

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

| | | |
|--|---|----------------------------|
| ELECTRONIC JOINT APPLICATION OF |) | |
| LOUISVILLE GAS AND ELECTRIC |) | |
| COMPANY AND KENTUCKY UTILITIES |) | |
| COMPANY FOR A CERTIFICATE OF PUBLIC |) | CASE NO. 2018-00005 |
| CONVENIENCE AND NECESSITY FOR FULL |) | |
| DEPLOYMENT OF ADVANCED METERING |) | |
| SYSTEMS |) | |

RESPONSE OF
LOUISVILLE GAS AND ELECTRIC COMPANY
AND
KENTUCKY UTILITIES COMPANY
TO THE ATTORNEY GENERAL'S
INITIAL DATA REQUESTS FOR INFORMATION
DATED APRIL 2, 2018

FILED: APRIL 13, 2018

**Louisville Gas and Electric Company and Kentucky Utilities Company
Response to the Attorney General's Initial Data Requests for Information
Dated April 2, 2018**

Case No. 2018-00005

Question No. 1

Witness: Rick E. Lovekamp

- Q-1. Reference the Malloy testimony at page 3, line 16, wherein he discusses that AMS meters will allow the Companies to consider other rate options and offering.
- a. Should the Commission approve this Application for AMS, is it the Companies' intention to seek permission from the Commission to impose a mandatory residential demand charge or decoupling?
 - b. Confirm that the Company cannot impose mandatory residential demand charges or decoupling for residential customers without AMS enabled infrastructure.
- A-1.
- a. The Companies intend to use AMS to gather data to better understand how customers use energy and what rate structures and features would best serve them while reflecting cost of service and ensuring cost recovery. Because the Companies do not have the data AMS will provide, the Companies do not have a present intention regarding residential demand charges or decoupling.
 - b. AMS meters are not a prerequisite to mandatory residential demand charges or decoupling. The Companies currently offer voluntary TOD demand rates for residential customers and do not require those customer to opt-in to AMS. However, the data from AMS meters across all customers will assist in determining the viability and impact from any alternative rate structures.

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Question No. 2

Witness: Rick E. Lovekamp

- Q-2. Confirm that if the Companies seek permission to impose a mandatory residential demand charge, no other Kentucky-Commission jurisdictional utility has ever done so.
- A-2. The Companies are not aware of any Commission-jurisdictional utility that has requested to impose a mandatory residential demand charge.

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Question No. 3

Witness: Rick E. Lovekamp

- Q-3. Confirm that if the Companies seek permission to impose decoupling, no other Kentucky-Commission jurisdictional utility has ever done so.
- A-3. The Companies are aware of Commission-jurisdictional utilities that have proposed weather-normalization adjustments and other revenue stabilization approaches or mechanisms. The Companies are not aware of any Commission-jurisdictional utility that has requested to implement full decoupling.

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Question No. 4

Witness: Rick E. Lovekamp

- Q-4. Reference the Malloy testimony at page 3, line 16 wherein he discusses that AMS meters will allow the Companies to consider other rate options and offering. Given the fact that different rate structures will impact customers differently than was considered in the AMS business case, provide a revised cost-benefit analysis that includes a monetary impact to customers should the Company request and Commission approve: (i) a residential demand charge; and/or, (ii) decoupling.
- A-4. The Companies are not proposing all residential customers move to a residential demand charge or a decoupling mechanism. The Companies have not forecasted the impact of either scenario and do not have the data to develop a revised cost-benefit analysis.

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Question No. 5

Witness: John P. Malloy

- Q-5. Refer to the Malloy testimony at p. 10, wherein he discusses the 20-year projected lifespan of the proposed AMS meters. Provide documentation that similar meters deployed in other utilities' service territories meters lasted that long.
- a. Provide all warranty information in the Companies' possession for the AMS meters the Companies intend to install if the Application is approved.
- A-5. See response to PSC 1-9.
- a. The Companies are currently in negotiations with Landis+Gyr on the warranty period for the AMS meters and gas modules to be installed if the Application is approved. The Companies' expect to obtain a 5 year warranty for the electric meters and a 20 year warranty period for the gas modules.

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Question No. 6

Witness: John P. Malloy

Q-6. Does the Companies' cost-benefit analysis take into consideration stranded costs resulting from the premature retirement of existing metering infrastructure? If not, why not?

A-6. The remaining net book value of the retired meters was considered, but because the Companies propose to recover that value over the meters' remaining service lives, there is no impact to the cost-benefit analysis presented in the AMS Business Case.

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Question No. 7

Witness: Rick E. Lovekamp

- Q-7. If the Companies are convinced that benefits of AMS will exceed costs, are they willing to submit an adjustment in their next rate cases to reflect operational savings (to date, if a historic test year, or the savings that will be achieved if a fully forecasted test year is used), and a pro forma adjustment to account for projected on-going operational savings? If not, why not? Explain in complete detail.
- A-7. The Companies do not believe a commitment in this regard is necessary. If the Companies achieve any AMS operational savings shown in the AMS Business Case, those savings will be implicit in the Companies' future test years and rates.

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Question No. 8

Witness:

Q-8. Question No. 8 is missing in the Data Requests

A-8.

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Question No. 9

Witness: David E. Huff

- Q-9. Reference the Malloy testimony at page 12, line 6, which states that the Companies have enrolled over 7,300 customers in the AMS Customer Offering.
- a. Provide a breakdown of the 7,300 customers enrolled by rate class (RS, RTOD, and GS).
 - b. To how many customers, by rate class, was the AMS Offer promoted? Provide a breakdown by rate class (RS, RTOD, and GS).

A-9.

- a. As of March 31st, 2018, 8,097 customers were actively enrolled in the AMS Customer Offering. Below is a breakdown by rate class.

| <u>Rate Class</u> | <u>Customers</u> |
|-------------------|------------------|
| RS | 7,806 |
| RTOD-E | 11 |
| GS | <u>280</u> |
| Total | 8,097 |

- b. The AMS Customer Offering has been promoted to all such customers. The Companies are unable to quantify how many customers received a promotion, but promotions have included bill inserts, bill envelopes, and customer newsletters, which are available to all of the Companies' customers.

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Question No. 10

Witness: David E. Huff

- Q-10. Reference the Malloy testimony at page 12, line 18, which states that 79% of the customers not participating in the AMS Customer Offering did not know of its existence.
- a. Describe the efforts the Companies employed to promote the AMS Offer to RS, RTOD, and GS customers.
 - b. Provide full results of the June 2017 customer survey from which this statement originated, referenced at page 12, line 18.
- A-10.
- a. The Companies' efforts to promote the AMS Customer Offering have included a number of channels, including email, online advertising, search engine marketing, social media, and direct mail items like bill envelopes, bill inserts, and customer newsletters. Please see Appendix A-4 of Exhibit JPM-1 for sample communication materials used.
 - b. The survey data is attached to the AMS Business Case (Exhibit JPM-1) as Appendix A-9.

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Question No. 11

Witness: David E. Huff

- Q-11. Reference Application Exhibit JPM-1 Appendix A-1, page 32, which describes the percentage of customers participating in the AMS offer who have taken various steps to save energy.
- a. Have the Companies measured the percentage of non-participating customers who have taken these same steps to save energy?
 - b. If so, provide this research.
- A-11.
- a. Broadly speaking, the Companies have not measured the percentage of AMS non-participants who have taken the same steps to save energy. More narrowly, to attempt to measure the impact of AMS participation on customers' energy savings, TetraTech evaluated the energy savings of a contrast group against those of a treatment group. The contrast group consisted of AMS-enrolled customers who had no more than 4 months of billing data after having received an AMS meter. The treatment group consisted of longer-term AMS participants. The contrast group of customers saved 0.7% over the analysis period compared to the 4.5% saved by the treatment group. This is how the 3.8% savings for AMS impact was quantified.
 - b. See Exhibit JPM-1, Appendix A-10, page 9 of 10.

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Question No. 12

Witness: John P. Malloy

- Q-12. Refer to the Malloy testimony at page 18, line 12, which describes how the Companies applied their findings from AMS Offer participants to the Companies' entire customer population to estimate the conservation benefits of the ePortal. For example, since 17% of AMS Offer participants became "active" ePortal users, the Companies assume that 17% of all customers will become "active" ePortal users.
- a. Explain why ePortal participation from AMS Offer participants, which are less than 1% of the Companies' total residential customers, and which are likely to represent the most energy-conscious customers of all the Companies' customers, can serve as the basis of the active user estimate for the other 99% of the Companies' customers.
 - b. How many residential customers were signed up for the online "My Account" service as of December 31, 2017?
- A-12.
- a. The Companies understand the potential bias inherent in applying participation levels of a voluntary customer segment to all customers and has significantly discounted the quantified ePortal benefit assumptions to account for this in two ways. First, the Companies maintained their 17% "active" user assumption despite Tetra Tech's findings that current "active" user rates are closer to 26% (70% of customers logging in at least once, of which 37% have logged in 6 or more times). Second, the Companies used a conservative estimate of three percent energy savings applied to these customers when the Smart Grid Consumer Collaborative report referenced in the AMS Business Case supports a 5 to 15 percent energy savings for active users and Tetra Tech's findings that AMS Customer Service Offering customers are achieving energy savings of 3.8%, resulting in bill savings of roughly 3.3% based on Companies' calculations.
 - b. The Companies' assumption is that the question is referring to its online customer service portal called "My Account". 544,963 residential customers were signed up for the online "My Account" service as of March 15, 2018.

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Question No. 13

Witness: John P. Malloy

Q-13. Refer to the Malloy testimony at page 18, line 19, in which the Companies compare their estimate of ePortal benefits to a report published by the Smart Grid Consumer Collaborative. This report mentions research results indicating a 5-15% reduction in energy use among consumers with a real-time energy display.

- a. Please confirm that the Companies' AMS proposal includes no provision for real-time energy displays for customers.
- b. Given that the results provided in the Smart Grid Consumer Collaborative report pertain to real-time energy displays which are not part of the Companies' AMS proposal, please explain how these results are relevant to the Companies' ePortal benefit estimate.

A-13.

- a. See response to PSC 1-10a and 19.
- b. The Companies would like to clarify that the Smart Grid Consumer Collaborative report mentioned that the 2006 survey by Sarah Darby titled "The Effectiveness of Feedback on Energy Consumption"¹ by Sarah Darby indicated a 5 – 15% reduction in conservation effect from direct, real-time usage feedback. On page 8 of the Darby survey examples of direct feedback were listed which included "interactive feedback via a PC". The Darby survey goes on to state that even for indirect feedback, which the Companies do not believe adequately characterizes the proposed ePortal solution, savings have ranged from 0-10%. The Companies believe the customer access made possible through the MyMeter ePortal is comparable to the "interactive feedback via a PC" identified by Darby. There is a host of additional research like the 2008 EPRI report "Characterizing and Quantifying the Societal Benefits Attributable to Smart Metering Investments",² which states "The reported annual household kWh reductions range from zero to 28%. The average for indirect feedback is 8.4% and that attributed to direct feedback is 35% higher (11.5%)."³

¹ Publicly available at <http://www.eci.ox.ac.uk/research/energy/downloads/smart-metering-report.pdf>

² Publicly available at <https://www.epri.com/#/pages/product/1017006/>

³ *Id.* at Page 5-2.

These studies are relevant to the Companies' ePortal benefit estimate in that they provide benchmarking for the order of magnitude of energy savings possible for customers to achieve. Notably, the Companies have endeavored to remain relatively conservative in their estimated savings of 3%, a factor which is well supported by not only the mentioned research but also the Tetra Tech analysis of the Companies' own customers.

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Question No. 14

Witness: David E. Huff

Q-14. Refer to the TetraTech analysis of active My Meter users, provided as Exhibit JPM-1 Appendix A-10. Tetra Tech mentions the use of a panel fixed effects regression model (page 7). Provide the statistical outputs of the panel fixed effects regression model.

A-14. See table below.

| <u>Variable</u> | <u>Estimate</u> | <u>Std. Err.</u> | <u>t-value</u> | <u>Pr(> t)</u> | <u>Sig.</u> |
|-----------------|-----------------|------------------|----------------|--------------------|-------------|
| Post | -7.2073 | 0.8075 | -8.9250 | <.000001 | *** |
| Post*Treatment | -1.0084 | 0.5224 | -1.9302 | 0.05358 | * |
| R ² | 0.0042 | | | | |
| F-Stat | 131.196 | | | | |
| Signif. Codes | *** | 99% | | | |
| | * | 90% | | | |

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Question No. 15

Witness: David E. Huff

- Q15. Refer to the TetraTech analysis of active My Meter users.
- a. Did the Companies collect any characteristic data on the treatment and contrast groups to identify those (such as income, education, home size, etc.) which might identify group differences which need to be controlled in any associated analysis?
 - b. If so, please provide characteristic data collected on treatment and contrast groups.

A-15.

- a. Tetra Tech described their methodology on page 3 of the analysis. The treatment group consisted of “households that had at least 12 months of pre installation data and 12 months of post installation data” while the contrast group consisted of other program enrollees who enrolled after the end of the treatment group’s post period. Tetra Tech goes on to state that using these customers “are presumed to be more similar in the unmeasured attributes of participants—energy use, demographics, lifestyle—than would a general population sample, reducing the potential for selection bias to skew results.”
- b. See response to a.

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Question No. 16

Witness: David E. Huff

- Q-16. Refer to the TetraTech analysis of active My Meter users. Table 1 indicates that almost half of active My Meter users were dropped from the analysis due to a lack of 12-months of consumption data post opt-in.
- a. Comment on the percentage who were dropped due to a lack of post opt-in data and on the reasons why these active users left the program early.
 - b. Provide data on average monthly energy savings for those customers who were not dropped from the analysis due to a lack of 12-months of consumption data post opt-in.
 - c. Provide data on average monthly energy savings for those customers who were dropped from the analysis due to a lack of 12-months of consumption data post opt-in.
- A-16. Companies would like to clarify that Table 1 of the Tetra Tech analysis pertains to the data screening applied to the monthly consumption and billing data used for the analysis and not data screening for active MyMeter users.
- a. The screening in reference states that customers must “have 12 months consumption data post opt-in and at least 24 months total”. This does not mean that active users left the program early but that customers either did not have at least 12 months of consumption data before and after their AMS meter was installed.
 - b. As this group went on to become the treatment group of the analysis, Tetra Tech found they saved 4.5% energy between the pre and post periods. This data can be found on Exhibit JPM-1, Appendix A-10, page 9 of 10. The Companies did discover a typo on Table 3 of this page and would like to update. The percentage is correct, but the NAC for the “Treatment – post period” group should be 14,541 not 14,451. Similarly, the equation that results in 3.8 percent savings should use 14,541, not 14,451. See the correction in the numbers below.

Table 3. PRISM Analysis Normalized Annual Consumption

| Analysis Group | n | NAC (kWh) |
|------------------------|----------|------------------|
| Treatment – pre period | 1,353 | 15,233 |

| | | |
|-------------------------|-------|--------|
| Treatment – post period | 1,353 | 14,541 |
| Contrast – pre period | 357 | 15,683 |
| Contrast – post period | 357 | 15,568 |

Based on these findings, the program impact as a percentage of pre-treatment consumption, is:

$$3.8\% = \frac{15,233 - 14,541}{15,233} - \frac{15,683 - 15,568}{15,683}$$

- c. The Companies do not have this data.

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Question No. 17

Witness: David E. Huff

- Q-17. Refer to the TetraTech analysis of active My Meter users. If time-varying effects such as from temperature affect the treatment and control group similarly, then the difference-in-difference regression approach employed should already correct for these effects.
- a. Comment on whether or not the treatment and contrast groups respond to temperature differently, and how this might bias the results of the difference-in-difference analysis.
 - b. If temperature affects energy usage for the treatment and control groups similarly, then please explain why TetraTech made an additional adjustment for HDD and CDD when temperature changes had already been controlled for via the difference-in-difference approach.
 - c. Provide the statistical outputs of the difference-in-difference regression results without the HDD and CDD adjustment.
- A-17.
- a. Individual households respond differently to temperature. Some will use cooling when the temperature exceeds 60 degrees, others will wait until the temperature reaches 80 degrees, and some homes do not have air conditioning. The Tetra Tech analysis handled this variability at the household level by conducting iterative household-level regressions with varying base temperatures (for calculating HDD and CDD) to identify the base level temperature with the highest explanatory power for each household. Including temperature in the regression controls for exogenous effects. A description of the weather data used for this analysis can be found in the Data Collection section on Exhibit JPM-1, Appendix A-10, beginning at the bottom of page 4 of 10.
 - b. In aggregate, temperature has a similar effect on usage for both the treatment and contrast groups. As temperatures rise, consumption due to cooling rises. As temperatures fall, consumption due to heating rises. Tetra Tech's model attempts to disaggregate these changes in consumption and creates household level models before re-aggregating and analyzing.
 - c. This information is provided in the table below.

| Analysis Group | n | Annual Consumption (kWh) |
|-------------------------|-------|--------------------------|
| Treatment – pre period | 1,353 | 15,500 |
| Treatment – post period | 1,353 | 14,582 |
| Contrast – pre period | 357 | 15,728 |
| Contrast – post period | 357 | 15,662 |

$$5.9\% = \frac{15,500 - 14,582}{15,500} - \frac{15,728 - 15,662}{15,728}$$

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Question No. 18

Witness: David E. Huff

Q-18. Refer to the TetraTech analysis of active My Meter users.

- a. Did the Companies collect any characteristic data on the treatment group which can be compared to the general customer population which indicates that the treatment group is similar to the general customer population?
- b. If so, please provide characteristic data for the treatment group and the general customer population.
- c. Can the Companies provide any statistical data or demographic data on the treatment group and the general customer population which indicates that the treatment group is similar to the general customer population?
- d. If so, please provide statistical data or demographic data on the treatment group and the general customer population.

A-18.

- a. The Companies did not collect any such data.
- b. See response to a.
- c. The Companies do not have any such data.
- d. See response to c.

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Question No. 19

Witness: John P. Malloy

Q-19. Reference the Malloy testimony at page 20, line 9, which states the Companies’ belief that the ePortal savings estimate is conservative due to the fact that no ePortal benefits have been assumed for commercial and industrial customers equipped with AMS.

- a. Provide a list of the commercial and industrial rate classes which will receive AMS meters, along with the count in each class.
- b. Provide the MWh sales volumes and revenues for each class listed in 2017.
- c. Provide a list of all rate classes (not just commercial and industrial), and the count of all customers in each as of December 31, 2017.
- d. Provide the MWh sales volumes and revenues for each class listed in 2017
- e. Provide a count of unique customers participating in one or more of the Companies’ energy efficiency programs in 2017. (“Unique” means that a customer participating in three (3) programs is counted once.)

A-19.

a. – b. The data below reflects commercial and industrial electric rate classes which will receive AMS meters.

| Rate Class | Customer | | Revenue |
|---------------------------|----------------|------------------|-------------------|
| | Count | MWh Sales | (\$000s) |
| Volunteer Fire Department | 56 | 1,454 | \$ 142 |
| General Service | 132,015 | 3,073,693 | \$ 372,735 |
| Power Service | 7,855 | 4,020,116 | \$ 373,413 |
| School Power Service | 195 | 57,846 | \$ 5,578 |
| School Time-of-Day | 32 | 37,173 | \$ 3,156 |
| All Electric School | 557 | 137,053 | \$ 11,678 |
| Water Pumping Service | 16 | 582 | \$ 36 |
| Special Contract | 4 | 127,199 | \$ 7,884 |
| | 140,730 | 7,455,116 | \$ 774,621 |

c. – d. The data below reflects all electric rate classes which will receive AMS meters.

| Rate Class | Customer | | Revenue |
|---------------------------|----------------|-------------------|--------------------|
| | Count | MWh Sales | (\$000s) |
| Residential Service | 815,537 | 9,942,660 | \$1,033,269 |
| Residential Time-of-Day | 65 | 775 | \$ 77 |
| Volunteer Fire Department | 56 | 1,454 | \$ 142 |
| General Service | 132,015 | 3,073,693 | \$ 372,735 |
| Power Service | 7,855 | 4,020,116 | \$ 373,413 |
| School Power Service | 195 | 57,846 | \$ 5,578 |
| School Time-of-Day | 32 | 37,173 | \$ 3,156 |
| All Electric School | 557 | 137,053 | \$ 11,678 |
| Water Pumping Service | 16 | 582 | \$ 36 |
| Special Contract | 4 | 127,199 | \$ 7,884 |
| | 956,332 | 17,398,551 | \$1,807,967 |

e. In 2017, approximately 575,000 unique customers participated in one or more of the Companies' energy efficiency programs.

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Question No. 20

Witness: John P. Malloy

- Q-20. Reference the table in the Malloy testimony at page 15. The Net Present Value of the Total Lifecycle Costs (Capital and O&M) of AMS is presented as \$453.3 million in this table.
- a. Does the Net Present Value of the Total Lifecycle Costs include carrying costs that customers are required to pay related to the AMS investment, such as the Companies' return on investment, federal and state taxes the Companies will accrue on associated profits, interest expense, property tax expenses, or others?
 - b. If not, recalculate the Net Present Value of the Total Lifecycle Costs to include all such carrying costs using the Companies' best estimates for these costs. Provide all documentation, calculations, estimates, assumptions, workpapers, etc. which supports the response to this request. Use the same discount rate (6.32%) used in the page 15 table in the Malloy testimony in your calculations.
 - c. State whether the Net Present Value of Total Lifecycle Costs was prepared prior to the enactment of the Tax Cuts and Jobs Act ("TCJA"). If so, provide a revised table reflecting the changes in the corporate tax rates that the TCJA implemented.
- A-20.
- a. Yes, those costs are included in the Net Present Value calculation.
 - b. N/A
 - c. As noted in the Companies' Application and Testimony filed on January 10, 2018, the impact of the TCJA was not reflected in the original filing; however, the Companies indicated that they would file no later than January 31, 2018 revised cost-benefit calculations to account for the TCJA. On January 30, 2018, the Companies filed the recalculated Net Present Value to account for the enactment of the TCJA and is presented below.

| AMS Cost-Benefit Summary (2018-2040) | | | | |
|--------------------------------------|-------------------|-------------------|-------------------|-------------------|
| \$M | Nominal Cash | Nominal RR | NPVRR As Filed | NPVRR Revised |
| (Costs) | | | | |
| Total Project Costs (Capital) | (320.0) | (515.0) | (357.1) | (342.5) |
| Total Project Costs (O&M) | (29.8) | (29.8) | (26.0) | (25.8) |
| Total Project Costs | \$ (349.8) | \$ (544.8) | \$ (383.1) | \$ (368.3) |
| | | | | |
| Total Recurring Costs (Capital) | (43.8) | (63.0) | (22.3) | (20.9) |
| Total Recurring Costs (O&M) | (108.8) | (108.8) | (47.9) | (46.5) |
| Total Recurring Costs | \$ (152.6) | \$ (171.8) | \$ (70.2) | \$ (67.4) |
| | | | | |
| Total Lifecycle Costs | \$ (502.4) | \$ (716.6) | \$ (453.3) | \$ (435.7) |
| | | | | |
| Benefits | | | | |
| Operational Savings | 425.1 | 425.1 | 208.3 | 203.0 |
| ePortal Benefit | 158.0 | 158.0 | 76.7 | 74.8 |
| Recovery of Non-Technical Losses | 402.3 | 402.3 | 196.8 | 192.0 |
| Total Lifecycle Benefits | \$ 985.4 | \$ 985.4 | \$ 481.8 | \$ 469.8 |
| | | | | |
| Net Benefits vs (Costs) | \$ 483.0 | \$ 268.8 | \$ 28.5 | \$ 34.1 |
| | | | | |
| Discount Rate | | | 6.32% | 6.58% |

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Question No. 21

Witness: John P. Malloy

- Q-21. Reference the Malloy testimony at page 15, line 8, which states that the peak bill impact for an average residential customer will be approximately \$2.60 per month.
- a. Provide bill impact estimates for the average residential customer and the average general service customer by year from 2018 to 2040 for the full 22-year period the Companies estimate for the AMS project. In this average bill impact estimate by year, include, in addition to the five-year deployment phase costs resulting in the \$2.60 per month estimate: 1) the impact of recurring capital and O&M costs as shown in the page 15 table, as well as 2) the impact of carrying costs as calculated in the Companies' answer to 12b.
 - b. Provide all documentation, calculations, estimates, assumptions, workpapers, etc. which supports the answer to this question, in its native electronic format when available.
 - c. Be sure to include in this support the estimated number of residential customers and general service customers used to develop these bill impact estimates by year.
- A-21.
- a.-b. The Companies projected the peak bill impact of approximately \$2.60 per month as an illustrative charge based on current electric bills at the time. The projection was based on an allocation of 56% for KU and 44% for LG&E. The attached Excel spreadsheet continues to serve as an illustration of the projected bill impact and the overall project has been allocated between LG&E Electric, LG&E Gas, KU (Kentucky jurisdictional).
 - c. Customer counts were not a component of the method used to calculate the average customer bill impacts.

The attachment is being provided in a separate file in Excel format.

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Question No. 22

Witness: John P. Malloy

- Q-22. Reference the table in the Malloy testimony at page 15, which estimates a (nominal) benefit of \$402.3 million from 2018-2040 from a reduction in non-technical losses which will result from the introduction of an AMS system.
- a. Describe the process by which non-technical losses are identified, billed, and collected today.
 - b. Describe the process by which non-technical losses will be identified, billed, and collected once AMS meters are installed.
 - c. Estimate the reduction in the number of month's service billed for each instance of non-technical loss identified once AMS meters are installed.
- A-22.
- a. Non-technical losses today are
 - i. Identified by field personnel who encounter potential anomalies and through the review of system generated exceptions based on the monthly meter readings obtained from the meter reader;
 - ii. Billed by either placing a one-time charge on the customer's account for tampering or by a billing adjustment each of which will then appear on the customer's next bill;
 - iii. Collected through the Companies' normal collection processes. See response to ACM 1-26.
 - b. Once AMS meters are installed non-technical losses will be
 - i. Identified by field personnel who encounter potential anomalies, through the review of meter events and alarms, and through the review of system generated exceptions based on the 15-minute interval consumption data automatically obtained from the AMS meter;
 - ii. Billed by either placing a one-time charge on the customer's account for tampering or by a billing adjustment, each of which appear on the customer's next bill;
 - iii. Collected through the Companies' normal collection processes. See response to ACM 1-26.
 - c. The Companies do not maintain the data to perform the requested analysis.

Louisville Gas and Electric Company and Kentucky Utilities Company
Response to the Attorney General's Initial Data Requests for Information
Dated April 2, 2018

Case No. 2018-00005

Question No. 23

Witness: John P. Malloy

Q-23. Regarding the tampering fees billed and collected from 2014-2017 as shown in the Malloy testimony table at page 18, line 1, provide:

- a. The number of individual tampering incidents identified and billed 2014-2017.
- b. The average number of months' service billed for each tampering incident identified and billed 2014-2017.
- c. The O&M costs associated with identifying, investigating, billing, and collecting non-technical lost revenue 2014-2017.
- d. The organizational chart for the Companies' revenue protection department(s), including all employees and position names.
- e. Identify the employees in the organizational chart responsible for investigating, billing, and collecting non-technical lost revenue.
- f. Provide job descriptions for the employees responsible

A-23.

- a. The number of individual tampering incidents identified and billed 2014-2017.

| LG&E/KU Combined | 2014 | 2015 | 2016 | 2017 | Total 2014-2017 |
|-----------------------------|-------------|-------------|-------------|-------------|----------------------------|
| Tampering Incidents | 6,100 | 6,400 | 5,700 | 4,300 | 22,500 |

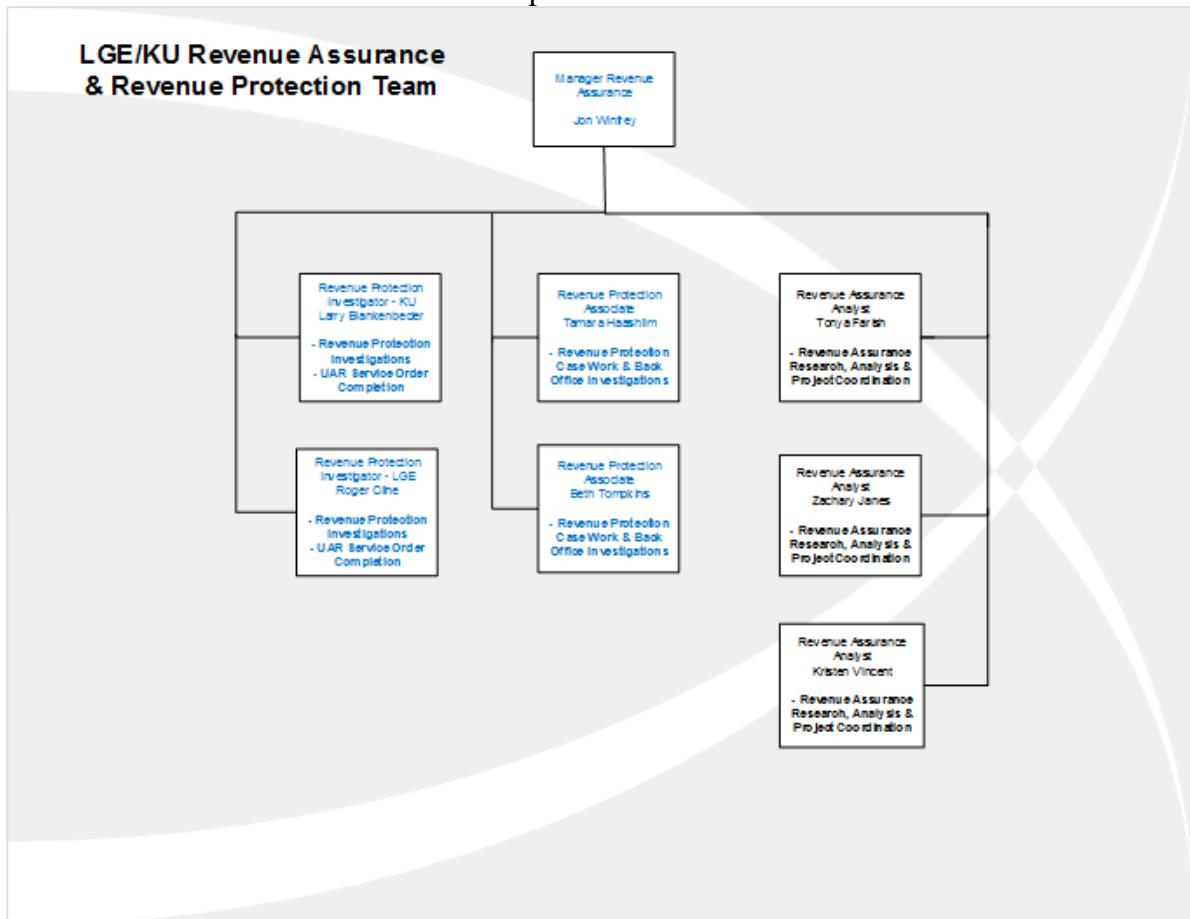
- b. The Companies do not maintain the data to perform the requested analysis
- c. The O&M costs associated with identifying, investigating, billing, and collecting non-technical lost revenue 2014-2017.

| | | | |
|-------------|-------------|-------------|-------------|
| 2014 | 2015 | 2016 | 2017 |
|-------------|-------------|-------------|-------------|

\$386,000 | \$424,000 | \$444,000 | \$377,000

The costs listed represent annual estimates of the labor and non-labor O&M associated with the employees and tampering activities performed by the Revenue Protection department identified in the organizational chart provided in Part D below. All of the Companies' employees are encouraged to report suspected tampering as they are performing regular duties and some employees outside of the Revenue Protection department are directly involved in specific tampering investigation activity as mentioned in Part E below. O&M costs associated with identifying, investigating, billing, and collecting non-technical lost revenue outside of the Revenue Protection department are not included in the estimates provided.

- d. The organizational chart for the Companies' revenue protection department(s), including all employees and position names. Employees highlighted in blue font are the employees directly associated with revenue protection activities within the Revenue Assurance/Revenue Protection department.



- e. Employees highlighted in blue font are the employees directly associated with revenue protection activities within the Revenue Assurance/Revenue Protection department. All of the Companies' employees are encouraged to report suspected tampering as they

are performing regular duties. The two investigators listed in the Revenue Assurance/Protection organizational chart work tampering cases only in the Louisville and Lexington metro service areas in conjunction with Field Service personnel and meter reading personnel. Throughout the remainder of the state-wide territory, Field Service and meter reading personnel handle all tampering investigations. The Revenue Protection Associates coordinate all billing of tampering fees state-wide.

- f. See attached.

Purpose

The Senior Revenue Assurance Analyst is responsible for performing, leading and coordinating multiple duties within the Revenue Assurance organization of the Company. Assignments will involve engaging and leading the coordination of cross-functional teams. An analyst in this position should have a thorough understanding of multiple systems of record and operational functions and be able to perform multiple tasks with a high level of proficiency and professionalism. This position requires a depth of understanding of business processes and systems in order to assess business needs, evaluate options, recommend solutions, and coordinate successful implementation.

Core Responsibilities

Leads or provides guidance, assistance and direction to analysts and responsible for performing multiple duties within the Revenue Assurance organization of the Company including forming, coordinating, and leading cross-functional project teams.

Takes lead in coordinating area of focus initiatives with various lines of business; develops preliminary issue summary and metrics; gains understanding of key business function components and potential/perceived issues; gathers baseline reporting metrics; coordinates identification of business functional gaps and “hand-offs”; jointly performs root-cause analysis of issues; jointly develops recommendations, alternatives, and propose solutions; presents oral/written summary of findings, results, solutions; jointly develops reporting tools for post-resolution reporting metrics; oversees continued reporting of pre/post metrics for value/profitability assessment.

Performs root-cause analysis of targeted business functions and develops recommendations, alternatives, and propose solutions.

Presents verbal/written summary of findings, results, and solutions to team and other departments as needed.

Responsible for completing complex revenue assurance projects and processes in a manner to ensure high quality, effective customer service and satisfaction.

Assists in the development of reporting tools for post-resolution reporting metrics and oversees continued reporting of pre/post metrics for value/profitability assessment.

Responsible for handling highly sensitive and confidential materials.

Performs other duties as directed by the Manager, Revenue Assurance.

Education/Experience/Qualifications

Bachelor’s Degree in Business or other related field(s) required with previous experience of 8 plus years in an analytical role. Project management skills and demonstrated ability to obtain and analyze information, apply conceptual skills, develop complex business solutions is a necessity. Must have successfully led teams or projects and achieved desired results in both technical and operational environments. Candidate must have significant and broad cross-functional business experience. Would be considered both a business application and technical subject matter expert in multiple functional areas.

Preferred Qualifications

Requires demonstrated knowledge of and proficiency in multiple operational areas, CCS system and transactions, BW reporting, query development, data extraction, a solid understanding of mathematics, MS Office applications primarily Word, Excel, and other designated software applications. Experience and demonstrated ability to perform data analysis and statistical analysis required. Must be able to routinely organize statistical information and comprehend and utilize computer applications, techniques and reports. Requires excellent written and verbal communication skills and analytical ability with attention to detail and accuracy. Possess a broad knowledge of Company policies/procedures, working understanding of business processes in various operational areas such as metering, distribution operations & support, billing, and revenue collection processes.

This position requires self-motivation and independent thinking. Requires advanced analytical skills, superior project management skills, and excellent written and verbal communication skills directed to multiple levels of the organization. Must have a broad understanding of the electric and gas utility business. Must be able to prioritize and handle a variety of tasks, be flexible, and deal with unexpected situations. Must be able to think strategically and holistically. Responsible for handling highly sensitive and confidential materials.

Individual must possess skills in decision-making, critical thinking skills and be able to work independently with little direct supervision. Must be primarily self-directed in managing day to day tasks. Independent judgment is required in decision-making from various alternatives. Work will involve the interpretation and analysis of information and problem-solving skills. Must possess highly effective communication and interpersonal skills and will involve both external and internal customer interactions.

Requires a thorough understanding of all departmental activities and be able to perform multiple tasks with a high level of proficiency based on specific job assignments.

Requires self-motivation, the ability to view the business holistically, solid decision making and excellent written and oral skills, positive attitude, team building skills, and independent thinking.

Attendance

Regular attendance is essential for satisfactory performance in this position. Periodic overtime is a requirement.

Work Conditions

Normal office environment. Work is generally varied and may require some travel. Requires the ability to manage multiple tasks within tight deadlines.

Physical Effort

Primarily sitting with optional walking or standing. Some travel may be required.

Job Hazards

Low degree of danger or hazard associated with job.

Purpose

The Revenue Assurance Analyst is responsible for performing and coordinating multiple duties within the Revenue Assurance organization of the Company. Assignments will involve engaging and guiding the coordination of cross-functional teams. An analyst in this position should have a thorough understanding of multiple systems of record and operational functions and be able to perform multiple tasks with a high level of proficiency and professionalism. This position requires a depth of understanding of business processes and systems in order to assess business needs, evaluate options, recommend solutions, and coordinate successful implementation.

Core Responsibilities

Provides assistance and direction to analysts and responsible for performing multiple duties within the Revenue Assurance organization of the Company including forming, coordinating, and leading cross-functional project teams.

Provides guidance in coordinating area of focus initiatives with various lines of business; develops preliminary issue summary and metrics; gains understanding of key business function components and potential/perceived issues; gathers baseline reporting metrics; coordinates identification of business functional gaps and “hand-offs”; jointly performs root-cause analysis of issues; jointly develops recommendations, alternatives, and propose solutions; presents oral/written summary of findings, results, solutions; jointly develops reporting tools for post-resolution reporting metrics; oversees continued reporting of pre/post metrics for value/profitability assessment.

Performs root-cause analysis of targeted business functions and develops recommendations, alternatives, and propose solutions.

Presents verbal/written summary of findings, results, and solutions to team and other departments as needed.

Responsible for completing complex revenue assurance projects and processes in a manner to ensure high quality, effective customer service and satisfaction.

Assists in the development of reporting tools for post-resolution reporting metrics and oversees continued reporting of pre/post metrics for value/profitability assessment.

Responsible for handling highly sensitive and confidential materials.

Performs other duties as directed by the Manager, Revenue Assurance.

Education/Experience/Qualifications

Bachelor’s Degree in Business or other related field(s) required with previous experience of 5 – 8 years in an analytical role. Project management skills and demonstrated ability to obtain and analyze information, apply conceptual skills, develop complex business solutions is a necessity. Must have successfully led teams or projects and achieved desired results in both technical and operational environments. Candidate must have significant and broad cross-functional business experience. Would be considered both a business application and technical subject matter expert in multiple functional areas.

Preferred Qualifications

Requires demonstrated knowledge of and proficiency in multiple operational areas, CCS system and transactions, BW reporting, query development, data extraction, a solid understanding of mathematics, MS Office applications primarily Word, Excel, and other designated software applications. Experience and demonstrated ability to perform data analysis and statistical analysis required. Must be able to routinely organize statistical information and comprehend and utilize computer applications, techniques and reports. Requires excellent written and verbal communication skills and analytical ability with attention to detail and accuracy. Possess a broad knowledge of Company policies/procedures, working understanding of business processes in various operational areas such as metering, distribution operations & support, billing, and revenue collection processes.

This position requires self-motivation and independent thinking. Requires in-depth analytical skills, excellent project management skills, and excellent written and verbal communication skills directed to multiple levels of the organization. Must have a broad understanding of the electric and gas utility business. Must be able to prioritize and handle a variety of tasks, be flexible, and deal with unexpected situations. Must be able to think strategically and holistically. Responsible for handling highly sensitive and confidential materials.

Individual must possess skills in decision-making, critical thinking skills and be able to work independently with little direct supervision. Must be primarily self-directed in managing day to day tasks. Independent judgment is required in decision-making from various alternatives. Work will involve the interpretation and analysis of information and problem-solving skills. Must possess highly effective communication and interpersonal skills and will involve both external and internal customer interactions.

Requires a thorough understanding of all departmental activities and be able to perform multiple tasks with a high level of proficiency based on specific job assignments.

Requires self-motivation, the ability to view the business holistically, solid decision making and, excellent written and oral skills, positive attitude, team building skills, and independent thinking.

Attendance

Regular attendance is essential for satisfactory performance in this position.

Work Conditions

Normal office environment. Work is generally varied and will require some travel to coordinate cross-functional teams. Requires the ability to manage multiple tasks within tight deadlines.

Physical Effort

Primarily sitting with optional walking or standing. Some travel may be required.

Job Hazards

Low degree of danger or hazard associated with job.

Purpose

The Revenue Assurance Analyst is responsible for performing and assisting with multiple duties within the Revenue Assurance organization of the Company. This is the intermediate level position for this role. Level of assignments and responsibility will increase with performance, experience and demonstrated skills and successes. Involves participating on multiple cross-functional teams. An Analyst in this position should have a broad understanding of multiple systems of record and operational functions and be able to perform multiple tasks with a high level of proficiency, professionalism and confidentiality.

Core Responsibilities

Investigates and recommends areas of focus initiatives with various lines of business.

Leads and assists in the development of preliminary issue summary and metrics; gains understanding of key business function components and potential/perceived issues; gathers baseline reporting metrics; assists in identifying business functional gaps and “hand-offs” as assigned.

Assists in performing root-cause analysis of issues; makes recommendations as to business alternatives and solutions. May be required to assist in the presentation of oral/written summary of findings, results, solutions.

Assists in the development of reporting tools for pre/post-resolution reporting metrics.

Performs multiple duties within the Revenue Assurance organization of the Company as assigned in a manner to ensure high quality, effective customer service and satisfaction.

Candidate would have broad cross-functional business experience. Would have detailed knowledge of multiple functional areas.

Assists in performing root-cause analysis of targeted business functions and makes recommendations pertaining to alternatives and possible business solutions.

Assists with the developing of and executing queries, data analysis and extraction.

Assists with the preparing and presenting various reports and analyses for use by management and other lines of business.

Requires self-motivation, excellent written and oral skills, positive attitude, and independent thinking.

Assists in the development of reporting tools for post-resolution reporting metrics.

Responsible for handling highly sensitive and confidential materials.

Performs other duties as directed by the Manager, Revenue Assurance.

Education/Experience/Qualifications

Bachelor's Degree in Business or other related field(s) with 3 -5 years of experience in an analytical role where performance objectives and competencies were met and exceeded is preferred. Associates Degree with demonstrated technical/business experience may be considered as a substitute. Project experience and demonstrated ability to obtain and analyze information and apply conceptual skills is a necessity. Candidate must have cross-functional business knowledge and experience.

Preferred Qualifications

Requires demonstrated knowledge of multiple operational areas, CCS system and transactions, BW reporting, query development, data extraction, a solid understanding of mathematics, MS Office applications primarily Word, Excel, and other designated software applications. Experience or demonstrated ability to perform data analysis and statistical analysis required. Must be able to routinely organize statistical information and comprehend and utilize computer applications, techniques and reports. Requires excellent written and verbal communication skills and analytical ability with attention to detail and accuracy. Possess a broad knowledge of Company policies/procedures, working understanding of business processes in various operational areas such as metering, distribution operations & support, billing, and revenue collection processes.

This position requires excellent interpersonal skills, self-motivation and independent thinking. Must have a solid understanding of the electric and gas utility business. Must be able to prioritize and handle a variety of tasks, be flexible, and deal with unexpected situations. Must be a proven team player. Requires working with confidential and sensitive information. Must possess excellent organizational and time management skills in order to deal with periods of high work volumes and tight deadlines. Must be able to prioritize and handle a variety of tasks, be flexible, deal with unexpected situations, and exercise good judgment skills.

Attendance

Regular attendance is essential for satisfactory performance in this position.

Work Conditions

Normal office environment. Work is generally varied and may require some travel. Requires the ability to manage multiple tasks within tight deadlines.

Physical Effort

Primarily sitting with optional walking or standing. Some travel may be required.

Job Hazards

Low degree of danger or hazard associated with job.



Purpose

This position performs those duties necessary in the investigation of suspected theft and/or unauthorized use of gas or electric service and/or vandalism of electric/gas facilities.

Core Responsibilities

Initiates an investigation based on information from billing records, anonymous contacts, Company employees, and various other sources of information to identify and/or prevent illegal use of service or potential problems.

Investigates customer accounts to identify and/or prevent fraudulent use of service.

Deals with general public/customers in resolving theft investigations often in a hostile and dangerous working environment.

Investigates all types of electric and gas installations to ensure service integrity, including removing and reinstalling meters for investigative purposes only.

Installs/removes various locking devices to ensure security and safety of meter/service installations.

Assists other field personnel in securing meter/service installations.

Documents findings including interviewing customers/witnesses, obtains written evidentiary statements, takes photographs, completes necessary forms, and records other pertinent information.

If necessary, assists in the preparation of case reports suitable for review and action by law enforcement or legal authorities and pursuance of civil and administrative remedies.

Performs all duties in accordance with the Company's safety rules and operating regulations and practices.

Recognizes and treats properly matters of a highly confidential and sensitive nature.

Performs other duties as assigned by Team Leader or Manager, Remittance & Collections.

Education/Experience/Qualifications

High school diploma or equivalent, with a minimum of two years' experience in Company assignments requiring a solid understanding and familiarity with gas and/or electric service, service provisioning, metering, safety policies, and Company rules and regulations.

Preferred Qualifications

Demonstrates an advanced understanding of service provision, metering and meter installations, Company rules and regulations, safety rules and policies, unauthorized use of service/tampering and its ramifications plus the importance of the Company's quality assurance program. Requires above-average oral and written communication skills plus the ability to handle substantial responsibility independently. Must possess a valid vehicle operator's license.

Attendance

Regular attendance is essential for satisfactory performance in this position.

Work Conditions

Most of work is in the field. Employee could be subjected to verbal and/or physical abuse from irate customers.

Physical Effort

Moderate amount of walking with few occasions requiring lifting and/or climbing into areas which are difficult to navigate.

Job Hazards

Moderate degree when in office. Medium degree when in field.

Purpose

The Revenue Protection Associate advanced performance of all back office duties within the Revenue Protection organization of the Company. Duties include all activities associated with the completion of investigations pertaining to suspected meter tampering, meter theft, unauthorized use of gas and/or electricity, inactive accounts with consumption and fraudulent use of service.

Core Responsibilities

Accountabilities for both associate and senior levels are essentially the same but will be performed at varying proficiency levels. The senior level is expected to perform at a demonstrated high level of proficiency, and will work somewhat independently. Employees considered for the senior level will have demonstrated proficiency in all Revenue Protection responsibilities.”

Investigates and determines appropriate actions and CCS system updates/transactions required to successfully pursue and resolve Revenue Protection investigations. Transactions include the creation of service orders and the assessment of charges on customer accounts.

Oversees and responds appropriately to Revenue Protection feedback email box with minor oversight.

Interacts with irate customers and effectively deal with difficult customer situations on a daily basis while ensuring a positive customer experience.

Develops and reports operational metrics.

Performs root-cause analysis of cross-functional process issues and makes recommendations pertaining to process improvements and alternatives.

Works with Business Process Management team in the development and definition of revenue protection processes.

Interacts and coordinates with other departments and operational areas on a daily basis to complete Revenue Protection investigations.

Assists with completion of third-party revenue assurance activities and metrics.

Requires self-motivation, excellent written and oral skills, positive attitude, independent thinking, and a high level of professionalism.

Responsible for handling highly sensitive and confidential materials.

Performs multiple duties as directed by the Manager, Revenue Assurance primarily within the Revenue Protection organization of the Company in a manner to ensure high quality, effective customer service and satisfaction.

Education/Experience/Qualifications

Bachelor's Degree in Business or other related field(s) required with more than 8 years of previous experience in similar functional areas. Demonstrated business knowledge, skill sets and experience may be considered as a substitute for a degree. Demonstrated CCS knowledge and experience is required. Candidate must have cross-functional business knowledge and experience.

Preferred Qualifications

This position requires demonstrated knowledge/skills of multiple Company operations, CCS system navigation and transactions, BW reporting, and MS Office applications (primarily Word, Excel, Visio). Demonstrated excellent written and verbal communication skills required. Requires solid analytical and decision-making ability with attention to detail and accuracy. The successful candidate must possess a broad knowledge of Company policies/procedures and an advanced understanding of business processes in various operational areas such as metering, distribution operations, field services, billing and revenue collection processes.

This position requires highly effective interpersonal skills, self-motivation and independent thinking. Must be able to prioritize and handle a variety of tasks, be flexible, deal with unexpected situations, and exercise good judgment skills. Must be able to effectively and positively deal with irate customers and difficult customer situations. Must be a proven team player. Requires working with confidential and sensitive information. Must possess excellent organizational and time management skills in order to deal with periods of high work volumes and tight deadlines.

Attendance

Regular attendance is essential for satisfactory performance.

Work Conditions

Normal office environment. Work is generally varied and may require some travel. Requires the ability to manage multiple tasks within tight deadlines. Some interaction with upset and irate customers is expected.

Physical Effort

Primarily sitting with optional walking or standing. Some travel may be required.

Job Hazards

Low degree of physical hazards associated with this position.

Purpose

The Revenue Protection Associate is responsible for performing all back office duties within the Revenue Protection organization of the Company. Duties include all activities associated with the completion of investigations pertaining to suspected meter tampering, meter theft, unauthorized use of gas and/or electricity, inactive accounts with consumption and fraudulent use of service. Level of assignments and responsibility will increase with experience and demonstrated skills and successes.

Core Responsibilities

Accountabilities for both associate and senior levels are essentially the same but will be performed at varying proficiency levels. The senior level is expected to perform at a demonstrated high level of proficiency, and will work somewhat independently. Employees considered for the senior level will have demonstrated proficiency in all Revenue Protection responsibilities.”

Assists with and responds appropriately to Revenue Protection feedback email box with management oversight.

Investigates and determines appropriate actions and CCS system updates/transactions required to successfully pursue and resolve Revenue Protection investigations. Transactions include the creation of service orders and the assessment of charges on customer accounts.

Interacts with irate customers and effectively deal with difficult customer situations on a daily basis while ensuring a positive customer experience.

Develops and reports operational metrics.

Performs root-cause analysis of cross-functional process issues and makes recommendations pertaining to process improvements and alternatives.

Interacts with other departments and operational areas on a daily basis to complete Revenue Protection investigations.

Assists with third-party revenue assurance activity and metrics.

Requires self-motivation, excellent written and oral skills, positive attitude, independent thinking, and a high level of professionalism.

Responsible for handling highly sensitive and confidential materials.

Performs multiple duties as directed by the Manager, Revenue Assurance primarily within the Revenue

Protection organization of the Company in a manner to ensure high quality, effective customer service and satisfaction.

All other projects and duties as assigned.

Education/ Experience/ Qualifications

Associate's Degree in Business or other related field(s) required with 4 – 5 years of previous experience in similar functional areas. Demonstrated business knowledge, skill sets and experience may be considered as a substitute for a degree. Demonstrated CCS knowledge and experience is required. Candidate must have cross-functional business knowledge and experience.

Preferred Qualifications

This position requires demonstrated knowledge/skills of multiple Company operations, CCS system navigation and transactions, BW reporting, and MS Office applications (primarily Word, Excel). Also requires excellent written and verbal communication skills. Requires solid analytical and decision-making ability with attention to detail and accuracy. The successful candidate must possess a broad knowledge of Company policies/procedures and an advanced understanding of business processes in various operational areas such as metering, distribution operations, field services, billing and revenue collection processes.

This position requires highly effective interpersonal skills, self-motivation and independent thinking. Must be able to prioritize and handle a variety of tasks, be flexible, deal with unexpected situations, and exercise good judgment skills. Must be able to effectively and positively deal with irate customers and difficult customer situations. Must be a proven team player. Requires working with confidential and sensitive information. Must possess excellent organizational and time management skills in order to deal with periods of high work volumes and tight deadlines.

Attendance

Regular attendance is essential for satisfactory performance in this position.

Work Conditions

Normal office environment. Work is generally varied and may require some travel. Requires the ability to manage multiple tasks within tight deadlines. Some interaction with upset and irate customers is expected.

Physical Effort

Primarily sitting with optional walking or standing. Some travel may be required.

Job Hazards

Low degree of danger or hazard associated with this job.

Purpose

The Revenue Protection Associate is responsible for performing assigned back office duties within the Revenue Protection organization of the Company. Duties include assigned activities associated with the completion of investigations pertaining to suspected meter tampering, meter theft, unauthorized use of gas and/or electricity, inactive accounts with consumption and fraudulent use of service. Level of assignments and responsibility will increase with experience and demonstrated skills and successes.

Core Responsibilities

Investigates and determines appropriate actions and CCS system updates/transactions required to successfully pursue and resolve Revenue Protection investigations. Transactions include the creation of service orders and the assessment of charges on customer accounts.

Will be required to interact with irate customers and effectively deal with difficult customer situations on a daily basis while ensuring a positive customer experience.

Assists in the development and reporting of operational metrics.

Assists in performing root-cause analysis of cross-functional process issues and makes recommendations pertaining to process improvements and alternatives.

Interacts with other departments and operational areas on a daily basis to complete Revenue Protection investigations.

Requires self-motivation, excellent written and oral skills, positive attitude, independent thinking, and a high level of professionalism.

Responsible for handling highly sensitive and confidential materials.

Performs multiple duties as directed by the Manager, Revenue Assurance primarily within the Revenue Protection organization of the Company in a manner to ensure high quality, effective customer service and satisfaction.

Education/Experience/Qualifications

Associate's Degree in Business or other related field(s) required with 0-4 years previous experience in similar roles. Demonstrated business knowledge, skill sets and experience may be considered as a substitute for a degree. CCS knowledge and experience is a necessity. Candidate must have cross-functional business knowledge and experience.

Preferred Qualifications

This position requires demonstrated knowledge/skills of multiple Company operations, CCS system navigation and transactions, BW reporting, and MS Office applications (primarily Word, Excel). Also requires excellent written and verbal communication skills. Requires solid analytical and decision-making ability with attention to detail and accuracy. The successful candidate must possess a broad knowledge of Company policies/procedures and an advanced understanding of business processes in various operational areas such as metering, distribution operations, field services, billing and revenue collection processes.

This position requires highly effective interpersonal skills, self-motivation and independent thinking. Must be able to prioritize and handle a variety of tasks, be flexible, deal with unexpected situations, and exercise good judgment skills. Must be able to effectively and positively deal with irate customers and difficult customer situations. Must be a proven team player. Requires working with confidential and sensitive information. Must possess excellent organizational and time management skills in order to deal with periods of high work volumes and tight deadlines.

Attendance

Regular attendance is essential for satisfactory performance.

Work Conditions

Normal office environment. Work is generally varied and may require some travel. Requires the ability to manage multiple tasks within tight deadlines. Some interaction with upset and irate customers is expected.

Physical Effort

Primarily sitting with optional walking or standing. Some travel may be required.

Job Hazards

Low degree of physical hazards associated with this position.

Purpose

The Manager Revenue Assurance is responsible for all Revenue Assurance, Data Integrity and Revenue Protection projects, resources, operational activities and initiatives throughout the LG&E and KU Energy business and territories. Identifies, develops and manages strategic initiatives that address cross-functional business and operational issues in an effort to minimize revenue loss and maximize profit and efficiency. Researches and identifies customer system technical data issues that require corrective action. Determines root causes, solution alternatives, and system data to be corrected. Manages and coordinates field investigations, back office activities and assessment of tampering fees associated with meter tampering, theft of energy and diversion.

Core Responsibilities

Engages and coordinates all levels of management in identifying areas of focus, scope of work, prioritization, resource assignment/allocation, project execution and implementation of business and customer system enhancements and solutions.

Leads and directs cross-functional teams in researching and identifying Revenue Assurance opportunities including revenue loss from operations and non-billing/under-billing situations.

Develops optimal business solutions and plans to mitigate or eliminate revenue loss, enhance business operations, improve efficiencies and reduce costs.

Oversees the daily activities of the Revenue Assurance/Revenue Protection personnel including: performing performance reviews and establishing individual development plans; identifying and pursuing employee growth and development opportunities; providing direction/coaching, and career counseling for employees.

Oversees continuous process improvement activities and drives implementation of new initiatives in conjunction with operational managers from various lines of business. Jointly develops recommendations, alternatives, and proposed solutions to business issues.

Employs and utilizes statistical analysis, financial analysis, operational/process analysis, business case development and continuous improvement tools on a regular basis in the course of completing revenue assurance projects.

Responsible for the training, development and deployment of a team of analysts engaged in operational analysis pertaining to business improvement projects and correction of technical data issues.

Manages teams of business, IT and technical resources to correct extensive and complex customer system data issues associated with the customer information system while ensuring that system process flows are not impacted. Develops action plans for resolution, and necessary system enhancements to avoid future occurrences. Manages resources involved in correcting data issues.

Effectively communicates findings and continuous improvement recommendations to internal clients, peers, operational management and senior management regarding on-going and planned projects.

Jointly develops and implements tools for reporting post-resolution metrics. Oversees continued reporting of pre/post metrics to gauge value of continuous improvement enhancements and to evaluate the need for additional analysis over time.

Develops and communicates system-wide policies, procedures and work practices related to theft of service and tampering.

Trains, coaches, and monitors safety and development of field investigators and office personnel to ensure compliance with OSHA, Company standards and Public Service Commission regulations.

Ensures proper and timely completion of service orders and field assignments related to tampering and meter theft.

Oversees and ensures employee safety and employee compliance with all safety rules and regulations as well as addressing public safety issues and hazards resulting from meter tampering and theft.

Resolves customer complaints and maintains positive customer interaction in the field environment and with other departments.

Researches new technologies and business approaches to further enhance and/or optimize Revenue Assurance/Revenue Protection results.

Maintains a network of industry contacts to share issues and continuous improvement initiatives in the revenue assurance and protection areas. Benchmarks with other utilities to identify and pursue best practices within responsible lines of business.

Effectively manages financial resources. Develops and manages operating and capital budgets.

Completes special projects and analyses as directed by senior management and line of business management. Performs other duties as directed by the Director, Revenue Integrity

Education/Experience/Qualifications

Bachelor's degree in Engineering or Business required. A minimum of 10 years combined business operations and management experience and a demonstrated ability to manage cross-functional teams/projects, absorb information, apply conceptual skills in practical applications, develop creative/practical business solutions, and achieve desired results in a highly technical, operational environment. Candidate must possess an in-depth understanding of multiple technical and operational areas and lines of business as well as possess a high level of technical expertise in the operation of the customer information system to better meet the needs of internal customers.

Preferred Qualifications

This position requires an in-depth knowledge and technical expertise in an array of utility business operations and systems in order to assess business needs, analyze operations and processes, evaluate options, recommend solutions, and coordinate successful implementation of changes and improvements. Operational areas of expertise include but are not limited to: metering (self-contained and instrument rated), meter reading, billing, revenue collection and credit functions, field services, accounting, rates & tariffs, regulatory and legal requirements and distribution operations.

Must be a proven leader and possess excellent strategic thinking capabilities, strong project management skills, team building skills, outstanding influencing skills and the ability to gain support and cooperation to complete broad-scope projects and initiatives. Demonstrated ability to lead multi-disciplined teams.

Experienced in working with all levels of corporate and operational management (including senior management) in the development and implementation of strategic business solutions, processes, policies and procedures.

Requires advanced knowledge and skill sets in CCS, Business Warehouse/Business Intelligence reporting, understanding of business functions, integration, and processes in various operational areas. Must possess a thorough knowledge of Company policies/procedures, rates and tariffs, Public Service Commission regulations, business processes in various operational areas including Metering, Distribution Operations & Support, Field Services, Billing, Revenue Protection and Revenue Collections.

Must possess excellent organizational and time management skills. Excellent written and verbal communication skills. Should have a broad and thorough understanding of the electric and gas utility business. Responsible for handling highly sensitive and confidential materials.

Attendance

Regular attendance is essential for satisfactory performance.

Work Conditions

Normal office environment as well as some field activity in order to supervise field personnel. Some travel is required to meet and work with internal clients.

Physical Effort

Primarily sitting with optional walking or standing.

Job Hazards

Low degree of physical hazards associated with this position.

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Question No. 24

Witness: John P. Malloy

- Q-24. Reference the Malloy testimony at page 16, which describes the method used to estimate a (nominal) benefit of \$402.3 million from 2018-2040 resulting from the reduction in non-technical losses from the AMS system.
- a. Provide all documentation, calculations, estimates, assumptions, workpapers, etc. which translate the 0.71% non-technical loss recovery assumed by the Companies (Malloy testimony, page 18, line 3) into the \$402.4 million nominal benefit.
 - b. Provide the revenue forecast from 2018-2040 by year on which this estimate is based, broken down into fuel revenue and non-fuel revenue for each rate class included in the revenue forecast.
 - c. Provide the actual revenue from each of the rate classes included in the forecast, broken down into fuel revenue and non-fuel revenue, in 2017.
 - d. Explain any significant differences between a.) the 2018-2040 annual revenue forecast by rate class and revenue type (fuel vs. non-fuel) and b.) the 2017 actual revenue by rate class and revenue type (fuel vs. non-fuel).
- A-24.
- a. See attachment to the response to Question No. 34.
 - b. See attached.
 - c. – d. The Companies record customer revenue on an accrual basis by customer class, not by rate class. Therefore, the information is not available in the format requested.

| \$000s | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 |
|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| All Electric Schools | | | | | | | | | | | | | | | | | | | | | | | |
| Fuel | 4,346 | 4,374 | 4,366 | 4,535 | 4,719 | 4,813 | 4,909 | 5,008 | 5,108 | 5,210 | 5,314 | 5,420 | 5,529 | 5,639 | 5,752 | 5,867 | 5,985 | 6,104 | 6,226 | 6,351 | 6,478 | 6,607 | 6,740 |
| Non-Fuel | 12,049 | 13,055 | 13,706 | 14,275 | 14,520 | 14,811 | 15,107 | 15,409 | 15,717 | 16,031 | 16,352 | 16,679 | 17,013 | 17,353 | 17,700 | 18,054 | 18,415 | 18,783 | 19,159 | 19,542 | 19,933 | 20,332 | 20,738 |
| Total | 16,395 | 17,430 | 18,072 | 18,810 | 19,239 | 19,624 | 20,016 | 20,416 | 20,825 | 21,241 | 21,666 | 22,099 | 22,541 | 22,992 | 23,452 | 23,921 | 24,400 | 24,888 | 25,385 | 25,893 | 26,411 | 26,939 | 27,478 |
| General Service | | | | | | | | | | | | | | | | | | | | | | | |
| Fuel | 78,648 | 79,065 | 79,515 | 82,207 | 86,202 | 87,926 | 89,685 | 91,478 | 93,308 | 95,174 | 97,077 | 99,019 | 100,999 | 103,019 | 105,080 | 107,181 | 109,325 | 111,512 | 113,742 | 116,017 | 118,337 | 120,704 | 123,118 |
| Non-Fuel | 337,331 | 362,448 | 376,250 | 391,646 | 405,896 | 414,014 | 422,294 | 430,740 | 439,355 | 448,142 | 457,105 | 466,247 | 475,572 | 485,083 | 494,785 | 504,680 | 514,774 | 525,070 | 535,571 | 546,282 | 557,208 | 568,352 | 579,719 |
| Total | 415,979 | 441,513 | 455,765 | 473,853 | 492,098 | 501,940 | 511,979 | 522,218 | 532,663 | 543,316 | 554,182 | 565,266 | 576,571 | 588,102 | 599,865 | 611,862 | 624,099 | 636,581 | 649,313 | 662,299 | 675,545 | 689,056 | 702,837 |
| Power Service | | | | | | | | | | | | | | | | | | | | | | | |
| Fuel | 106,407 | 107,459 | 108,094 | 111,975 | 117,276 | 119,622 | 122,014 | 124,454 | 126,944 | 129,482 | 132,072 | 134,714 | 137,408 | 140,156 | 142,959 | 145,818 | 148,735 | 151,709 | 154,744 | 157,838 | 160,995 | 164,215 | 167,499 |
| Non-Fuel | 289,243 | 307,158 | 315,088 | 327,236 | 333,767 | 340,442 | 347,251 | 354,196 | 361,280 | 368,506 | 375,876 | 383,394 | 391,061 | 398,883 | 406,860 | 414,997 | 423,297 | 431,763 | 440,399 | 449,207 | 458,191 | 467,355 | 476,702 |
| Total | 395,651 | 414,616 | 423,182 | 439,211 | 451,043 | 460,064 | 469,266 | 478,651 | 488,224 | 497,988 | 507,948 | 518,107 | 528,469 | 539,039 | 549,819 | 560,816 | 572,032 | 583,473 | 595,142 | 607,045 | 619,186 | 631,570 | 644,201 |
| Residential | | | | | | | | | | | | | | | | | | | | | | | |
| Fuel | 264,800 | 267,164 | 269,537 | 279,262 | 293,273 | 299,139 | 305,121 | 311,224 | 317,448 | 323,797 | 330,273 | 336,879 | 343,616 | 350,489 | 357,498 | 364,648 | 371,941 | 379,380 | 386,968 | 394,707 | 402,601 | 410,653 | 418,866 |
| Non-Fuel | 868,664 | 923,635 | 958,554 | 996,129 | 1,025,685 | 1,046,199 | 1,067,123 | 1,088,466 | 1,110,235 | 1,132,440 | 1,155,088 | 1,178,190 | 1,201,754 | 1,225,789 | 1,250,305 | 1,275,311 | 1,300,817 | 1,326,833 | 1,353,370 | 1,380,438 | 1,408,046 | 1,436,207 | 1,464,931 |
| Total | 1,133,464 | 1,190,799 | 1,228,091 | 1,275,392 | 1,318,959 | 1,345,338 | 1,372,245 | 1,399,689 | 1,427,683 | 1,456,237 | 1,485,362 | 1,515,069 | 1,545,370 | 1,576,278 | 1,607,803 | 1,639,959 | 1,672,758 | 1,706,214 | 1,740,338 | 1,775,145 | 1,810,648 | 1,846,860 | 1,883,798 |
| Residential TOD | | | | | | | | | | | | | | | | | | | | | | | |
| Fuel | 27 | 35 | 42 | 51 | 62 | 63 | 64 | 66 | 67 | 68 | 70 | 71 | 72 | 74 | 75 | 77 | 78 | 80 | 82 | 83 | 85 | 87 | 88 |
| Non-Fuel | 79 | 107 | 134 | 163 | 192 | 196 | 200 | 204 | 208 | 212 | 216 | 221 | 225 | 230 | 234 | 239 | 244 | 248 | 253 | 258 | 264 | 269 | 274 |
| Total | 106 | 142 | 176 | 214 | 254 | 259 | 264 | 269 | 275 | 280 | 286 | 292 | 297 | 303 | 309 | 316 | 322 | 328 | 335 | 342 | 349 | 355 | 363 |
| Special Contract | | | | | | | | | | | | | | | | | | | | | | | |
| Fuel | 1,363 | 1,367 | 1,374 | 1,408 | 1,480 | 1,509 | 1,539 | 1,570 | 1,602 | 1,634 | 1,666 | 1,700 | 1,734 | 1,768 | 1,804 | 1,840 | 1,876 | 1,914 | 1,952 | 1,991 | 2,031 | 2,072 | 2,113 |
| Non-Fuel | 2,265 | 2,366 | 2,414 | 2,503 | 2,600 | 2,652 | 2,705 | 2,759 | 2,814 | 2,870 | 2,928 | 2,986 | 3,046 | 3,107 | 3,169 | 3,232 | 3,297 | 3,363 | 3,430 | 3,499 | 3,569 | 3,640 | 3,713 |
| Total | 3,628 | 3,733 | 3,788 | 3,911 | 4,079 | 4,161 | 4,244 | 4,329 | 4,415 | 4,504 | 4,594 | 4,686 | 4,779 | 4,875 | 4,972 | 5,072 | 5,173 | 5,277 | 5,382 | 5,490 | 5,600 | 5,712 | 5,826 |
| Water Pumping | | | | | | | | | | | | | | | | | | | | | | | |
| Fuel | 15 | 16 | 16 | 17 | 18 | 18 | 18 | 19 | 19 | 19 | 20 | 20 | 21 | 21 | 21 | 22 | 22 | 23 | 23 | 24 | 24 | 25 | 25 |
| Non-Fuel | 22 | 24 | 25 | 27 | 28 | 29 | 29 | 30 | 30 | 31 | 32 | 32 | 33 | 33 | 34 | 35 | 35 | 36 | 37 | 38 | 38 | 39 | 40 |
| Total | 38 | 39 | 41 | 44 | 46 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 57 | 58 | 59 | 60 | 61 | 62 | 64 | 65 |
| Total Revenue | | | | | | | | | | | | | | | | | | | | | | | |
| Fuel | 455,607 | 459,479 | 462,944 | 479,455 | 503,029 | 513,090 | 523,352 | 533,819 | 544,495 | 555,385 | 566,493 | 577,822 | 589,379 | 601,166 | 613,190 | 625,454 | 637,963 | 650,722 | 663,736 | 677,011 | 690,551 | 704,362 | 718,450 |
| Non-Fuel | 1,509,654 | 1,608,793 | 1,666,171 | 1,731,979 | 1,782,688 | 1,818,342 | 1,854,709 | 1,891,803 | 1,929,639 | 1,968,232 | 2,007,596 | 2,047,748 | 2,088,703 | 2,130,477 | 2,173,087 | 2,216,549 | 2,260,880 | 2,306,097 | 2,352,219 | 2,399,264 | 2,447,249 | 2,496,194 | 2,546,118 |
| Total | 1,965,261 | 2,068,271 | 2,129,115 | 2,211,435 | 2,285,717 | 2,331,432 | 2,378,060 | 2,425,622 | 2,474,134 | 2,523,617 | 2,574,089 | 2,625,571 | 2,678,082 | 2,731,644 | 2,786,277 | 2,842,002 | 2,898,842 | 2,956,819 | 3,015,955 | 3,076,275 | 3,137,800 | 3,200,556 | 3,264,567 |

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Question No. 25

Witness: Rick E. Lovekamp

- Q-25. Reference the table in the Malloy testimony at page 15, which estimates (nominal) benefits of \$425.1 million from Operational Savings and \$402.3 million from a reduction in non-technical losses from 2018-2040. These two benefit types represent 84% of the economic benefits projected by the Companies from the proposed AMS deployment. Given current ratemaking processes, neither benefit type will produce economic benefits for customers in the form of rate reductions without a rate case.
- a. Please describe any commitments the Companies are willing to make regarding the timing of a rate case which would reduce rates for customers by reflecting the value of these two anticipated benefit types in the accounting books of a test year used to prosecute such a rate case.
 - b. If the Companies are unwilling to make such a commitment, propose other potential solutions to this issue the Companies are willing to entertain, or, explain why no commitments on, or other proposed solutions to, this rate case timing issue are appropriate.
- A-25.
- a. The Companies do not believe a commitment in this regard is necessary.
 - b. If the Companies achieve any AMS operational savings shown in the AMS Business Case, those savings will be implicit in the Companies' future test years and rates.

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Question No. 26

Witness: Rick E. Lovekamp / John P. Malloy

Q-26. Reference the table in the Malloy testimony at page 15, which estimates Total (nominal) Lifecycle Benefits of \$985.4 million from 2018-2040 as a result of the proposed AMS deployment.

- a. Provide the estimated (nominal) economic benefits of Operational Savings, ePortal Benefit, and Recovery of Non-Technical Losses by year from 2018-2040.
- b. Describe any economic commitments the Companies are willing to make that customers will realize the economic benefits estimated from the proposed AMS deployment of the timing and size the Companies project.
- c. If the Companies are unwilling to make any economic commitments based on the timing and size of benefits the Companies project, explain why not.

A-26.

- a. See table below.

| Year | Operational Savings | ePortal Benefit | Non-Technical Loss Recovery | Total Benefits |
|------|---------------------|-----------------|-----------------------------|-----------------|
| 2018 | \$ 2.3 | \$ - | \$ - | \$ 2.3 |
| 2019 | 7.0 | 0.3 | 4.2 | 11.5 |
| 2020 | 9.4 | 3.7 | 9.5 | 22.7 |
| 2021 | 15.4 | 6.2 | 15.7 | 37.3 |
| 2022 | 16.3 | 6.5 | 16.3 | 39.1 |
| 2023 | 16.7 | 6.6 | 16.7 | 39.9 |
| 2024 | 17.1 | 6.7 | 17.0 | 40.8 |
| 2025 | 17.5 | 6.9 | 17.3 | 41.7 |
| 2026 | 17.9 | 7.0 | 17.7 | 42.6 |
| 2027 | 19.8 | 7.1 | 18.0 | 45.0 |
| 2028 | 18.8 | 7.3 | 18.4 | 44.4 |
| 2029 | 19.2 | 7.4 | 18.8 | 45.4 |
| 2030 | 19.7 | 7.6 | 19.1 | 46.4 |
| 2031 | 20.2 | 7.7 | 19.5 | 47.4 |
| 2032 | 20.6 | 7.9 | 19.9 | 48.4 |
| 2033 | 22.6 | 8.0 | 20.3 | 51.0 |
| 2034 | 21.7 | 8.2 | 20.7 | 50.6 |
| 2035 | 22.2 | 8.4 | 21.1 | 51.7 |
| 2036 | 22.7 | 8.5 | 21.5 | 52.8 |
| 2037 | 23.3 | 8.7 | 22.0 | 54.0 |
| 2038 | 23.8 | 8.9 | 22.4 | 55.1 |
| 2039 | 25.9 | 9.1 | 22.9 | 57.8 |
| 2040 | 25.0 | 9.2 | 23.3 | 57.6 |
| | \$ 425.1 | \$ 158.1 | \$ 402.3 | \$ 985.4 |

- b. The Companies do not believe a commitment in this regard is necessary.
- c. If the Companies achieve any AMS operational savings shown in the AMS Business Case, those savings will be implicit in the Companies' future test years and rates.

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Question No. 27

Witness: John P. Malloy

- Q-27. Reference the Malloy testimony at page 25, line 2, which states that a benefit of the AMS deployment is the ability to access a web portal to view usage information, download consumption patterns, and explore products and programs. Describe any commitment the Companies are willing to make to comply with Green Button's Connect My Data standard, which would enable customers to take advantage of free third party tools (such as Chai Energy and OhmConnect) to access usage information, view consumption patterns, receive energy conservation tips, and explore commercial energy conservation product and service offerings on their smart phones, among other benefits.
- A-27. See response to PSC 1-23.

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Question No. 28

Witness: Rick E. Lovekamp / John P. Malloy

- Q-28. Reference the Malloy testimony at page 25, line 9, which states that the proposed AMS deployment will “enable the Companies to deploy time-of-day or more dynamic rate structures that could help customers reduce their bills.”
- a. Please provide any research the Companies have conducted on their overall residential customer base that indicates an interest in time-of-day or more dynamic rate structures.
 - b. Please provide any “willingness to pay” research the Companies have conducted on their overall residential customer base regarding the option to participate in time-of-day or more dynamic rate structures.
 - c. Please provide any commitment the Companies are willing to make to offer peak-time rebates as a default feature of all residential customer rates, thereby facilitating and increasing customer economic benefits from the proposed AMS deployment.
- A-28.
- a. 2011-12 Residential Smart Meter Study: Focus of the study was how much money customers would have to save before they would change behaviors. Study featured four rate options: 1) Time of Use, 2) Critical Peak Pricing, 3) Peak Time Rebate, and 4) Inclining Block. See attachment to PSC 1-19c.
 - b. The Companies do not have research on “willingness to pay” for the option of participating in any rate structure.
 - c. The Companies believe it is premature to commit to any particular rate approach or offering. One benefit of implementing AMS is to gather data to better understand how customers use energy and what rate structures and features would best serve them while reflecting cost of service and ensuring cost recovery. The Companies agree that additional data acquired from AMS should allow the Companies to evaluate rate options that could provide additional customer benefits, but the Companies recommend against being required to offer Peak Time Rebates or any other rate structure or feature as a condition of approving full AMS deployment.

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Question No. 29

Witness: John P. Malloy

- Q-29. Reference the Malloy testimony at page 25, line 11, which states that the proposed AMS deployment “. . . will improve customer service representatives’ ability to address customers’ questions and concerns regarding individual customer outages, power quality, and energy usage.” Provide summary results from customer-experience transactional surveys from high-bill complaint calls for 2014, 2015, 2016, and 2017.
- A-29. The primary impact is the ability to resolve the customer’s issue on the first call (referred to as First Contact Resolution). When a meter needs to be re-read to resolve the high bill complaint first contact resolution cannot be achieved. Among customers who stated they called the utilities concerning a high bill complaint from 2014-2017, overall satisfaction decreased 2.04 points when the agent was unable to resolve the issue on the first contact.

Residential Agent Answered Telephone Calls - Customer Experience Study Results

| | Overall Satisfaction | | First Contact Resolution | | Rep's Ability to Answer | |
|--------------|-----------------------------|------------------------|---------------------------------|------------------------|--------------------------------|------------------------|
| | <i>High Bill Complaint</i> | <i>All Respondents</i> | <i>High Bill Complaint</i> | <i>All Respondents</i> | <i>High Bill Complaint</i> | <i>All Respondents</i> |
| 2014 | 8.39 | 9.29 | 72% | 84% | 8.32 | 9.39 |
| 2015 | 8.09 | 9.35 | 66% | 86% | 8.00 | 9.43 |
| 2016 | 8.07 | 9.30 | 61% | 82% | 7.60 | 8.79 |
| 2017 | 8.48 | 9.25 | 60% | 76% | 4.30 | 5.58 |
| Total | 8.26 | 9.29 | 66% | 82% | 7.87 | 9.12 |

| | High Bill Complaint | |
|---|-------------------------------|-----------------------------|
| | <i>Resolved First Contact</i> | <i>Resolved 2+ Contacts</i> |
| Overall Satisfaction 2014-2017 | 8.95 | 6.91 |
| | All Respondents | |
| | <i>Resolved First Contact</i> | <i>Resolved 2+ Contacts</i> |
| Overall Satisfaction 2014-2017 | 9.61 | 7.85 |

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Question No. 30

Witness: John P. Malloy

- Q-30. Reference the Malloy testimony at page 25, line 14, which states that the proposed AMS deployment will enhance the Companies’ ability to “. . . localize and resolve power outages, which will help reduce customer outage times.”
- a. Describe how the Companies will use the proposed AMS system to localize and resolve power outages and reduce customer outage times.
 - b. Quantify the improvements in Companies-wide SAIDI (and, if applicable, SAIFI) anticipated from the use of the AMS system in this manner. Include all calculations and assumptions used in the development of this estimate in your response.
 - c. Provide any “willingness to pay” research the Companies have conducted on their overall residential customer base regarding improved SAIDI and SAIFI performance.
- A-30.
- a. AMS technologies can proactively report when power outages have been detected for individual meters. This allows earlier detection of outages with more information available to the Companies’ Outage Management Systems (OMS). This data will help the Companies identify the location and extent of outages which supports a more rapid, effective coordination of restoration efforts. Faster, more targeted restoration activity translates into decreased crew time, overtime savings, reduced fleet costs, and lower contractor expenditures.
 - b. All improvements that the Companies anticipate in reduced customer outages are quantified in the response to Question No. 32.
 - c. The Companies have not conducted “willingness to pay” research on their overall residential customer base regarding improved SAIDI and SAIFI performance.

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Question No. 31

Witness: John P. Malloy

- Q-31. Reference the Malloy testimony at page 16, line 18, which states that under the proposed deployment of AMS meters, “The other large driver of savings results from customers using less energy and using it more efficiently as they learn more about their own usage from the web portal that will be available to them as part of the AMS deployment.” The Attorney General is aware of a program, offered by several utilities, which is much more convenient than a web portal visit as a means to control bills. Generally known as high bill alert programs, these programs provide customers who register with weekly outbound calls, emails, or text messages (at the customer’s option) which estimate the size of their upcoming monthly bill using current month usage-to-date information from their AMS meters. One of the best examples is Southern California Edison’s “Budget Assistant”.⁴ Duke Energy Kentucky proposed to make such a program, tentatively labeled Predictive Usage Estimator Alerts, available as part of its smart meter CPCN.⁵ Please describe any commitment the Companies are willing to make regarding the implementation of such a program for its customers within 6 months of the completion of the proposed AMS deployment.
- a. Do the Companies believe that use of a bill alert or “Budget Assistant” or some similar service would help alleviate concerns of low-income customer advocates that for people without internet access, any savings associates with a full deployment of AMS may be illusory? Explain in complete detail.
- A-31. The Companies are aware of the Southern California Edison's program and are willing to investigate the costs and benefits of providing such a program to customers after full implementation of AMS. Though not predictive, the Companies do currently offer through MyMeter to AMS Opt-In customers, and plan to continue offering, usage notifications when customer-set thresholds are met.
- a. The Companies are willing to discuss use of a bill alert or “Budget Assistant” to help alleviate concerns of low-income customer advocates.

⁴More information is available at <https://www.sce.com/wps/portal/home/residential/my-account/budget-assistant-and-you/>

⁵See Exhibit 9, Weintraub pre-filed testimony, at page 10, line 6 in Case No. 2016-00152 (Ky. PSC April 25, 2016).

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Question No. 32

Witness: John P. Malloy

Q-32. Reference the AMS Business Case provided as part of Exhibit JPM-1 Appendix A-1, page 39. The Companies project a savings of \$4.6 million over 20 years from more rapid outage restoration. Provide all calculations and assumptions used to arrive at this projection, including a 20-year breakdown by year, for each of the following savings categories cited by the Companies:

- a. Crew Time/staff reductions
- b. Overtime
- c. Fleet Costs
- d. Contractor expenditures
- e. Any other savings categories

A-32. a. – e. Savings projections provided in \$000s.

| <u>Calculations</u> | <u>Assumptions</u> |
|---|--------------------|
| # of Addressable Blue Sky / Minor Outages per year | 10,000 |
| × Time savings for identifying outage location (mins) | 9.6 |
| × Average Outage Field Service Crew Size | 1 |
| × Field service representative hourly rate (loaded) | \$ 68.96 |
| × Labor Escalation (%) | 3% |
| = Benefits of reduced time to identify outage location | |
| + # of Addressable Blue Sky / Minor Outages per year | 10,000 |
| × # of customers impacted by each Blue Sky / Minor Outage | 40 |
| × Electric, average annual consumption (MWh) | 30 |
| × Time savings for identifying outage location (mins) | 9.6 |
| × Electric, average retail price of energy (per kWh) | \$ 0.10 |
| × Electric, average retail escalation | 2.0% |

| | | |
|---|--|---------|
| = | Protected revenue from reduced outage restoration time | |
| + | # of Addressable Blue Sky / Minor Outages per year | 10,000 |
| × | Reduction in mileage driven per outage | 2 |
| × | Cost per mile | \$ 1.52 |
| = | Benefit of reduction in miles driven | |

| Year | Reduced Time | Protected Revenue | Reduced Miles | Total Benefit |
|------|-----------------|----------------------|------------------|------------------|
| 2018 | \$ - | \$ - | \$ - | \$ - |
| 2019 | 5.5 | 1.1 | 1.4 | 8.1 |
| 2020 | 74.0 | 15.6 | 18.9 | 108.5 |
| 2021 | 120.0 | 25.5 | 29.7 | 175.2 |
| 2022 | 124.2 | 26.6 | 29.8 | 180.6 |
| 2023 | 127.9 | 27.1 | 29.8 | 184.9 |
| 2024 | 131.7 | 27.7 | 29.8 | 189.3 |
| 2025 | 135.7 | 28.2 | 29.8 | 193.8 |
| 2026 | 139.8 | 28.8 | 29.8 | 198.4 |
| 2027 | 144.0 | 29.4 | 29.8 | 203.2 |
| 2028 | 148.3 | 29.9 | 29.8 | 208.1 |
| 2029 | 152.7 | 30.5 | 29.8 | 213.1 |
| 2030 | 157.3 | 31.2 | 29.8 | 218.3 |
| 2031 | 162.0 | 31.8 | 29.8 | 223.7 |
| 2032 | 166.9 | 32.4 | 29.8 | 229.2 |
| 2033 | 171.9 | 33.1 | 29.8 | 234.8 |
| 2034 | 177.1 | 33.7 | 29.8 | 240.6 |
| 2035 | 182.4 | 34.4 | 29.8 | 246.6 |
| 2036 | 187.8 | 35.1 | 29.8 | 252.8 |
| 2037 | 193.5 | 35.8 | 29.8 | 259.1 |
| 2038 | 199.3 | 36.5 | 29.8 | 265.6 |
| 2039 | 205.3 | 37.2 | 29.8 | 272.3 |
| 2040 | 211.4 | 38.0 | 29.8 | 279.2 |
| | \$ 3,318.6 | \$ 649.6 | \$ 617.1 | \$ 4,585.3 |

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Case No. 2018-00005

Question No. 33

Witness: John P. Malloy

Q-33. Reference the AMS Business Case provided as part of Exhibit JPM-1, page 39. The Companies project a savings of \$7.1 million over 20 years from reductions in “OK on Arrival” truck rolls. Please provide all calculations and assumptions used to arrive at this projection, including a 20-year breakdown by year, for each of the following savings categories cited by the Companies:

- a. Crew Time/staff reductions
- b. Fleet Costs
- c. Any other savings categories

A-33. a. – c.

| <u>Calculation</u> | <u>Assumptions</u> |
|---|--------------------|
| + # of truck rolls avoided (per year) | 3,400 |
| × # of hours per truck roll | 1 |
| × Truck roll average crew size | 1 |
| × Field Service Representative Hourly Rate (loaded) | \$ 68.96 |
| × <u>Labor escalation (%)</u> | <u>3%</u> |
| = Benefit from reduced truck rolls | |

| <u>Year</u> | <u>Total Benefit</u> |
|-------------|----------------------|
| 2018 | \$ - |
| 2019 | 11.6 |
| 2020 | 157.3 |
| 2021 | 255.0 |
| 2022 | 263.9 |
| 2023 | 271.8 |
| 2024 | 280.0 |
| 2025 | 288.4 |
| 2026 | 297.0 |
| 2027 | 305.9 |
| 2028 | 315.1 |
| 2029 | 324.5 |
| 2030 | 334.3 |
| 2031 | 344.3 |
| 2032 | 354.6 |
| 2033 | 365.3 |
| 2034 | 376.2 |
| 2035 | 387.5 |
| 2036 | 399.2 |
| 2037 | 411.1 |
| 2038 | 423.5 |
| 2039 | 436.2 |
| 2040 | 449.2 |
| | <u>\$ 7,051.9</u> |

**Louisville Gas and Electric Company and Kentucky Utilities Company
Response to the Attorney General's Initial Data Requests for Information
Dated April 2, 2018**

Case No. 2018-00005

Question No. 34

Witness: John P. Malloy

- Q-34. Provide a copy of all exhibits and schedules that were prepared in the Companies' Application in Excel spreadsheet format with all formulas intact and unprotected and with all columns and rows accessible.
- A-34. See the attachment being provided in Excel format. The information requested is confidential and proprietary and is being provided under seal pursuant to a petition for confidential protection.

The entire attachment is
Confidential and
provided separately
under seal.

**Louisville Gas and Electric Company and Kentucky Utilities Company
Response to the Attorney General’s Initial Data Requests for Information
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Case No. 2018-00005

Question No. 35

Witness: John P. Malloy

- Q-35. Identify the changes that should be made to the cost-benefit analysis given that the Companies have customers who lack the ability to access the “MyMeter Dashboard,” including those who may live at or below the poverty level, or those without access to internet service. Any response should include the Company’s changes within the context of Mr. Malloy’s testimony at p. 3 stating customers will “become more aware of their consumption patterns by reviewing the granular consumption information AMS provides.”
- A-35. The Companies disagree with the premise that customers living at or below the poverty level, or those without access to internet service lack the ability to access the “MyMeter Dashboard,” and find no reason to change the cost-benefit analysis. See responses to CAC 1-1 and CAC 1-2 for other ways customers can access MyMeter. The MyMeter portal is available via mobile phone as well. Although access to ePortal and responding by taking appropriate energy-saving measures is certainly one way customers will benefit from AMS, it is far from the only way customers—including low-income customers—will benefit from AMS. First, reduced operational costs resulting from AMS will redound to all customers’ benefit. Second, enhanced identification and recovery of non-technical losses will again redound to all customers’ benefit, including low-income customers. Third, reduced post-storm and other service-restoration times resulting from AMS data will be a benefit for all customers, including low-income customers. Fourth, to the extent AMS data allows the Companies to formulate rate structures that better reflect underlying costs based on much better customer-usage data from AMS, all customers will benefit, and particularly those low-income customers who have above-average usage and are effectively subsidizing low-usage customers. Fifth, AMS-related features like usage and bill alerts require only a phone capable of receiving text messages, which devices are typically broadly available. Therefore, although the Companies do not dispute that having internet access will help customers maximize potential AMS benefits, having internet access is not necessary to receive most categories of AMS benefits.

**Louisville Gas and Electric Company and Kentucky Utilities Company
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Case No. 2018-00005

Question No. 36

Witness: John P. Malloy

- Q-36. Identify and provide copies of (or alternatively, web links to) all studies, research projects and/or reports of which the Companies are aware and not already provided in this docket indicating that costs of AMS / AMI metering systems exceed benefits.
- A-36. The Companies are not aware of any such documents that are recent enough to be relevant that show the costs of deploying AMS or AMI exceed benefits over the total lifetime of a deployment.

**Louisville Gas and Electric Company and Kentucky Utilities Company
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Case No. 2018-00005

Question No. 37

Witness: John P. Malloy

Q-37. Provide copies of all studies, research projects and/or reports of which the Companies are aware, or which the Companies or any person or entity acting on their behalf have conducted regarding whether the ratio of disconnection notices to actual disconnects is expected to increase or decrease once the proposed AMS project is fully deployed.

A-37. The Companies are not aware of, nor did they conduct, any such research.

**Louisville Gas and Electric Company and Kentucky Utilities Company
Response to the Attorney General's Initial Data Requests for Information
Dated April 2, 2018**

Case No. 2018-00005

Question No. 38

Witness: John P. Malloy

- Q-38. Provide copies of all studies, research projects and/or reports of which the Companies are aware, or which the Companies or any person or entity acting on their behalf have conducted regarding whether the number of monthly late payments is expected to increase or decrease once the proposed AMS project is fully deployed.
- A-38. The Companies are not aware of, nor did they conduct, any such research.

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Case No. 2018-00005

Question No. 39

Witness: John P. Malloy

- Q-39. Provide copies of all studies, research projects and/or reports of which the Companies are aware, or which the Companies or any person or entity acting on their behalf have conducted regarding whether the amount of revenue from disconnects will increase or decrease once the proposed AMS project is fully deployed.
- a. If such revenues are forecasted to increase, describe in complete detail how this was portrayed in the Companies' cost-benefit analysis.
- A-39. The Companies are not aware of, nor did they conduct, any such research.
- a. The Companies have not assumed any changes to the number of disconnects or reconnects completed as a result of the proposed AMS project.

**Louisville Gas and Electric Company and Kentucky Utilities Company
Response to the Attorney General's Initial Data Requests for Information
Dated April 2, 2018**

Case No. 2018-00005

Question No. 40

Witness: John P. Malloy

- Q-40. Provide a copy of the Companies' policy regarding privacy of customer data. If the policy does not address whether the Companies would ever sell such data (whether anonymized, de-identified or otherwise), provide such a discussion including the precise circumstances under which the Companies might or could sell such data.
- a. Explain whether full deployment of the proposed AMS project would or could change any existing policy of the Companies in this regard.
- A-40. The Companies' privacy policy may be found at <https://lge-ku.com/privacy>. See response to PSC 1-33 for discussion related to the selling of customer data.
- a. See response to PSC 1-33.