and IPL transmission and distribution systems.

**Q4. Please summarize your educational and professional qualifications.**

A4. I have a Bachelor of Science in Electrical Engineering from Purdue University and a Masters in Business Administration from the University of Indianapolis. I am a registered Professional Engineer in Indiana and Ohio.

**Q5. Please summarize your prior work experience.**

A5. I have held various co-op, engineering and supervision positions within the IPL transmission and distribution system since 1978. In 1982, I started full time at IPL as a Systems Protection and Control Engineer. Since late 1989, I have held various supervision positions including: Relay Division Construction and Maintenance; Substation Construction and Maintenance including Downtown Network and Street

Lighting Construction and Maintenance; Distribution Engineering and Lines Construction and Maintenance; Distribution Operations Office, Planning, and Vegetation Management; Work Management and Project Management; Asset Management, Contractors; Facilities, Fleet, and Standards. I also was on the team to implement IPL's work management system in 1999 and outage management system in 2002.

**Q6. Have you previously testified before the Indiana Utility Regulatory Commission ("Commission")?**

A6. Yes. I submitted testimony in Cause No. 41962 regarding the severe storms that struck IPL's service territory on July 8, 2001.

**Q7. What is the purpose of your rebuttal testimony in this proceeding?**

A7. My rebuttal testimony responds to the certain statements in the Report of Independent Consultant dated June 22, 2015 submitted by O'Neill Management Consulting, LLC ("2015 O'Neill Report"). I also respond to certain issues raised by OUCC Witnesses Smith and Golden as identified below.

**Q8. Are you sponsoring any Attachments in support of your testimony?**

A8. Yes, my testimony includes IPL Witness BJF Attachment 1-R (IPL's response to OUCC DR 59-1). In addition, together with IPL Witness Cummings I co-sponsor IPL Witness JWC Attachment 3-R (Downtown Underground Network ALCP)[1], IPL Witness JWC Attachment 4-R (Asset Management Strategy), and IPL Witness JWC Attachment 5-R (Monthly Asset Management KPI Report) which are more specifically identified below.

[1] A Public and confidential version of this attachment has been provided.

**Q9. Were these attachments prepared or assembled by you or under your direction or supervision?**

A9. Yes.

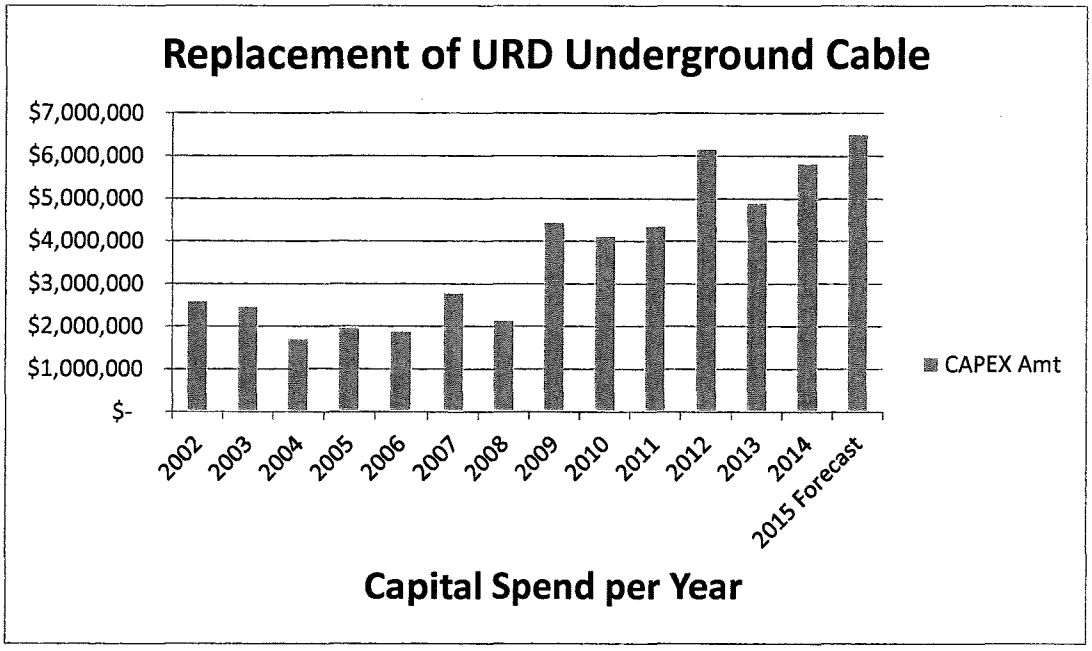
**Q10. Do you have any general comments regarding the O'Neill Report discussion of asset management at IPL?**

A10. I appreciate the numerous positive comments about IPL reflected in the O'Neill Report. I would clarify that while the Company has worked well with Mr. O'Neill, the Commission should not infer that the Company has not worked proactively to manage its facilities. The effort currently underway at the Company to meet and exceed the AES Global Asset Management Global Standards adopted in 2013 and the Company's earlier initiatives were undertaken in pursuit of better business practices, not as a direct response to the earlier O'Neill Report in 2011. IPL Witness Cummings further discusses the recommended Asset Management audit in his testimony.

A recent example of IPL's proactive endeavors is substation power transformer load tap changer (LTC) maintenance. IPL began taking dissolved gas analysis of the LTC in 2009. After the successful pilot, LTC maintenance changed from time-based to conditioned-based the beginning of 2011. This has significantly reduced the need for unnecessary maintenance by eliminating routine inspections and using predictive techniques that has resulted in an actual decrease in failures. In the last five years, IPL has had only one substation power transformer failure out of a total number of 359 transformers in service over that time, which is a yearly rate of 0.056%.

Another recent example is IPL's proactive management of the aging underground residential distribution (URD) cable system. In 2010, IPL had an increase in cable faults.

During this time, IPL conducted Weibull analysis to predict the failure rates of this cross-linked polyethylene cable (XLPE). Scenario studies predicted the number of faults may increase in future years. Based on this study, the capital budget for cable injection/rejuvenation and replacement was increased as illustrated by the following chart.




Finally, the 2015 O'Neill Report refers back to the various statements in the earlier 2011 Report with which I disagree. Because Mr. O'Neill recognizes that the Company has moved far beyond his earlier impressions, I will not revisit these statements in detail other than to say that I disagree with the suggestion that the Company had a "half-hearted commitment" to Asset Management. In particular, the software pilot conducted in 2010 was conducted to provide "proof of concept" and it provided valuable information regarding software products. From my perspective, the fact that the Company did not purchase the software piloted shows that the Company did not apply a half-hearted

approach but was instead working to ensure that it selected the appropriate software. The Commission should not infer from this discussion in the O'Neill Report (see page 32) that nothing happened as a result of this pilot. It was this pilot that lead to the purchase in late 2010 of the Ivara software. Thus, my view is that this pilot provided valuable information which the Company timely acted on to continue the development of the asset management system.

Similarly, some companies start and continue with a small asset management group that only provides suggestions and recommendations. See O'Neill Report, p. 31. While IPL's group was smaller in the past, over time the IPL asset management group has expanded and assumed greater responsibility to prioritize spending and issue standards to follow. My view is that this path helped smooth the transition to a more formalized process and has worked well for IPL.

**Q11. The 2015 O'Neill Report states (p. 30) that the asset and risk management process is a "moving target". Do you agree with this statement?**

A11. No. The use of the phrase "moving target" implies a haphazard approach and has a negative connotation. Asset and risk management processes are dynamic to align with business changes. The AES Asset Management Global Standards explicitly state that the development of the asset management strategy, objectives, and plan is an iterative process, and that it should be periodically reviewed and approved. That means asset management, by definition and necessity, is a moving, evolving process of data gathering and improvement. IPL continues to refine the asset and risk management process. Priorities and emphasis do change; however, this is to be expected as additional and newer information is gathered and new technologies and techniques are developed.

**Q12. The 2015 O'Neill Report (p. 30) refers to the Commission's "extensive questioning" and the Company's responses and adds that "the answers provided by IPL failed to satisfy the IURC's questions, and in fact, often raised more questions than they answered, as in the IURC's letter of October 4, 2012 and echoed elsewhere in the four-year timeline since 2011." Please respond.**

A12. Both the 2011 and 2015 O'Neill Reports characterize the Company as cooperative and acknowledge the Company's willingness to provide information, and assist in analysis. See O'Neill Report, p. 54. There are numerous papers, textbooks, and presentations, on the subject of design and operation of a power system. These documents are often dedicated to specific items such as cable properties, system protection and many others. Thus, I do not read this discussion to imply something negative about the Company. Instead, I read it as recognizing that the many processes of operating, inspecting, and maintaining a distribution system are complex and better understood through conversations than through a question and answer dialogue between the Commission and the Company.

**Q13. The 2015 O'Neill Report states (p. 31) in 2011 "We recommended implementation of a tablet-based data entry system that could provide intelligent business rule-based aids to data entry." What is the status of IPL's transition to digital data entry?**

A13. IPL has been moving from paper-type systems to electronic databases since the 1990's. Today, all IPL T&D field personnel groups have laptop computers to facilitate data collection. I would clarify that the Company was already moving forward with the tablet prior to the 2011 O'Neill Report. Mr. O'Neill's recommendation in the 2011 Report

addresses the fine-tuning of an initiative that was already underway. I point this out, not as a criticism of Mr. O'Neill, but in an effort to clarify certain statements in his Report.

**Q14. The 2015 O'Neill Report (p. 31) states that in 2011 "We helped IPL develop a form to capture failure information in such a way as to support a formal root cause analysis where warranted . . . ". Do you have any comment on this assessment?**

A14. I would clarify that IPL conducted failure analysis prior to the 2011 O'Neill Report. We acknowledge that over time, we have increased the formality and improved the documentation of this analyses process to facilitate review by the Commission and other third parties such as Mr. O'Neill. I would add that the Company used not only O'Neill's suggestions, but also incorporated information from other sources such as industry groups, consultants, six sigma and continuous improvement training, and software such as PROACT® to help better the methods and recording processes.

**Q15. The 2015 O'Neill Report (p. 32) states that in 2011 they "saw a predilection [at IPL] for piloting new technology". Do you agree with this assessment?**

A15. Yes. IPL has deployed technology to help improve customer reliability and facilitate gathering data to better understand real-time field conditions, make better-informed decisions and monitor trends efficiently.

**Q16. The 2015 O'Neill Report states (p. 31, 32) that "we still see a considerable opportunity for improvement in the application of asset management at IPL." Do you agree with this assessment?**

A16. Not to the extent it implies any failure by IPL to provide adequate and reliable service and facilities. I acknowledge that Asset Management will continue to evolve over time.

IPL is committed to adapting and enhancing processes to analyze and gather data as applications are introduced or upgraded. The following documents help support my position that we continue to improve the asset management processes and documentation.

- IPL Witness JWC Attachment 3-R Confidential (Downtown Underground Network ALCP). This is the latest version of the asset life cycle plan for the IPL downtown network.
- IPL Witness JWC Attachment 4-R (Asset Management Strategy). This attachment documents the current IPL T&D asset management strategy.
- IPL Witness JWC Attachment 5-R (Monthly Asset Management KPI Report). The Monthly Asset Management KPI Report assembles some of our key asset management performance indicators.

**Q17. The 2015 O'Neill Report states (p. 32) that "While the staffing of the asset management function has increased significantly, it still appears to us to depend heavily on the ad hoc information processing ability of the manager in charge of the function and a handful of employees, contractors and interns." Do you agree with this assessment?**

A17. Asset management practices and analysis are not limited to the asset management team alone. Subject matter experts from within many areas of the business and outside IPL continually improve the process of asset management. The subject matter experts are a key resource in decision making, information processing, recommended practices, and process implementation. Standard asset and work data are available through software applications.

For in depth data analysis, IPL typically accesses raw data directly with standard Structured Query Language ("SQL") queries. This allows detailed analysis of the data with many different techniques. These standard data queries are shared among users and readily available for appropriate employees to use. Additionally, the source code and SQL queries are available for others to use through the asset management web site server as well.

**Q18. The 2015 O'Neill Report states (p. 32) that "The implementation of the Ivara software has clearly advanced significantly, and the development of an internal asset management website has made the data available to more personnel without their having to become trained users on the Ivara system. Still, that user access to the data is limited to the specific programs or queries written to deliver data through the web portal". Please respond.**

A18. I disagree with the suggestion that there is an impediment. In addition to providing some predefined reports, the web portal also allows for many custom data queries, not only from Ivara but from a variety of systems and databases. The web portal was not developed to serve as the sole user-interface for any or all of the systems that it queries, but rather as a simple interface to multiple systems from a single point. In this capacity, the web portal has served its intended purpose very well. Data that is now available from the web portal with a few clicks would have previously required multiple software installations, user accounts, passwords, and administrator support, as well as a certain level of expertise in each program.

As with any database system, more information can be extracted from Ivara or other systems by experienced users, as more complex data queries can be performed by

employees that are more familiar with the program. That said, the web portal improves overall efficiency by allowing a user to search for information readily without logging into the many different computer systems.

**Q19. The 2015 O'Neill Report suggests (p. 32) that additional integration of disparate systems may be needed. Do you agree with this assessment?**

A19. IPL has significant integration among systems today. While integration may be increased, the benefit of more complicated integration needs to be weighed against the cost. IPL assesses potential integration improvements regularly or as new systems are considered.

**Q20. The 2015 O'Neill Report (p. 33) indicates that IPL does not have "a systematic failure database" that would serve as a basis for Asset Management. Please respond.**

A20. The statement refers to the development of a "systematic" database and thus should not be interpreted to say that IPL does not manage this data. A distribution equipment failure database has existed since 2001. IPL also tracks minor and mass asset failures. Substation failures are tracked in the work management system. An Intranet site has been created to store all T&D root cause analyses.

**Q21. The O'Neill Report (p. 38) states "For both the network transformers and the network protectors, we would expect to see, as part of the asset management process, a document that lays out the replacement strategy based on conditions, cost and risk." The Report adds that while the plans are under development, the draft provided to O'Neill is "obviously incomplete". Please respond.**

A21. The latest Downtown Network Asset Lifecycle Plan ("ALCP") version was published on August 31, 2015. One of the previous versions was completed in draft form on February 26, 2015. As of March 23, 2015, the document was still missing some figures and background information such as miles of conductor or web links to file locations. However, at the time of the draft, all pertinent information such as asset base, asset conditions, risks, performance, standards, inspection practices, etc. had been reviewed, and the ALCP recommendations had been developed. It is important to note that ALCP's are living documents that will continually be reviewed and updated.

With regard to Mr. O'Neill's comments about transformer replacement, IPL replaces network transformers and network protectors based on asset conditions. The condition of these assets is recorded during inspections every two years. The fact that there have been no network transformer failures in the last 30 years and only two network protector failures in the last 15 years reinforces the effectiveness of the existing program.

**Q22. The O'Neill Report suggests (p. 47) the Company should more fully utilize the SCADA capabilities in terms of translating the potential for asset management into systematic reporting and processes to act on the information provided." Do you have any comments?**

A22. Yes. All of the data from the Supervisory Control and Data Acquisition ("SCADA") system is stored in a PI Historian database. IPL has used this data for distribution loading studies to support operational activities such as the recent conversion of Sub 3 substation circuits to the Edison substation. Another example of a practical application of SCADA data, load data was used to determine the best times to replace 480 volt network protectors during light loading without requiring customer service interruptions.

This SCADA data is used today by engineering, field personnel, asset management, and supervision via tools such as Microsoft Excel Ad-in, PI-Process Book, and is readily available through the asset management web site without any special software. Users with one or two clicks can see load values, errors, or abnormal conditions for all protectors. Additionally, an automated e-mail is sent every morning to management and field personnel identifying any SCADA value that is outside a normal range.

As noted above, when it comes to system integration, it is prudent to evaluate the cost/benefit of the integrations because the costs impact the price our customers pay for retail service. For example, the O'Neill Report (p. 46) recommended that IPL use the SCADA system to monitor transformer temperatures. The Company has not done so because of the "N-1" design redundancy in the Downtown Network, which means a failure of any one piece of equipment (e.g., cable section, transformer) will not result in a customer outage. IPL rarely has a transformer loaded more than 50%. When loading does go above 105%, the system sends an alarm to the Transmission Operations Control Center (TOCC) for closer monitoring. TOCC staff may dispatch a crew to inspect the equipment and complete corrective actions if system conditions warrant it. With no transformer failures in the last 30 years, we disagree that we should devote additional resources to monitor this equipment because doing so is not reasonably calculated to provide a material benefit.

IPL recognizes that additional opportunities for mining and automating some of the analysis from the CBD SCADA as stated in the 2015 O'Neill Report will likely create additional value in the future and will consider them.

**Q23. The 2015 O'Neill Report (at page 16) discusses planned and completed maintenance for the IPL Downtown Underground Network. Do you have any comments on this assessment?**

A23. IPL personnel review a tracking report monthly to compare the number of inspections completed against the schedule. The gaps in the 2015 O'Neill report were due to this report data being previously queried from the work management ("EMPAC") system. It has now been pointed to the Ivara system. Ivara is the system of record for inspection data. These progress reports are published on the same internal Asset Management web portal.

**Q24. In Section 4.1, Measures of system performance – Update, the 2015 O'Neill Report notes that their 2011 Report recommended that IPL measure and analyze their performance in terms of the failure rate of the network equipment and also the completion rate of scheduled maintenance". Do you have any comments?**

A24. IPL has formally tracked downtown network equipment failure rates since 2003. All scheduled maintenance is tracked and progress is reported in weekly work management meetings and monthly Key Performance Indicators ("KPI") reporting.

**Q25. Does IPL monitor those conditions that are likely to lead to more serious events, i.e. incipient faults, overloads, or stress-causing conditions and prioritize such conditions and then mitigate them as appropriate in a timely way? See 2015 O'Neill Report, p. 25.**

A25. Yes. With the use of the downtown network SCADA, abnormal conditions are monitored real time and recorded in the PI-Historian for historical analysis. As a result of the North Street Event root cause analysis, IPL began taking temperatures in selected

duct lines. Some high temperatures were noted and IPL is pro-actively removing these cables and performing post-in-service inspections to detect conditions such as premature aging.

**Q26. How do you respond to OUCC Witness Smith reference on page 7 and to OUCC Witness Golden statement on page 4 that IPL has identified a number of "gaps" in some of its asset management processes related to software programs?**

A26. IPL audits its downtown network data. While these audits identified a few isolated cases where data did not get captured as designed, the IPL audit process worked as designed and discovered and corrected these issues. Processes were put in place to ensure these data issues do not reoccur. As Witness Golden recognizes, there is always a risk of having glitches due to human or software errors. As explained above, IPL reasonably manages these risks by conducting audits.

**Q27. How do you respond to OUCC Witness Smith on page 7 and OUCC Witness Golden statement on page 3 that IPL does not evaluate, or include inspection or maintenance data for downtown network cables?**

A27. Witness Smith's statement is based on Witness Golden's statement; however her language expands on what he actually says. Furthermore, Witness Golden's position does not accurately reflect what was presented in the discovery responses. The discovery request asked IPL to identify each asset that has not been subjected to the "Asset Criticality matrix". The "Asset Criticality matrix" refers to individual asset importance and we use this to help determine appropriate manhole inspection cycles as explained in the Company's response to OUCC DR 59-1, included with my testimony as IPL Witness BJF Attachment 1-R.

There is little value in assigning underground cables an asset criticality rating in order to differentiate some cables as higher importance than other cables. While underground cable does not have a formal asset criticality rating, that does not mean cable condition is not assessed. As part of every manhole and vault inspection, IPL inspects and records primary and secondary downtown network cable. These indicator states are noted in the inspection reports and any abnormal values are flagged and stored in MobileFrame and Ivara software systems. Based on the inspection results, follow up work orders may be issued for corrective action.

**Q28. Does that conclude your prefiled verified rebuttal testimony?**

A28. Yes.

## VERIFICATION

I, Barry J. Feldman, Director, Transmission and Distribution Asset Management for Indianapolis Power & Light Company, affirm under penalties of perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief.

Barry J. Feldman

Dated: September 1, 2015

**STATE OF INDIANA**

**INDIANA UTILITY REGULATORY COMMISSION**

| | |
|---|---|
| **PETITION OF INDIANAPOLIS POWER & LIGHT COMPANY ("IPL") FOR AUTHORITY TO INCREASE RATES AND CHARGES FOR ELECTRIC UTILITY SERVICE AND FOR APPROVAL OF: (1) ACCOUNTING RELIEF, INCLUDING IMPLEMENTATION OF MAJOR STORM DAMAGE RESTORATION RESERVE ACCOUNT; (2) REVISED DEPRECIATION RATES; (3) THE INCLUSION IN BASIC RATES AND CHARGES OF THE COSTS OF CERTAIN PREVIOUSLY APPROVED QUALIFIED POLLUTION CONTROL PROPERTY; (4) IMPLEMENTATION OF NEW OR MODIFIED RATE ADJUSTMENT MECHANISMS TO TIMELY RECOGNIZE FOR RATEMAKING PURPOSES LOST REVENUES FROM DEMAND-SIDE MANAGEMENT PROGRAMS AND CHANGES IN (A) CAPACITY PURCHASE COSTS; (B) REGIONAL TRANSMISSION ORGANIZATION COSTS; AND (C) OFF SYSTEM SALES MARGINS; AND (5) NEW SCHEDULES OF RATES, RULES AND REGULATIONS FOR SERVICE.** | **CAUSE NO. 44576** |

**INDIANAPOLIS POWER & LIGHT COMPANY'S OBJECTIONS AND RESPONSES TO THE INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR FIFTY-NINTH SET OF DATA REQUESTS TO IPL**

Indianapolis Power & Light Company ("IPL"), pursuant to 170 IAC 1-1.1-16 and the discovery provisions of Rules 26 through 37 of the Indiana Rules of Trial Procedure, by its counsel, hereby submits the following Objections and Responses to the Indiana Office of Utility Consumer Counselor's Fifty-Ninth Set of Data Requests to IPL ("Requests").

**General Objections**

The responses provided to the Requests have been prepared pursuant to a reasonable and diligent investigation and search conducted in connection with the Requests in those areas where information is expected to be found. To the extent the Requests purport to require more than a

reasonable and diligent investigation and search, Petitioner objects on grounds that they include an undue burden and unreasonable expense.

Petitioner objects to the Requests to the extent they seek documents or information which are not relevant to the subject matter of this proceeding and which are not reasonably calculated to lead to the discovery of admissible evidence.

Petitioner objects to the Requests to the extent they seek responses and information from individuals and entities who are not parties to this proceeding and to the extent they request the production of information and documents not presently in IPL's possession, custody or control.

Petitioner objects to the Requests to the extent the Requests seek information outside the scope of this proceeding, and as such, the Requests seek information not reasonably calculated to lead to the discovery of relevant or admissible evidence.

Petitioner objects to the Requests to the extent they seek an analysis, calculation, or compilation which has not already been performed and which Petitioner objects to performing.

Petitioner objects to the Requests to the extent they are vague and ambiguous and provide no basis from which Petitioner can determine what information is sought.

Petitioner assumes no obligation to supplement these responses except to the extent required by Ind. Tr. R. 26(E) (1) and (2) and objects to the extent the instructions and/or requests purport to impose any greater obligation.

Petitioner objects to the Requests to the extent they seek information that is subject to the attorney-client, work product, settlement negotiation or other applicable privileges.

Petitioner objects to the Requests to the extent they seek information that is confidential, proprietary, competitively sensitive and/or trade secret.

The responses constitute the corporate responses of Petitioner and contain information gathered from a variety of sources. Petitioner objects to the Requests to the extent they request identification of and personal information about all persons who participated in responding to each data request on the grounds that they are overbroad and unreasonably burdensome given the nature and scope of the requests and the many people who may be consulted about them.

Petitioner objects to the Requests to the extent the discovery sought is unreasonably cumulative or duplicative, or is obtainable from some other source that is more convenient, less burdensome, or less expensive.

Petitioner objects to the Requests to the extent the burden or expense of the proposed discovery outweighs its likely benefit, taking into account the needs of the case, the amount in controversy, the parties' resources, the importance of the issues at stake in litigation, and the importance of the proposed discovery in resolving the issues.

Petitioner objects to the Requests to the extent they solicit copies of voluminous documents.

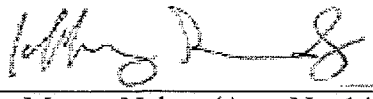
Petitioner objects to the Requests to the extent they request identification of witnesses who will be prepared to testify concerning the matters contained in each response on the grounds that the Petitioner is under no obligation to call witnesses to respond to questions about information provided in discovery.

IPL objects to the Requests to the extent they are overly broad and unduly burdensome, particularly to the extent they seek detailed information for IPL's entire transmission and distribution ("T&D") system. IPL's T&D system covers 528 square miles and includes approximately 480,000 retail customers. The vast majority of the T&D system is irrelevant to the operation and maintenance of the downtown network.

Subject to and without waiver of the general and specific objections set forth herein, Petitioner responds to the Requests in the manner set forth below.

Dated this 27th day of April, 2015.

As to objections,



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**Data Request** OUCC DR 59 - 01

Please identify and explain IPL's "Asset Criticality matrix."

**Objection:**

**Response:**

The "Asset Criticality matrix," as referred to in IPL's responses to IURC Docket Entry dated March 24, 2015, identifies manhole elements that may help determine appropriate inspection cycles in future years. They are a combination of manhole elements that indicate importance and items that may increase the likelihood of manhole incidents. This matrix consists of the following elements:

- MH - Criticality History of Steam – Indicates whether the manhole has had a history of high temperatures as a result of steam.
- MH - Criticality Vented Cover - Manhole has a vented cover instead of a solid cover. Vented covers are usually used for manholes that were hotter than normal at one time in history.
- MH - Criticality Primary Circuits (3 or more) – More than three primary (13.2kv) circuits are routed through the manhole.
- MH - Criticality Secondary Circuits (3 or more) - More than three secondary (120/208 v) circuits are routed through the manhole.
- MH - Criticality Secondary 500MCM – The secondary cable in this manhole is 500 MCM which is the largest size secondary cable IPL uses in the downtown network.
- MH - Criticality Previous Fault – A previous fault has occurred in this manhole.
- MH - Criticality High Traffic Area – This manhole was deemed to be in a high traffic area.