

**VERIFICATION**

STATE OF OHIO )  
 ) SS:  
COUNTY OF HAMILTON )

The undersigned, Peggy Laub, Director of Rates & Regulatory Planning, being duly sworn, deposes and says that she has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of her knowledge, information and belief.

Peggy Laub  
Peggy Laub, Affiant

Subscribed and sworn to before me by Peggy Laub on this 7<sup>TH</sup> day of JUNE, 2016.

Adele M. Frisch  
NOTARY PUBLIC

ADELE M. FRISCH  
Notary Public, State of Ohio  
My Commission Expires 01-05-2019

My Commission Expires: 1/5/2019



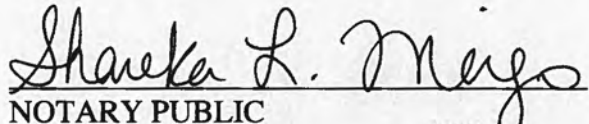
**VERIFICATION**

STATE OF NORTH CAROLINA       )  
  )  
  )       **SS:**  
COUNTY OF MECKLENBURG       )

The undersigned, Don Schneider, Director – Advanced Metering, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of his knowledge, information and belief.

  
\_\_\_\_\_  
Don Schneider, Affiant

Subscribed and sworn to before me by Don Schneider on this 26<sup>th</sup> day of May, 2016.

  
\_\_\_\_\_  
NOTARY PUBLIC


My Commission Expires:



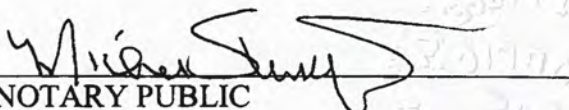
VERIFICATION

STATE OF ~~OHIO~~ Ky )  
 )  
COUNTY OF ~~HAMILTON~~ Kenton ) SS:

The undersigned, Kim Glenn, Supervisor of Gas Operations Engineering, being duly sworn, deposes and says that she has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of her knowledge, information and belief.

  
\_\_\_\_\_  
Kim Glenn, Affiant

Subscribed and sworn to before me by Kim Glenn on this 2 day of June, 2016.

  
\_\_\_\_\_  
NOTARY PUBLIC

My Commission Expires: 07/21/2017



VERIFICATION

STATE OF INDIANA )  
 ) SS:  
COUNTY OF HENDRICKS )

The undersigned, Everett Greene, Director of Meter Reading, being duly sworn, deposes and says that he has personal knowledge of the matters set forth in the foregoing data requests, and that the answers contained therein are true and correct to the best of his knowledge, information and belief.

Everett Greene  
Everett Greene, Affiant

Subscribed and sworn to before me by Everett Greene on this 7<sup>TH</sup> day of JUNE, 2016.

Gary B Helton  
NOTARY PUBLIC  
GARY B HELTON  
My Commission Expires:  
NOV 20 2021



**KYPSC CASE NO. 2016-00152**  
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**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-001**

**REQUEST:**

Refer to the application, pages 1-2. Starting at the bottom of page 1, Duke Kentucky states that it is requesting waivers necessary to implement the metering upgrade. Page 2 lists two waivers, but states that the request is not limited to those listed. Provide a listing of other waivers being requested by Duke Kentucky.

**RESPONSE:**

The waivers listed in the Company's Application are the only two that have been identified by the Company as being arguably necessary. If during the course of its investigation, the Commission staff identifies additional waivers that may be necessary to enable full deployment and functionality of the Metering Upgrade, then the Company is requesting that those yet to be identified waivers be granted as well.

**PERSON RESPONSIBLE:**           Legal

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-002**

**REQUEST:**

Refer to the application, page 7. Numbered paragraph 9 at the top of the page indicates that the proposed metering upgrade would “consist of a new AMI electric meter for all electric customers who do not already have a similar advanced meter already.” Provide the number of electric customers who currently have a “similar advanced meter,” and state how many of these customers are residential customers.

**RESPONSE:**

Duke Energy Kentucky has excluded 1240 such meters from the Metering Upgrade deployment due to them having similar advanced meters. 396 of those meters are for customers on residential rates.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.



**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-003**

**REQUEST:**

Refer to the application, page 8, numbered paragraph 10, regarding the lack of electric Advanced Metering Infrastructure (“AMI”) to provide communication routes for gas-only customers. Describe the infrastructure that would be required for AMI technology and explain why it is not available to Duke Kentucky’s gas-only customers.

**RESPONSE:**

The AMI gas meter modules communicate through the AMI electric meters and in-turn, the electric meters communicate to a data collector attached to Company-owned electric poles. In Duke Energy Kentucky’s gas-only service territories, where the Company only provides gas service and not the electric service, an alternative solution is necessary to capture gas usage. Other AMI solutions for gas-only territories would require the need to have electricity to power a data collector and since Duke Energy Kentucky does not own the electric infrastructure (electric meters, poles, etc.), additional costs would be incurred for the data collector such as pole attachment costs, metering equipment costs, and energy usage costs. With these additional costs it is not cost effective to install an alternate AMI solution. For these reasons, an AMR solution was chosen for Duke Energy Kentucky’s gas-only service territory customers.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**REQUEST:**

Refer to the application, page 8, numbered paragraph 11, regarding the selection of Itron as the AMI and Automated Meter Reading (“AMR”) vendor. Describe in detail Duke Kentucky’s vendor-selection process and how it ultimately chose Itron as the vendor, including, but not limited to, whether Duke Kentucky issued a request for proposals, how the potential vendors were selected, and how Duke Kentucky rated each of the potential vendors.

**RESPONSE:**

In 2013, Duke Energy Indiana initiated an RFQ process to evaluate the current landscape of AMI technology solutions and vendors. During this process, a number of industry leaders were solicited, four of which responded, including the successful vendor Itron. Since Duke Energy was considering a consistent AMI solution across the Duke Energy enterprise, the vendors were subsequently scored by multifunction subject matter teams from across the enterprise, in both commercial and technical areas. Each team used a standardized approach to weight key attributes within its focus areas, ensuring each vendor was fairly ranked. At the completion of this exercise, the Itron OpenWay solution platform was identified as the leader and was awarded the RFQ. This technology has been since been deployed in other Duke Energy jurisdictions and will be leveraged

moving forward not only in Duke Energy Kentucky but across the Duke Energy enterprise.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-005**

**REQUEST:**

Refer to the application, page 9, numbered paragraph 13, regarding high employee safety and injury incident rates associated with manual meter readings. Provide the employee safety and injury incident rates in connection with manual meter readings for the prior five calendar years.

**RESPONSE:**

In the period of 2011–2016 year-to-date, including both direct employee and contractor resources, there were 4 OSHA Recordable Injury and 5 Preventable Vehicle Accidents. Detailed cost information is not readily available for these events. Other safety related events have occurred that are not specifically tracked including near-miss incidents due to slips, trips, and falls on stairs, and walking surfaces especially during inclement weather. There have also been numerous near-miss encounters with pets or other animals where training and personal protective equipment have prevented injury.

**PERSON RESPONSIBLE:**           Everett Greene

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-006**

**REQUEST:**

Refer to the application, page 9, numbered paragraph 14. In the first sentence Duke Kentucky states it will install approximately 82,500 gas AMI modules for Combination Customers. The third sentence indicates Duke Kentucky has 79,000 Combination Customers. Explain this discrepancy.

**RESPONSE:**

The first reference refers the number of modules to be installed whereas the second refers to the number of combination customers. The difference in accounts for the fact that some customers have multiple meters at certain locations and the fact that some meters are in the field but are inactive because there is no account/ customer currently present.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-007**

**REQUEST:**

Refer to the application, page 10, numbered paragraph 17, regarding the proposal to convert all interior meters to AMI or AMR meters. Explain whether the conversion process will include the change of the physical location of these meters to the exterior of the customers' premises.

**RESPONSE:**

No. Meter relocation is not contemplated as part of this metering upgrade. The only metering relocations that could occur is if there is a code violation/safety issue identified (e.g. customer installed some structure (e.g. porch, concrete pad, driveway etc.,) over exterior natural gas piping).

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**REQUEST:**

Refer to the application, page 12, numbered paragraph 23. Duke Kentucky states that it replaces its current residential natural gas meters every nine to ten years, that the meters are removed from service and tested, and that the meters may or may not be re-deployed. Duke Kentucky also states that "going forward, all gas meters purchased and installed will come already equipped with the AMI/AMR modules."

- a. Nine of ten years after installation of the new meters with attached modules, does Duke Kentucky intend to test and possibly redeploy the meters with the attached modules, or will Duke Kentucky retire the meters and modules?
- b. If a module fails, will the meter to which it is attached continue to function properly, or will the meter have to be replaced and possibly retired?

**RESPONSE:**

- a. Duke Energy Kentucky will generally retire the meters and modules after the nine years, but may salvage some for redeployment because replacement is generally more cost effective than refurbishment and redeployment. Going forward, the gas meters that the Company purchases will have the gas modules pre-installed.
- b. The meter will continue to function; the Company will simply replace the module if it fails in the field prior to retirement.

**PERSON RESPONSIBLE:** Kim Glenn

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-009**

**REQUEST:**

Refer to the application, page 18, numbered paragraph 37. Duke Kentucky states that it requests authority to create a regulatory asset of \$9.7 million for the undepreciated book value of electro-mechanical meters and the automated metering equipment installed as part of a pilot program. Duke Kentucky also states that the \$9.7 million include \$9 million in net book value of electric meters in service and \$0.7 million in electric and gas inventory.

- a. Provide a breakdown of the undepreciated \$9 million between electro-mechanical meters and the automated metering equipment installed upon the pilot.
- b. Provide a breakdown of the undepreciated \$0.7 million between electric and gas meters.

**RESPONSE:**

- a. The \$9 million number is based on the book value as of March, 2016. The net book value of the pilot meters as of this date is \$ 2,341,868. The net book value of the traditional electro-mechanical meters as of this date is \$6,606,548.
- b. The electric meter inventory as of March, 2016 is \$622,429. The gas module inventory is \$52,216.

**PERSON RESPONSIBLE:** Peggy Laub



**REQUEST:**

Refer to the application, Exhibit 3.

- a. Pages 1-4 of the Exhibit describe the OpenWay Centron Meter and pages 5-8 describe the OpenWay Centron Cellular LTE meter. Confirm that Duke Kentucky plans to install the OpenWay Centron Meter for the majority of electric and electric/gas combination customers, but will install an OpenWay Centron Cellular LTE meter for customers located far from the neighborhood area network. If this cannot be confirmed, provide Duke Kentucky's plans with regard to the two types of meters.
- b. Provide the cost of each of the two meters.
- c. Provide the cost to install each of the two meters.

**RESPONSE:**

- a. Duke Energy Kentucky confirms that the plan is to install the OpenWay Centron Meter for the majority of electric and electric/gas combination customers, but will install an OpenWay Centron Cellular LTE meter for customers located far from the neighborhood area network.
- b. The estimated average cost of the OpenWay Centron meter is \$100. The estimated average cost of the OpenWay Centron Cellular LTE meter is \$180.

- c. The cost to install the two meters is the same, estimated at an average of \$25 per meter.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**REQUEST:**

Refer to the application, Exhibit 4.

- a. Confirm that Duke Kentucky plans to install the module shown on pages 1-4 of the exhibit for combination electric/gas customers and the module shown on pages 5-8 of the exhibit for the natural gas only customers. If this cannot be confirmed, state Duke Kentucky's plans with regard to the modules shown in the exhibit.
- b. Pages 3, 6, 7 and 8 of the exhibit refer to the modules as being designed for a 20-year life.
  1. Given this information, explain why it is reasonable for the Commission to approve a useful life of nine years, as requested by Duke Kentucky in this proceeding.
  2. Describe the major reasons for the failure of the modules to function as designed.
- c. Refer to page 7 of 8 of the exhibit. State which of the Programming Mode Options Duke Kentucky plans to utilize for the 100G DLS Datalogging module.
- d. Provide the cost of each of the two modules.
- e. Provide the cost to install each of the two modules.

**RESPONSE:**

- a. Duke Energy Kentucky confirms that the Company plans to install the module shown on pages 1-4 of the exhibit for combination electric/gas customers and the module shown on pages 5-8 of the exhibit for the natural gas only customers.
- b. 1. The reason for the proposed nine year useful life is not due to gas module failure, but rather is based upon a combination of the timing of the Company's gas meter testing/change out protocols under Commission regulations, the likely battery life of the module, and the desire to manage costs for customers. While the device may have a manufactured suggested useful life of 20 years, the battery life, based upon experience, varies from 13 to 20 years. As explained in the direct testimony of Peggy Laub at pages 5-6, the Company currently replaces its residential natural gas meters on a nine-to-ten year cycle in compliance with Commission regulations. The Company attempts to change its meters out slightly earlier than the ten year limitation contained in 807 KAR 5:022, Section 8(5) so as not to inadvertently exceed the ten year cycle. The battery life of the module likely will not last two full meter change out/replacement cycles necessitating the Company to incur additional expense to either replace the module in the field mid cycle or attempt to replace the battery. The natural gas meters tested under the aforementioned protocol may or may not be placed back into service based upon age and the cost of refurbishing the old meter versus purchasing new meters. Additionally, assuming the Commission approves the Company's metering upgrade, the gas meters purchased by the Company going forward will come with the module already attached. So detaching the modules for potential re-

deployment is not necessary and could potentially damage the devices making them not fit for use. Replacing module batteries is not cost effective when one considers the labor involved and expense associated with inventory and battery procurement versus simply purchasing new meters with modules.

2. Major reasons for gas module failure include mechanical failure (occurs when (1) module is installed on meter during deployment or (2) insects enter/nest in the module or index), issues with programming the module, battery failures, and third-party attempts at tampering with the module.

- c. Duke Energy Kentucky will use whichever programming mode is needed to receive consistent, reliable communications from the gas AMR module. The typical programming for the 100G DLS Datalogging module will be in the “Mobile/Handheld Mode”; however the “Mobile HP Mode” or “Hard-to-Read/Handheld Mode” may be leveraged depending on the location. There are currently no plans to use either the “Fixed Network Mode” or “Itron Cellular Solutions (ICS) Mode”.
- d. We are estimating the cost of the gas modules at \$50 each, with no difference in price from the two modules.
- e. There is no difference in the cost to install the two modules. We are estimating the cost to install a module at \$22.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr. / Kim Glenn / Peggy Laub

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-012**

**REQUEST:**

Refer to the Direct Testimony of Peggy Laub ("Laub Testimony"), page 4, which discusses Duke Kentucky's request for a 15-year depreciable life for the AMI meters. Provide the manufacturer's estimated useful life of the AMI meter.

**RESPONSE:**

Please see direct testimony of Peggy Laub. The useful life is based upon industry standards and what this Commission has approved in similar meter deployments rather than the manufacturer's estimate.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-013**

**REQUEST:**

Refer to the Laub Testimony, page 6, the table at the bottom of the page. Explain the reference to Common Meters on the first line.

**RESPONSE:**

The Company had one capital project during the pilot (ZY072) which it considered to be a common capital project. The project was for the installation of multi-port radios in the electric meter that enabled the gas meter to be read.

**PERSON RESPONSIBLE:** Peggy Laub

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-014**

**REQUEST:**

Refer to the Direct Testimony of Laub Testimony, page 8, which discusses generally the savings expected to be realized with the metering upgrade. Given that Duke Kentucky is proposing to establish a regulatory asset for the undepreciated value of the electric meters removed from service and inventories, explain fully why it would not be appropriate for Duke Kentucky to establish a regulatory liability for the quantifiable savings to be achieved upon deployment of the proposed meters.

**RESPONSE:**

The quantifiable savings (expense reduction) from the complete AMI deployment will not be fully realized until 2019. The Company anticipates a need to file an electric base rate case in the next five years wherein its base revenue requirement will reflect its total cost of providing electric service, including costs related to the AMI deployment, offset for savings from the AMI deployment.

**PERSON RESPONSIBLE:** Peggy Laub



**REQUEST:**

Refer to the Laub Testimony, page 9.

- a. Provide the date for the balances that appear in the journal entry on this page.
- b. Provide the current amount of annual depreciation for both electric and gas meters.

**RESPONSE:**

- a. The journal entry amounts reflect balances as of March 31, 2016.
- b. The annual amount of depreciation on electric and common meters based on March, 2016 balance is approximately \$750,000. The annual depreciation for gas meters based on March 2016 balance is approximately \$374,000. The Company is not planning on retiring all gas meters at the end of the AMI deployment. The journal entry on page 9 of my testimony does not reflect any dollar amounts for gas meters.

**PERSON RESPONSIBLE:** Peggy Laub

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-016**

**REQUEST:**

Refer to the Direct Testimony of Donald L. Schneider, Jr. ("Schneider Testimony"), pages 5-6. Beginning at the bottom of page 5, Mr. Schneider states that the metering upgrade proposed for Duke Kentucky is "similar" to that being deployed in other Duke Energy jurisdictions. Provide the differences in technology and why the same technology would not be used in all jurisdictions.

**RESPONSE:**

For Duke Energy Kentucky, we will be deploying basically the same technology using the same vendor that is currently being deployed in other jurisdictions, but with upgraded versions, thus the use of the term "similar". An example is the AMI RF mesh network will be a version that is upgraded to IPv6, which other jurisdictions are not yet operating on.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-017**

**REQUEST:**

Refer to the Schneider Testimony, pages 6-7, regarding the proposed implementation of AMR technology for Duke Kentucky's gas-only customers due to the lack of electric AMI infrastructure in place to support communications for a gas AMI solution. Explain whether Duke Kentucky considered and evaluated installing an AMI infrastructure in order to implement an AMI solution for its gas-only customers. If Duke Kentucky evaluated this scenario, explain why it elected not to proceed with this option.

**RESPONSE:**

See response to STAFF-DR-01-003.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**REQUEST:**

Refer to the Schneider Testimony, page 8, footnote 2.

- a. Are the AMI electric meters being installed by Duke Kentucky capable of providing distribution automation and volt/VAR control?
- b. What is required by Duke Kentucky to provide these types of functionalities?
- c. Why has Duke Kentucky made the decision to bypass this feature?

**RESPONSE:**

- a. AMI meters cannot by themselves provide distribution automation (DA) or Integrated Volt/VAR Control (IVVC) functionality. Duke Energy Kentucky has implemented some distribution DA. AMI data is not typically used in the deployment of DA. Duke Energy Kentucky's Metering Upgrade proposal does not include the implementation of IVVC.
- b. Duke Energy Kentucky would not need the AMI data for DA. While the AMI meters can provide data to integrate with IVVC, this would require additional distribution system infrastructure investments that is not included in the Company's metering upgrade proposal.
- c. Duke Energy Kentucky has not bypassed any features with respect to AMI meters.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-019**

**REQUEST:**

Refer to the Schneider Testimony, page 9, line 6. Confirm that all of the residential electric AMI meters Duke Kentucky installs will have remote connect/disconnect enabled.

**RESPONSE:**

The remote disconnect capability is limited to 200amp meters, based on industry standards. The vast majority of the residential meters –roughly 94% of the planned deployment – are 200amp meters.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**REQUEST:**

Refer to the Schneider Testimony, page 9, lines 7-8 regarding the functionality of an AMI gas meter for combination electric and gas customers. Provide an explanation describing the differences in functionality between the AMR gas meter and the AMI gas meter that Duke Kentucky is proposing to implement in this matter.

**RESPONSE:**

See Schneider Testimony page 7, line 17 through page 8, line 9 for a brief overview of AMR and AMI technology. Regarding next-day usage data for gas accounts, the AMI gas modules are read daily by communicating through the electric AMI meter and thus have the capability to provide next-day usage data to the customer. The AMR gas modules are read monthly using a handheld or drive-by device and thus do not have capability to provide next-day usage data to the customer.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-021**

**REQUEST:**

Refer to the Schneider Testimony, page 10, lines 14-17. Provide the number of meters that Duke Kentucky estimates will need to contain their own cellular modem.

**RESPONSE:**

The cost estimate is based on 4.5% of the total meters requiring meters that contain their own cellular modem.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-022**

**REQUEST:**

Refer to the Schneider Testimony, pages 10-11. Beginning at the bottom of page 10, Mr. Schneider states that the Meter Data Management system processes data from the advanced meters and “[p]rocessing involves validating, editing, estimating, and packaging data for billing and other uses.” Explain what is meant by “editing” and “estimating” the data.

**RESPONSE:**

Validating, Editing, and Estimating (VEE) is and has been a common utility industry term representing the validation of, any necessary editing of, and any necessary estimating of customer usage data in support of ensuring the accuracy of the customer’s bill before sending out each month. VEE has typically taken place in the utilities Customer Information System (CIS). For interval data from AMI, the VEE is handled by the Meter Data Management (MDM) system.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.



**REQUEST:**

Refer to the Schneider Testimony, page 11, lines 10-11, which state, "Some electric meters will transmit voltage, amperage, phase angle, or other data, as needed."

- a. Provide the reasons for collecting this data.
- b. How many of the proposed meters will have these capabilities?
- c. State which customers would require these type meters.

**RESPONSE:**

- a. The data can be used by Duke Energy Kentucky for a number of reasons including theft investigation, outage management and grid management (e.g., updating system planning models and updating system operating models).
- b. All AMI electric meters will have these capabilities depending on the type of meter (ex. only three-phase meters can capture phase angle data).
- c. All customers will receive meters capable of capturing this data depending on meter type as noted in part b.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-024**

**REQUEST:**

Refer to the Schneider Testimony, page 13, lines 1-3. State whether Duke Kentucky must “ping” an AMI meter in order to determine if a power outage has occurred, or if Duke Kentucky will automatically receive notification of an outage.

**RESPONSE:**

Duke Energy Kentucky will be able to ping single or groups of meters proactively before or after outages to assess whether that customer is receiving power. The AMI meters also have “last gasp” functionality, by which they can automatically send an alert to the Company when they experience a sustained outage.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-025**

**REQUEST:**

Refer to the Schneider Testimony, page 15, lines 8-16. Since Duke Kentucky would no longer need to deploy personnel to perform electric disconnections and reconnections with AMI meters, state whether Duke Kentucky plans to reduce its electric reconnection charge currently set at \$25. If not, explain why the charge should not be reduced for customers for whom reconnection is performed remotely.

**RESPONSE:**

Duke Energy Kentucky will evaluate the costs of remote electric disconnections and reconnections once the AMI solution is fully deployed as part of its next electric rate case. The Company will determine the actual costs of in person reconnections vs. remote connections and will amend its tariffs accordingly as part of a future base rate case. The Company notes that not all in person disconnections/reconnections will be eliminated. There will still be some level of cost associated with this service for gas customers and any electric customer who does not have the remote disconnect capability.

**PERSON RESPONSIBLE:** Peggy Laub

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-026**

**REQUEST:**

Refer to the Schneider Testimony, page 20, lines 8-9. List the Duke Energy jurisdictions that use the same technology being proposed in this proceeding.

**RESPONSE:**

See response to STAFF-DR-01-16. Duke Energy Ohio has deployed the same electric and gas infrastructure for a portion of its electric and gas customers, mainly commercial and industrial customers. Duke Energy has deployed basically the same electric AMI solution in its North and South Carolina service territories and as small deployment of the electric AMI solution in its Indiana service territory to this point.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**STAFF-DR-01-027**

**REQUEST:**

Refer to the Schneider Testimony, page 21, lines 3-5, which state that meter readings will be reported to Duke Kentucky daily. Confirm that customers' electric meters will be read on an hourly basis, but that the meter reading information will be reported to Duke Kentucky once each day. If this cannot be confirmed, explain the process. If this can be confirmed, state the time of the day that the meter readings will be reported to Duke Kentucky.

**RESPONSE:**

The electric meters will capture hourly reads throughout the day and transmit the reads to Duke Energy Kentucky once a day. Typically the reads will be transmitted to the Company after midnight each day.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**REQUEST:**

Refer to the Schneider Testimony, page 22.

- a. Refer to lines 2-6. State how far in advance Duke Kentucky will inform customers of the installation of the proposed new meters and the manner and method in which the notifications will be made.
- b. Refer to lines 6-8. State how customers will be informed that they can access their usage.

**RESPONSE:**

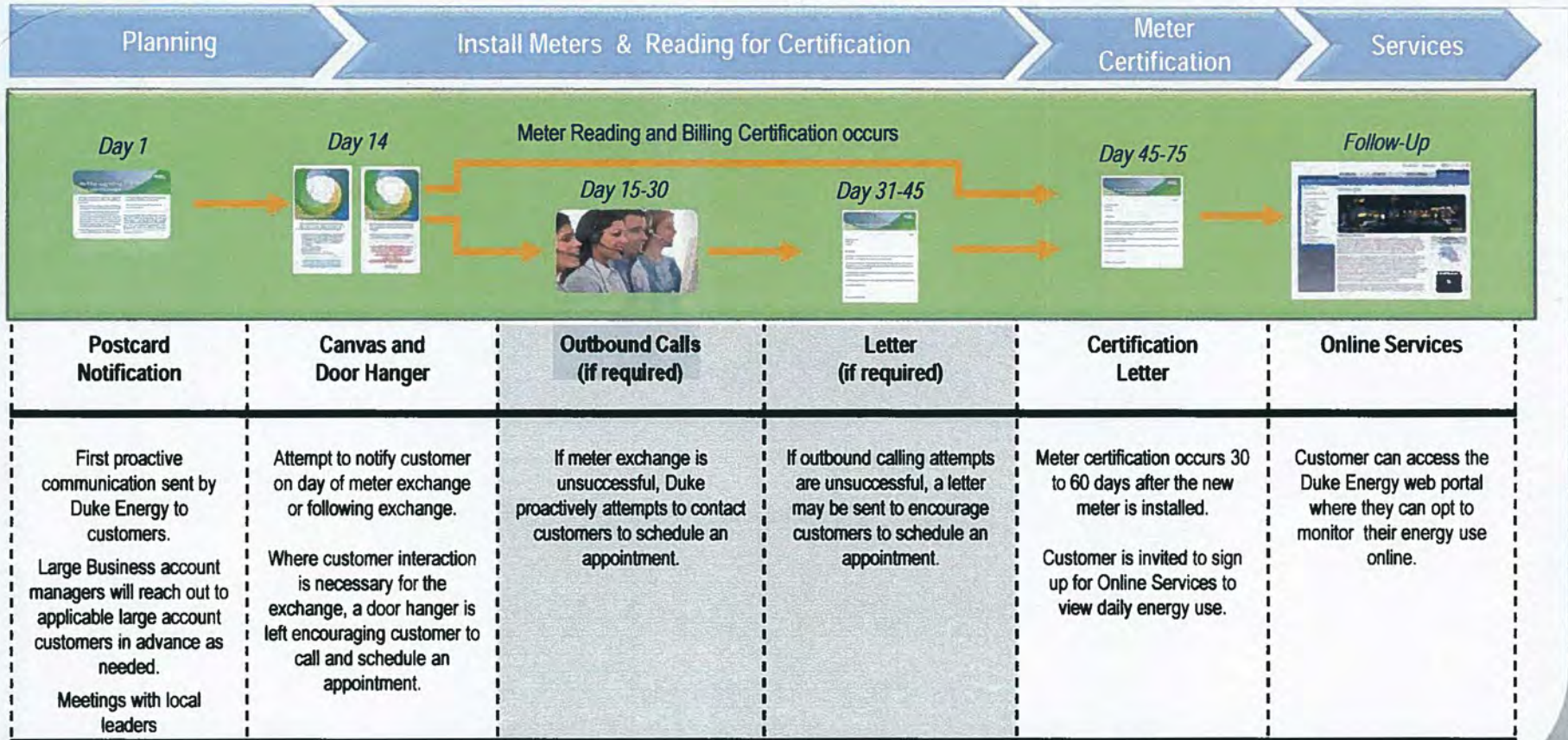
See STAFF-DR-01-028 Attachment for AMI Customer Engagement timeline and collateral.

- a. Duke Energy Kentucky will send a postcard via USPS to notify customers of the planned deployment two weeks prior to meter installation.
- b. Customers will receive a letter via USPS once their meter is certified for billing to let them know that their hourly electric and/or daily gas usage can be accessed from the Duke Energy web portal.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.



## AMI Customer Engagement



**REQUEST:**

Refer to the Schneider Testimony, page 25, lines 8-16.

- a. State which numbers on Exhibit DLS-3 make up the approximately \$49 million referred to in lines 8-9.
- b. State which numbers on Exhibit DLS-3 make up the approximately \$38 million referred to in lines 9-10.
- c. State which numbers on Exhibit DLS-3 make up the approximately \$11 million referred to in lines 10-12.
- d. State which numbers on Exhibit DLS-3 make up the approximately \$1.2 million referred to in lines 14-15.

**RESPONSE:**

- a. The \$49 million is the total of the following three items from Attachment DLS-3 from the deployment years 1 through 3.

Total Capital Project Costs	\$46,291,595
Total O&M Project Costs	1,217,844
Enterprise System Allocations	<u>1,299,000</u>
Total	\$48,808,439



- b. The \$38 million for the electric portion is detailed on pages 2 and 3 of Attachment DLS-4 from the deployment years 1 through 3.

Capital – Program Costs Initial Capital	\$35,652,571
O&M – Program Costs Non-Recurring O&M	1,217,844
Enterprise System Allocations	<u>1,299,000</u>
Total	\$38,169,415

- c. The \$11 million for the gas portion is detailed on pages 4 and 5 of Attachment DLS-4 from the deployment years 1 through 3.

Capital – Program Costs Initial Capital	\$10,639,023
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- d. Details for the \$1.2 million, which represents the average annual on-going cost, are on page 2 (electric), page 4 (gas) and page 6 (total) of Attachment DLS-4.

Electric

Capital Recurring Costs	\$3,850,114
O&M Recurring Costs	\$10,016,759

Gas

Capital Recurring Costs	\$6,511,501
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<u>Total</u>	\$20,378,374
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The approximate average from this total recurring cost across all years is approximately \$1.2 million.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**REQUEST:**

Refer to the Schneider Testimony, page 26, lines 9-15, which discuss hard-to-quantify benefits that are not included in Duke Kentucky's cost-benefit analysis. State how the following items (listed on lines 12-14) are benefits of the meters being proposed in this proceeding:

- a. Distributed generation;
- b. Energy storage; and
- c. Electric vehicles.

**RESPONSE:**

- a. The AMI meters can be used for net metering customers, and data from AMI meters gives the Company a better awareness of how distributed generation can or does impact the grid.
- b. AMI meters give the Company better awareness of how energy storage can or does impact the grid, and can be used to help the Company identify opportunities to deploy energy storage to mitigate impacts of distributed generation.
- c. AMI meters give the Company better awareness of how electric vehicles can or do impact the grid. They can also be used to implement dynamic rates that could make electric vehicle charging more efficient for the utility or customer.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**REQUEST:**

Refer to the Schneider Testimony, page 27, line 20, through page 28, line 4, and Exhibits DLS-3 and DLS-4.

- a. Explain in detail what is meant by the Prius Effect.
- b. Confirm that the customer savings (Prius Effect) is a benefit to the customer and not a cost benefit to Duke Kentucky. If this can be confirmed, explain why the Prius Effect is included in the cost-benefit analysis. If this cannot be confirmed, explain how it results in a cost benefit to Duke Kentucky.

**RESPONSE:**

- a. The Prius Effect refers to the phenomenon of Prius drivers optimizing their gas mileage based upon feedback they receive right in the dashboard of that automobile. The concept is thought to apply to electric or gas usage in that some customers will be motivated to reduce their usage based on being able to easily access that information after installation of AMI. See response to STAFF-DR-01-032(b) for a calculation and further explanation of the Prius Effect as used in Duke Energy Kentucky's cost benefit analysis.
- b. This is a benefit to Duke Energy Kentucky's customers as they are able to reduce their energy usage. Duke Energy Kentucky's cost-benefit analysis looks at all

costs and benefits (customer and company) to determine if the investment has a positive business case and is in the interest of both customers and shareholders.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**REQUEST:**

Refer to Exhibit DLS-3.

- a. Explain how the amounts in the "increased Revenue" column were calculated.  
Provide supporting documentation.
- b. Provide the assumptions used in the calculation of the Prius Effect amounts shown in the last two columns.

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET**

- a. Non-Technical Losses: This benefit estimate is based upon: [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED] (EPRI, 2008, "[Advanced Metering Infrastructure Technology: Limiting Non-Technical Distribution Losses In The Future](#)", page 1-17). See STAFF-DR-01-32(a)(1) Confidential Attachment, which is being filed under Petition for Confidential Treatment. Duke Energy Kentucky applied the [REDACTED] figures to historic revenue in the jurisdiction to arrive at the estimated benefit value. STAFF-DR-01-32(a)(2) Confidential Attachment is the work paper used by Duke Energy

Kentucky to estimate this benefit. This attachment is being filed under Petition for Confidential Treatment.

- b. Customer Feedback (Prius Effect): This benefit estimate is based upon: “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%)” (EPRI, 2008, “[Characterizing and Quantifying the Societal Benefits Attributable to Smart Metering Investments](#)”, page 5-2, publicly available at <http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=000000000001017006>). Based on data from Google Analytics, approximately 6% of Duke Energy Ohio’s customers directly accessed the interval usage data from their AMI meter over a 12 month period (roughly 44,000 customers). Duke Energy Kentucky therefore assumed that 6% of its customers could reduce their electric usage by 11.5% by virtue of having direct feedback of their interval usage data. STAFF-DR-01-32(a)(2) Confidential Attachment is the work paper used by Duke Energy Kentucky to estimate this benefit. This attachment is being filed under Petition for Confidential Treatment.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**STAFF-DR-01-032(a)(1) and**

**STAFF-DR-01-032(a)(2)**

**CONFIDENTIAL  
ATTACHMENTS**

**PROVIDED**

**UNDER SEAL WITH A**

**PETITION FOR  
CONFIDENTIAL**

**TREATMENT**

**REQUEST:**

Refer to Exhibit DLS-4, page 2, rows 1-24. Provide a detailed explanation for each item listed in the "Description" column.

**RESPONSE:**

Row 1 – Cost of range extenders and grid routers as referenced in Schneider testimony page 9, beginning line 9 through page 10, line 17 and page 9, Figure "A" – AMI Solution Architecture (including stores loadings)

Row 2 – Labor cost to install materials in Row 1

Row 3 – Internal Telecommunications department labor for support during design and installation of materials in Row 1

Row 4 – Contingency for Rows 1-3

Row 5 – Cost of electric meters (including stores loadings)

Row 6 – Labor cost to install materials in Row 5

Row 7 – Cost of overall Metering Upgrade project management and support team resources labor and expenses charged direct to the project

Row 8 – Contingency for Rows 5-7

Row 9 – Overhead allocations (charges from supplemental project support resources who do not charge direct to the project)

Row 10 – AFUDC



Row 11 – Miscellaneous tools and equipment for troubleshooting (Optical cables, meter probes, etc.)

Row 12 – Back office systems as referenced in Schneider testimony page 10, beginning line 18 through page 11, line 5. Work related to Meter Data Management (MDM) system integration with Duke Energy Kentucky’s Customer Information System (CIS) charged direct to project

Row 13 – Labor to decommission advanced metering pilot field equipment (excluding meters). Advance metering pilot referenced in Schneider testimony page3, beginning line 9 through page 4, line 11

Row 14 – Material loadings for O&M materials associated with telecommunications and meter installations (meter seals, meter rings, etc.)

Row 15 – Labor to decommission advanced metering pilot IT equipment. Advance metering pilot referenced in Schneider testimony page3, beginning line 9 through page 4, line 11

Row 16 – Recurring capital cost for IT related hardware end of life replacements

Row 17 – Recurring capital cost for range extenders and grid routers end of life replacements (failures)

Row 18 – Recurring capital cost for meters end of life replacements (failures)

Row 19 – Recurring capital costs for stores loadings associated with Row 18

Row 20 – Recurring O&M labor costs associated with operations of back office systems (AMI operations center, etc.)

Row 21 – Recurring O&M for wide area network costs (cellular bills, etc.)

Row 22 – Recurring O&M labor costs associated with Billing operations

Row 23 – Recurring O&M labor costs associated with data analytics to support revenue protection (detecting non-technical losses as referenced in Schneider testimony page 11, lines 17-19

Row 24 – Costs to scale existing enterprise MDM system to handle meters added as part of Duke Energy Kentucky’s Metering Upgrade project. Costs are allocated to Duke Energy Kentucky since MDM is an enterprise system, as opposed to being charged direct to the project

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**Duke Energy Kentucky  
Case No. 2016-00152  
STAFF'S First Set Data Requests  
Date Received: May 23, 2016**

**PUBLIC STAFF-DR-01-034  
(As to Attachment Only)**

**REQUEST:**

Provide Exhibits DLS-3 and DLS-4 in Excel spreadsheet format with the formulas intact and unprotected.

**RESPONSE:**

**CONFIDENTIAL PROPRIETARY TRADE SECRET (As to Attachment Only)**

Please see attached confidential CD, STAFF-DR-01-034 Confidential Attachment, which is being filed under Petition for Confidential Treatment.

**PERSON RESPONSIBLE:** Donald L. Schneider, Jr.

**STAFF-DR-01-034**  
**CONFIDENTIAL**  
**ATTACHMENT**  
**PROVIDED ON CD**  
**UNDER SEAL WITH A**  
**PETITION FOR**  
**CONFIDENTIAL**  
**TREATMENT**