COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

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

ATTORNEY GENERAL'S RESPONSES TO DATA REQUESTS OF THE KENTUCKY PUBLIC SERVICE COMMISSION STAFF

Comes now the intervenor, the Attorney General of the Commonwealth of Kentucky, by and through his Office of Rate Intervention, and submits the following responses to data requests of the Kentucky Public Service Commission Staff in the above-styled matter.

Respectfully submitted,

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WITNESS/RESPONDENT RESPONSIBLE:
Paul J. Alvarez

QUESTION No. 1
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Provide a list showing any differences between the direct testimony of Paul J. Alvarez ("Alvarez Testimony") in the instant case, as compared to the testimony submitted in Case Nos. 2016-00370 and 2016-00371.

RESPONSE:

Alvarez testimony in Case Nos. 2016-00370 and 2016-00371 included the following items not included in the instant case testimony:

1. KU/LG&E could increase benefits by introducing a peak-time rebate rate, a high bill alert program, and by joining an energy and capacity market such as PJM or MISO, but that these benefit increases were unlikely to deliver benefits in excess of costs from smart meters.
2. If the Commission approved the smart meter proposal, it could take actions to reduce economic risks to customers, including a benefit guarantee mechanism; a limit on customers' responsibility to cover cost over-runs; and a prohibition on profits and carrying costs on assets stranded by the proposed smart meter deployment.
3. If the Commission approved the smart meter proposal, it should require a smart meter opt-out tariff and compliance with the "Connect My Data" data access standard.

Alvarez testimony in Case Nos. 2016-00370 and 2016-00371 did not include the following items which are included in the instant case testimony:

1. A description of the various conditions required for a smart meter deployment to deliver benefits in excess of costs, including a) a mechanism to deal with utility incentives to "time" rate cases to shareholder benefit when costs fall or revenues increase after smart meter installations; b) high motivation and high convenience for customers to take advantage of smart meter conservation opportunities; and c) opportunities to avoid the cost of system capacity increases through high customer participation levels in time-of-use rates. (Mr. Alvarez notes that

these conditions are either not present in the current smart meter proposal or not present in the over-capacity circumstances in which KU/LG&E find themselves today.)

2. That KU/LG&E understated nominal costs in the original benefit-cost analysis by the amount of carrying costs (profits, taxes on profits, interest, and property taxes) that customers would pay on all capital investment.

3. That KU/LG&E understated costs in the benefit-cost analysis by the book value (and associated carrying costs) of the meters to be retired prematurely by the proposed smart meter deployment.

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QUESTION No. 2
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Provide a chart listing any case number in which Mr. Alvarez has advocated positively for the installation of smart meter technologies.

RESPONSE:

Mr. Alvarez has not testified in any cases in which the anticipated customer benefits of a proposed smart meter deployment clearly exceeded the projected costs. As a result, Mr. Alvarez is unable to cite testimony he has submitted in favor of a smart meter deployment.

Mr. Alvarez is not opposed to smart meter deployments in all instances. For example, he has testified several times that a utility's smart meter proposal requires further development and stakeholder input before it should be considered by regulators:

- Kentucky PSC 2016-00152, Duke Energy CPCN for Smart Meters, July 18, 2016;
- Massachusetts DPU 15-120, National Grid Modernization Plan, March 10, 2017;
- North Carolina UC E2 Sub 1142, AMI portion of Duke Progress Rate Case, October 18, 2017;
- North Carolina UC E7 Sub 1146, AMI portion of Duke Carolinas Rate Case, January 19, 2018.

Furthermore, in none of Mr. Alvarez's conference presentations, journal articles, blog posts, or white papers, nor in his book (*Smart Grid Hype and Reality: A Systems Approach to Maximizing Customer Return on Utility Investment*) has he ever stated that smart meters are categorically a bad deal for customers which should never be deployed. Rather, as in his testimony in the instant case, he focuses on the requirements and recommendations for delivering a favorable benefit-cost ratio for customers from smart grid deployments. Only in situations in which Mr. Alvarez believes a favorable benefit-cost ratio for customers cannot be achieved does he testify against a particular smart meter deployment. Mr. Alvarez's experience in leading the teams which have completed 2 of the only 3 post-deployment smart meter benefit-cost evaluations ever conducted, and in examining dozens of smart meter proposals submitted by utilities to regulators, makes him uniquely qualified to make such assessments. Furthermore, it should be noted that Mr. Alvarez's testimony in Case Nos. 2016-00370 and 2016-00371 recommended that the Commission reject LG&E and KU's smart meter CPCNs, but noted that if the Commission approved the applications, the Commission could reduce the economic risk to customers by implementing certain measures, and could increase benefits by introducing a peak-time rebate rate.

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Refer to the Alvarez Testimony, pages 9-10. Mr. Alvarez states that: "In addition, I would like to discuss a smart meter benefit type of significant size, which I believe to be necessary to a favorable customer benefit cost ratio, which is not currently available based on the Companies' current circumstances. That is, the opportunity to avoid or delay investments designed to increase system capacity during coincident system peaks through extensive customer participation in time-varying rates." State whether Mr. Alvarez is aware Louisville Gas and Electric Company ("LG&E") and Kentucky Utilities Company ("KU") each offer a Residential Time-of-Day-Demand tariff, and a Residential Time-of-Day-Energy tariff.

RESPONSE:

Mr. Alvarez is aware that KU and LG&E each offer Residential Time-of-Day tariffs. Mr. Alvarez understands that as presented in Case No. 2016-00370, of the more than 900,000 customers who are eligible to enroll, the combined companies had 49 customers on the TOD-Energy rate and 0 on their TOD-Demand rate.[1] Low participation rates illustrate that having a time-of-day tariff available does not make a smart meter deployment cost-effective. As indicated in Mr. Alvarez's testimony on behalf of the Massachusetts Attorney General in a smart meter proposal from National Grid, the benefit size from a time-of-day tariff are determined by three factors:[2]

- The number of customers participating in a rate with a peak-period price feature;
- The size of energy reduction demonstrated by participants (driven by convenience & automation);
- The value ($/MW) of avoiding system capacity increases.

[1] Case No. 2016-00370, Kentucky Utilities Company Responses to Attorney General's First Request for Information, AG-DR-1-304 (Jan. 25, 2017).
[2] Massachusetts DPU 15-120. Testimony of Paul Alvarez on behalf of the Massachusetts Attorney General. March 10, 2017. Pages 12-13.

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This benefit size can be calculated as evidenced below:

$$\text{CPP/PTR Benefit Size} = \text{Number of Participating Customers} \times \text{Average Size of Demand Response} \times \text{Value per Unit of Demand Reduced}$$

As none of these factors is favorably identified in the KU/LG&E smart meter proposal, and in light of KU/LG&E's current over-capacity circumstances, Mr. Alvarez believes that the potential benefits of time-of-use rates made available by smart meters are very small or non-existent.

WITNESS/RESPONDENT RESPONSIBLE:
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QUESTION No. 4
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Refer to the Alvarez Testimony, page 11, lines 8-15. State whether Mr. Alvarez is aware that LG&E and KU filed rates cases in 2012, 2014, and 2016, and have announced their intention to file base rate cases in 2018.

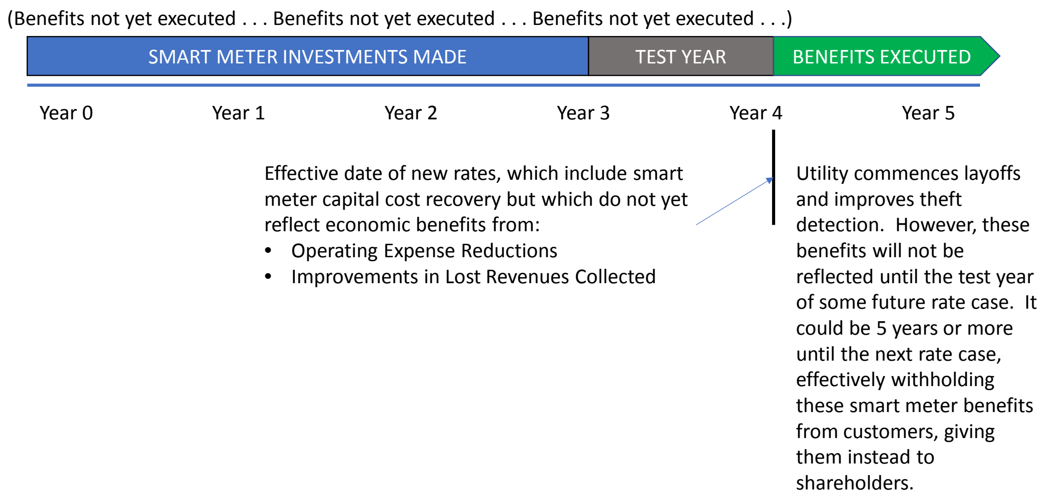
RESPONSE:

Mr. Alvarez is aware of the Companies' recent rate case history and stated intentions. However, Mr. Alvarez would note though that both LG&E and KU have made significant investments, including environmental capital costs, over the past few years.[3] As discussed in Mr. Alvarez's testimony, rate cases are necessary to include capital cost in rate base, thus indicating that the Companies' recent rate case activity could be directly correlated with their significant investments. Nevertheless, as Mr. Alvarez pointed out in his testimony,[4] the companies' parent, PPL, has recently indicated less capital outlay moving forward for LG&E and KU, especially as their investment in environmental projects winds down, thus possibly alleviating the need to continue on the current pattern of rate cases every 2 years. Furthermore, simply having a rate case does not prevent a utility from "timing" the rate case, and from "timing" smart meter benefit execution, in a way that benefits shareholders rather than customers. The diagram on the next page illustrates the rate case timing problem and why it cannot be "cured" simply by processing a rate case:

[3] See Case Nos. 2016-00027 and 2016-00026, indicating 2016 combined environmental Cost Recovery Plans in excess of $850M.
[4] Alvarez Testimony, Page 11, footnote 7.

QUESTION No. 4

ILLUSTRATION OF THE SMART METER RATE CASE TIMING PROBLEM



WITNESS/RESPONDENT RESPONSIBLE:
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QUESTION No. 5
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Refer to the Alvarez Testimony, page 14, lines 15-19. Given that LG&E and KU's AMS meter deployment, if approved, will not be fully operational until mid-2021, explain why the test year in LG&E and KU's forthcoming rate cases should include operational savings due to the AMS deployment.

RESPONSE:

See the AG's response to Staff DR-1-4, and the diagram provided therein. If the Operating Expense Reduction benefits and Lost Revenue Improvement benefits are not reflected in the test year used to recover AMS capital and associated carrying costs, those benefits will go unrealized by customers until some future rate case of unknown timing. Since the benefits will not go to ratepayers, they will by default go to shareholders. Thus if the next rate case is 5-10 years away, shareholders, and not customers, will reap those benefits for 5-10 years. In other words, customers will be paying for smart meter investments but not seeing these particular benefits reflected in their rates. LG&E and KU's business case[5] anticipates cost savings from AMS deployment to begin as soon as 2018, and thus, at a minimum, whatever cost savings are anticipated to occur during the test year of any future rate case should be included.

[5] See Malloy Exhibit JPM-1 Appendix A-6.1 (Ky. PSC Jan. 10, 2018).

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QUESTION No. 6
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Refer to the Alvarez Testimony at 42-44 and LG&E and KU's response to the Attorney General's First Request for Information ("Attorney General's First Request"), Item 20.c. Confirm that the Alvarez Testimony, including the chart on page 44, compares the Nominal Revenue Requirement capital costs, which include the expected impacts of the Tax Cuts and Jobs Act ("TCJA"), to the Net Present Value Revenue Requirements, excluding the expected impacts of the TCJA, to determine that LGE and KU increased the present value revenue requirement by $198.6 million.

RESPONSE:

Mr. Alvarez has submitted corrected testimony reflecting the appropriate analysis. The corrections compare the Companies' initial nominal capital estimate ($363.8 million) to the Companies' nominal capital estimate from the TCJA Data Request ($578.0 million), which includes carrying costs (as signified by the "RR", or revenue requirement, designation in the second column of the Companies' response to AG-DR-01, Q.20(c)). The chart on the following page is provided for further context. Note that with carrying costs, and in consideration of Mr. Alvarez's critiques of benefits, the net present value benefit-cost ratio for customers is very likely negative. Note also that even if none of Mr. Alvarez's benefit critiques are valid, the benefit-cost ratio for customers is negative under more appropriate (and more likely) 18-year and 15-year benefit periods. (See the AG's response to Staff DR-01-7, which indicates the Companies' business case seems to assign a 15-year useful life for the meters. If the asset life is only 15-years, an 18-year or 15-year benefit-cost analysis is more appropriate than a 23-year benefit-cost analysis.)

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($ in millions)	Nominal Incl. Revenue Reqt's (per Verified Informational Update)	Net Present Value, 18 yrs (per AG-2 Q5)	Net Present Value, 15 yrs (per AG-2 Q5)
(Costs)			
Total Project Costs (Capital)	$ (515.0)	$ (357.1)	$ (357.1)
Total Project Costs (O&M)	$ (29.8)	$ (26.0)	$ (26.0)
Total Project Costs	$ (544.8)	$ (383.1)	$ (383.1)
Total Recurring Costs (Capital)	$ (63.0)	$ (17.2)	$ (15.8)
Total Recurring Costs (O&M)	$ (108.8)	$ (37.5)	$ (30.3)
Total Recurring Costs	$ (171.8)	$ (54.7)	$ (46.1)
Total Lifecycle Costs	$ (716.6)	$ (437.8)	$ (429.2)
Benefits			
Operational Savings	$ 425.1	$ 172.8	$ 147.8
ePortal Benefit	$ 158.0	$ 63.6	$ 54.4
Recovery of Non-Tech Losses	$ 402.3	$ 163.9	$ 140.6
Total Lifecycle Benefits	$ 985.4	$ 400.3	$ 342.8
Net Benefits vs. (Costs)	$ 268.8	$ (37.5)	$ (86.4)

WITNESS/RESPONDENT RESPONSIBLE:
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QUESTION No. 7
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Refer to the Alvarez Testimony at 43, lines 11-14, and LG&E's and KU's responses to the Attorney General's Supplemental Request for Information, Item 12. Confirm that the referenced data responses request the calculations to convert the nominal revenue requirement to the net present value revenue requirement and not for the calculations to convert the nominal cash outlays to nominal revenue requirements as the Alvarez Testimony suggests.

RESPONSE:

Not Confirmed. The premise of the Attorney General's request, which was not corrected by the Companies (and seems to be the initial source of confusion), assumed that the $320 million dollar amount provided in response to AG-DR-1-20 *did include* carrying costs and was a revenue requirement amount.

In preparing this response, Mr. Alvarez noted a different issue he would like to call to Staff's attention. Mr. Alvarez suggests the Commission examine the worksheet the Companies provided in the referenced data response (2018_DR2_Attach_to_Q12a_-_CEM_-_Summary.xlsx). In addition to the lack of detail sufficient to verify that carrying charges are included in the net present value analysis, or what those amounts are by year, Mr. Alvarez notes the heading in worksheet column K, "Life 2018-2033." Note that this is 15 years, which although may be appropriate due to the expected useful life of the assets, is not congruent to the Companies' use of 23 years to calculate the benefits of smart meters, thus overstating benefits. The Commission should ensure the Companies do not have it both ways. The Companies should not be using a 23-year benefit period for assets with an expected useful life of only 15 years. If the assets have a 15-year useful life, then the benefit period should be 15-years, or perhaps 18 years at most (to reflect a 3-year installation period), but not 23 years. As indicated in the AG's response to Staff-DR-01-06, above, the Companies' benefit-cost ratio is negative for customers assuming 15-year and 18-year benefit periods, even if one assumes that none of Mr. Alvarez's benefit critiques are valid.

WITNESS/RESPONDENT RESPONSIBLE:
Paul J. Alvarez

QUESTION No. 8
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Refer to the Alvarez Testimony at 44 -45. Confirm that recovery of existing meters already is included in LG&E's and KU's existing rates.

RESPONSE:

Confirmed. However, including the cost of meters in existing rates, which have been removed from service, does not imply that such costs should be ignored in benefit-cost analyses. Mr. Alvarez believes that premature retirement of assets with remaining book value and useful life represents a cost to customers that should not be ignored in benefit-cost analyses.

WITNESS/RESPONDENT RESPONSIBLE:
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QUESTION No. 9
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Refer to LG&E's and KU's response to the Attorney General's First Request, Item 20.c. and LG&E's and KU's Informational Update, filed January 30, 2018. Confirm that LG&E's and KU's Net Present Value Revenue Requirement capital costs decreased by $16 million to account for the expected impacts of the TCJA.

RESPONSE:

Confirmed. However, Nominal Capital Projections including the revenue requirement (per response to AG-DR-1, Q.20(c)) increased $214 million from the initial Nominal Capital Projections (from $363.8 million initially to $578 million). This indicates that the Companies' application provided an apples to oranges comparison, providing a nominal capital cash summary and a NPVRR summary. Only in a subsequent "informational" filing did the Companies provide the true cost to customers from its business case, $716.6 M. Importantly, the "informational" filing was indicated as being for the purpose of reflecting changes resulting from the passage of the TCJA, not to correct to the Companies' mistake of not providing a congruent nominal RR amount with the NPVRR amount.