



**Independence Power & Light**

**Independence Power & Light Strategic Plan**

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**Prepared for:**

**City of Independence, Missouri**

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## Executive Summary

Independence Power & Light (IPL) is a municipally owned electric utility that has served the City of Independence (COI) well, since 1901. There are more than 60,000 customers within the city limits, making IPL one of Missouri's top three largest municipal electric utilities in terms of the number of customers and revenues.

DKMT was retained to develop a Strategic Plan for IPL that focuses on meeting the needs and desires of the Independence community. This plan was created independently from a parallel cost-benefit analysis.

As previously mentioned in our 2020 report to the City Council, significant changes have occurred at IPL in the last seven years. It has had five utility directors, implemented a new billing system, permanently shut down its Blue Valley generating plant, downsized the organization, and operated remotely during a pandemic.

Our impression of IPL is that it lags other electric utilities in implementing modern technology that improves customer service and promotes better outage response. The most significant issue raised in nearly every interview was IPL's governance and the challenges introduced by the existing governance model. IPL provides excellent reliability and compares favorably with its peers in all areas except the cost of generation.

To be the best utility it can be, the vision for IPL expressed by the community includes:

- A governing body of well-educated professionals who are responsive to the needs of the community and the utility.
- Business decisions are based both on quality data and qualitative experience.
- Employees that want to work for IPL and have the skillsets that support the strategic priorities, which includes a succession plan to avoid loss of valuable system knowledge.
- A well-informed public that understands and supports the decisions that the utility makes.
- A plan for rates that are equal to or lower than neighboring utilities.
- Modern technology to support communication, increase efficiency, and expand customer-enabling services to manage electricity usage.
- Economic development programs that support commercial and industrial business growth
- The ability to retire generation in a cost-effective way.
- Continue to have the best level of service reliability in their class of municipal utilities.
- IPL is operated in a business-like manner for the benefit of the community.

The Strategic Planning team of DKMT, conducted a high level strategic planning retreat with IPL leadership and held meetings with City management, five council members (3 in one meeting, 2 in another), and six members of the PUAB (3 in each meeting) to identify the top priorities for

the future of IPL. Additional interviews with key community members representing community activists, economic development interests, large commercial customers, the International Brotherhood of Electrical Workers (“IBEW”), and the Independence School District provided input as to what was working and what was not working, as well as what would they like to see from IPL in the future (see Appendix A for a list of interviews). These interviews created the basis and set the priorities for the strategic areas presented in this plan. A summary of the sessions is listed in Appendix B.

The team then collected financial and operational data to determine a baseline from which to build a plan for the future. Key factors influencing IPL’s direction are: 1) finances, which include rates, 2) the number of customers and rate of economic growth, 3) power supply options; and 4) operations – most importantly -the reliability of the transmission and distribution system.

Any plan will have financial and rate implications; the strategies discussed in this report were modeled to determine what financial resources are needed to implement suggested options while minimizing overall rates. We were asked to study three future power supply scenarios – one where IPL owned and operated all their resources (capacity and energy), a second where IPL purchased all their resources from the market or through power supply contracts, and the third is a hybrid model similar to what is in place today.

The Strategic Plan is composed of five main areas where long term strategies could create the most value for the utility and the community. They are:

1. **Governance** –Presents options for a structure that facilitates sound decision making and utility centric oversight. This is addressed in a separate whitepaper.
2. **Financial Strategy** -Describes processes to support developing a strong financial base that informs and drives decisions, provides tools for cost management and planning, is transparent, funds innovation and supports cost based rates and rate design for economic development.
3. **Customer Strategy** – Addresses the need for energy programs that meet the unique needs of Independence, supports customer control over use and cost of electricity, technology to enhance doing business with IPL, improvements in customer service, and communication strategies to inform and engage the community.
4. **Power Supply Strategic Scenarios** – Presents three scenarios for future power resources and recommendations for a formal long term generation plan that takes into account costs and risks, along with a timeline for decision makers to act.
5. **Operations Strategy** - Ensures the continued level of reliability customers have grown to expect, while incorporating modern technologies to enhance efficiency, operations, and the customer experience .

DKMT modeled the impact of funding strategic options. These included required capital investments to remain highly reliable, technology to improve operations and service while providing efficiencies, and needed staffing expertise. Power supply options were not included due to the uncertainty of the type of resource, timing, and cost. However, because power supply is the largest and most expensive portion of IPL's rates, new supply can only help to lower those costs. The model results show modest increases in rates beginning in 2028 and escalating in outer years based on investments in critical infrastructure. The details are presented at the end of this report and in Appendix D.

While the strategic plan offers options that require investments, it is essential to note that the issues impacting IPL impact the entire electric industry. For example, the increasing scarcity of capacity in the Southwest Power Pool (SPP) affects all electric utilities and will drive the cost of electricity higher throughout SPP. Investments in technology to make the grid more resilient and accommodate the electrification of the economy are also driving the cost of electricity higher throughout the country. An example of this is Evergy Missouri West's pending rate case asking for a 17% rate increase to cover infrastructure investments and power plant purchases. This will add an average of \$17 to their customers' bills. In California, PGE rates increased 17% last year and may increase an additional 7% this year. Our team believes that in the near term, rates IOUs charge for electricity will surpass IPL's current rates. The City of Independence has the opportunity to make investments now, as outlined in this plan, that will make its rates more competitive in the long term and promote economic growth in the city.

Ultimately, the success of IPL's future depends on good governance directly supporting good decision-making, a strong financial position, the ability to recruit and retain employees, a data-driven executable power supply plan, and the implementation of Automated Metering Infrastructure (AMI). In every area of this report, technology is the tool for enabling IPL to move forward to be the best it can be and provide comparable service to its peers.

# What's Working Today and Needs to Continue

## Reliability

Reliability is IPL's greatest operating strength which has resulted in positive community support, *as well as national recognition.*

Electric reliability, as discussed in this report, refers to the ability of the distribution system to consistently deliver electricity to consumers within accepted standards. Our discussion here is limited to operational reliability which helps to ensure that electric utilities are able to "keep the lights on".

### ***IPL customer perception of reliability***

Customer perception of the reliability of electric services was measured internally by the City of Independence through the 2023 City of Independence Resident Survey: Findings Report<sup>12</sup> 82% of residents responded that they were Satisfied or Very Satisfied with "Overall reliability of electrical service."

DKMT also asked all customers interviewed during this project about their perception of electric reliability performance. Their common response was "reliability is good" with one customer stating that "IPL reliability is the best I have ever had."

### ***National awards for reliability***

IPL has received, in 2023, two national awards for reliability from the American Public Power Association (APPA), Reliable Public Power Provider (RP3) designation and the Certificate for Excellence in Reliability (see Appendix C for more details).

***Reliability is a significant attribute. IPL should continue operating the system at this level of performance.*** This report addresses the long term options and actions needed for continued reliability, which in turn is critical for economic development.

## Customer Services

*The level of collaboration and communication with new development is exceptional.*

A large commercial developer commented that the level of cooperation and flexibility shown by IPL crews was better than 95% of their power providers.

*IPL offers a variety of methods for customers to pay their bills* which include remote check deposit, credit card, standard mail, and paying online through the website. Many of these

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<sup>1</sup> 2023 City of Independence Resident Survey: Findings Report

options are fairly new and driven by staff who are working to meet customer needs and facilitate timely payment. The options that IPL offers for bill payment are typically offered by most electric utilities, however, IPL does not currently offer the availability of an app to facilitate mobile payments.

*A significant percentage of IPL residential customers are economically challenged.* In partnership with CSI Cares, IPL funds \$60,000 a year in one time assistance for low-income households' utility bills (I-Share program) and \$230,000 in assistance to help pay 50% of elderly customers' bills (IRAP program) who need assistance. Both of these programs are fully utilized and continue to be of service to the City of Independence customers. In addition, IPL funds \$50,000 a year to Truman Habitat for weatherization assistance. Customer Service is a key strategy where additional opportunities for IPL to better serve its customers and community will be presented.

## **Employees**

*The employees and leadership of IPL are dedicated and take great pride in the work they do for the community.*

IPL is a valuable resource to the City and the risk of losing employees and institutional knowledge is significant. Suggestions and strategies for staff retention and development are presented in the Operations Strategy section.

## **What Needs Improvement**

Decisions that significantly impact IPL are not always based on data, and data is not routinely updated to support decisions. For example, prior decisions to lower IPL rates were made without relying on an analysis of the cost of providing electric service. As a result, rates were lowered and subsequently had to be raised to avoid long-term revenue shortfalls. Another example is that during this engagement, our team learned that IPL's revenue requirement model is not routinely updated on an annual basis.

The lack of a strategic plan for IPL forces City Council members to address each request for investment by IPL on an ad hoc basis.

IPL's finances are very opaque and controlled by the City. It takes a great deal of effort to reconcile conflicting sources of information to understand IPL's financial position.

The current interpretation of the City Charter does not allow IPL to make investments that support economic growth.



A more detailed discussion of governance is in a stand-alone white paper accompanying this report.

## Financial Strategy

### Background

#### Financial

IPL is a department of the City of Independence and is considered an enterprise fund. IPL generates revenues, pays its own expenses, pays the City for services that it uses in its operations, such as accounting, finance, and human resources, and makes a payment to the general fund of approximately 10% of gross revenues. This general fund payment is called a Payment in Lieu of Taxes (PILOT). A PILOT is not unusual for municipally owned utilities and typically ranges from 3% - 14%, depending on the utility charter and governance.

Routine capital investments in the system are funded from current revenues, which amount to between \$5 million and \$9 million annually per City finance. Large investments in generation have relied on the sale of bonds to fund their construction. See Appendix I for a listing of project budgets and spending from 2019-2023. The reports, prepared by City finance, show an original budget for capital projects, amendments, which are significantly larger than the original budget, and appear to include prior year projects roll-forward budgets plus additional projects identified but not in the original budget, encumbrances, actuals, and available budget at year end. The year end available budget is significant and seems to be a combination of multiyear project carryovers and projects that were not started or underspent for the current year.

A common message throughout this strategic plan is that IPL and the City must recognize the difference between an expense and funding an investment that will increase long term revenue. With an investment IPL may postpone short term revenues in order to increase the long-term revenue stream. This applies to everything from economic development rates that can attract business and jobs to Independence to investments in technology, such as AMI, which are discussed in more detail in the body of the report.

IPL's bonded debt is in two forms, City of Independence issued debt which is secured by IPL revenues or imbedded in the long-term purchase power agreements (PPAs) with Omaha Public Power District (OPPD) for power from Nebraska City 2 (NC2) and Missouri Electric Commission (MEC) for IATAN 2. The capacity payments IPL makes for their share of the output of the NC2 and IATAN 2 coal plants includes IPL's share of the debt to build the plants and are treated as long term fixed obligations for this analysis. The O&M and fuel costs of these plants, which vary with output, are also ongoing obligations for IPL and treated as O&M in our analysis. The last bond issued to fund infrastructure was in 2016, with a 2022 bond issue being a refunding/refinancing of the Dogwood plant. For the purposes of this report, DKMT has not

included any future decommissioning liabilities for these plants, as they are not known but should be incorporated into future financial plans.

The computation of debt service coverage (DSC) is one measure of a municipal utility's financial health. Based on DKMT's calculation, which included IPL's bonded debt and long term fixed obligations of the PPAs, IPL has a healthy DSC that exceeds IPL's target of 1.2 or better in the near term and exceeds the 1.10 required by their Bond Financing Agreement Covenants<sup>3</sup>. See Appendix D for a more in depth discussion of the calculation of DSC in the financial model.

A strong DSC provides the opportunity for additional debt funding of future improvements and reduces the reliance on revenue funded capital additions. A strong DSC will also allow future strategic investments with more manageable and smarter rate increase strategies. Finally, with a strong DSC, IPL can finance future capital improvements, spreading the cost and benefit of assets to the customers who use them, reducing future, inter-generational cost inequities. DKMT created a financial model that captures the current state of IPL's finances and models changes in the finances based on various strategies being implemented. The details of the model can be found in Appendix D.

The financial model is the basis for estimating the timing and amount of projected rate adjustments. Changes in the cost inputs either raise rates or lower them, depending on the magnitude of the cost.

Historically, decisions on rate adjustments have not relied on accurate or up-to-date financial data and analysis. This has resulted in financial shortfalls and excesses, as well as uncertainty for the utility and financial markets.

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<sup>3</sup> Missouri Development Finance Board Infrastructure Facilities Refunding Revenue Bonds Series 2022

## Comparability of IPL's Rates

During the interview process, the DKMT team was repeatedly informed how important competitive and lower electric bills are to the community. Affordable electricity is a priority for a population that has a median family income of \$57,415 and 40% of residents live in rental housing<sup>4</sup>. Approximately 15%<sup>5</sup> of the population of Independence falls below the poverty level, which is \$30,000 for a family of four<sup>6</sup>. Per the June 30, 2023, Annual Comprehensive Financial Report, the average household income is expected to be \$71,436 with the estimated per capita income being \$31,714. While these are slight increases over previous numbers, Independence's community income statistics remain below overall Missouri averages.

In addition, businesses expressed concern that their electric rates were not comparable to utilities that serve surrounding areas, which impacted IPL's overall competitiveness and the City's ability to attract new business.<sup>7</sup>

## What the data says

IPL's overall average rate levels are higher than other regional public power utilities and those from Evergy and Liberty. Supporting this finding, DKMT performed a comparison of overall rate levels for IPL versus peer municipal utilities and Evergy using an average retail revenue per kWh approach. The average retail revenue per kWh is defined as the revenues for a specific class of customers divided by the total energy sales for that class of customer. The average revenue approach is commonly used in the industry and provides the most accurate method of comparing rates between utilities because:

- The approach captures all components of the customer's bill.
- All customers are implicitly captured in the analysis.
- The potential bias of typical bills is avoided because rates between different entities are compared, adjusting for differences in customer types.

The source of data for the average revenue analysis was the S&P Global Database. The S&P Global Database is recognized in the utility industry as an authoritative source of information compiled from multiple sources.

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<sup>4</sup> US Census Bureau 2022 data

<sup>5</sup> US Census Bureau 2022 data

<sup>6</sup> US Department of Health and Human Services 2024

<sup>7</sup> DKMT also reviewed the 2021 Rate Comparison Study by Finley and found it consistent with our findings

Figure 1 below compares the average revenue per kWh for IPL and the comparable municipal and Evergy utilities in Missouri.

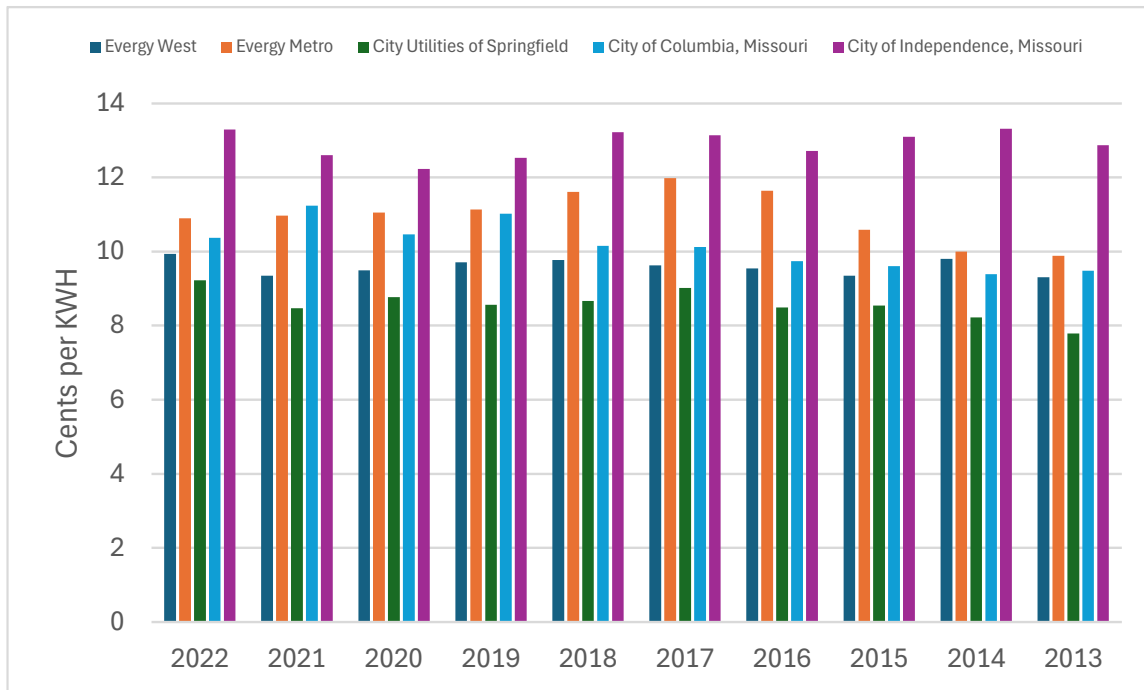


Figure 1 Total Retail Average Revenue per kWh

IPL has a higher average revenue than Springfield or Columbia for all classes. A higher average revenue is an indicator of higher costs which are driving higher rates. The higher costs have existed for the entire time period of the analysis suggesting that it is not a transitory situation triggered by recent or one-time events.

Additional rate comparison detail graphics showing municipal utility ranking by size in Missouri and the breakdown of comparability by rate class can be found in Appendix E.

A benchmarking analysis of IPL’s cost structure versus the other municipal utilities suggests that the higher costs are primarily attributable to the generation portion of total O&M expenses as shown in Figure 2.

When direct operation costs are compared across these same utilities, IPL has lower costs per kilowatt-hour (kWh) in several categories. The notable exception is generation costs.

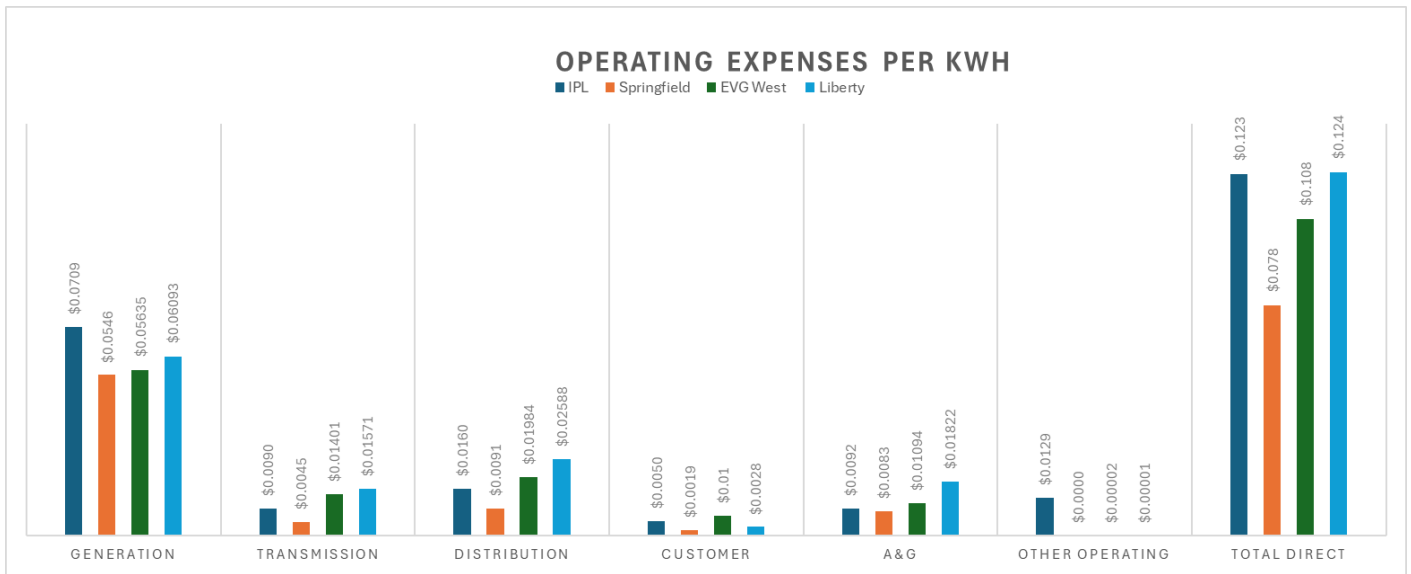
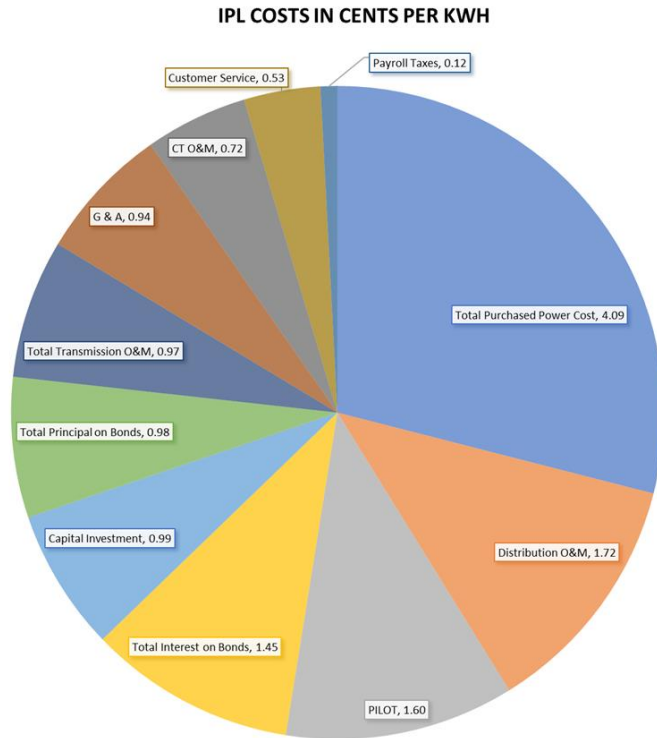


Figure 2 Operating Expenses per kWh

The pie chart and the table below show the relative contribution of each cost category that makes up IPL’s electric rates.



The table shown below breaks out the relative cost of each major expense category IPL ratepayers pay for one kilowatt-hour (kWh) of electricity:

<b>Category<sup>8</sup></b>	<b>Cents</b>	<b>Percentage of Total</b>
Total Purchased Power Cost <sup>9</sup>	4.09	28.986%
Distribution O&M	1.72	12.186%
PILOT	1.60	11.359%
Total Interest on Bonds	1.45	10.257%
Capital Investment	0.99	7.013%
Total Principal on Bonds	0.98	6.951%
Total Transmission O&M	0.97	6.878%
G & A	0.94	6.673%
CT O&M	0.72	5.082%
Customer Service	0.53	3.785%
Payroll Taxes	0.12	0.829%
<b>Total</b>	<b>14.1</b>	<b>100.000%</b>

<sup>8</sup> 2023 AFCR cash-based accounts

<sup>9</sup> DKMT shifted interest and principal to respective categories.

Because purchase power costs make up the most significant portion of IPL’s cost, these costs exceeding the comparable utility power costs account for IPL’s higher rates.

## Economic Development

IPL and the City of Independence have expressed interest in using IPL as a vehicle to stimulate economic development in the service area. The development of utility programs to stimulate economic development is not uncommon for electric utilities and has existed for approximately 40 years in various jurisdictions.

The Independence City Charter states

“The electric utility shall not be operated for the benefit of other municipal functions and shall not be used directly or indirectly as a general revenue producing agency for the city, but it may pay to the city an amount in lieu of such taxes as are normally placed upon private business enterprises. After providing for depreciation accruals and amortization of bonds, and for reasonable accumulation of surplus, the electric utility shall apply all annual profits to rate reductions.”

This has been construed to limit IPL’s ability to support economic growth, however improved reliability and innovative rate design and fees do not appear to be in conflict with the charter.

### *IPL’s Economic Development Rider*

IPL offers an economic development rider<sup>10</sup> available to customers who otherwise qualify under the Large Power Service Tariff<sup>11</sup>. Large Power Service is restricted to customers of at least 200KW and receiving service at 13.2KV or higher. The rider further restricts service to “industrial” load which does not appear to be a defined term in IPL’s tariffs. Industrial customers are defined as “any business that is primarily engaged in the manufacturing or processing of a product for sale or resale or any other similar industrial related activities as may be determined by the Department from time to time.” The tariff further restricts load or load additions served by this rider to that which has at least a 50% load factor. The load factor is the average electricity consumption (kWh) divided by the maximum possible usage (KW). The load factor essentially tells how consistently a business or facility uses electricity.

The discount that is given to customers under this rider is established on an annual basis, which declines each subsequent year. Two sets of discounts are provided based upon a new load or load added at an existing location.

SCHEDULE A*	SCHEDULE B**
1st Contract Year 35%	1st Contract Year 14%
2nd Contract Year 30%	2nd Contract Year 12%
3rd Contract Year 25%	3rd Contract Year 10%

<sup>10</sup> [www.independencemo.gov/sites/default/files/2023-11/EDR%20November%202023.pdf](http://www.independencemo.gov/sites/default/files/2023-11/EDR%20November%202023.pdf)

<sup>11</sup> [www.independencemo.gov/sites/default/files/2023-11/MG4%20November%202023.pdf](http://www.independencemo.gov/sites/default/files/2023-11/MG4%20November%202023.pdf)

4th Contract Year 20%	4th Contract Year 8%
5th Contract Year 10%	5th Contract Year 4%
6th Contract Year and After 0%	6th Contract Year and After 0%

### *Analysis of the Economic Development Rider*

The economic development rider provides a mechanism for IPL to promote the City and attract new load. However, the following challenges exist with the current mechanism supporting an IPL economic development strategy:

- Figures 3 and 4 below illustrate that the existing economic development tariff provides, at best, temporary discounts compared to other electricity providers in the region.
- Inasmuch as the declining percentage discount is a common feature of economic development tariffs, IPL must recognize that their existing rates are higher than many local utilities. Figures 3 and 4 compare the discounted IPL rates to other local utilities.
- IPL has a history of shifting the allocation of the revenue requirement from residential to larger customers, making IPL unattractive to new larger loads.
- The economic development rider does not address job creation or contribution to local property taxes, the two primary goals of economic development.
- The economic development rider is restricted to manufacturing. However, much of the new load, which will be located in the Kansas City area, is not manufacturing. Much of the new load would contribute to job creation and expanding the tax base but are currently precluded from receiving a discount.
- Lastly, manufacturing does not ensure job creation. Two examples: 1) Air-separation plants are considered manufacturing but do not create any significant employment, and 2) Adding significant load to support robotic manufacturing may reduce overall plant employment.



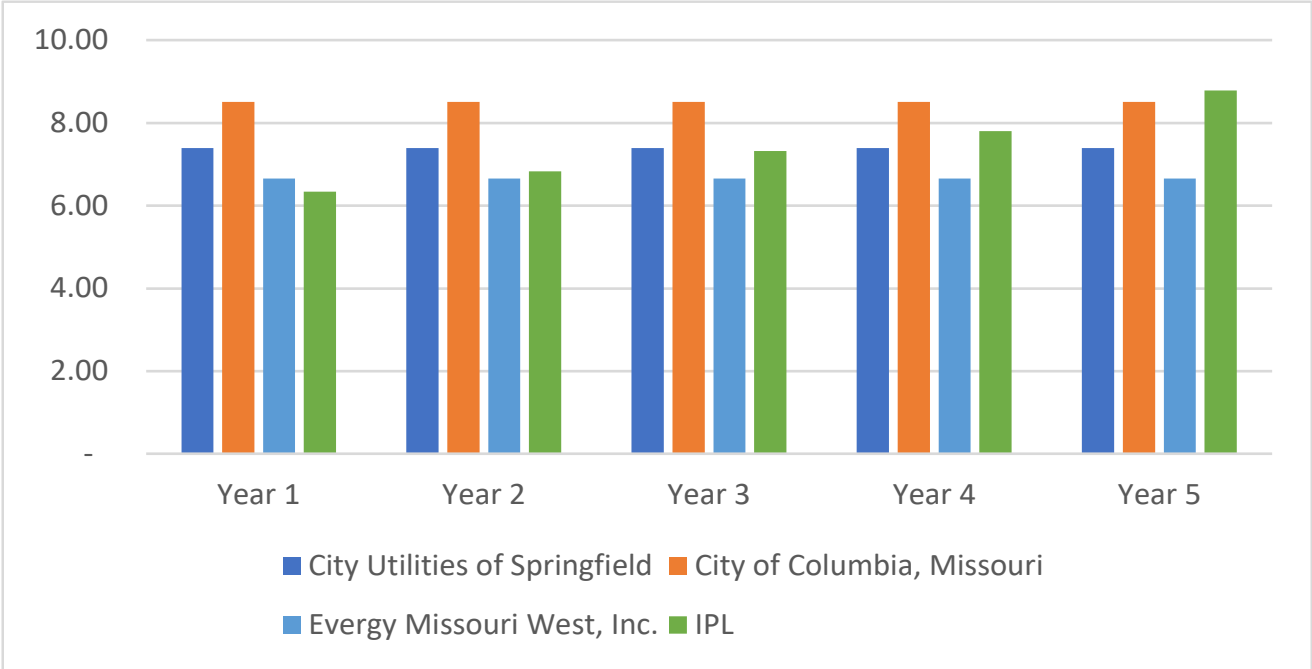


Figure 3 – Schedule A Economic Development Rate Discounts

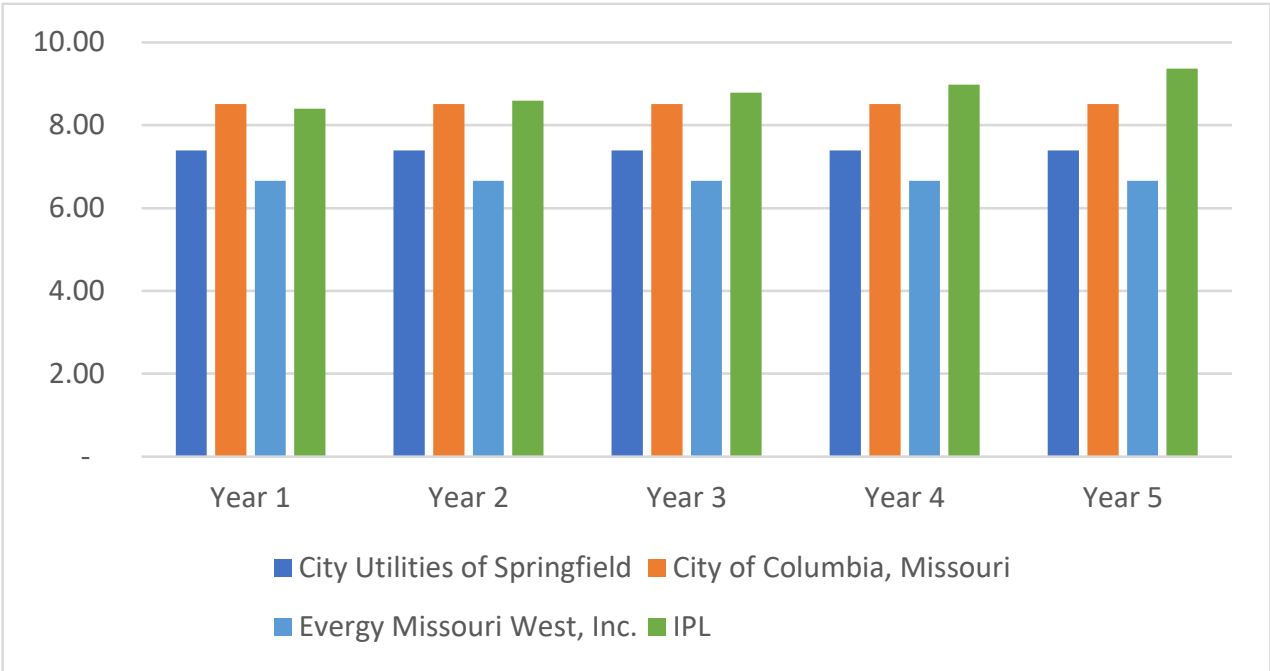


Figure 4 – Schedule B Economic Development Rate Discounts

## Strategies

Based on the interviews and data analysis, the following are the suggested financial priorities for IPL:

1. Competitive rates, simple, transparent, and adjusted on a regular basis.
2. Financially sound with adequate reserves, ability to fund priorities and maintain infrastructure.
3. Leverage the utility (reliability and rates) as an Economic Development tool.
4. Pursue funding opportunities such as grants and federal Inflation Reduction Act of 2022 (IRA) money.

## Foundational Strategies

In order to achieve these priorities, IPL and the City should start with the basics.

### ***Know and understand your cost of doing business***

IPL and the City prepare annual detailed budgets which should be programmatically driven to achieve current and long-term goals. Each manager should know and understand their budget and what drives the costs of programs so that they can respond accordingly.

Today, financial forecasts are based on data that is over two years old and reflects needed rate increases for 2024. When managers were interviewed, those that relied on city services and tools did not know their department's budget or receive quality and timely reports. This has led to frustration and the inability to identify or trend data to maximize their functional area performance.

DKMT's financial model, with updated costs, and maintaining the status quo, shows the timing of future rate adjustments which are in the range of 2% to 7% beginning in 2028. Detailed cost and rate studies would provide more precise forecasts. Further, obtaining grant funding for large projects, debt funding capital, the timing of major capital investments, the implementation of technologies and efficiencies, and growing the customer base will affect the size and timing of future rate increases. For more details refer to the financial model in Appendix D.

To facilitate strong financial management and ensure transparency the following practices are foundational to create a base for decisions and building a strong future for IPL:

1. Complete and accurate financial data should be collected and timely reported (for example, by the "N<sup>th</sup>" day following the closing of books, all managers should receive their monthly budget and actual financial reports to evaluate variances and needed actions).

2. Monthly or quarterly reports should be provided which compare and evaluate actual performance against budgets and forecasts.
3. Financial forecasts should be updated at least annually to reflect the current financial state of IPL and to provide management with the data necessary to make quality decisions on future funding needs.
4. Financial forecasts, along with demographic and load forecasts, are necessary to determine the timing and amount of future rate changes.
5. Decisions should consider the level of reserve funds required to meet financial policy targets, the ability to cover costs, debt service coverage adequacy, bond ratings, and funding required to implement key initiatives.
6. Streamlining administrative processes which drive costs by requiring additional resource time or work steps (for example, procurement).
7. Performance metrics which inform utility and city management, PUAB, and City Council how IPL is performing against clear functional goals would facilitate early identification of risks and opportunities. Performance measures that are publicly shared support transparency and begin to rebuild public trust in the utility.

***Once costs are understood, they can be managed and facilitate strategic decisions***

Costs to operate the utility, referred to as “cost of service,” are driven by the number of customers, type, and how and when they consume electricity. For example, if every customer (residential, commercial, and industrial) turned on their air conditioner full blast at the same time, the need for additional power would drive up the cost of serving those customers. Every customer plays a role in driving the cost of energy resources on that day. If, under this same scenario, industrial customers had an incentive not to turn on their air conditioner when every other customer class did, they would not be contributing to higher power costs. As a result, they could receive a different cost allocation or even a credit to reward them for helping reduce overall power demand and expense. Not only knowing the costs of serving electric customers, but what is driving those costs, will support the development of fair, competitive and equitable rates.

Once factors like cost and determinants, such as what customers are using power when, are known, IPL has the basis for creating rates tailored to each customer class. Some foundational rate design options are listed below.

Evaluate rate structures and ability to fund investments while maintaining affordability:

1. Simplify rate design – continue work on modernization of rates.
2. Update IPL cost of service studies annually.
3. Identify cost drivers and move revenue allocation closer to cost of service.
4. Customer choice – add rate design options which provide customers with additional choices based on how they use and want to manage their electric use and cost.

5. Low income – a component of IPL’s residential customer class is economically vulnerable. Investigate the feasibility of developing low Income rate options which provide discounts to low-income customers who are able to manage their use.

### **Implement changes supported by good data analytics**

#### *Cost Studies and Rate Design*

IPL’s rate design was analyzed based on the results of the previous rates study in 2018, the updated financial forecast in 2022 and discussions with IPL staff. The rate design in place at the time of this study was antiquated and, in the opinion of DKMT Consulting, difficult to understand. The rates sent questionable price signals to customers. However, since 2022 the rate design has been updated and significantly improved. The IPL staff should be commended for the improvement in the tariff/rate designs.

The cost allocation between classes does not appear to have been addressed. Interviews with IPL and the City staff have indicated that past Councils have directed them to shift rate increases away from residential customers to commercial and industrial customers. As a result of the cost shifting, IPL’s commercial and industrial tariffs are uncompetitive compared to peer utilities (See Appendix E Rate Comparison Details).

IPL staff last updated the financial model used to determine IPL’s revenue requirement in 2022, which was an update of the prior model. That model predicted a need for rate increase in the years 2024 and beyond. Based on DKMT’s financial model, IPL should prepare a new cost of service study and determine what is the proper allocation of costs between customer classes and timing of increases. An immediate adjustment of the rates to the proper cost of service levels may not be practical. However, IPL should gradually move toward rates that cover the costs associated with each rate class and reduce any cross subsidy between rate classes.

As discussed above, IPL has significantly improved the rate design compared to that which was proposed in the (Burns and McDonald) BM study. However, additional changes in rate design and better cost information could provide IPL with the ability to reduce costs, capture new load, and increase customer satisfaction.

#### *Future Economic Development Tariff*

A strategically supportive economic development rider should consider the following elements and advantages<sup>12</sup>:

Elements:

1. The discounts should be predicated upon the creation of jobs or increases in tax revenues for the City of Independence.

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<sup>12</sup> The proposed economic development rider model is similar to a special contract between CoServe, a cooperative in Texas, and Nebraska Furniture Mart

2. Any economic development rider should be available to all business types that create jobs or contribute to tax revenues and not be limited to “industrial” customers.
3. Any increase in load should not increase IPL’s risk.
4. IPL participates in the SPP wholesale market which provides an opportunity to access an observable price:
  - A transmission/distribution charge which is similar to existing tariffs.
  - A generation component composed of the market price of energy, capacity, and ancillary services.
  - A margin for IPL.
5. The SPP market provides energy, on average, that is 40% renewable and is a resource for customers with stated “green” energy goals.

## Future Strategies

*The lack of AMI prevents IPL from offering more sophisticated rate designs. The following options can only be implemented after AMI is installed. In order to tailor rates to better meet customer’s needs, IPL needs data on how and when customers use their power, especially for commercial and industrial customers.*

After the implementation of AMI and other supporting technologies, IPL can take advantage of the option to implement rate designs currently offered by most utilities. Examples include:

### *Residential Rate Design*

- Residential Time of Use (TOU) and Real Time Pricing (RTP) rate designs. These rate designs send a price signal to customers to consume electricity when costs are lower. TOU rates provide an opportunity for IPL to capture loads such as electric space heating and electric vehicle charging for incentive pricing based off peak use. All Missouri IOUs are required to implement TOU elements in their standard residential rates.
- Electric Vehicle (EV) – EV rates typically provide a discount to customers to charge vehicles during low-cost periods, such as in the middle of the night.
- Electric Heat Pumps – IPL is located in an area where the adoption of electric heat pumps could improve the energy efficiency of homes. The area has a significant cooling load and a relatively low heating load. Further, recent technological changes enable new heat pumps to provide levels of efficiency at 300% of electric resistance heat technology. In order to make heat pumps attractive to customers, electricity prices to operate the system must move closer to natural gas prices. Another option to incentivize the use of heat pumps is to

offer rebates that are significant enough that all customers could participate and thus have an opportunity to lower their energy cost.

- Demand Response (DR) programs – Incentives in the form of rate discounts or rebates can be developed for customers that help defer the purchase of the next incremental unit of power, thus saving all customers money. Allowing the control of devices behind the meter such as programmable thermostats is one example of DR.

DKMT suggests that to support the widest variety of rate options, future cost of service analysis includes a Marginal Cost of Service Study and a Rating Period Study. A Marginal Cost of Service Study quantifies the costs of adding or subtracting a unit of service (e.g., energy or demand) to the system. A Rating Period Study provides a rigorous quantification of time periods with high and low costs supporting the development of TOU and special rates encouraging efficient use of electricity. Further, these studies are critical to developing cost-effective energy efficiency programs.

#### *Commercial Rate Design*

IPL offers two commercial tariffs: the Commercial Rate (less than 50KW) and the Small Power Tariff (greater than 50KW but less than 200KW).

The Commercial Rate contains a monthly fixed charge and a flat energy charge. The rate design is a common offering for small commercial customers with limited energy needs. DKMT suggests that after the adoption of AMI, IPL should investigate the following pricing design options for the Commercial Rate customers:

- A TOU energy price signal allowing for a reduced off-peak price (see residential discussion above).
- A commercial electric space heat option targeting promoting the adoption of electric heat pumps (see residential discussion above).
- The introduction of a demand charge – a rate mechanism that measures the KW used (demand) which is in addition to the kWh or energy billed to a customer. Demand charges are typically fixed costs and provide a means of billing for the customer's contribution to a utility's capacity requirement.

The Small Power Rate contains a monthly fixed charge, two demand charges, and a flat energy charge. DKMT suggests the following potential changes to the Small Power Rate:

- A TOU energy price signal allowing for a reduced off-peak price (see residential discussion above).
- An electric space heat option targeting promoting the adoption of electric heat pumps (see residential discussion above).

- A demand response or critical peak pricing option allows customers to be compensated when costs are high if they reduce load or demand during critical peak periods when prices for power are higher than other times.

### *Industrial Rate Design*

IPL offers two industrial tariffs: Large Power Service and Industrial Power Service. Both tariffs have monthly fixed charges, two demand charges and on- and off-peak energy charges.

DKMT suggests the following potential changes to these tariffs:

- A non-firm option provides customers with a discount in exchange for curtailing load when requested by the utility, usually during times of high-power supply costs. The curtailment saves both the industrial customer and IPL money, benefiting all customers.
- Pricing based upon SPP price signals on a day-ahead or real-time basis. This gives large users of power the benefit of prices driven by their electric use during high and low market periods. It puts the customer in control of when they consume electricity and how much it is based on its cost.

### *Leverage the value of public power for economic development*

- Take advantage of the flexibility of a city owned utility to develop rates and services to attract businesses that help the City grow and reduce overall costs to the rest of the customers.
- Identify realistic economic development targets.
- Provide economic development incentives that avoid “free rider” problems.

### *Pursue outside funding sources*

There are federal funding sources currently available and being used to supplement utility technology, customer, and carbon reducing initiatives. IPL has not had the resources to be able to pursue these opportunities. DKMT suggests that IPL explore the following opportunities:

- Evaluate how the Department of Energy (DOE) Inflation Reduction Act (IRA) program can be used to fund needed improvements such as AMI and apply for funding.
- Regularly look for grants or other programs to fund new initiatives and technology for IPL, especially related to reducing the utility’s carbon impact, serving a significant low-income population, and creating innovative solutions for customers.
- Investigate DOE Loan Program Office (LPO ) government guaranteed loans.

## Resource Requirements

The financial and rate implications of implementing the operational strategies are discussed at the end of the report. . The most significant non-technology cost to implement the above strategic options would be appropriate staffing levels and capabilities to support IPL. Resources include personnel dedicated to generating quality and timely reports, analyzing results, working with managers to understand the implications of results, and regularly updating financial forecast and rate models. This will likely require the addition of at least one Financial Analyst dedicated solely to IPL (an IPL employee) to generate, evaluate and report on the financial data to support improved data driven decision making. This is a critical position that at one time existed but is no longer funded. An experienced utility financial analyst is critical in assisting city management and utility leaders in understanding the financial implications of their work, establishing performance measures, and support rate making efforts.

In addition, financial and enterprise systems may need to be updated and optimized to facilitate integrated reporting and analysis. User groups and best practice resources can provide guidance on how to get the most benefit from existing systems and process modifications.

The analyst could also evaluate additional funding options like federal IRA grants.

In addition, DKMT assumes the implementation of the above strategic options will require:

- Rate and Tariff design changes: Hiring a full or part-time rate analyst to support current staff. There is one person at IPL who performs all rate design and analysis functions. This person is extremely knowledgeable and is the only one who understands and can perform this function. As a risk and succession planning strategy, IPL should bring on another analyst to support this function.
- The contracting of experts, on an as-needed basis, to evaluate PPA financial structures, cost allocation and rate design options, and other financial recommendations where solutions can be realized in the short term and knowledge can be transferred for long term sustainability.
- The allocation of technology resources to optimize existing systems to provide integrated reporting and analytic tools.
- Resource Requirements for Economic Development Implementation – Hire a consultant to assist rate and financial analysts in developing new economic development rates.



# Customer Strategy

## Background

DKMT interviewed various IPL and City of Independence departments, as well as community members, to determine whether the level of customer service provided to the community was adequate.

The following is a list of customer programs IPL currently funds (more detailed descriptions, funding levels, and program participation is found in Appendix F).

- Commercial and Residential Rebates
- Surge Protection
- Home Energy Loan Program
- I-SHARE
- IRAP
- Community Solar
- Weatherization
- Marketing/Community Involvement

Feedback from various stakeholders identified a lack of knowledge and understanding of customer programs. In the case where some programs were understood, there appears to be a greater need to increase budgets or evaluate program performance. For example, the IRAP and ISAFE programs budgets are completely spent each year. This indicates the program outreach is successful, and they are filling a community need. However, without regular assessments and performance metrics (such as reduced delinquencies and turnoffs, savings in operating costs) it is not clear whether these programs are achieving any intended goals or whether they are adequate. Conversely, in conversations with business owners, many were unaware of programs that provided incentives or rebates for commercial customers. The lack of customer outreach may be a result of the high turnover in the City's Public Information Office (PIO) and the lack of dedicated personnel to support IPL communications. In addition, there appears to be a shortage of IPL staff to manage and deliver these programs.

A modern utility is customer focused, where the needs and wants of customers are a top priority. Customer service strategies, by far, had the most suggestions for change as brought forward by the Council, PUAB, Community, and IPL. Based on the interviews and data analysis, two key strategic areas were identified to support a more customer centric approach to serving the Independence community

– **Communication and Extension of Service Offerings.** More specifically:

1. Make it easy to do business with IPL.
2. Proactive in solving customer needs, including to be present, and transparent in explaining requirements, decisions and actions.
3. Communicate and implement active outreach, using multiple mediums, of IPL offerings and services.
4. Build better customer relationships through a large customer key account program and simplified communications.
5. Communicate expected IPL cultural and personnel practices, to both employees and oversight boards. Support ethical and transparent business practices in order to rebuild community trust.
6. Based on the high utilization of some of the IPL programs, especially those serving low income residents, evaluate each program for expansion or change, establish performance metrics to measure its value and whether established goals are being achieved.
7. Help customers reduce bills and have more control over decisions on when and how to manage electricity costs by implementing technology, programs, and rates that are more customer centric.
8. Leverage utility rates and services to enhance economic development and attract industry that can provide new jobs, strengthen, and diversify the economy, and spread fixed costs over more users to lower rates.

## Strategies

### Foundational Strategies to Improve Services to Customers

#### *Communications and Outreach*

A well planned and executed communication strategy is necessary to ensure customers of IPL are knowledgeable about programs and services, as well as how to do business with their utility. To support this strategy, IPL will need to:

- Develop a cohesive message about the fundamentals of IPL: 1) What does IPL do, 2) How to do business with IPL, and 3) What value IPL brings to the community.
- Create a unified value system that is regularly communicated both internally and externally, as well as reinforced by managers and leaders within the utility and the City to create a culture that mirrors the expectations of the community and places value on both the customers and employees.

- As the community observes consistent behaviors around transparency, data driven decisions and openness to input, trust will begin to rebuild between customers, employees, the PUAB and Council.
- Use multiple mediums to reach customers where they are most comfortable. Utilize bill stuffers, a website or app, emails or texts, signage, booths at community events, or any other opportunity to tell IPL's story where citizens and businesses are most likely to receive it. Communicate often, succinctly, and with a consistent message.
- Establish a formal Key Account program for large customers. Key Account programs assign a point of contact for each major customer to be the liaison between the customer and utility. Key Account managers are focused on problem solving and meeting the needs of those customers. It builds a relationship between the customer and IPL, as well as promotes economic and business growth. This is a service most utilities offer their largest customers. Key Accounts program management allows IPL staff to be responsive to customer needs in developing products such as florescent lighting replacement rebates, energy efficiency incentives, solar rebates, and more. Today, Customer Service does some of this, however it is infrequent, and many customers seem to be unaware of such services. The new Director has begun quarterly meetings with the large customers, which has been well received.

#### *Services and Programs*

- Products and Services – Customers mentioned not knowing of any offerings IPL had for energy related services or that they were limited and did not meet their needs. Best practice utilities continually evaluate service offerings and adjust to meet the current environment for their customers. A list and description of all of IPL's offerings is in Appendix F. With at least 15% or more of Independence's population at or below the poverty level, a concerted effort to develop programs to help customers reduce usage, such as energy audits, expanded weatherization retrofits, and low energy lighting retrofits would be of significant value.
- Energy Efficiency (EE) programs are implemented by utilities in order to control inefficient and costly consumption of electricity by customers. Well-designed EE programs provide benefits to both the customer and the utility. Customers benefit from receiving a lower bill, and the utility benefits from reducing overall capacity and energy requirements. In the past 40 years, EE programs have become uniformly adopted.

An expansion of EE programs would be beneficial to the community of Independence. IPL offers some EE programs, but the interviews indicated that the level of coordination in the development and marketing of these programs could be enhanced. For example, in an interview with a large customer, they stated that they were able to participate in EE programs for facilities served by Evergy, but no such similar programs were known to be offered by IPL. Conversely, interviews with IPL staff indicated that EE programs were

available. Communication, better outreach, and evaluation of existing programs' value to customers would begin to bridge the gap between IPL offerings and customer's needs.

- IPL should expand offerings to attract and retain their commercial and industrial customers by utilizing key account staff and innovative products beyond just economic development. Commercial customers have not been aware of most programs offered by IPL that would provide assistance in managing their electric bill. For example, some programs that may appeal to the commercial and industrial customers are solar rebates, energy efficiency, and voluntary interruptions during high energy price periods that can save money and reduce capacity requirements.
- In the future, IPL should investigate the potential for expanding, coordinating, better communicating, and marketing their EE programs. Optimally, EE planning should be coordinated with a larger generation and transmission group as part of a larger resource planning effort to reduce costs and maintain or improve reliability and customer satisfaction levels.
- Lastly, customer service is only offered during "business hours" which is not typical of most electric utilities. Efforts should be made to expand call center hours and automated services to accommodate all customers at all hours.

#### *Technology Enabling Customer Service Tools*

The lack of technology tools increases costs. Additionally, new rate mechanisms that could lead to increased load growth often require technology tools that currently, IPL does not possess.

- Outage response tools for both internal IPL usage (by storm teams, engineers, dispatchers, etc.), as well as by the customers and the public (media organizations) might include:
  - Synchronized customer information system with outage management system (OMS) and GIS database to allow accurate customer outage identification.
  - Integrated and automatic publishing of near real-time outage maps that are accessible (see website and customer app tools below).
  - Damage assessment tools used by IPL internal staff and Line workers / Journeypersons.
  - Estimated Time to Restore (ETR) algorithms for use by IPL internal staff to estimate storm response resources and to provide customers with regularly updated ETR. Through the internet and customer apps, customers will be able to have updated ETR without having to call IPL staff.
- Billing system enhancements:

- Allow large customers with multiple meters to have one consolidated bill.
- Simplified process of changing graphics for customer bills to be more user friendly.
- Historical usage and bill comparisons will be available for online inquiry by customers.
- Website and App Customer Tools – IPL currently has a website that is limited and is without an app capability to facilitate customer communications and transactions. Utilities with advanced websites and apps can expect that 80% of their customer communications will occur on those platforms, reducing call center operations costs. Enhanced web and app tools can facilitate doing business with IPL, including customer interactions such as requesting new service, disconnecting service, changing customer information, outage reporting, and applying for program offerings. This website and app would provide customer support 24 hours, 365 days a year. In addition, there would be cost savings in paperwork, administration, staffing, as well as increased customer satisfaction – all of which would be long term benefits.

#### *Other Economic Development Tools*

As mentioned in the “what’s working today” section, reliability is key to customer satisfaction and is a strong economic development tool. More and more businesses evaluate the reliability of the electric utility before making decisions to locate within a community. Continued investment in the transmission and distribution system will support this strategy. This is discussed in more detail in the Operations section of the report.

## Future Strategies

#### *Communications and Outreach*

- Once the foundational strategies are in place, expand customer knowledge and engagement to create focus groups for feedback and community outreach. Utilize modern technology to enhance customer participation and ownership in the direction of future IPL services.

#### *Services and Programs*

- As AMI is implemented, evaluate combining incentives with rate plans to motivate customers to consume electricity more efficiently. For example, providing a rebate for heat pumps, while designing special rates for customers with heat pumps, could save the customer money on their electric bill and save utility resources by moving usage away from peak periods, thus using the system more efficiently and reducing the need for new power supply resources.

#### *Technology Implementation*

Some examples of the use of websites and apps from other utilities include messaging to customers when usage has increased, or high bills are anticipated. These technologies require the adoption of other enabling technologies, such as AMI, but increase customer satisfaction.

- Other strategies based on the implementation of AMI would be bill savings to customers who agree to utility management of thermostats during peak cooling or heating periods. Creating tariffs or rates that incentivize customer management of when they use electricity, would depend on the implementation of tools that allow customers to monitor their usage in real-time.
- IPL needs to develop a strategy which adopts technology to achieve the goals of the utility and view these costs as investments in the system, not an increase in overhead costs.
- Automation of, and regular reporting of, customer program performance using integrated systems to collect data on participation and benefits, such as cost savings, of the programs provides key information. Trending and analysis of AMI data will facilitate flexibility in changing or adapting programs to better serve customers and achieve system goals for efficiency, load management and growth, etc.

## Resource Requirements

### *Communications and Outreach*

- Key Account Management necessitates additional staffing of at least one or more key account managers, depending on the number of customers IPL defines as Key Accounts. These employees will need to have strong customer service skills, as well as a full knowledge of all the programs and services IPL offers.
- Hire an experienced professional in marketing and outreach to develop materials and messages, deliver the messages, and use public outreach to better understand the needs of customers to drive program and service development.
- Hire an experienced Human Resources professional to work with the utility and Board to establish a roadmap and activities for cultural alignment conducive to building trust and confidence in the utility.

### *Service and Program Implementation*

- Hire a staff person or consultant to evaluate and develop or modify programs that better serve the needs of IPL customers, whether it is enhanced weatherization, energy efficiency, rebates, or any other service that data and customer input support.
- Gradually hire staff, over time, to implement and monitor the programs (their success and value) based on the growth in demand for these services.

### *Technology Implementation*

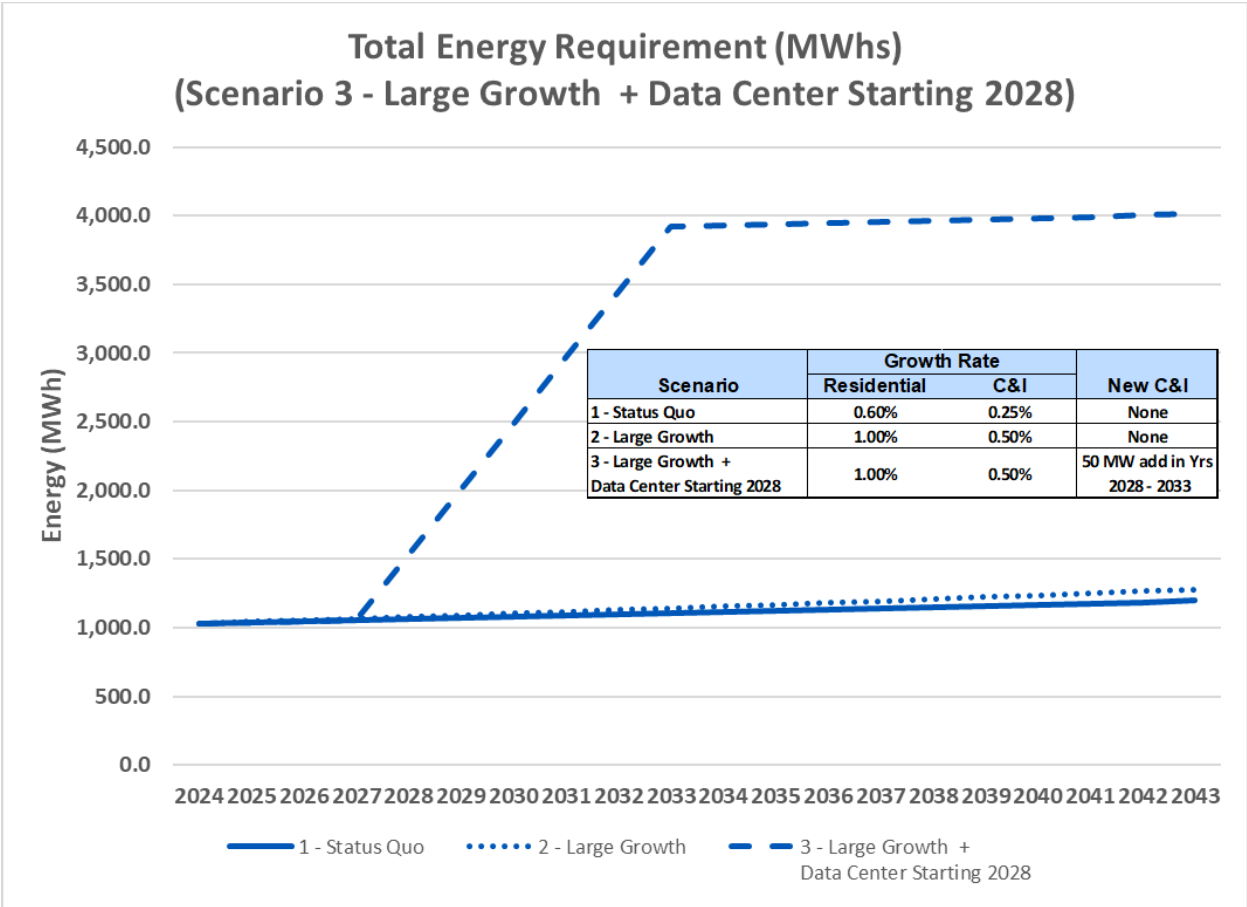
- Hire appropriate level of technology staff to design and provide ongoing support for:
  - Internal AMI, OMS, and other advanced distribution management technologies.
  - Website and app development.
  - Support staff to provide call in help when customers or IPL staff have technology problems.

# Power Supply Strategic Scenarios

## Background

As part of the strategic plan development, DKMT was asked to present three power supply scenarios: 1) 100% IPL owned generation, 2) no IPL owned generation with all power purchased on the market or through power supply contracts, and 3) a hybrid scenario which is similar to what exists today. The team was also asked to evaluate the impact of increasing the use of renewable energy.

The following chart shows IPL’s projected use under a status quo scenario, a large growth scenario, and large customer addition scenario. These will serve as reference points for the purposes of developing strategic options for power supply.





The following charts illustrate the generation resources available as IPL owned, IPL as a participatory owner, and through PPAs. Figure 5 currently does not include shutting down Jackson Square J1 and J2. Figure 6 illustrates the impact of the previously discussed shutting down of Jackson Square J1 and J2 in 2030.

These charts are valuable to better inform the timing and amount of power resources IPL will require in the future based on current PPA expiration dates and generation unit replacements decisions. With the exception of meeting SPP reserve capacity margin requirements (discussed below), IPL has time to evaluate options given the length of the contracts and life cycle of the generating units, unless a large customer using more than about 10 to 13 MWs of power came to Independence in the next year or two. That event would require immediate action to meet capacity and potentially power resource needs in excess of what is available under the accredited IPL capacity.

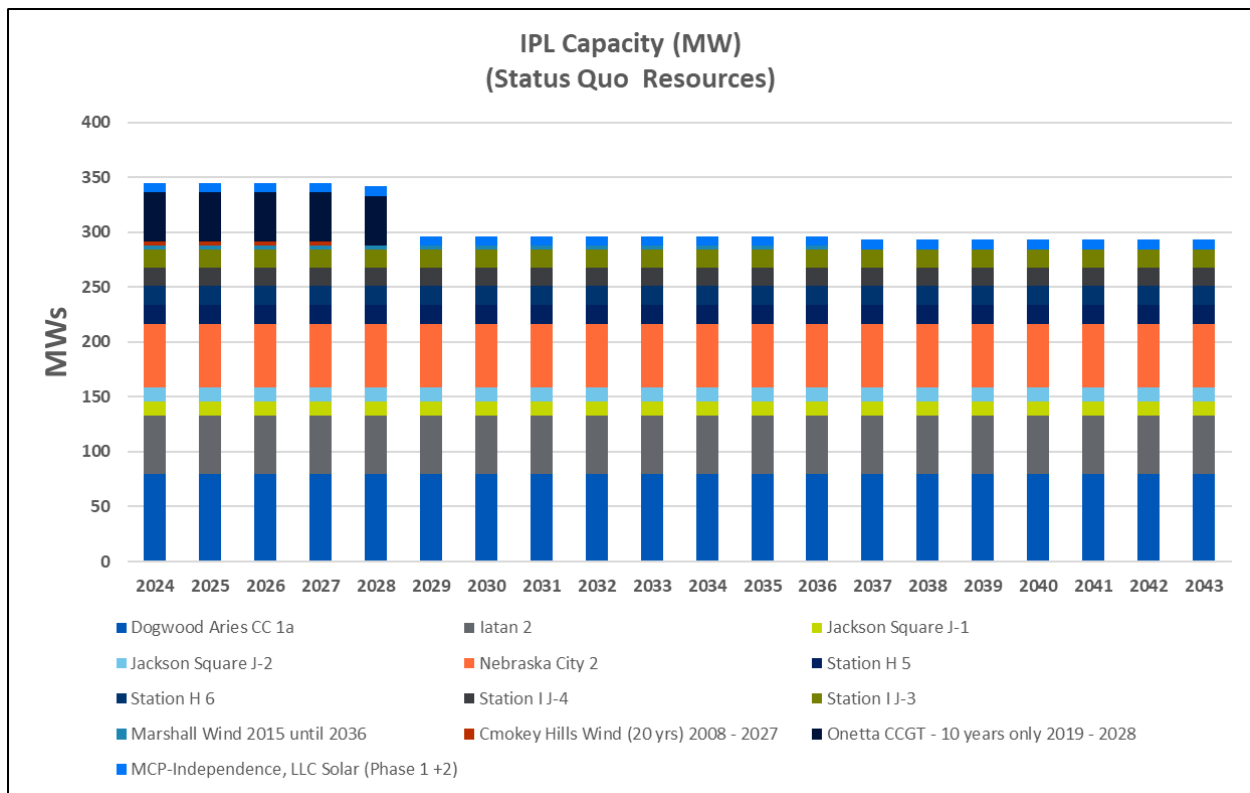


Figure 5 IPL Projected Total Capacity

This second figure is like the first, except it includes the impact of shutting down Jackson Square J-1 and J-2 in 2030.

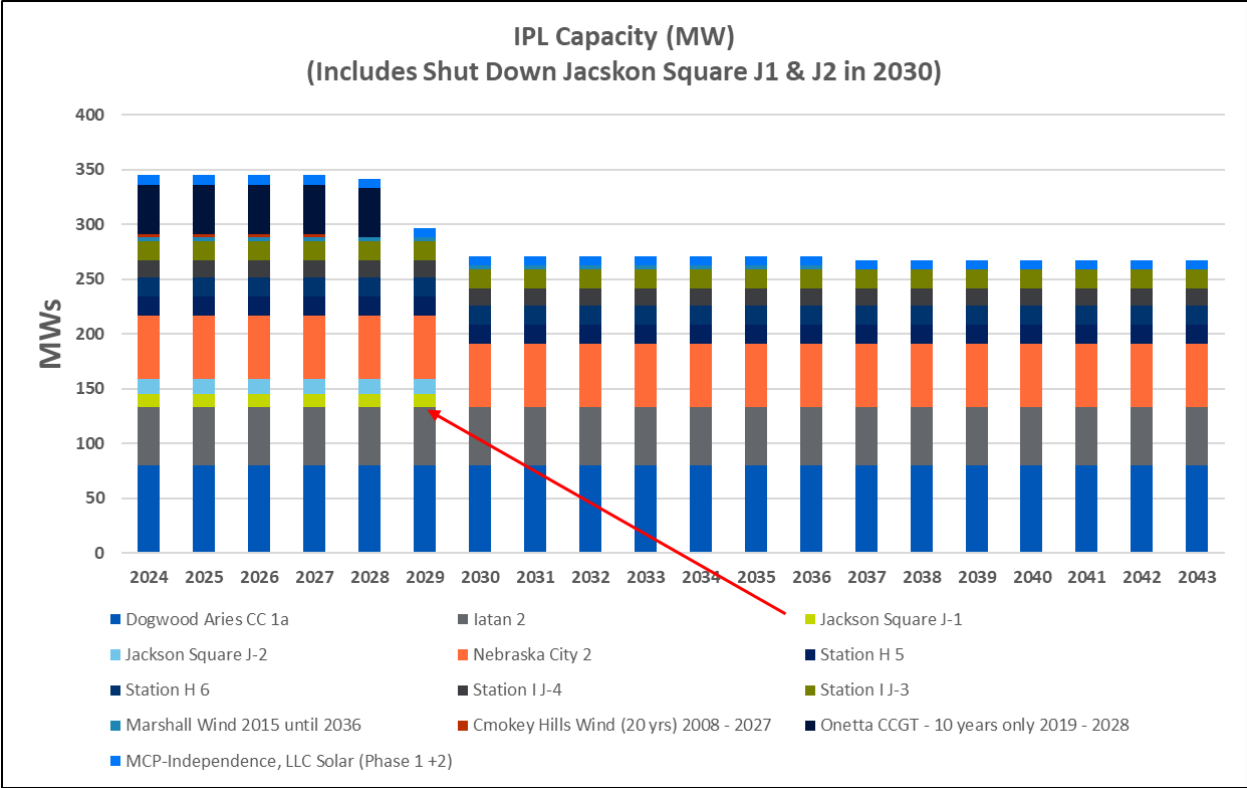


Figure 6 Impact of Shutting Down J1 and J2

Note: The following is a summary of the detailed description of IPL’s current energy market as found in DKMT’s Independence Power & Light Cost Benefit Analysis report.

IPL is a member of the Southwest Power Pool (SPP) and owns both transmission and generation.

The SPP market design ensures that generation plants meet the energy demand at the least cost. This means that SPP dispatches a generation unit based on the marginal costs of a generator to produce the next increment of energy to meet additional demand. SPP prices do not cover all costs of generation; only the marginal cost of producing the next kilowatt-hour needed to meet market demand. Generators that produce energy at a lower marginal cost are called upon more often than generators that produce energy at a higher marginal cost. The generator that is dispatched last to meet market needs is operating at breakeven, while more efficient generators have an opportunity to make money on the difference between their marginal cost and the last dispatched generator’s marginal cost. It is essential to understand this fundamental market dynamic to evaluate strategies for meeting future IPL energy (kWh) needs.

Historically, IPL made additional revenue through energy sales (kWh) from its owned generation and participation agreements with Nebraska City and IATAN 2. We believe that as more renewable energy (primarily wind) is added to SPP, IPL’s thermal plants (coal, gas, and oil) will diminish over time.

### Key Takeaways

- Wind is the dominant energy production source in SPP due to its very low marginal cost of production, and, therefore, wind sets a very low wholesale price for energy. The proliferation of low-cost wind power in SPP has diminished the opportunities for thermal (gas, coal, oil) generators to participate in the wholesale energy (kWh) marketplace.
- IPL will likely see reduced revenues due to reduced SPP dispatch of IPL's thermal resources.

SPP membership imposes obligations on IPL and the City. The Resource Adequacy obligation is that IPL must ensure sufficient generating capacity to meet its electrical demand and reserve margin requirements. IPL meets this capacity obligation through its ownership of six General Electric (GE) Frame 5 combustion turbine generators (CTGs) and 12.3% of the Dogwood Energy Facility; through its participation agreements with Nebraska City and IATAN 2; and the capacity merit attributed to its Oneta and wind contracts. The following table shows IPL meeting a 16% capacity requirement with an additional 7.87% capacity buffer.

Year	Category	MW
2022	City of Independence Peak Demand	267
	SPP Requirement to be 16% <sup>13</sup>	1.16
	<b>Required capacity</b>	<b>309.72</b>
	<b>Total accredited capacity</b>	<b>336.2</b>
	<b>IPL sufficiency</b>	<b>107.87%</b>

SPP's capacity requirements are expected to change due to the increasing non-dispatchable renewable resource capacity (wind and solar) with decreasing thermal capacity. The expected future capacity reserve requirements are expected to increase to a Summer Peak (16%) and Winter Peak (33%) in 2026.

Additionally, should new development within the City of Independence raise the electrical demand by more than 15.4 MW, IPL would be forced to find a counterparty and enter into a contract for additional capacity at prevailing market pricing. Therefore, sufficiency of electrical capacity can be directly linked to the City's economic development opportunities.

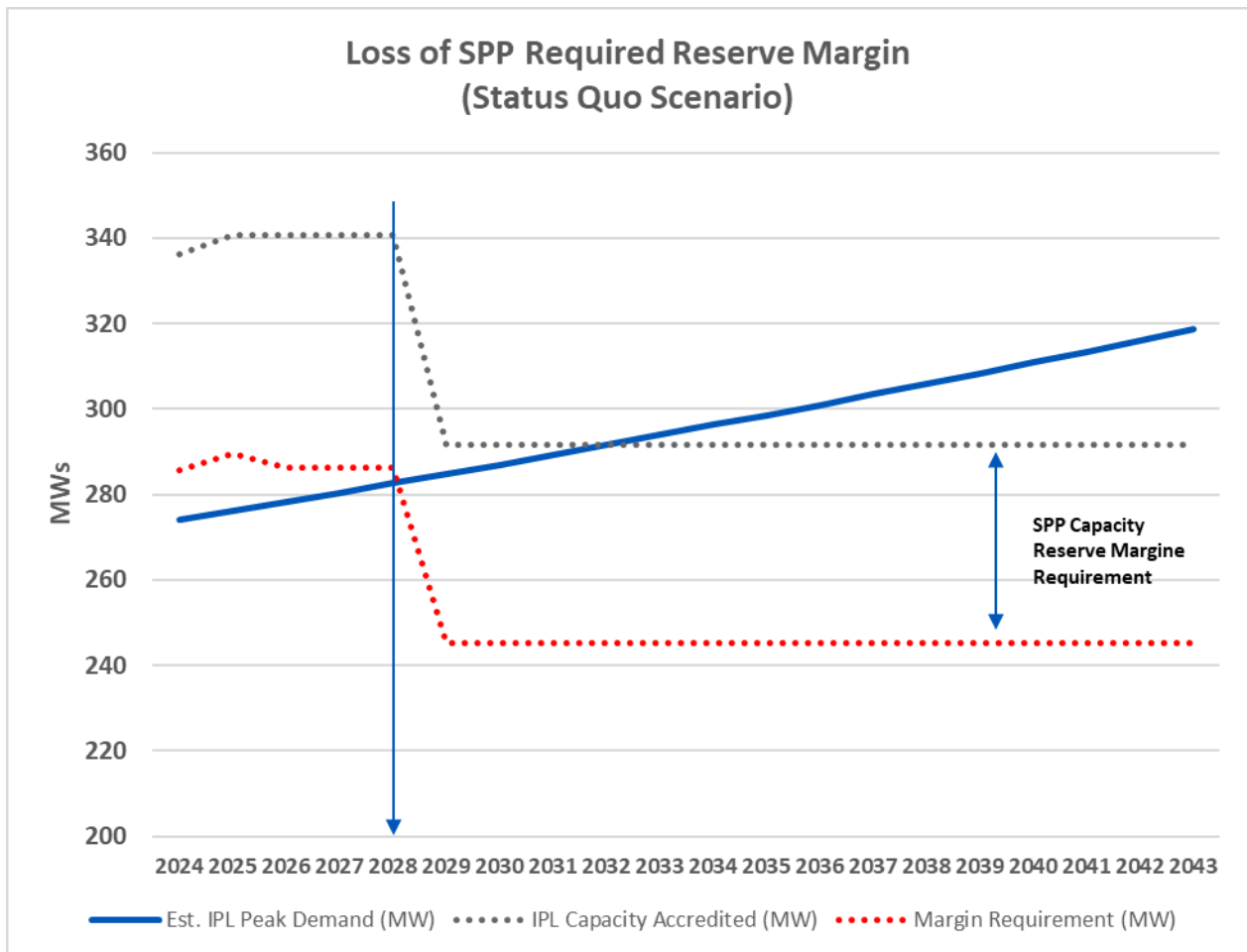
### Key Takeaways

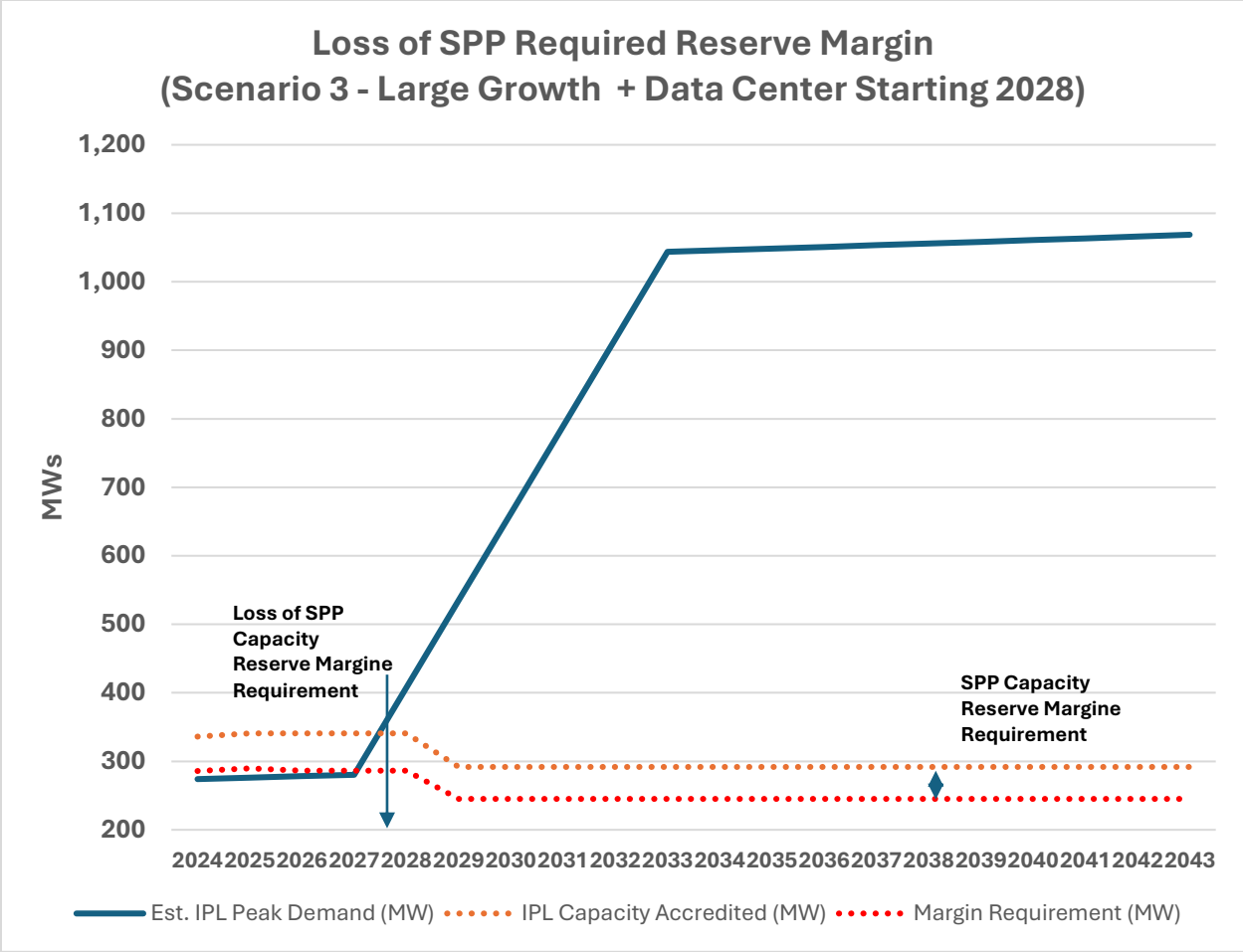
- The only way for IPL to meet the SPP capacity requirement is either to own generation or to enter into a bilateral capacity contract with another power plant owner.

<sup>13</sup> 16% is planned for next 2026. 15% is current requirement.

- As thermal generation plants are retired within the SPP footprint:
  - Contracting for additional capacity will become more expensive, and it will also, in the short term, be harder to find available resources.
  - Capacity requirements will limit IPL's flexibility to unilaterally retire generating units without new build or contracting for additional capacity.

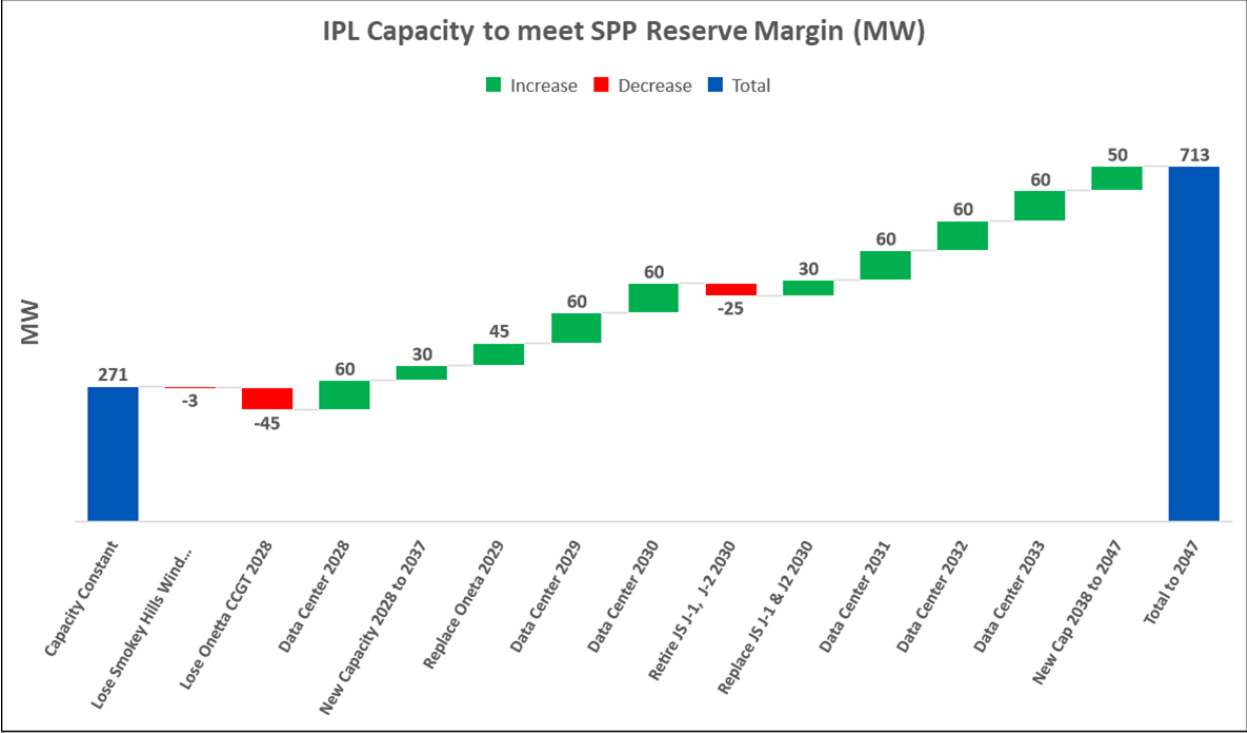
The following Loss of SPP Required Reserve Margin charts (Status Quo and High Growth + Data Center in 2028), shown below provide insight into when IPL will fall below the Southwest Power Pool (SPP) capacity reserve margin obligation (summer peak requirement of 15% until 2026, then 16%). As shown in these charts, even in the status quo scenario identified below, without timely action to increase capacity, IPL will not meet their capacity reserve obligation starting in 2031. However, in a scenario of adding a large customer, new capacity will be needed as early as 2028. IPL should develop additional analysis to determine the scale and timing of required additional capacity resources.



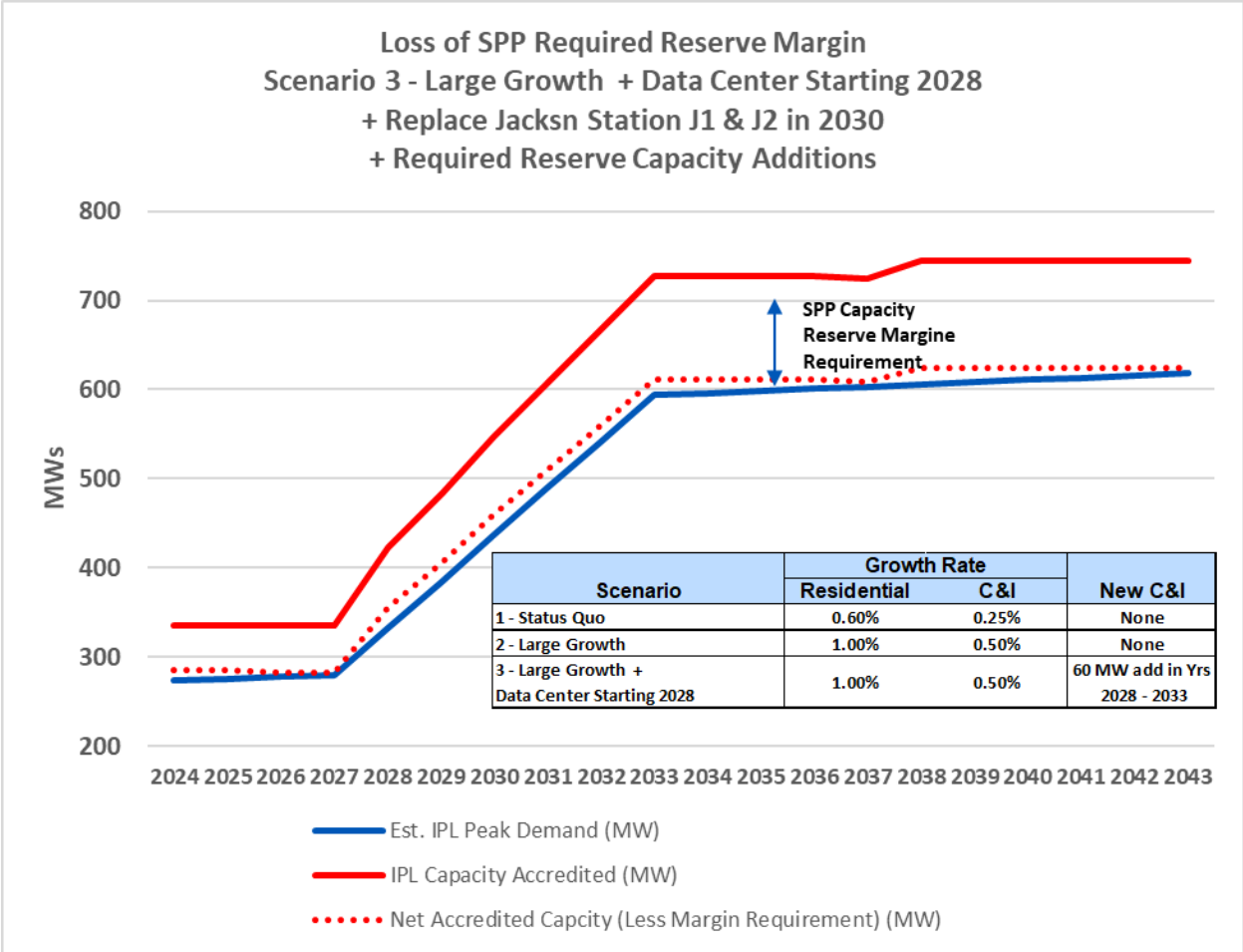


In order to meet the SPP Capacity Reserve Margin, DKMT performed an exercise of adding capacity due to load growth (primarily the envisioned 300 MW data center, and replacement capacity needed due to the retirement of PPA and an assumed retirement of Jackson Station J-1 and J-2 in 2030. This exercise does not represent a recommendation to retire the two Jackson Station units, but to provide additional insight into how and when extra capacity may be required to meet the SPP capacity obligations. The results of this exercise are shown in a stacked bar chart of capacity additions and removals. It also should be noted that this exercise did not attempt to select a generation technology or attempt to complete anything as sophisticated as an Integrated Resource Plan (IRP). The exercise simply provides insight into how the SPP Capacity Reserve Margin might be achieved.

It should also be noted that adding solar or wind capacity to meet the SPP capacity obligation is not practical. Currently SPP severely discounts solar and wind capacity.



This capacity addition/ replacement exercise shows how much capacity is needed to meet IPL's future growth, including reserve margins.



Key topics were identified through DKMT interviews and analysis for IPL’s power supply. These are shown in the table below along with notes on how the topic may impact IPL resource decision making.

Key Topic	Notes on possible impact to decision making
Maintain a diverse portfolio.	<p>Least risk for dispatchable technologies are combined cycle gas turbines (CCGT) and combustion turbines (CT). These technologies are well understood including constructability, development time, and operating experience.</p> <p>CCGT and CTs provide dispatchable energy, and the capacity is not generally derated through the SPP accreditation processes.</p>

Key Topic	Notes on possible impact to decision making
Increase renewable energy.	<p>SPP generation mix includes 29 GW of operating wind capacity and wind accounts for between 25% and 44% of total MWh.<sup>14</sup></p> <p>From a SPP accredited capacity point-of-view, it is important to keep track of SPP analysis of Effective Load Carrying Capability (ELCC). For example, the ELCC for solar is 68% for summer and 33% for winter.<sup>15</sup></p>
Mitigate the financial risk of coal plants shutting down and associated PPA risk.	Coal plant financial risks include future impact of EPA’s requirements for storing Coal Combustion Residual (CCR) (e.g., fly ash and bottom ash).
Transparency in cost of options for power.	As real estate is to “location, location, location,” generating resource decisions are based on “good data, good data, good data”. It is, therefore, important to work with consulting organizations to develop quality, executable, and defensible decisions.

## Strategies

### Foundational

Both the load growth and resource requirement charts are to provide data points for DKMT’s strategic plan. Prior to embarking on future resource acquisitions or construction, IPL should hire a resource planning consultant to develop a professional integrated resource plan that includes load modeling, market modeling, pricing and detailed resource options based on more comprehensive analytical modeling.

### Future

As discussed above, IPL’s power supply options are constrained by the need to meet both energy (kWh) and capacity (KW) requirements. There are various options by which IPL can meet its power supply requirements, including the following.

<sup>14</sup> SPP Wind Energy statistics - <https://sl.bing.net/g4USrkfcg0q>

<sup>15</sup> [2022 SPP electric study wind and solar report.pdf](#)



#	IPL Power Supply Strategic Option	Benefits	Drawbacks	Risk to City and IPL
1.	IPL owns and operates all of the power supply resources for the City.	<ul style="list-style-type: none"> <li>Meets the energy resource needs of the City.</li> <li>IPL has long-term control of all energy and capacity needs.</li> <li>Potential for revenue through energy and capacity sales. But revenue opportunities exist only if generation resources are reliable and efficient (heat rate for thermal assets at high end of technology).</li> </ul>	<ul style="list-style-type: none"> <li>Requires massive capital investment (likely several billion dollars) over a relatively short timeline.</li> <li>Very large O&amp;M investment is required to support all power generation.</li> <li>Requires additional personnel in plant operations and maintenance (typical combined cycle gas turbines plants require between 30 to 40 FTEs to operate, plus additional engineering, fuel purchasing, and other ancillary generation support services personnel).</li> </ul>	<p>Extreme</p> <p>Option not analyzed due to extremely high costs and risk.</p>
2.	<p>IPL transitions to a hybrid operating model narrowing operations to only energy delivery (T&amp;D) and customer functions.</p> <p>Energy supply purchased solely through PPAs and/or directly from the SPP energy market.</p> <p>IPL incorporates a hybrid strategy that meets the needs of the City and</p>	<ul style="list-style-type: none"> <li>Reduces overall operating risks and narrows capital requirements to solely supporting the grid and customers.</li> <li>Allows focus to become primarily on economic development and expanding customer needs.</li> <li>Successful public power entities which have shifted to this model<sup>16</sup> (using WEIM) include Sacramento</li> </ul>	<ul style="list-style-type: none"> <li>Requires development of “best-in-class” energy supply procurement governance, power markets and risk management processes, models, and competencies.</li> <li>Would likely require SPP to develop an energy imbalance market like WEIM (Western Energy Imbalance Market) to service IPL’s Regional Transmission Operator (RTO) area.</li> </ul>	<p>Extreme Risk if no Energy Imbalance Market (EIM) is available in IPL RTO territory.</p> <p>IPL would need to make a significant investment in establishing a trading operation or outsource to manage risk and meet regulatory requirements.</p> <p>Option not analyzed as SPP does not support</p>

<sup>16</sup> [A seat at the trading table: Public power and the energy imbalance markets | American Public Power Association](#)

#	IPL Power Supply Strategic Option	Benefits	Drawbacks	Risk to City and IPL
	manages risk and market pricing.	<p>Municipal Utility District (SMUD), and Salt River Project (SRP).</p> <ul style="list-style-type: none"> <li>Colorado Springs Utilities does not currently participate in WEIM but plans to join WEIM over the next several years.</li> </ul>	<ul style="list-style-type: none"> <li>Without “best-in-class” energy portfolio and risk management capabilities, customers are likely to be exposed to very high costs if catastrophic conditions (e.g., Uri)</li> <li>While SPP has an Energy Imbalance Market, it does not include the SPP RTO area supporting IPL.</li> </ul>	<p>an Energy Imbalance Market within the SPP RTO serving IPL.</p> <p>Maintain awareness of both APPA and SPP efforts on developing Energy Imbalance Markets that could support IPL’s territory.</p>
3.	IPL maintains current portfolio of energy supply and energy delivery business activities.	<ul style="list-style-type: none"> <li>Allows building on current processes and expertise within IPL.</li> <li>Utilizing mixture of fully owned and fractional ownership of generating assets along with PPAs provides a balanced work management approach.</li> <li>Allows migrating / shifting to real-time market purchases as Energy Imbalance Markets are developed.</li> </ul>	<ul style="list-style-type: none"> <li>Requires improved financial and load modeling, and a more strategic approach to energy supply management.</li> <li>Requires quality and timely supporting data to effectively identify, assess, and articulate required energy supply decisions and the timeline to complete the decision process.</li> <li>Requires investment in human resources to effectively support the above requirements.</li> </ul>	<p>The starting point is maintaining IPL’s current energy market risk profile.</p> <p>Can provide significant flexibility in the scope and timing of repositioning the allocation of energy supply resources as assets age and markets change.</p> <p>Allows the opportunity for the City and IPL to support more sustainable or carbon free energy resources.</p>

*Generation Ownership Scenario*

The dynamics of the Southwest Power Pool have changed dramatically since the 2018 Master Energy Plan was developed. In 2018, ample reserve capacity was forecast through 2023. Today, SPP forecasts capacity shortfalls as soon as 2026 due to plant retirements and growth in

forecast peak demand. IPL has forecast incremental load growth since 2018 but now has opportunities for substantial load growth through new commercial opportunities. The ability of IPL to provide electrical capacity to new customers is directly tied to the City's prospects for economic growth.

Ownership of generation assets is a long-term capital-intensive commitment but can provide a physical hedge against volatility in the capacity pricing. While SPP does not have a capacity marketplace, it does have a resource adequacy requirement that must be met through bilateral contracts or ownership. As the amount of capacity available for contracting diminishes, its cost will rise dramatically.

IPL owns six combustion turbines and has 12.3% ownership of the Dogwood Energy Facility. As pointed out in the August 2021 IPL Generation Replacement Study, the SPP Generation Facility Replacement process allows for the replacement of existing generation up to the SPP transmission limit for a specific substation and can be completed within 6-18 months. The process for new generation outside the replacement process takes from 4-6 years.

If IPL were to consider replacing its combustion turbines with more efficient generation, it could add up to 28 MW of additional capacity through the expedited SPP Generation Facility Replacement Process.<sup>17</sup> Another advantage to this strategy is the potential to earn more SPP generation credits through increased utilization of the new generators.

Additional capacity beyond that described above, would need to be accomplished through the standard 4-6 years Generation Interconnection Process. As a municipal utility, IPL has the flexibility to partner with other entities so it would not have to pursue only sole ownership options. The looming capacity shortage affects all electric providers within SPP. IPL's recently released RFP for up to 300 MW of electrical capacity will provide valuable insight into the tradeoffs between contracted capacity and ownership.

In addition to pursuing greenfield development, IPL's Blue Valley site could be reused for a new generating plant as was proposed by ProEnergy. That RFP process received bids ranging from \$1,841/kW to \$824/kW for approximately 80 MW of generation. One of the drawbacks of smaller sized generators is the lack of economies of scale in pricing. The City's experience with its purchase of a small portion of Dogwood for \$596/kW illustrates this point.

If the City decides to pursue owning new generation, it may make more economic sense to purchase a portion of a larger power plant or partner with other utilities to build a power plant large enough to serve the combined needs of all parties.

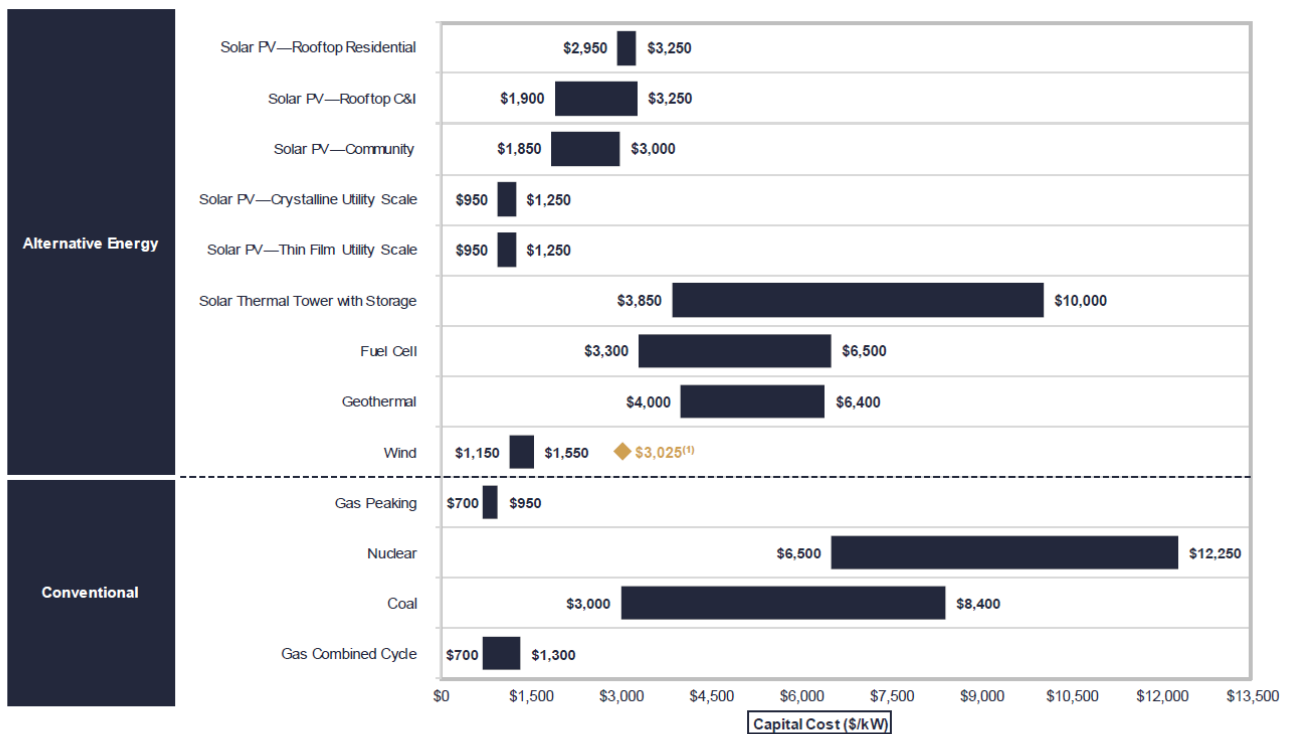
Because the issue at hand is electrical capacity, intermittent renewable energy resources such as wind and solar are not effective solutions. As noted above, renewable energy is abundant in SPP with wind supplying 29 GW of operating capacity. Wind accounts for between 25% and 44% of SPP's total MWh.

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<sup>17</sup> IPL Generation Replacement Study Substation H, I, J SPP Interconnection Limits

Municipal utilities are typically more agile than regulated investor-owned utilities, and they should benefit from tax-free financing, and quicker decision-making. They can also more easily partner with other municipalities or private firms to finance energy projects. The recently enacted Inflation Reduction Act opened the opportunity for local governments to monetize tax credits from clean energy projects and receive the value of the tax credits as direct payments. Similarly, the Department of Energy’s Loan Program has numerous programs open to municipal governments to help finance energy projects with the benefit of federal loan guarantees. Programs such as these may help reduce the cost of financing a new generation project, especially renewable or clean energy resources that might not otherwise be an economical choice.

The following figure provides insight into the overnight cost (\$/KW) of different generating technologies.



LAZARD Source: Lazard estimates.  
 Copyright 2018 Lazard (1) Represents the estimated midpoint of the total capital cost for offshore wind.

Figure 7 Overnight Costs for Generation

### Purchase Power Agreement Option

A strategy of contracting for all capacity and energy resources has the advantage of reducing fixed O&M costs for city owned generation. However, it increases the risk of exposure to market dysfunction and foregoes the opportunity to earn revenue from city owned generation. In SPP,

energy is very cheap and is expected to stay that way over the next 20 years due to the large amount of wind generation<sup>18</sup>. A strategy of just buying energy from the market without a PPA would ensure IPL is getting the lowest-cost energy possible.

As previously mentioned, the SPP market requires resource adequacy but does not compensate members directly for capacity. The most efficient plants are dispatched first and can earn revenue to cover a portion of their fixed costs. The risk of contracting for capacity is that IPL will have to compete with other members for increasing scarce capacity options in SPP and contracts, such as Oneta, require renewal at the end of the contract. IPL recently issued an RFP for up to 300 MW of capacity to serve optional new loads. The prices reflected in responses to that RFP will allow IPL to analyze whether it is cheaper to contract for capacity or build additional capacity.

As mentioned in the Financial Strategy section, IPL makes capacity payments for the right-to-take capacity from IATAN 2 until the end of its life and NC2 through 2049, both coal plants require IPL to make payments to cover fixed costs whether they are producing power or not.

- To hedge this risk and potentially lower IPL's overall cost, IPL should evaluate an option of issuing bonds to essentially pay off the debt on IATAN 2 and NC2 and lower IPL's cost of PPAs. This could potentially mitigate the financial risk of early closure. The bonds issued by IPL would be put in an escrow, from which capacity payments would be made. The actual debt payments for those bonds, in aggregate, would be lower than the cost of the capacity payments, depending on the term and interest rate. It is recommended this be a long term strategy when interest rates are lower to pay off PPA capacity early, if needed, and set a term that manages the risks, without increasing IPL's financial burden.
- Alternatively, IPL could offer to negotiate a prepayment of expenses (based on the present value of future payments or some other calculation) to lower the ongoing cost of the contracts.

In order to evaluate any of the above strategies IPL must first:

- Determine if the existing PPAs could be prepaid, and if so, would it reduce costs or risks.
- Work with their financial advisor and bond counsel to evaluate options and tools to execute an early pay off.

## Hybrid Scenario

At the time IPL was contemplating building peaking units at the Blue Valley site it laid out a detailed hybrid generation scenario which is shown below. This plan should be updated to

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<sup>18</sup> DNV Consulting 20 year price forecast for SPP.

reflect current market conditions and evaluated to see if it is still the lowest cost option for IPL customers.

## Possible Resource Timeline

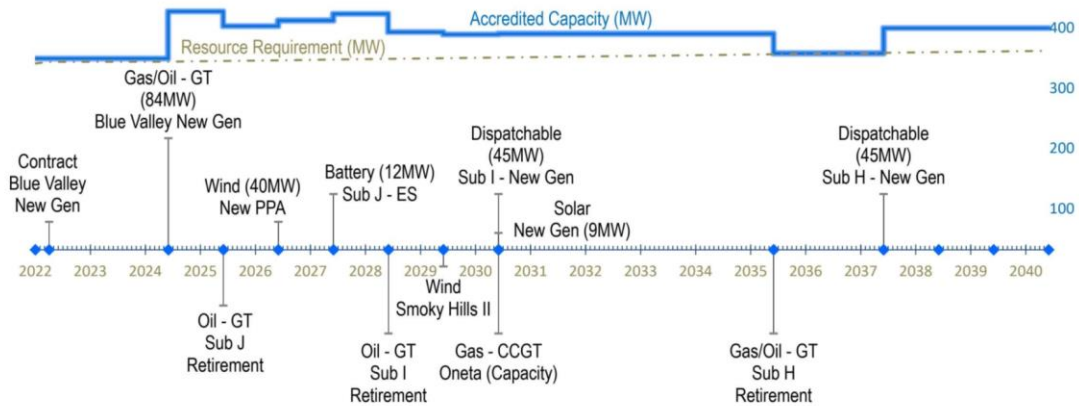


Figure 8 IPL Hybrid Generation Plan

## Resource Requirements

As discussed above, there are several power supply options for IPL to explore. Near-term options are impacted by the number of opportunities to contract for resources and the duration of the SPP generation queue. Without a comprehensive generation study, costs are very uncertain given the number of variables. Long-term plans need to be aligned with the strategic plan and support efforts to make IPL rates more competitive. In either case, it can take from 6 months (to develop and issue an RFP for power) to 6 years (to build a power plant) to secure additional resources, which means IPL needs to begin the process today to be ready for the future.

# Operations Strategy

## Background

### Transmission and Distribution

#### *Measuring electric reliability performance*

In the United States, electric reliability is determined through several measures which are defined by IEEE Standard 1366 – Reliability Indices<sup>19</sup>. We will focus on three of the measurement indices:

1. **SAIFI (System Average Interruption Frequency Index)**: This measure, which provides insight into the frequency of outages, defines how often the average utility customer experiences an interruption. For example, an annual SAIFI of 1.00 would mean that the average customer would see one outage a year while a SAIFI of 0.25 would mean only 25% of customers would experience one outage a year. A SAIFI greater than 1.00 would mean that the average customer would experience more than one outage per year.
2. **CAIDI (Customer Average Interruption Duration Index)**: CAIDI measures the average time, in minutes, required to restore service after an interruption. Practically, it provides insight into how long it takes to restore customers who actually have the outage (not the “average” customer). Technically, the outage duration starts from the time of the interruption (not when the outage is called into the utility) until the customers power is restored.
3. **ASAI (Average Service Availability Index)**: Sometimes called the service reliability index, ASAI is the ratio of the number of hours (per month) where service is provided over the total number of hours per month (about 730 hours per month).

#### *How reliability data is captured*

Interruptions (the event) and outages (the customer without power) are captured by a utility either manually or automatically.

#### *IPL reporting of customer outages*

IPL does not have an AMI system installed; therefore, they manually capture customer outage information in two primary ways.

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<sup>19</sup> <https://site.ieee.org/boston-pes/files/2019/03/IEEE-1366-Reliability-Indices-2-2019.pdf>

1. Customers call the dedicated IPL outage number (816-325-7550). This number, which is the best outage reporting method, allows direct transfer of significant customer information to IPL's Outage Management System (OMS).
2. Customer reported outages: if a customer calls customer service (CS), the CS rep cannot transfer the call directly due to the outage management system (OMS) using the phone number of CS as the source of the outage. The OMS is programmed to use the caller number as the location ID. As a result, the caller is required to call back using the outage number to report a problem. Customers calling the City of Independence's CS call center, who don't want to call back on the outage number, require manual intervention by a customer service representative to ensure the caller number is entered into the OMS which can delay OMS notification. The frequency of synchronizing updated information between the Customer Service information and the OMS contributes to this problem.
3. Difficulty in reporting and outage was a complaint by a large customer who was unable to reach IPL staff to report a significant outage. The customer had to ultimately send staff to IPL's offices to notify them of the outage.

In addition to the manual nature of IPL outage reporting, the IPL process suffers additional challenges due to inaccurate information relating the caller-ID to the service address. Customers are required to call the Customer Service department to update information regarding the phone number assigned to the service address. During 2023, an average of 71% of calls coming into the OMS were "unresolved" (e.g., could not assign a service address of the outage). This significantly slows down the process of accurate and timely identification of the location of the interruption causing the outage(s). DKMT understands how this has occurred at IPL and finds the same problems at other non-AMI utilities. It would be very difficult to develop and maintain a timely quality database correlating service location with customer telephone numbers without significant effort, and likely with the need for additional Customer Service resources.

Additionally, the current IPL outage reporting process adds significant uncertainty to determining when the outage begins and when it ends, as it is dependent on the linemen finding the interruption location, working to restore power, and then manually closing out the work order. If the outage occurs at night during a severe storm, the lineman is focused on working safely and restoring as many customers as possible, and not on the timely and accurate manual notification of a single restoration work order.

#### *IPL distribution infrastructure and reliability*

DKMT assessed the overall material condition of IPL's distribution infrastructure. The asset assessment was based on a representative sample of the system (e.g., not a statistically based sample), and was conducted by direct expert observation by both a journeyman/lineman and an electrical engineer. In the judgement of the assessment team, they observed no indications that the system could not support the internally reported reliability performance.

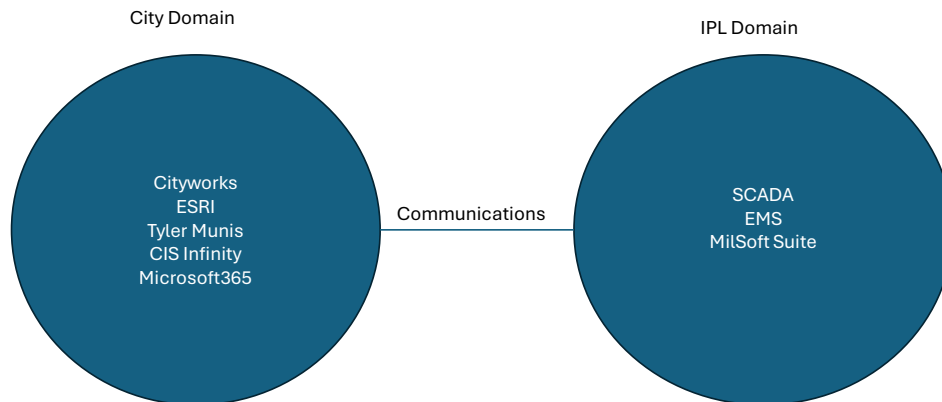


DKMT concludes, as developed through customer interviews, City of Independence community surveys, analysis of both IPL internal and external reliability data (see Appendix G), and our qualitative assessment of the distribution infrastructure, that IPL electric reliability is found to be very good.

## Technology

### Overview of the Technology Environment

The City of Independence (City) and Independence Power & Light (IPL) share the responsibilities for maintaining the technology environment. Provided below is an overview diagram of the two primary domains in which the software and solutions reside.



### City Domain

The City maintains a number of applications that are available to all City departments for use and provides the following functions:

- Accounting
- Human Resources and Payroll
- Procurement and Materials Management
- Asset Management
- Office 365
- Geographic Information System

While the separate domains are maintained by each of the entities, IPL provides dark fiber points of presence (POP) to all the City departments and facilities and manages the telecommunications network.

The CIS Infinity system is maintained by the City and is used by the Water Department to provide all customer billing for services based upon meter readings obtained by IPL employees.

CIS Infinity also does all customer accounting and supports call center services provided for both water and power.

For the purposes of this Strategic Plan, DKMT will focus on systems affecting operations and customer service delivery.

### **IPL Domain**

Within its domain, IPL maintains certain applications that are subject to rules and regulations established by the National Electric Reliability Corporation. These rules are established to assure that each entity can meet certain reliability standards for all generation and transmission owners and operators. While many of these standards apply to physical rules and protocols for operation of those assets, there are certain other standards that apply to Critical Infrastructure Protection (CIP). These standards apply specifically to Supervisory Control and Data Acquisition (SCADA) which is used to manage the Transmission network and key assets in the Distribution network. The Energy Management System (EMS) is subject to these same CIP security standards but is also subject to Inter Control Center Protocols (ICCP) which are established by the Southwest Power Pool (SPP) to dispatch power, purchase power, and participate in the SPP power market.

A critical component that IPL uses to manage its day-to-day operations is a suite of software provided by Milsoft Utility solutions. Major components of this suite include the following:

- Windmill – software that creates an electronic model of all the devices on the distribution network including all substations, primary feeders, and other switching devices. This model is used in conjunction with OMS, discussed below.
- Outage Maps – used to create both internal and external maps.
- Dispatch/Outage Management System – the primary tool in identifying and managing outages that occur on the system. Based on calls from customers, IPL identifies which feeders serve the customers that are out and uses that information to dispatch crews to the suspected lines and or devices connected to the customers with outages.
- Porsche/Outage Call Manager – Integrated Voice Response (IVR) software used to manage outage calls from customers.
- Crew Call – Used to identify crews available and assign them to outages.

The Milsoft suite has effectively served the needs of IPL, as demonstrated by their excellent operation reliability statistics discussed in the Reliability section of this report. However, when configured properly, significant additional capabilities can be achieved by providing an integrated connection between OMS and the CIS/Infinity system to identify outages. Under the current configuration there are certain problems with the data in CIS (e.g., customer phone numbers) and the linking of customers to feeders and devices on the distribution network, this function is not currently available.

In a somewhat unusual arrangement, IPL performs all meter reading and uses the ITRON meter reading solutions and Oracle applications to maintain the data, while the Water Department

provides all billing and customer service, including the call center which handles customer enquiries and takes/transfers all customer outage calls.

### **Shared Applications**

The city also has licensing agreements for certain software that are shared with the other departments including IPL. Most significant among those is ArcGIS provided by ESRI. IPL maintains its own data sets within this application to create maps. Other applications include Dossier and Fuel Master which is used by the Fleet Division asset management and fuel tracking.

### **Assessment of the Current Environment**

The technology used by IPL to manage its generation, transmission, and distribution operations has proven to have been effective. The EMS has been used effectively to participate in the SPP power market and dispatch IPL generation assets, resulting in profits to IPL from the sale of power. SCADA, the Milsoft suite of applications, and other software used to plan, design, and maintain the distribution system has resulted in IPL receiving the RP3, highest rate for reliability, from the American Public Power Association's (APPA). **APPA** recognizes utilities that demonstrate high proficiency in reliability, safety, workforce development, and system improvement. An RP3 designation is a sign of a utility's dedication to operating an efficient, safe, and reliable distribution system.

### **Advanced metering infrastructure (AMI)**

As of 2022, U.S. electric utilities have installed approximately 119 million advanced metering infrastructure (AMI) systems.<sup>20</sup> Among these, residential customers account for approximately 88% of total AMI installations, and about 73% of residential electric meters are AMI meters.

AMI meters, sensing the loss of power, automatically report outages as soon as the interruption occurs. The report is "timestamped" so that, even if there is a delay in the utility receiving the report, the actual start time is captured. In addition, when the power is restored, the AMI meter reports the time of the restoration. A part of the AMI system is Meter Data Management (MDM). MDM removes all manual work associated with outage reporting. In addition, the MDM is directly connected to an Outage Management System (OMS) which, based on meter reports, estimates the place(s) where the interruption occurred. In addition, the OMS will automatically create and send a work order to the utility's field journeymen to initiate restoration. Once the field determines the cause of the interruption (lightning strike, car hitting a pole, etc.) the OMS provides an estimated time to restoration, which is normally available to the customer. AMI removes the location constraint that IPL currently experiences since the meter is assigned to a unique service address, and therefore, when reporting an outage, the system is not dependent on a caller's ID.

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<sup>20</sup> [Frequently Asked Questions \(FAQs\) - U.S. Energy Information Administration \(EIA\).](#)

## **Benefits of an AMI Implementation**

As demonstrated by the Smart Grid Investment Grant (SGIG) Program, the following benefits were identified:

- Reduced costs for metering and billing from fewer truck rolls, labor savings, and reduction in safety incidents.
- More accurate and timely billing.
- Experience has shown that the more accurate meters result in an increase of approximately 3% in revenues.
- Fewer customer disputes.
- Improvements in operational efficiencies.
- More customer control over electricity consumption, costs, and bills from greater use of new customer tools (e.g., web portals and smart thermostats) and techniques (e.g., shifting demand to off-peak periods).
- Lower utility capital expenditures and customer bill savings resulting from reduced peak demand and improvements in asset utilization and maintenance.
- Lower outage costs and fewer inconveniences for customers from faster outage restoration, more precise dispatching of repair crews to the locations where they are needed.

Implementation of an AMI environment is a complex and costly process that requires a 3 to 5 year time period for a successful implementation.

## **Prior IPL Efforts for AMI Implementation**

Beginning in 2015, the City began a process to evaluate the feasibility of an AMI solution. This process continued through the Feasibility Study, the issuance of a Request for Proposal (RFP), evaluation of proposals and the selection of a vendor. However, for a combination of issues including costs, community concerns, and union concerns, the City decided not to pursue the AMI implementation.

Based on interviews and data analysis, DKMT identified the following strategic priorities:

1. To be a unified utility.
2. Considered an industry leader.
3. Attract creative people with innovative ideas to solve problems.
4. Be more efficient, modern, and competitive.
5. High performer.

6. Recruit, retain, and train a highly skilled workforce and be considered “Best in Class.”
7. Transparency in reliability calculations.
8. Implement AMI and other standard technologies (update to current version of Microsoft applications, automated mapping tools and online field access, automated switching) to support a reliable, efficient and customer centric system.
9. Hardened systems that are resilient, more underground lines.
10. Enhanced cybersecurity.
11. Collaborate with new development.
12. Strong emphasis on safety.

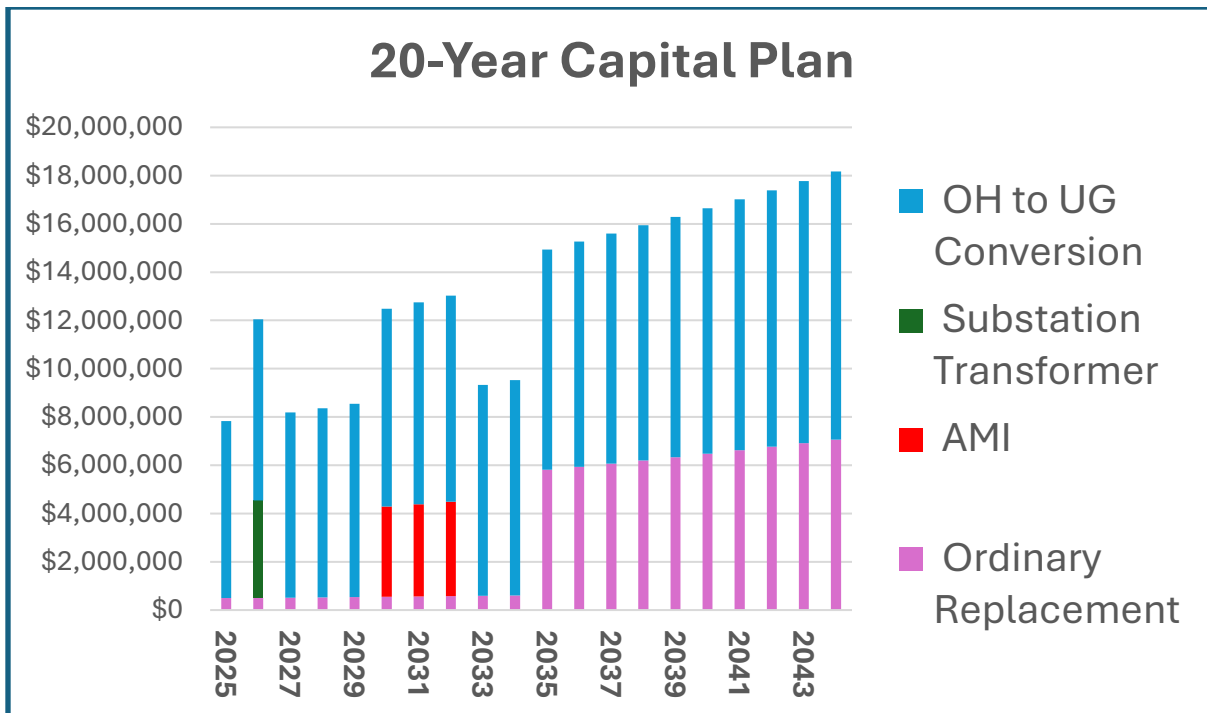
## Strategies

### Foundational

In order to ensure IPL maintains a resilient reliable system there must be a Long-Term Capital Plan for replacements and upgrades that considers the age and performance of assets and financial constraints of the utility. The following describes DKMT’s recommendations:

1. Ordinary Replacements – system equipment replacements based on age and condition of assets and expected life.
2. Critical Upgrades and Replacements – equipment and systems assessed to be between 30 to 40 years in service or in the lower end of fair condition.
3. Growth
4. New Systems
  - a. Meter Conversion to AMI
  - b. Overhead to Underground Conversions
  - c. Spare 161/69kV Substation Transformer

The following chart is a graphic representation of the recommended capital plan options for upgrading and replacing the existing T&D infrastructure and maintaining its current high level of reliability. This is a basic plan and assumes no significant new requirements or customers would be added to the system. The budget for this plan has been incorporated into the financial model for the purpose of projecting cash flows and rate changes.



Long Term Capital Plan

**Technology**

Based upon interviews and observations from the development of the IPL strategy, there are many opportunities that exist in the areas of outage identification, restoration, and communication with customers. Short-term recommendations include the following:

- Update the Milsoft model to trace all feeders to the customer account meters.
- On a regular basis, validate customer phone numbers for ease of outage location identification from call-ins.
- Milsoft to Cityworks integration for damage assessments.
- CIS infinity to Cityworks integration for utility field work and meter reading activity.

These efforts can provide specific improvements in identifying outages, determining which customers are affected, and improve dispatch of crews to respond to outages in a more effective way.

**AMI**

As discussed in previous sections, the most impactful long-term activity includes the implementation of an Automated Metering Infrastructure (AMI). This represents the best practices in those utilities who have undertaken this program.

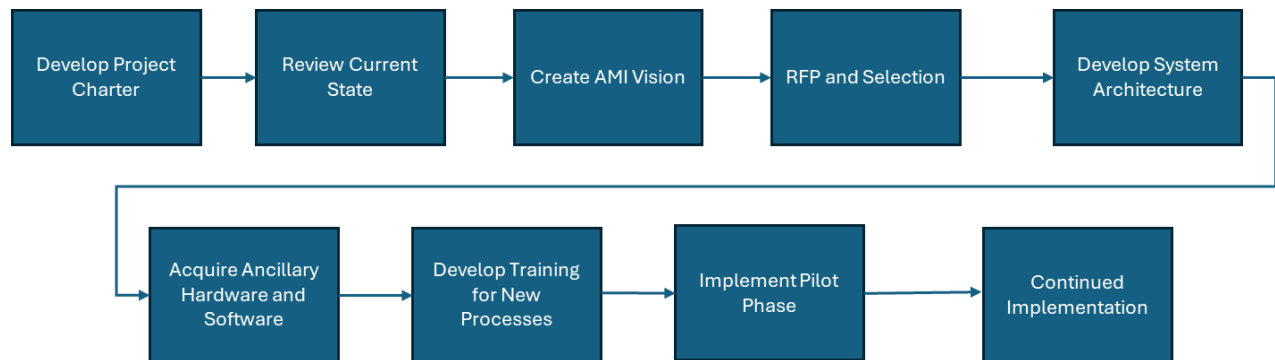
As part of the American Reinvestment and Recovery Act of 2009, the Department of Energy received grant money called Smart Grid Investment Grants (SGIG). Deployment of AMI and customer systems accounted for more than two-thirds of the \$7.9 billion total SGIG investment. SGIG projects invested in new communication networks and information management systems that form the backbone of AMI. Results include the following:

- 16.3 million smart meters – 29% of total U.S. smart meters installed by 2014.
- 250,000 Programmable Communicating Thermostats (PCTs).
- 400,000 Direct Load Control (DLC) devices.
- 100,000 In-Home Displays (IHDs).
- 417,000 – participants in time-based rate and incentive programs.
- 9 – customer web portals.

The SGIG projects demonstrated that AMI and customer systems can achieve substantial grid impacts and benefits for both customers and utilities.

### Recommended Next Steps

In order to begin the journey for implementation of AMI at the City, it is critical to create a vision of the functionality of the AMI-enriched services to be provided for the benefit of the City and its community. Standard project activity and time frame are described below and can take between 3-4 years.



## Future

### Cybersecurity

As an owner and operator for both transmission and generation assets, IPL is required to meet certain reliability standards that are required by the National Electric Reliability Corporation (NERC), which has been charged by the Federal Electric Regulatory Commission (FERC) with



enforcement of the prescribed reliability standards. Cybersecurity has been identified as one of the top strategic risks listed by executives as they look to the future. Interviews indicate that no issues have been identified in a recent review. However, IPL must outsource EV charging infrastructure because it cannot meet cybersecurity requirements. Cyber risks will continue to increase, and security measures will continue to be upgraded. IPL must have staff to stay current with methods and tools to protect utility systems and meet any future regulatory requirements.

## Resilience

At present, infrastructure resilience and outage response times are reasonable. However, utilities across the country are assessing the capabilities of their systems with respect to surviving extreme events and minimizing restoration time. IPL should continue to adhere to its current design and construction standards; reviewing wind, ice and temperature loading conditions on an annual basis to address potential and experienced extreme events is prudent. Consistent vegetation management is one of the most important mitigation measures for maintaining and improving the resilience of the system. The Capital Plan also includes acquiring a backup 161/69kV substation transformer as a key resilience measure due to the reliance on the 161/69kV system transformer capacity and long lead times for acquisition of a replacement in the event of failure of one of the existing transformers.

## Safety

A discussion of safety in the context of this report is limited to the safety of the public with respect to transmission and distribution facilities. IPL should continue to ensure that electrical clearance criteria are met and replace aging equipment to minimize potential mechanical failures that could affect the community. Again, vegetation management is a key component to maintaining safe clearances and reducing the potential for faults during storms.

## Staffing – New Hires and Retention

Hiring and Staffing for the future – incorporating new technologies, training, critical thinking, and succession planning: Where and how to recruit talent (e.g., new innovative resource pools like working with local HS and community colleges to develop specific skills and partner to provide internships), and competitive pay. New technologies and tools are changing the skills needed for a modern workforce. Experienced employees are aging out and retiring. Hiring and retaining employees is even more challenging given the diversity of options and pay opportunities. IPL and the City, working with employment experts, should explore innovative work options and alternative pay structures that are more comparable to the businesses IPL

must compete with to recruit talent. Because IPL is a City department, creating competitive pay plans is a challenge when not consistent with City pay structures. Loss of talent is a reality for Independence and the key to implementing most all the options proposed in this report is having a dedicated skilled workforce. An independent board oversight could facilitate a compensation evaluation and decision, as it would not be City centric.

## Resource Requirements

As discussed above, AMI (costs and savings) and the long term capital plan are significant resource requirements that need to be funded to maintain excellent reliability and put IPL on a level playing field with other regional utilities. These costs are incorporated into DKMT's financial model to show the impact on rates. DKMT assumed, given the magnitude of the investments, part will be debt funded which allows the costs to be spread over the life of the assets and the cost born by rate payers benefiting from those investments. Other technology strategies that optimize existing systems are assumed to be included in existing budgets for software maintenance.

Future strategies require resources to upgrade skills and perform new tasks. Some of this can be met by retraining existing employees and upgrading their skills, as well as attrition opening up opportunities to recruit for the jobs of the future.

## Summary, Budget, and Timetable for Strategic Plan

DKMT used IPL's financial model and modified it for purposes of projecting budget impacts of key strategies. Appendix D provides more detail on the financial impact of the Resource Requirements from each chapter of the report, along with the timing of those impacts.

In summary, if the strategic options, along with changes in financing strategies, are implemented, IPL may not need a rate increase until 2028. IPL appears to have a healthy financial outlook with fixed obligation DSC exceeding targets. The caveat to this will be the timing and source of new generation resources as well as other events that may not have been anticipated. Because this is a high level financial projection, it is recommended that IPL invest in a more detailed financial planning exercise that incorporates a professional generation plan with load forecasts, market forecasts, and the power supply options presented here. This should be reviewed and adjusted annually to reflect new information.

## Additional Long-Term Issues and Future Strategies to Consider

Once IPL achieves the baseline described in previous sections, the opportunities for additional strategic plans increase significantly. The following are some additional long term strategies. However, these cannot be implemented without addressing the financial, rate, technology, power supply, and staffing strategies to bring IPL up to current utility operating standards.

Cultural transformation to a customer centric, technologically advanced, and innovative organization (timeframe 20 years):

- Value – efficiency to utility and added value to customers, cost savings, unified values and operations culture, leading utility of its size.
- Cost – leadership training and follow up (lead by example).

### Future Tariff Design

Electric industry rate designs are anticipated to significantly change because of electrification, Distributed Energy Resource (DER) saturation, increased adoption of electric space heating, increased information made available to customers through the adoption of Advanced Metering Infrastructure (AMI), and changes in the cost structure. Additionally, customers and the utilities that serve them have access to immense quantities of information about customers' consumption, market prices and operation factors (e.g., congestion) providing opportunities for pricing design which benefit both customers and utilities.

The consequences of not adopting advanced rate design will include the following.

#### Increased Pressure on Rates

Failure to adopt advanced rate designs will trigger additional rate increases for IPL which could otherwise be avoided. The rate increases will be triggered by the following factors:

- Adoption of Distributed Energy Resources (DER) could be economically advantageous to the system as a whole or could trigger cost-shifting and increases in rates. In fact, Independence is seeing growth in permit applications and installation of rooftop solar. Rates will need to be redesigned in order to support the economic adoption of DER.
- The SPP wholesale power market provides IPL customers with an economic source of energy reflecting real-time prices. Failure to take advantage of the SPP price signals when prices are low removes the opportunity for IPL customers to consume low-cost energy. In contrast, sending customers a price signal to not consume when wholesale prices are high saves them money and builds trust in the utility.

#### Customer Defection to Other Energy Sources

Customers increasingly have energy options. In the case of IPL, these options could include natural gas from Spire, propane from local distributors and various DER options. IPL's failure to adopt opportunities for advanced rate designs could trigger customer defections and lost opportunities to attract new customers.

#### Ways to Support New End-Uses

Electrification is expanding the use of electric power. The economic expansion of electric power will reduce IPL's rates as sales expansion provides contributions to cover the fixed costs of the system. Examples of new end-uses include Electric Vehicles (EV), and electric heating supplied through high-efficiency heat pumps.

Provide Mechanisms for Customer Choice – Providing mechanisms where customers can control their energy usage and economically adopt new end-uses. Examples of customer choice mechanisms include innovative rate structures, DER adoption and renewable energy options.

#### Advanced Metering Infrastructure

Adoption of AMI is critical to support Advanced Rate Design. The ability to communicate information about the real-time cost of electric power and the end-uses of electricity by the customer are essential in being able to create pricing signals, provide customers with information to manage their bills and adapt the utility to the customer's changing habits and needs. IPL will be required to make a significant investment in resources in order to support Advanced Rate Design.



# Appendices

A – I

# Appendix A – List of Interviewees

## City Leadership

- Zachary Walker, City Manager
- Adam Norris, Assistant City Manager
- Jim Nail, former IPL Director
- Joe Hegendeffeffer, current IPL Director
- Tom Scannel, Community Development

## IPL PUAB

- Les Boatwright
- Anthony Giaramita
- Mike Talcott
- Steve McLuckic
- Brad Chance
- Sheri Tindle

## Community Leaders

- Jason White, Brent Schonelmayer, Roger Hershey -Indy Energy
- Dee Pack – Cargo Largo
- Doug Cowan – CSI cares
- Jodi Krantz – Chamber of Commerce
- Trent Squires, Chris Chancelor – Northpoint
- Chad McGregor, Kevin Jefferies, Eric Green – IBEW local 53
- Greg Mcghee – Independence ISD

## Other

- Chris Lover - PFM

## Appendix B – Input Matrix

*Ideal state for the utility from employees:*

- *A governing body of well-educated professionals who are responsive to the needs of the utility.*
- *The ability to retire and replace 300 MW or more of generation in a cost-effective way.*
- *A well-informed and educated public that understand and support the decisions that the utility makes.*
- *Employees that want to work for IPL and have the skillsets that support strategic priorities, succession planning.*
- *The best reliability in their class of municipal utilities.*
- *Data-driven business decisions.*

	<b>Financial</b>	<b>Customer</b>	<b>Power</b>	<b>Operations</b>	<b>Governance</b>
<b><i>IPL Staff</i></b>	<ul style="list-style-type: none"> <li>- Simplified rates</li> <li>- Fully staffed at competitive salaries</li> <li>- Able to buy needed equipment and stay up to date on state of the industry</li> <li>- Strong financial reserves</li> <li>- Streamlined purchasing processes</li> <li>- Valued input to regulatory bodies</li> <li>- IPL staff does not have access to City budget allocated for shared services, difficult to manage/ transparency issue</li> </ul>	<ul style="list-style-type: none"> <li>- Trusted Energy Partner, build better customer relationships</li> <li>- Better and more services at lower rates (DSM, solar, battery, key accounts, energy audits, expanded IHEAP, fiber)</li> <li>- Customer and children education programs</li> <li>- Grow C&amp;I customers</li> <li>- Empowered customers through modern technology</li> <li>- Streamlined billing process</li> <li>- Affordable rate stabilization</li> <li>- Able to offer economic incentives to attract business</li> <li>- Integrated energy response</li> </ul>	<ul style="list-style-type: none"> <li>-Diverse generation portfolio</li> </ul>	<ul style="list-style-type: none"> <li>- Unified utilities</li> <li>- Industry leader</li> <li>- Succession plan</li> <li>- Empowered and educated employees</li> <li>- Upgraded modern distribution system</li> <li>- AMI and updated outage management system needed</li> <li>- Diamond RP3 reliability</li> <li>- Trusted mutual aid partner</li> </ul>	<ul style="list-style-type: none"> <li>- Run like a business</li> </ul>



		<ul style="list-style-type: none"> <li>-Perhaps consider having Customer Service open longer than 8-5, M-F</li> <li>- While customers can see bills online cannot get information on usage, history, trends, or comparison to prior years; no visibility to customer service orders “My Meter” one solution.</li> <li>- Ordinances, bill graphics, start stop robustness, phone system antiquated and does not offer call back, automated sales tax calculation system</li> <li>- No measurement tracking or KPIs for customer programs to evaluate their success such as % of turnoffs avoided, savings of bills, etc.</li> <li>- EV charging contracted out because IPL does not have the technology firewalls to support</li> </ul>			
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<p><b>City Council</b></p>	<ul style="list-style-type: none"> <li>- Funding of future initiatives maybe difficult</li> <li>- Perception IPL is higher cost &amp; poor generation mix</li> <li>- Use as an eco dev tool with community support</li> </ul>	<p>Better non-technical, non-engineering communication</p> <ul style="list-style-type: none"> <li>- IPL needs to communicate its value to community and how it can help generate jobs</li> </ul>	<ul style="list-style-type: none"> <li>- History of IPL and City still influences distrust</li> <li>- Are current PPA's a bad deal, lack of control over plant operations but still pay</li> <li>- Need oversight and return on these investments</li> <li>- Want to see impact of fully owned generation plan or keep T&amp;D with no generation (contract for all supply)</li> <li>- Skilled staff</li> <li>- Pricing of a single turbine as an option</li> <li>- Is buying into greenbelt express an option</li> <li>- Long term liability of ash ponds, latan and Nebraska City</li> </ul>	<ul style="list-style-type: none"> <li>- AMI Cybersecurity and investment in technology (still on Windows 7 and XT)</li> </ul>	<ul style="list-style-type: none"> <li>- Governance with subject matter experts</li> </ul>
<p><b>PUAB</b></p>	<ul style="list-style-type: none"> <li>- Stable rates that are adjusted on a regular basis</li> <li>- Use IPL as an Economic Development tool with high reliability and low rates</li> </ul>	<p>Understandable bills</p> <ul style="list-style-type: none"> <li>- Educated customer base</li> <li>- Easier to use customer services</li> <li>- App based</li> </ul>	<ul style="list-style-type: none"> <li>- Operate generation independently vs Purchase Power Contracts for supply</li> <li>- Have a plan for</li> </ul>	<ul style="list-style-type: none"> <li>- AMI/AMR</li> <li>- High reliability with a diagnostic tool at customer premise</li> <li>- Hardened systems for resilience,</li> </ul>	<ul style="list-style-type: none"> <li>- Governance model that removes city politics from running the utility as a business</li> <li>- Transparency at all levels or organization</li> </ul>

	<ul style="list-style-type: none"> <li>- Need to leverage grant opportunities</li> </ul>	<ul style="list-style-type: none"> <li>- Do more to help customers reduce bills</li> <li>- Weatherization?</li> <li>- Need subsidies to put more solar on rooftops, heat pumps, etc.</li> </ul>	<ul style="list-style-type: none"> <li>future/more generation</li> <li>- 15% legislated goal for renewables, is IPL there?</li> <li>100% renewable would be a good LT goal</li> </ul>	<ul style="list-style-type: none"> <li>move away from overhead lines and underground</li> <li>- Planned cybersecurity</li> <li>- Need for creative people to produce ideas to make things happen</li> </ul>	<ul style="list-style-type: none"> <li>and governance</li> </ul>
<b>City Leadership</b>	<ul style="list-style-type: none"> <li>- Adequate reserves</li> <li>- Utility rates cover its payments</li> <li>- Funds infrastructure</li> <li>- Use as a development and redevelopment tool for the City to create a better balance in customer make up</li> </ul>	<ul style="list-style-type: none"> <li>- Innovative economy</li> <li>- Business attraction and retention</li> <li>engaged community</li> <li>- Communicate internally and externally</li> <li>- Simplify communication to the public on needs, issues, etc.</li> </ul>		<ul style="list-style-type: none"> <li>- Make IPL, efficient, modern, and competitive as possible</li> <li>- High performing organization</li> <li>- Recruiting and retaining highly skilled workforce</li> <li>- Want to be best in class</li> </ul>	<ul style="list-style-type: none"> <li>- Governance model review and need for decision making on critical issues</li> </ul>
<b>Community Leaders</b>	<ul style="list-style-type: none"> <li>- Need a 20% cost reduction or something less to make rates for all customer classes less than surrounding areas</li> <li>- Transparency in negotiations with businesses and rates, but open to Economic Development options IPL could provide</li> </ul>	<ul style="list-style-type: none"> <li>- C&amp;I rates not designed for economic development</li> <li>- IPL rates not lowest, wide area of interest</li> <li>- Prior corruption, FBI involvement, concerned this is a cultural problem with IPL- how do you change this?</li> <li>- Need weatherization programs along with rebates for</li> </ul>	<ul style="list-style-type: none"> <li>- Would like to move forward with renewables in a responsible fashion</li> <li>- Concerned about coal plants shutting down early and plan</li> <li>- Public wants to know what each generation option cost and rate impact, but in a simplistic</li> </ul>	<ul style="list-style-type: none"> <li>- Need a stable staff with a broader view of the industry</li> <li>- Transparency in reliability numbers and how determined</li> <li>- AMI and other technology solutions used by most modern utilities.</li> </ul>	<ul style="list-style-type: none"> <li>- Governance not working, poor relationship with council, not effective or strategic</li> <li>- Council has enough challenges with low socioeconomic issues and budget, IPL focus takes away time from their other duties.</li> </ul>

	<ul style="list-style-type: none"> <li>- Competitive rates top priority</li> <li>- Should apply for ARRA funds to support programs</li> </ul>	<p>energy efficiency and demand side management to help customers reduce bills. Believe the PILOT creates a disincentive to help customers reduce bills.</p> <ul style="list-style-type: none"> <li>- Customers want information to help them control their bills but will need help and education on how to best do that.</li> <li>- Need more customer focus, eco dev rates, outreach to learn C&amp;I customer needs, lack of incentives like lighting upgrades and others that are typically offered by other utilities</li> <li>- Would like to see a cohesive eco dev strategy between the City, chamber, and IPL</li> <li>- Need energy efficient housing for low income</li> <li>-need low-income weatherization</li> <li>- Customer difficulty at times getting response to outage reporting</li> </ul>	<p>easy to understand manner.</p> <ul style="list-style-type: none"> <li>- Preference for capacity contracts for new power.</li> <li>- Very concerned about power plant contracts and associated risks</li> <li>- Interest in reducing carbon footprint but need more advanced solar and storage along with incentives for large customers</li> <li>- Green power increasingly important</li> <li>- Need more PPAs to help be climate resistant</li> </ul>	<ul style="list-style-type: none"> <li>- Good reliability</li> <li>- Collaborative with new development</li> <li>- Need better safety emphasis</li> <li>- Convert from manual to automated maps/drawing for ease of access in the field, field computers to update and not rely on paper and call in to know where crews are located</li> <li>- Automated switching</li> </ul>	<ul style="list-style-type: none"> <li>- Would like to see best in class governance-council needs to be intentional in recruitment</li> <li>- Option to combine two public power organizations to improve governance and efficiencies</li> <li>- Council approval of any eco dev rate is a disincentive to create them</li> </ul>
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		<ul style="list-style-type: none"><li>- Consolidated billing when customer has multiple meters vs a bill for each meter</li><li>- Communication on programs and services not reaching all large customers</li><li>- IPL interruptible rate has no way to automatically switch customer off when capacity needed</li><li>- Would like IPL to be proactive, show up, explain decisions/actions, responsive</li></ul>			
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## Appendix C – Description of IPL Reliability Awards

Reliable Public Power Provider (RP3) designation<sup>21</sup> – IPL earned, in 2023 for the third straight year, the diamond RP3 designation. This is the highest possible ranking within APPA recognizing IPL as only one of two Missouri public power utilities that have demonstrated proficiency in four key disciplines: reliability, safety, workforce development and system improvement.

Certificate for Excellence in Reliability<sup>22</sup> – IPL was recognized in 2023, based on EIA data in 2018-2022, for achieving a System Average Interruption Duration Index (SAIDI) in the top quartile, including, or excluding Major Event Days (MEDs or ME days). SAIDI quantifies the average outage duration experienced by each customer served.

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<sup>21</sup> [APPA 2023 RP3 Award to IPL, May 3, 2023](#)

<sup>22</sup> [Certificate of Excellence in Reliability | American Public Power Association](#)

# APPENDIX D – Impact of Certain Changes

## Background

As discussed in the IPL Strategic Plan, certain recommendations were made to set IPL up for the coming years. DKMT used IPL’s “do nothing” financial model and reflected certain changes to revenues, operating expenses, capital expenditures, and debt financing.

The changes include the following:

- Update to Revenues and Operating Expenses for 2022 and 2023 actuals
- Staffing additions
- Capital additions
- Debt Financing
- AMI implementation

Explanations for each of those changes are provided below.

## Staffing Additions

Based upon a review of IPL’s organization, recommendations were made for additional staffing. The additional staff and additional costs are detailed in the table below.

Position	Salary	2025	2026	2027	2028	2029	2030	2031	2032
Financial Analyst	\$ 90,000	\$ 135,000	\$ 135,000	\$ 135,000	\$ 135,000	\$ 135,000	\$ 135,000	\$ 135,000	\$ 135,000
Rate Analyst	\$ 65,000	\$ 97,500	\$ 97,500	\$ 97,500	\$ 97,500	\$ 97,500	\$ 97,500	\$ 97,500	\$ 97,500
Communications/Marketing Manager	\$ 80,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000
Key Account Manager	\$ 65,000	\$ 97,500	\$ 97,500	\$ 97,500	\$ 97,500	\$ 97,500	\$ 97,500	\$ 97,500	\$ 97,500
Energy Program Developer	\$ 100,000	\$ 150,000	\$ 150,000						
Energy Program Staff	\$ 50,000		\$ 75,000	\$ 75,000	\$ 150,000	\$ 150,000	\$ 225,000	\$ 225,000	\$ 225,000
HR Training Manager/Coordinator	\$ 100,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000
Technology Web and Application Developer	\$ 75,000	\$ 112,500	\$ 225,000	\$ 225,000	\$ 225,000	\$ 225,000	\$ 225,000	\$ 225,000	\$ 225,000
Data Analysis	\$ 65,000				\$ 97,500	\$ 97,500	\$ 195,000	\$ 195,000	\$ 195,000
Total Salary and Benefits		\$ 862,500	\$ 1,050,000	\$ 900,000	\$ 1,072,500	\$ 1,072,500	\$ 1,245,000	\$ 1,245,000	\$ 1,245,000
Add Inflation at 2%			\$ 879,750	\$ 1,071,000	\$ 918,000	\$ 1,093,950	\$ 1,093,950	\$ 1,269,900	\$ 1,269,900

## Update for FY 2022 and 2023 Actuals for Revenues and Expenses

Since the IPL model includes an escalation for revenues and operating expenses to provide for inflation with the starting point in the model based on estimates for those years, the updates to actuals as presented in the audited financial statements in 2022 and 2023 set a new starting point of 2023 for model expense and revenue escalation.

In the case of revenues, IPL estimated customer growth at approximately 1% while customer consumption was reduced by .7%, the net impact is a growth rate for kWh sales of .3%, which DKMT used as the revenue escalation factor.

For operation expenses IPL used individual growth percentages by FERC account. On average, this escalation percentage was approximately 2.2%.

## Modification of Capital Improvements based upon DKMT recommendations

DKMT performed an overall condition assessment of IPL assets and developed annual amounts for capital expenditures. Those values were used to replace IPL forecasts of plant additions.

### Implementation of an Automated Metering Infrastructure

IPL previously (2017) went through a process to approve an AMI system implementation. That effort was discontinued but using the costs from that vendor (inflated to today's dollars), DKMT was able to evaluate the impact of that implementation. Changes were made for the following areas:

- Three per cent increase in revenues due to more accurate meter reads,
- An increase in O&M expense for AMI of about \$700,000 per year,
- Conservative estimate of savings from reduced vehicle turns, labor, and worker compensation.

There will be more savings that can be captured once the AMI system is in place.

### Use of Debt Financing

In IPL's financial model, it was assumed that all capital improvements (CIP) are funded from current year revenues with no consideration to financing any of those investments with debt. DKMT substituted the amounts funded from operations to 50% of the revised CIP amounts. In addition, DKMT assumed that 50% of those CIP expenditures, and the implementation of AMI will be funded by issues of Tax-Exempt Commercial Paper (TECP). For purposes of DKMT analyses, the TECP debt accumulated during the first three years is then replaced with 30-year bonds.

### Summary of the Results

Prior to any adjustments in the IPL model, rate increases of 7% and 14% would be required over the period from 2026 through 2030. With the adjustments provided, IPL's key financial indicators are relatively robust with Debt Service remaining above the targeted debt service coverage of 1.20 and adequate days cash hand, as well as exceeding the risk based targeted reserve of \$25 million are shown below.

<b>Fixed Cost Coverage Ratio Calculation</b>									
	2025	2026	2027	2028	2029	2030	2031	2032	
Operating Revenues	\$ 137,210,630	\$ 139,244,415	\$ 142,211,930	\$ 143,421,695	\$ 143,810,456	\$ 144,199,592	\$ 144,578,664	\$ 145,090,053	
Interest and nonoperating re	\$ 4,077,226	\$ 2,525,826	\$ 2,525,826	\$ 2,525,826	\$ 2,525,826	\$ 2,525,826	\$ 2,525,826	\$ 2,525,826	
Revenues available	\$ 141,287,856	\$ 141,770,241	\$ 144,737,756	\$ 145,947,521	\$ 146,336,282	\$ 146,725,418	\$ 147,104,490	\$ 168,243,279	
Operating and Maintenance	\$ 111,191,635	\$ 113,808,522	\$ 117,485,631	\$ 120,861,034	\$ 122,704,111	\$ 125,691,788	\$ 128,760,197	\$ 131,931,293	
Purchased capacity	\$ (13,508,201)	\$ (13,503,067)	\$ (13,499,841)	\$ (13,515,680)	\$ (13,341,350)	\$ (13,475,582)	\$ (13,453,292)	\$ (13,444,832)	
Transfer (PILOT)	\$ 11,715,454	\$ 11,900,121	\$ 12,169,572	\$ 12,279,418	\$ 12,314,718	\$ 12,350,051	\$ 12,384,471	\$ 12,430,905	
Net cash operating exp	\$ 109,398,888	\$ 112,205,577	\$ 116,155,362	\$ 119,624,773	\$ 121,677,479	\$ 124,566,257	\$ 127,691,377	\$ 115,209,101	
Cash available for DS	\$ 31,888,968	\$ 29,564,664	\$ 28,582,394	\$ 26,322,749	\$ 24,658,803	\$ 22,159,161	\$ 19,413,114	\$ 53,034,178	
Debt Service	\$ 8,623,344	\$ 10,749,922	\$ 10,749,172	\$ 10,748,672	\$ 10,747,922	\$ 10,751,422	\$ 10,748,422	\$ 10,753,672	
Capacity payments	\$ 13,508,201	\$ 13,503,067	\$ 13,499,841	\$ 13,515,680	\$ 13,341,350	\$ 13,475,582	\$ 13,453,292	\$ 13,444,832	
Total treated as Debt	\$ 22,131,545	\$ 24,252,989	\$ 24,249,013	\$ 24,264,352	\$ 24,089,272	\$ 24,227,004	\$ 24,201,714	\$ 24,198,504	
Fixed cost coverage	1.44	1.22	1.18	1.08	1.02	0.91	0.80	1.29	
Fixed cost coverage target	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	
Amount required to meet 1	\$ 26,557,854	\$ 29,103,586	\$ 29,098,815	\$ 29,117,222	\$ 28,907,126	\$ 29,072,404	\$ 29,042,056	\$ 29,038,204	
Shortfall/(Excess)	\$ (5,331,114)	\$ (461,078)	\$ 516,421	\$ 2,794,473	\$ 4,248,324	\$ 6,913,244	\$ 9,628,943	\$ 2,213,261	
% Increase	-4%	0%	0%	2%	3%	5%	7%	2%	

As can be seen above, IPL's cash flow is sufficient to cover fixed obligations with no shortfall until 2027. As it stands, IPL will not need to have a rate increase until FY2028. It is likely that the addition of AMI



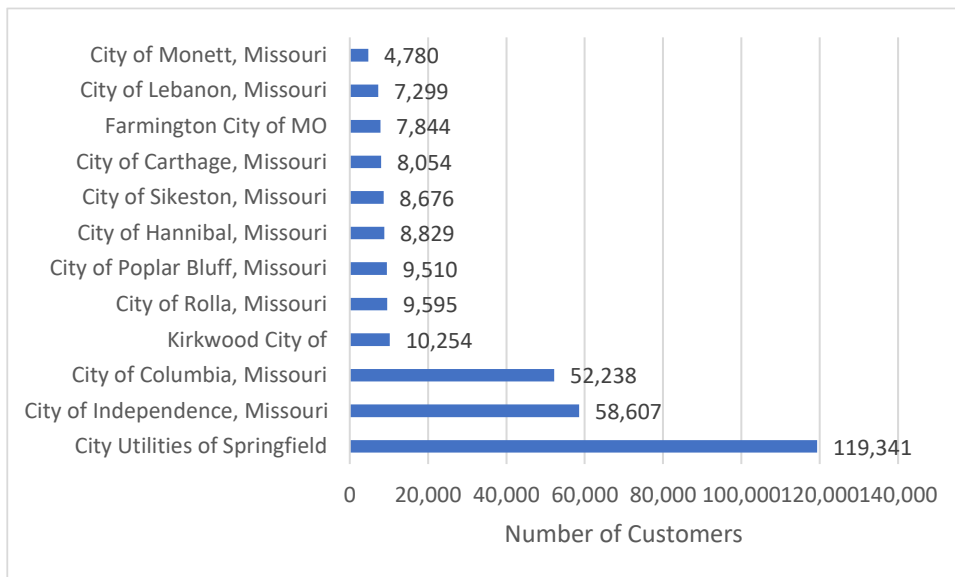
and technology integration could result in enough savings to extend the need for a rate increase beyond 2028. In addition, access to certain grants through the Federal government could reduce the amounts required to meet fixed cost coverages, reduce costs and ultimately the need for future rate increases. Every \$1.3 to 1.6 million increase in grants, revenue or decreased operating expense equates to a 1% reduction in rates.

DKMT did not extend the model projections beyond 2032. Were that projection to be performed, it can be expected that both revenues and operating expenses would increase by about 2% per year.

## Appendix E – Rates Comparison Details

Twelve municipal utilities in Missouri report information supporting the calculation of average revenue per kWh. Figure 2 lists these municipal utilities and the number of customers served.

Figure 9 – Missouri Municipal Utilities - Number of Customers Served - 2022

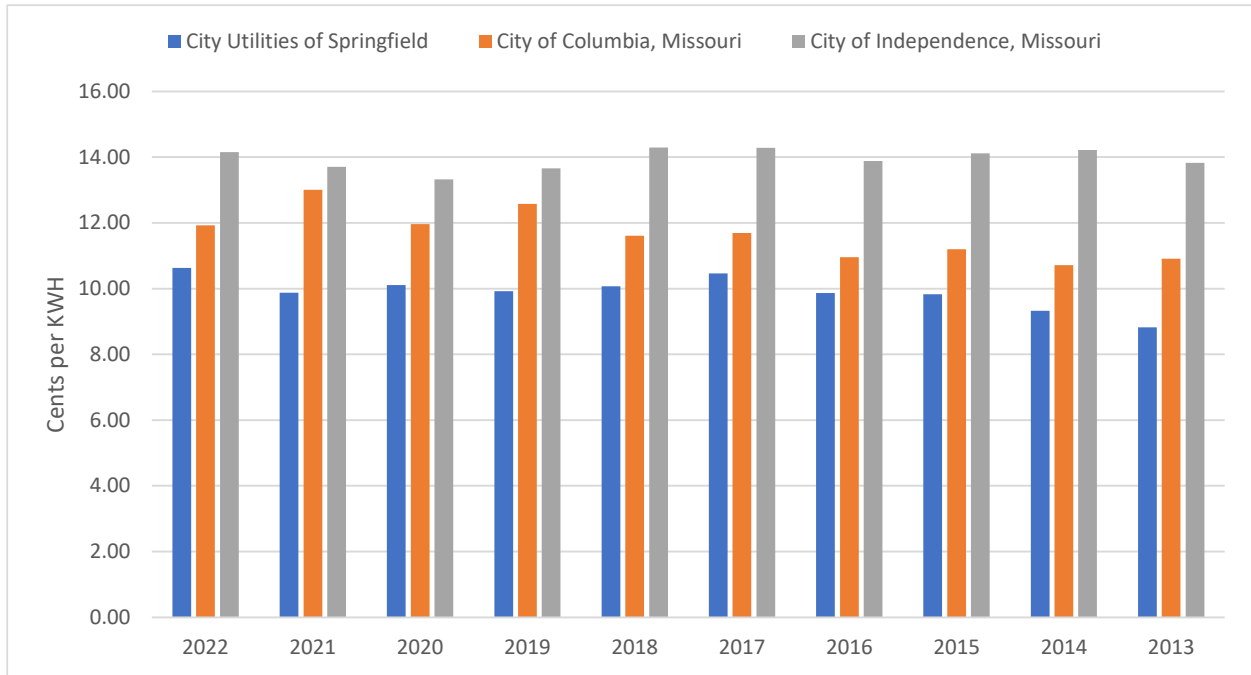


The above figure illustrates that IPL is one of three larger municipal utilities in Missouri, which includes Springfield and Columbia. The next largest municipal utility in Missouri is Kirkwood, which is less than 20 percent the size of IPL. It is unreasonable to compare smaller municipal utilities to larger organizations due to differences in their operations and the economies of scale possessed by the larger utilities. Therefore, the municipal average revenue analysis was completed by comparing IPL to Springfield and Columbia.

Detailed Average Price Analysis (Data is sourced from S&P Global Database)

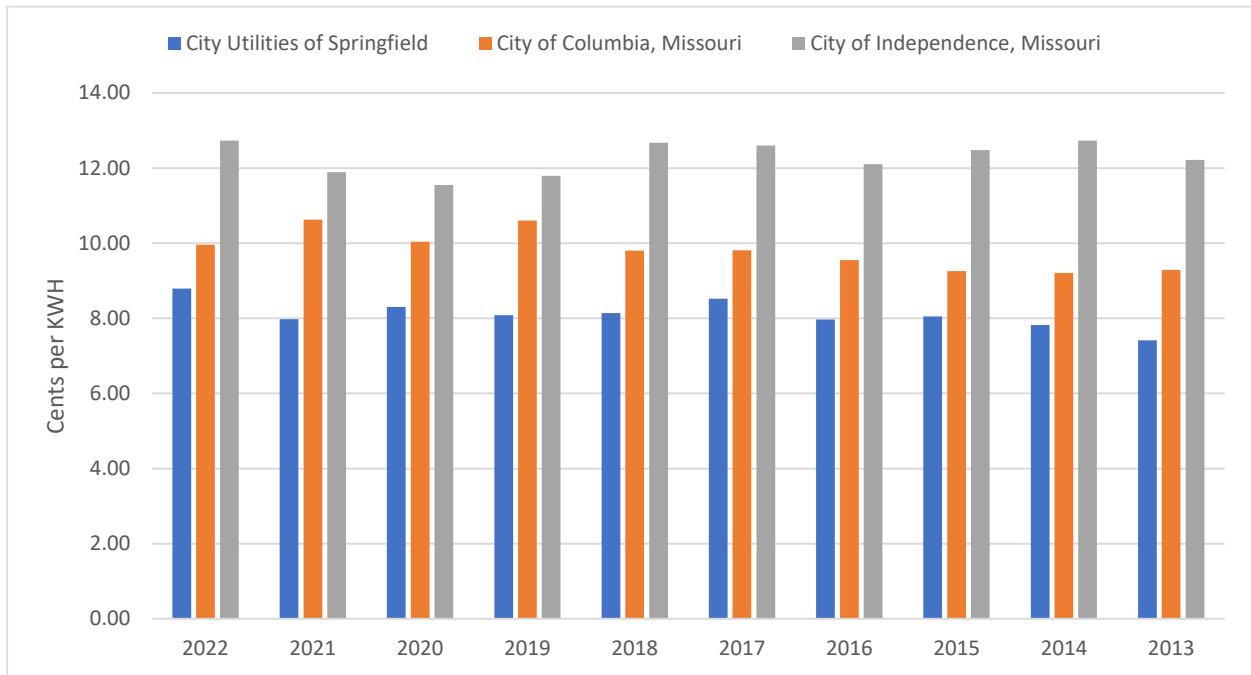
A comparison of residential average revenue for the 2013-2022 time period is provided in Figure 10 below.

Figure 10 – Residential Average Revenue per kWh



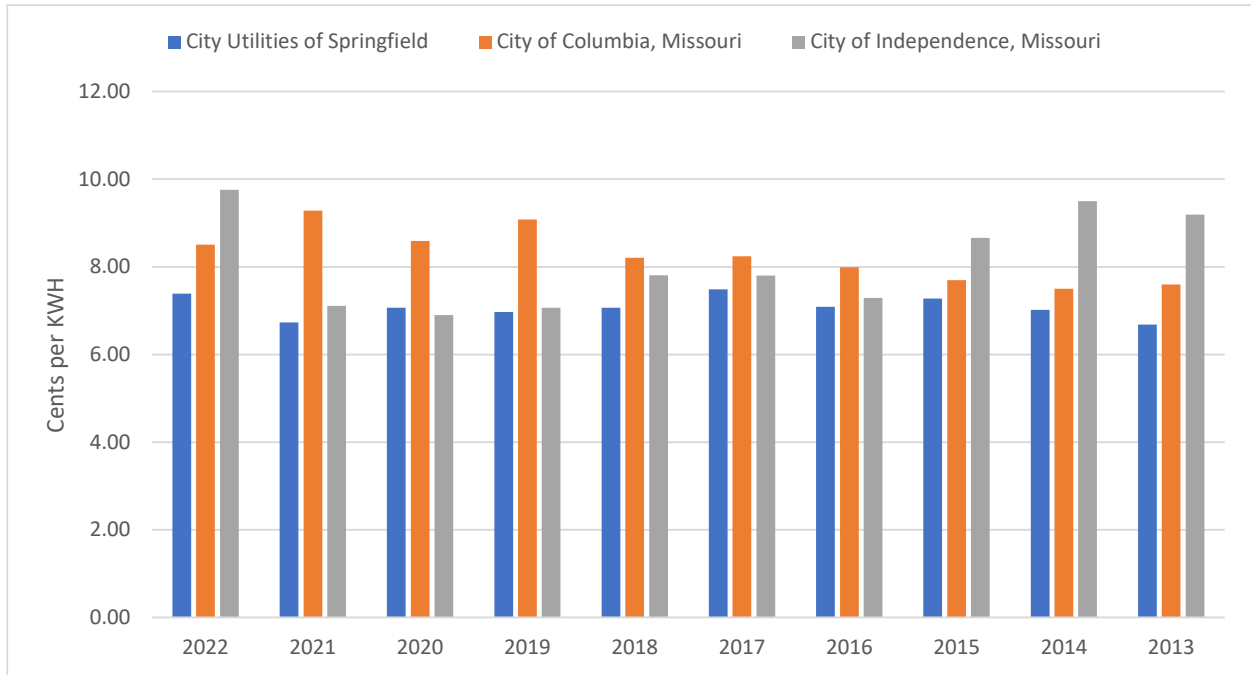
IPL’s residential average revenue per kWh is currently 33 percent higher than Springfield and 19 percent higher than Columbia.

Figure 11 – Commercial Average Revenue per kWh



IPL’s commercial average revenue per kWh is currently 45 percent higher than Springfield and 28 percent higher than Columbia.

Figure 12 – Industrial Average Revenue per kWh

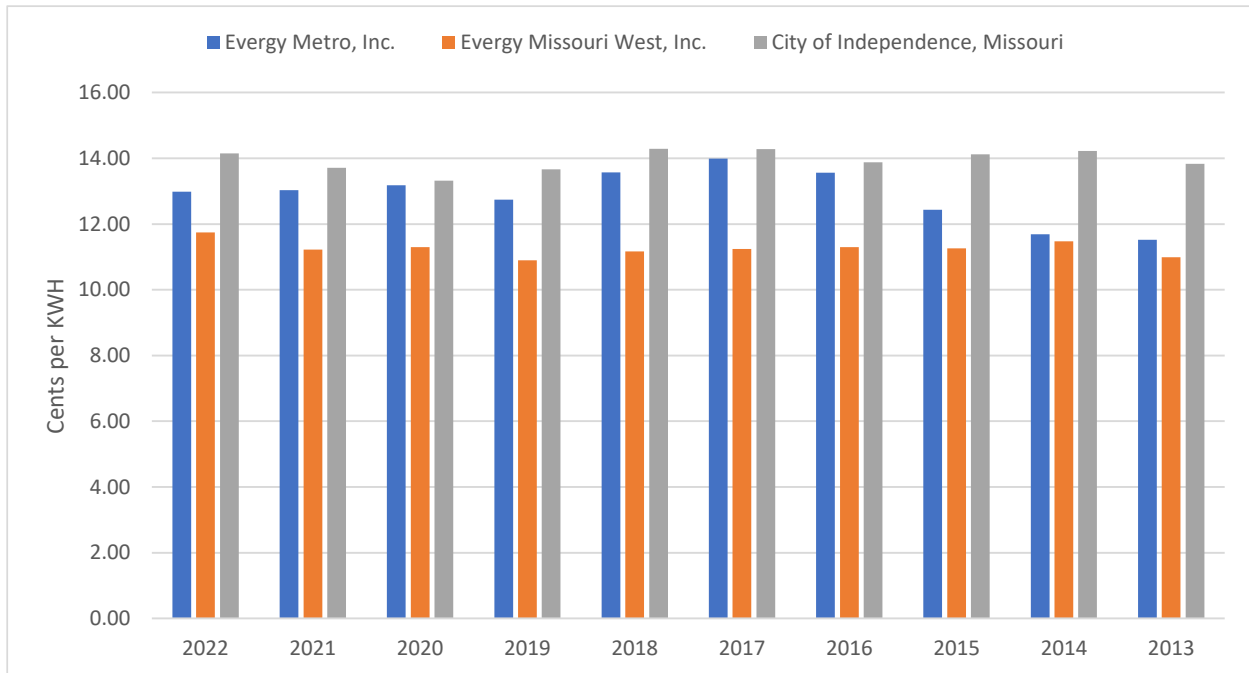


IPL’s industrial average revenue per kWh is currently 32 percent higher than Springfield and 15 percent higher than Columbia.

IPL’s total retail average revenue per kWh is currently 44 percent higher than Springfield and 28 percent higher than Columbia, as shown in the Financial Strategy section of the report.

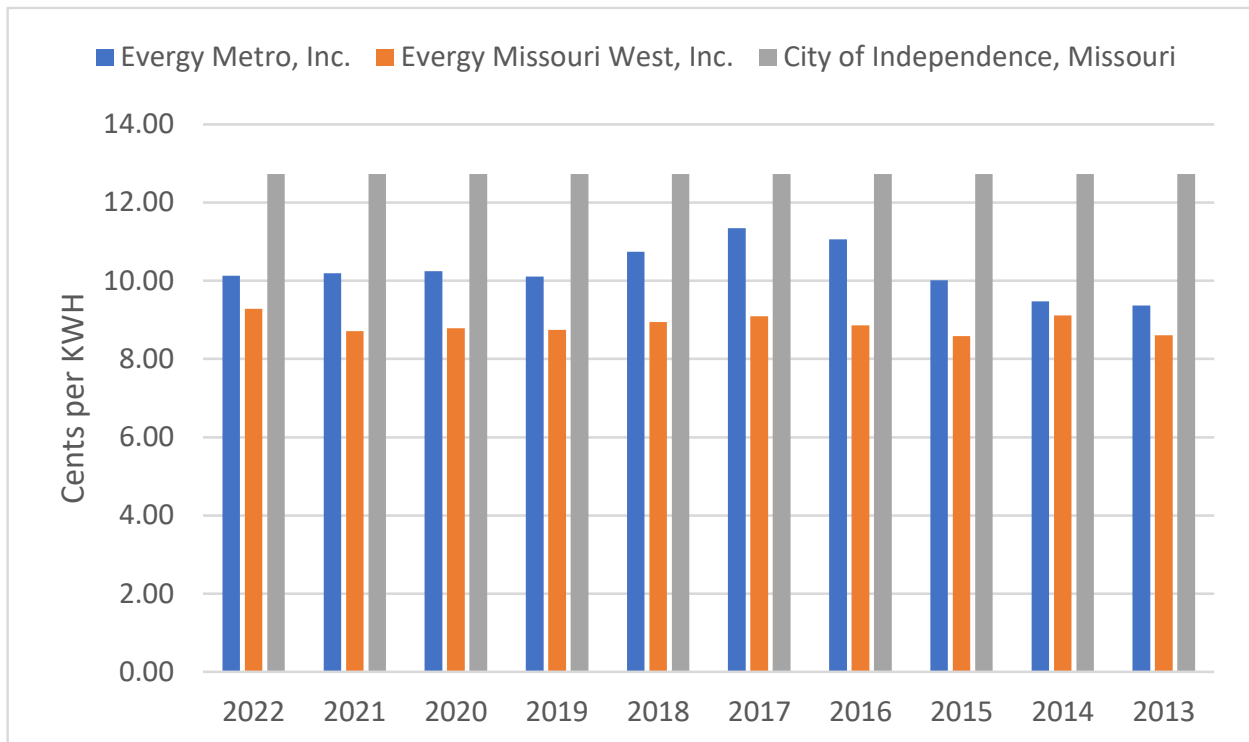
## Comparison to Evergy's Average Revenue per kWh

Figure 13 - Residential Average Revenue Comparison – Independence versus Evergy



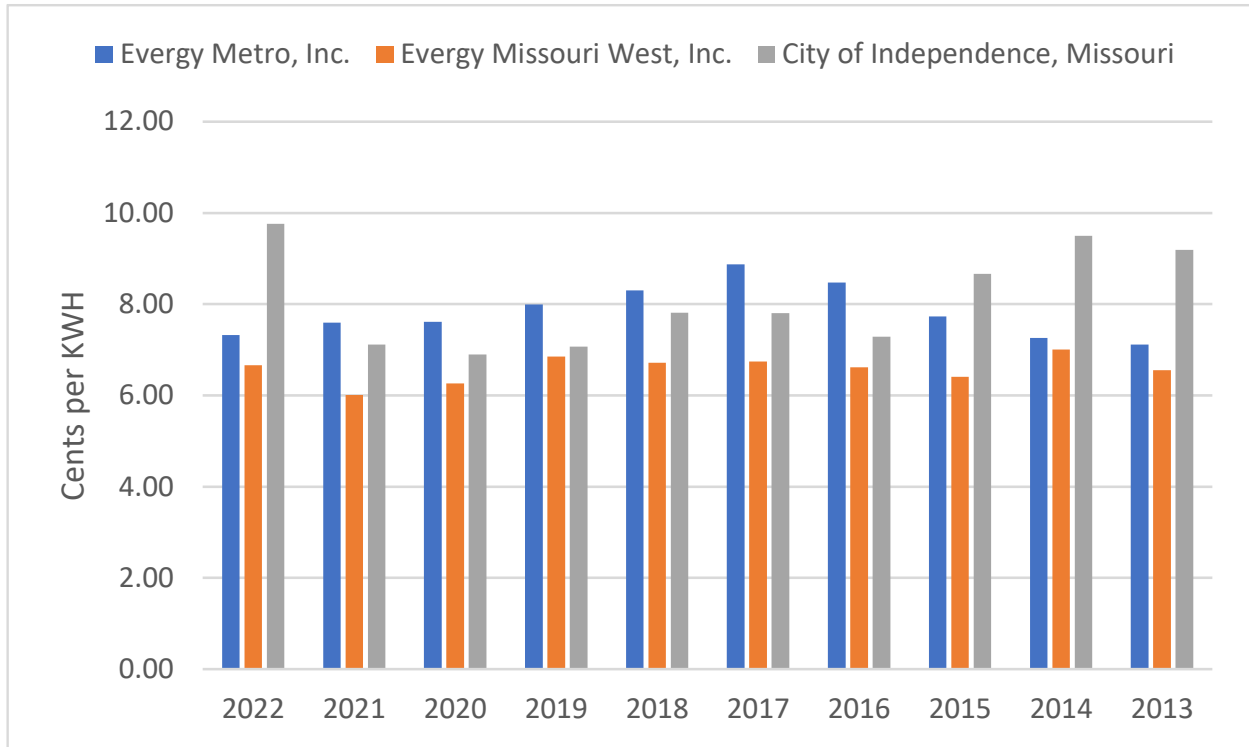
IPL's residential average revenue per kWh is currently 9 percent higher than Evergy Metro and 20 percent higher than Evergy Missouri West.

Figure 14 – Commercial Average Revenue Comparison – Independence versus Evergy



IPL's commercial average revenue per kWh is currently 26 percent higher than Evergy Metro and 37 percent higher than Evergy Missouri West.

Figure 15 - Industrial Average Revenue – Independence versus Evergy



IPL's industrial average revenue per kWh is currently 33 percent higher than Evergy Metro and 47 percent higher than Evergy Missouri West.

## Appendix F – Description of Customer Programs

Customer Programs – Customer Programs include both commercial and residential programs.

- Commercial Rebates – Commercial rebates, both Prescriptive and Custom, are designed to help businesses implement energy efficiency measures that can reduce electric use and operating costs by offering financial incentives to offset the initial investment. Customers are eligible for up to \$20,000 or 30% of the project. IPL offers \$125,000 in rebates annually which are fully utilized.
- Residential Rebates – One of the programs is designed to help customers replace their existing air conditioners and heat pumps with energy efficient units. Customers can receive between \$109 - \$384 for air conditioner rebates and \$259 - \$701 for heat pump rebates. The minimum SEER is 14.5 for A/C and heat pump rebates. IPL has a budget of \$200,000 annually for residential rebates which are never fully used.
- Surge Protection – Protects our customer against surges which may enter a home through **electric power lines**. The cost is \$4.95/month for customers to have this service. Typically, there is about one claim annually. IPL had about 700 customers subscribed with a total of 5 claims.
- Home Energy Loan Program – Independence HELP is a partnership between the City of Independence Power & Light Department, City Credit Union to provide low-interest loans for eligible energy efficiency measures. Those who may qualify are owner-occupants of residences located in the City of Independence that are installing new heating and cooling systems, hot water heaters, air sealing and insulation, windows, and exterior doors.
- I-Share programs - The I-Share program has been in existence for over 20 years. The programs pay the customer's utility bill as a one-time assistance. Over the last several years funding has been increased to help meet the demand for higher bills along with the ever growing population that could use the assistance. IPL budgets \$60,000 annually for I-Share and all budgeted funds are used annually to assist customers with their utility bills.

Eligibility requirements are:

- Income cannot exceed 150% of the Federal Poverty Level (About \$24,000 for a family of 2).
- Customer must be utility account owner.
- Customer is eligible for I-Share assistance once a year.
- IRAP - The IRAP program has been in existence for over 20 years. The program pays ½ of the customer's utility bill on a continuing basis. Over the last several years funding has been increased to help meet the demand for higher bills along with the ever-growing

aging population that could use the assistance. IPL budgets \$230,000 annually for IRAP and all budgeted funds are used annually to assist customers with their utility bills.

Eligibility requirements are:

- Income cannot exceed 150% of the Federal Poverty Level (About \$24,000 for a family of 2).
  - Customer must be over 62 years of age or disabled.
  - Customers are re-certified annually.
- Community Solar Farm – The City of Independence Power & Light has an 11 Megawatts Community Solar Farm that customers, both residential and commercial can become subscribers. IPL currently has a total of 299 customers subscribed (about 50% of the capacity) with 203 residential and 96 commercial customers, using 5,655 kw. The cost to subscribe is \$2.47 per unit, each unit is 144 kWh. When customers subscribe to the Solar Farm, they lock their current rate in for 15 years. The community solar program is currently 50% subscribed.
  - Weatherization – IPL funds \$50,000 a year to Truman Habitat to assist customers who don't qualify for assistance through the loan program. The cost to do an assessment is shared equally with Spire gas with an average home needing \$8500 in improvements.
  - Marketing/Community Involvement - Support Services staff partners with multiple organizations in the City of Independence to provide education and support. The Independence School District has multiple events each year that IPL supports and sponsors through the FORD Next Generation program. Support Services staff also provides education to students and their parents on energy conservation, electrical safety, and career path opportunities.



# Appendix G – Reliability Data

## SAIFI Performance

As stated earlier, the System Average Interruption Frequency Index measures how often the average utility customer experiences an interruption. DKMT performed an analysis of IPL monthly customer and outage data for fiscal year (FY) 2019 through FY2024 (February). The outage data did not include major event (ME) days<sup>23</sup>. Because IPL provided our team with monthly data, we were able to estimate calendar year (CY) SAIFI as shown in below.

Table 1 - Estimated IPL SAIFI w/o ME Days

CY2019	CY2020	CY2021	CY2022	CY2023
0.034	0.029	0.053	0.024	0.031

The five-year average IPL SAIFI is 0.034. This means, on average, less than 4% of IPL customers experienced an outage, for non-Major Event days, each year between 2019 and 2023. As a benchmark, first quartile 2022 IEEE SAIFI performance was 0.84<sup>24</sup>. Therefore, even if there are significant challenges with data quality because of IPL’s non-AMI outage processes, IPL’s SAIFI performance is extremely good. We believe interruptions are so infrequent on non-ME days that IPL’s customers understand that interruptions and outages do occur.

DKMT also developed a more localized benchmark peer group from cooperatives, investor owned, and municipal utilities located in IA, KS, and MO (within 250 miles of the City of Independence), with greater than or equal to 25,000 customers, and who report SAIFI performance from 2019 through 2022 to the US Energy Information Administration. EIA Form-861 data<sup>25</sup> reports on a calendar year basis; so, DKMT estimated calendar year SAIFI statistics based on month-by-month customer counts and outage data.

As shown below, IPL SAIFI performance is the best in the peer group. Even if one doubled or tripled IPL’s SAIFI statistics to reflect the potential uncertainty of outage data due to the non-AMI OMS process described earlier, it would not change IPL’s ranking as best among peers’ performance.

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<sup>23</sup> [IEEE defines Major Event Days](#) (MEDs) through a statistical analysis using daily calculated System Average Interruption Duration Index (SAIDI). While the link provides a good, detailed discussion of the MED methodology, MEDs “... represent those events of such a reliability magnitude that a crisis mode of operation is required to adequately respond.” Practically, think of an ME day as one which results from a very severe thunderstorm or ice storm affecting IPL customers.

<sup>24</sup> [IEEE Benchmark Year 2023 Results for 2022 Data, 2023 Distribution Reliability Working Group Meeting, July 19, 2023, Orlando, FL.](#)

<sup>25</sup> [Annual Electric Power Industry Report, Form EIA-861.](#)

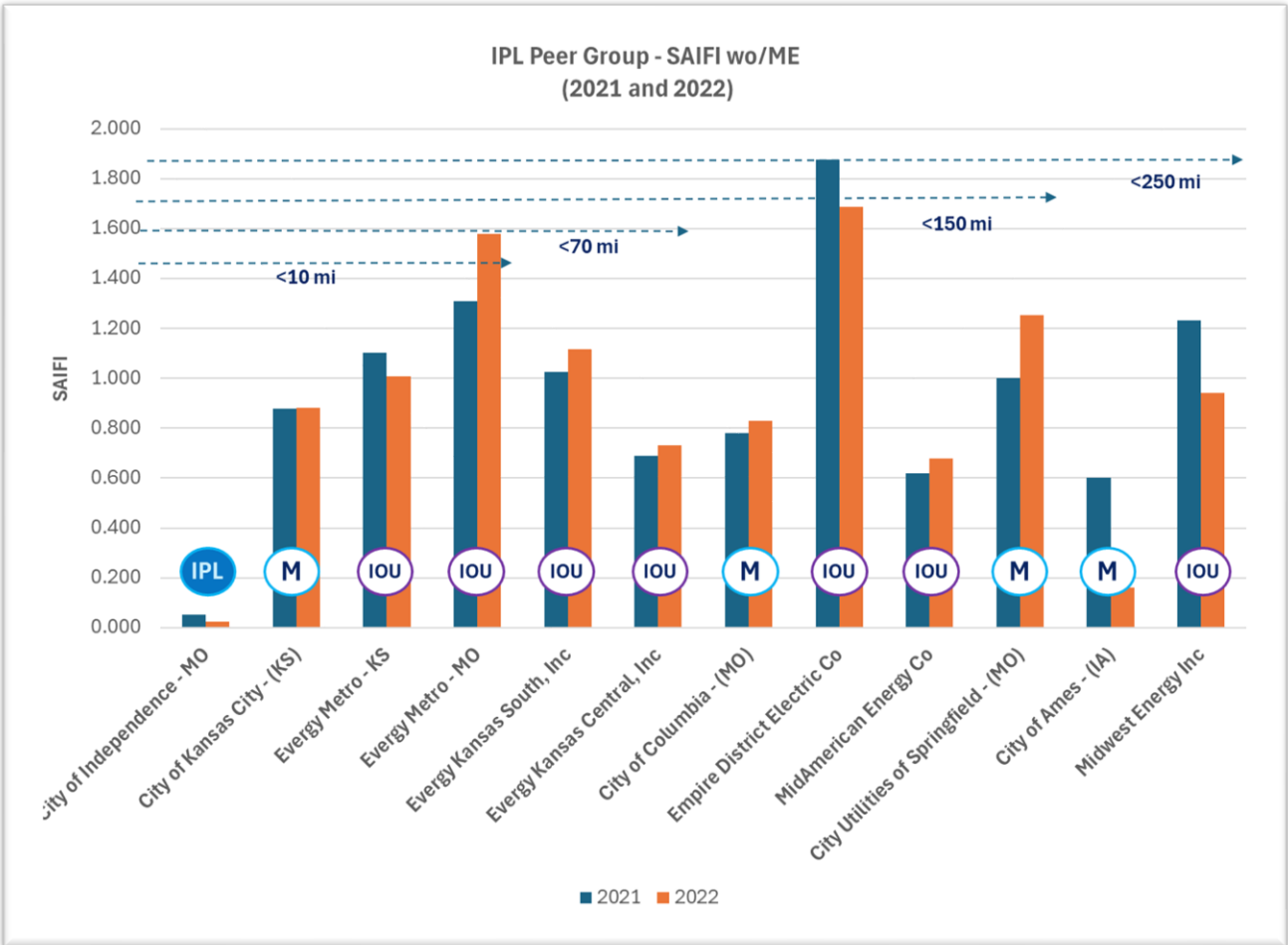


Figure 16 - IPL Reliability Peer Group CY 2021 and CY 2022 SAIFI performance.

## CAIDI Performance

DKMT reviewed IPL Customer Average Interruption Duration Index (CAIDI) performance between FY2019 and FY2023. We note that IPL internally reports CAIDI performance monthly for the fiscal year from July 1 through June 30. We did not estimate calendar year-end CAIDI statistics, as we believe the month-over-month data offers adequate insight into IPL’s CAIDI performance.

The figure below shows a surface graph of IPL’s CAIDI performance month by month between FY2019 and FY2023. We note that there is a high variability in CAIDI, which is due to severe weather events that do not reach ME day status. For the five-year period, the monthly average CAIDI was 98.58 minutes. During this same period, there are four monthly average CAIDI indices greater than 150 minutes. These occur when expected (spring, late-summer, and January/February).

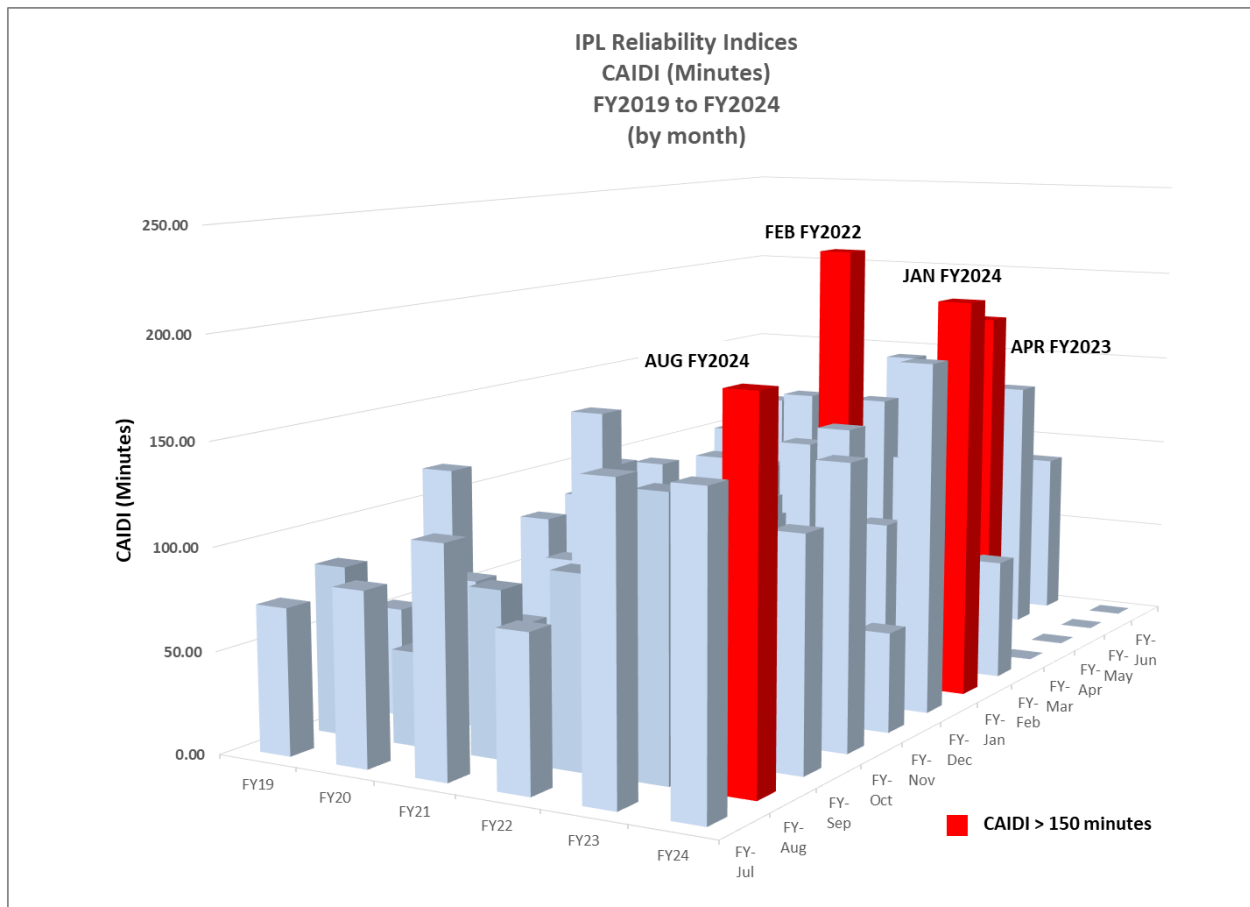


Figure 17 - IPL CAIDI FY-2019 through (FY2024(FEB))

**ASAI Performance**

Finally, we reviewed IPL's Average Service Availability Index (ASAI) during the fiscal five-year period of FY2019 through FY2024. The overall average "up time" for the distribution system was 99.994% with a low of 99.982% and a high of 100%.

# Appendix H – AMI Implementation Timeline Detail

## **Total Expected Implementation Time 3 to 5 Years**

### ***Step 1—Charter and create AMI project—One month.***

A Charter for the project should be documented, team members selected, and a high-level plan for implementation should be developed. During this phase, the Steering Committee will establish a plan for implementation. Included in the plan is whether AMI will be phased in or fully implemented over the entire system. Most utilities use a phased-in approach with the first phase being used as a pilot project to prove the functionality and identify any challenges that will be faced in future system feeder implementations.

During the previous AMI project, an AMI Evaluation Committee was formed. The Committee consisted of the following members:

- Power & Light Department Acting Director
- Water Department Director
- Water Pollution Control Department Deputy Director
- Power & Light Department Utility Project Development Manager
- Water Department Distribution Engineering Manager
- Power & Light Department Systems Program Supervisor
- Power & Light Department Communications Supervisor

For this effort, it is recommended that representation from the Billing and Customer Service functions be added.

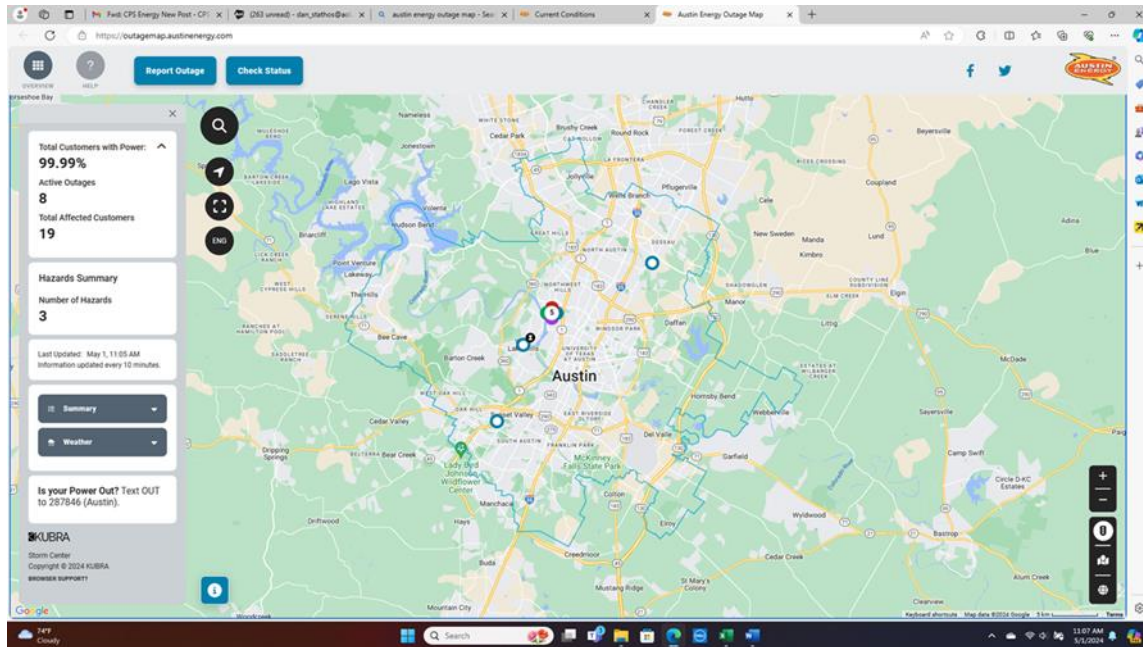
### ***Step 2—Review the Current State—One Month***

The Committee needs to identify the current systems, the services they provide, and the data used. Current processes also need to be documented and critical data identified. All of this should be documented for use in identifying gaps that may exist once the vision is developed.

### ***Step 3—Develop a Vision of an AMI-enhanced Environment—Two Months***

This effort should include review of some of the best practice utilities that currently have a fully implemented AMI environment. This review will include identifying the types of information that can be provided to both fully support distribution system operations, and customer-facing data that can be used to manage the system and enhance a customer portal more efficiently. This effort is to perform a search for utilities that are known for best practices in the use of their data. As an example, provided below is a system outage map that is used by Austin Energy to keep customers informed as to the location and status of outages. Austin Energy also has a number of portal services that customers can use to understand their consumption patterns

and assist in identifying opportunities for reducing their consumption and energy costs. The Committee should identify AMI best practice utilities and review their current functionality with those entities.



***Step 4—Begin the RFP issuance, evaluation, and selection process—4 Months***

Because the City has gone through this process previously and appears to have an effective approach, this effort should be continued using those same activities.

The overall process will be complicated and could take anywhere from three to five years to complete. New hardware will be introduced on both the IPL and Water systems, as well as on customer premises. The work activities will change and impact the responsibilities of certain work groups, including customer care and meter readers will find a change in their responsibilities, focusing more on meter testing, troubleshooting, and data management and analysis.

***Step 5—Design the System Architecture—One Month***

Collaborating with the selected vendor, design the hardware and software infrastructure that will be needed to support the new environment. This will help to identify what additional hardware and software will be needed.

***Step 6—Acquire Ancillary Hardware and Software—One Month***

The AMI architecture will require additional hardware, equipment, and software solutions. Hopefully, this equipment will be identified once the vision, and the solution provider processes are complete.

***Step 7—Training for the AMI Environment—Two Months***

The transition to the new AMI-enhanced environment will require training for the new activities. Full-time meter reading duties will be reduced, however, there will be new activities that former meter readers can take on, those activities include the following:

- New meter replacement
- Meter testing in house
- Field meter testing
- Data analysis
- Monitoring for usage at vacant locations
- Field trouble shooting

As part of the Pilot implementation, training for the new activities will be required and modified as lessons are learned from the Pilot Implementation.

***Step 8—Pilot Implementation—One Year***

Most utilities have implemented their AMI-enhanced systems in a phased manner. A Pilot phase is typically used by selecting one or two primary and secondary feeders to begin the implementation. Of course, certain systems that support the infrastructure need to be implemented during the Pilot phase. This allows for all functions of the AMI-enhanced environment to be tested and changes made as required.

***Step 9—Continued AMI implementation—One to two years***

Based upon the lessons learned from the Pilot implementation, changes can be made to the processes for the remaining implementation. IPL can also identify additional information requirements for customer facing capabilities.







**Power and Light - Open Capital Projects**  
**As of June 30, 2021**

PROJECT	PROJECT TITLE	ORIGINAL BUDGET	NET BUDGET AMENDMENTS	REVISED BUDGET	REQUISITIONS	ENCUMBRANCES	ACTUALS	AVAILABLE BUDGET
200815	T&D Sys IMPROVEMENTS	\$ -	759,499.86	759,499.86	-	224,841.36	118,013.78	416,644.72
200824	Prod Plt MISC PROJECTS	-	68,257.76	68,257.76	-	-	-	68,257.76
200828	FIBER OPTIC PROGRAM	-	107,894.93	107,894.93	-	44,869.01	14,500.90	48,525.02
201106	69 KV SUBSTATION FACILITIES	300,000.00	(79,638.13)	220,361.87	-	1,435.00	82,139.32	136,787.55
201405	SUBSTATION SECURITY PROJECT	-	263,489.08	263,489.08	-	16,802.75	3,844.69	242,841.64
201509	NEW BILLING Sys	-	22,047.36	22,047.36	-	-	-	22,047.36
201510	Sys OpS / DISPATCH	-	125,694.52	125,694.52	-	35,122.10	81,059.75	9,512.67
201603	69 KV Trans LINE REBUIL	-	1,672,552.81	1,672,552.81	-	1,946,975.93	323,889.33	(598,312.45)
201604	Sys OpS / UPS UPGRAD	-	96,538.87	96,538.87	-	-	51,045.28	45,493.59
201605	Sys OpS WORK AREA	-	682,232.86	682,232.86	-	-	62,390.68	619,842.18
201606	NEW FINANCIAL MANAGEMENT SYS	-	200,000.00	200,000.00	-	-	-	200,000.00
201702	Prod FACILITIES IMPROVE	-	586,830.00	586,830.00	-	-	-	586,830.00
201703	BV GROUND WATER	-	494,708.07	494,708.07	-	157,906.05	49,217.00	287,585.02
201706	SUBSTATION K SWITCHGEAR &	2,075,000.00	5,561,875.31	7,636,875.31	-	3,834,916.56	3,375,044.24	426,914.51
201707	MASTER PLAN-FUTURE GENERATIO	-	32,500.00	32,500.00	-	-	-	32,500.00
201710	Mo CITY DIVESTITURE	-	610,600.14	610,600.14	-	530,640.20	79,959.44	0.50
201803	SERVICE CENTER TRUCK HOUSING	-	-	-	-	15,600.00	-	(15,600.00)
201804	SUBSTATION E SWITCHGEAR REPLACEMENT	1,350,000.00	1,685,460.00	3,035,460.00	-	533,312.28	492,151.72	2,009,996.00
202004	Above Ground Fuel Storage Tanks	-	41,800.00	41,800.00	-	-	-	41,800.00
202005	Blue Valley - Eckles Rd 161kV Trans	-	182,588.46	182,588.46	-	-	224,193.36	(41,604.90)
202101	Substation Fiber Optic Network	125,000.00	-	125,000.00	-	33,803.23	-	91,196.77
202102	Traffic Contoller Upgrades	60,000.00	-	60,000.00	-	-	64,000.00	(4,000.00)
202103	Traffic Camera System Upgrades	50,000.00	-	50,000.00	-	-	38,163.00	11,837.00
202107	Motorola APX Radio Purchase Phase 2	75,000.00	-	75,000.00	-	2,033.78	73,293.18	(326.96)
202109	Substation Modeling	150,000.00	-	150,000.00	-	-	-	150,000.00
202110	20MVAR Capacitor Bank Sub A	800,000.00	-	800,000.00	-	264,691.65	-	535,308.35
202111	Transmission Pole Replacement Prog	150,000.00	(50,000.00)	100,000.00	-	31,252.30	-	68,747.70
9669	SERVICE CTR FACILITY IMPROVE.	150,000.00	70,084.17	220,084.17	-	7,174.50	-	212,909.67
<b>Project Ledger</b>		<b>\$ 5,285,000.00</b>	<b>13,135,016.07</b>	<b>18,420,016.07</b>	<b>-</b>	<b>7,681,376.70</b>	<b>5,132,905.67</b>	<b>5,605,733.70</b>
					<b>Current Year</b>		<b>Prior Year</b>	
					<b>General Ledger</b>	<b>Budget</b>	<b>Budget (Enc Roll)</b>	<b>Total</b>
Budget		\$ 14,344,118.69				4,075,897.38	18,420,016.07	
Less Expenditures		2,014,900.70				3,118,004.97	5,132,905.67	
Less Encumbrances		6,779,023.37				902,353.33	7,681,376.70	
Total Available		\$ 5,550,194.62				55,539.08	5,605,733.70	

