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March 19, 2013

Jeff DeRouen  
Executive Director  
Kentucky Public Service Commission  
Post Office Box 615  
Frankfort, KY 40602-0615

**RE: Case No. 2012-00428**

Dear Mr. DeRouen:

Atmos Energy Corporation (Company) herewith submits its responses to the Commission Staff's First Request for Information in the above referenced case. The Company is providing responses to questions 96, 97, and 113-116.

Please feel free to contact me at [mark.martin@atmosenergy.com](mailto:mark.martin@atmosenergy.com) or at 270.685.8024 if you have any questions and/or need any additional information.

Sincerely,

A handwritten signature in cursive script that reads "Mark A. Martin".


Mark A. Martin  
Vice President – Rates & Regulatory Affairs

Enclosures

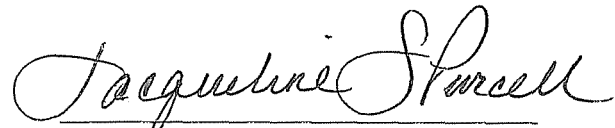
pc: Randy Hutchinson  
Service List

VERIFICATION

I, Mark A. Martin, being duly sworn under oath state that I am Vice President of Rates and Regulatory Affairs for Atmos Energy Corporation, Kentucky/Mid-States Division, and that the statements contained herein are true and correct as I verily believe.

  
\_\_\_\_\_  
Mark A. Martin

SUBSCRIBED AND SWORN TO before me, a notary public in and for the Commonwealth of Kentucky, by Mark A. Martin, Vice President of Rates and Regulatory Affairs, Atmos Energy Corporation, Kentucky/Mid-States Division, on this 19<sup>th</sup> day of March 2013.

  
\_\_\_\_\_  
Notary Public  
ID # 454643

Expiration date 11/15/2015



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96. Refer to the Joint Direct Testimony of Glenn R. Jennings on Behalf of Atmos Energy Corporation, Columbia Gas of Kentucky, Inc., and Delta Natural Gas Company, Inc. (“Joint LDC Testimony”), page 3, lines 2 through 4, which states “Atmos and Columbia have some automated meter reading and Delta has had 100% automated meter reading for its customers for several years.” Provide the following:
- b. total number of automated meter reading meters installed by Atmos Energy, total number of customers, any benefits Atmos and its customers have received from the installation of the automated meter reading meters, and any plans to convert more of its system to automated meter reading.

**RESPONSE:**

**As of March 4, 2013, Atmos Energy has approximately 305,000 customers with automated meter reading devices on gas meters. The Company’s customers are in five states; 175,000 in Louisiana, 70,782 in Colorado, 51,500 in Texas, 1,800 in Mississippi and 6,000 in Tennessee. A pilot project was installed in Livermore, Kentucky in 2012 with approximately 500 devices installed. Overall, Atmos Energy has approximately 173,000 customers in Kentucky and approximately 3 millions customers overall.**

**Atmos Energy has adopted automated meter reading as its standard for meter reading. The system will continue to be expanded within its service territories in the coming years, with a projection that by the end of 2013 more than 400,000 of the Company’s customers will have automated meter reading devices. Automated Meter Reading allows Atmos Energy to reduce manual meter reading processes, increasing the accuracy of the meter reading since the human error factor is removed. This increased accuracy reduces the number of calls received by customers inquiring about a reading, thus resulting in fewer re-read requests by customers and fewer account billing adjustments. Atmos is now able to more accurately explain to customers the days in which their consumption was higher, possibly due to weather or other customer usage changes. The result of these customer interactions is more positive than ever before since the system allows for daily usages to be visible and explainable by both the utility and the customer.**

**The automated meter reading process also allows Atmos to minimize the exposure of its employees to potential injury situations. The meter reading position experiences the highest number of workers compensation injuries of any position. The position requires covering large amounts of distance, often by walking. This activity has resulted in foot, leg and knee injuries, as well as dog and insect bites. Limiting this exposure reduces the Company’s lost time injuries and worker’s compensation expenses. Over time, as vacancies in other positions occur, the meter readers are trained to perform those duties, effectively reducing the total number of employees needed in an operation.**

**Another benefit of Automated Meter Reading is that the customer will no longer experience a gas meter reader coming on to their property to read the meter manually. This increases the privacy of the customer and the household.**



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97. Refer to the “Natural Gas in a Smart Energy Future” white paper (“white paper”), discussed on pages 4 and 5 of the Joint LDC Testimony and filed in the record of Case No. 2008-00408.
- a. Explain what kind of action Atmos Energy, Columbia KY, and Delta Gas (collectively “the Joint LDCs”) foresee they can realistically take on their own systems to create or enhance key capabilities within:
- i. the “Supply” sector, as enumerated in the bullet points in the first half of page 3 under the heading *Achieving the Vision* pages and further discussed on pages 11 through 14.

**RESPONSE:**

**The Company believes that it currently has processes in place to assist with automated high ramping supply response, wide area monitoring, visualization, and control, predictive load modeling and forecasting, and automated/dispatchable market area storage. The Company thoroughly reviews the capabilities of its system on an annual basis. The goal of the review is to ensure that the Company has sufficient capacity to meet our customer’s needs on a peak day. The review considers any new load that has been or is planned to be added to our system. Our system is designed to meet our customers’ hourly and daily needs. The Company’s entire system is monitored 24/7 to ensure proper pressures are maintained. The Company also has considerable storage to be able to handle hourly and daily swings on our system. While the Company currently is not prepared for real time inter-grid communications or peak electric demand management assistance, The Company believes that as technology advances, it could be able to assist with such.**

- ii. the “Delivery” sector, as enumerated in the bullet points in the bottom half of page 3 under the heading *Achieving the Vision* and further discussed on pages 11, 14, and 15.

**RESPONSE:**

**The Company believes that as technology advances, the items listed on page 3 under the “Delivery” sector may be achievable. While it may be impossible to predict future events, including third party damage, technology may be able to play a role in at least detection. The Company actively promotes 811, but until contractors face severe sanctions, the existing problems will persist. The Company actively tracks and monitors its entire system for leaks. One benefit of the Company’s Pipe Replacement Program (PRP) is that the current number of leaks should decrease over time as aging infrastructure is replaced with more modern material. As mentioned in the Company’s response to part (i), the Company monitors its entire system 24/7 to ensure adequate volume/pressure management. The Company is also able remotely control certain portions of its system. Also, as part of the PRP program, the Company has been installing block valves to assist in minimizing the effects of a disruption to our system. The gas quality that enters our system from the interstate pipeline system has already passed their quality specifications prior to entering our distribution system. The Company also has procedures in place for any new local production gas that may enter our system to ensure quality.**

- iii. the “End Use” sector, as enumerated in the bullet points in the middle of page 4 under the heading *Achieving the Vision* and further discussed on pages 11, 15 and 16.

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**RESPONSE:**

**The Company has had a Demand Side Management (DSM) program in place since 1999. Initially, the program was dedicated to weatherizing low-income households. Starting in 2009, the Company's DSM program was expanded to include rebates for natural gas appliances for residential customers as well as educating students. The program was further expanded in 2012 to include rebates for natural gas appliances for commercial customers as well as any requests for adult literacy. The Company is committed to having a successful DSM program. Low gas prices have created a unique challenge in achieving the desired statistical results of the societal tests, specifically the Total Resource Cost Test (TRC). Even without this unique challenge, the Company has supported efforts for the adoption of a full-fuel-cycle analysis in codes, standards and energy labeling. The Company believes that the Consortium for Energy Efficiency (CEE) will begin studying the inclusion of a full-fuel-cycle analysis in the near future. The Company has a suite of tools on its website ([www.atmosenergy.com](http://www.atmosenergy.com)) to assist customers on making smart energy choices. Those tools can be found by clicking on the Home Service tab and then choosing between the items listed on the left side of the page. During the Company's last DSM renewal application process, the Company contracted with Cadmus for the measurement of our proposed programs. The Company conducts a random sampling to verify participation.**

b. To the extent that any of the Joint LDCs have already taken actions to develop the capabilities and improved technologies in the sectors referenced in part a. above, explain in detail what has been accomplished.

**RESPONSE:**

**In addition to the items referenced in response to part a. above, the Company is also very involved with the Gas Technology Institute (GTI). The Company assists GTI not only with funding, but employees' time. Company personnel serve on teams at GTI which assist with developing and improving technologies for the natural gas application within a smarter energy future.**

c. Explain to what extent any of the capabilities and improved technologies referenced in a. above are unrealistic for a jurisdiction LDC in Kentucky to undertake.

**RESPONSE:**

**The great thing about technology is that constant innovation creates new and improved opportunities. While the Company is hopeful for a smarter energy future, there are items listed on pages three and four of the "white paper" that may be unrealistic. For example, real time inter-grid communications may be more difficult to achieve if the utility provider is a small municipal or cooperative system. Another example may be the Btu composition monitoring at the customer exchange. At the end of the day, these items will need to be cost effective before they can be accomplished.**

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d. Provide specific comments on each bullet point on pages 5 and 6 in the *Recommendations for Action* section, paying special attention to each action that the Joint LDCs recommend be accomplished by Kentucky policymakers and industry and their suggestion for achieving those actions.

**RESPONSE:**

**The twenty-four bullet points listed on pages 5 and 6 of the “white paper” are broken down into five categories: Research and Development/Budget, Regulatory, Enhance or Create Capabilities for Supply, Enhance or Create Capabilities for Delivery, and Enhance or Create Capabilities for End Use.**

**There are five bullet points under the Research and Development/Budget category. The first bullet asks to “Include natural gas in advance metering infrastructure to optimize common infrastructure, interoperability and cross-compensation among all utility infrastructures including electricity and water”. The Company supports the notion that a smarter energy future assumes diverse and lower-carbon energy resources are combined with an energy delivery infrastructure that is more reliable and secure than what we have today. As noted on page 1 of the “white paper”, this will require technological advances to enhance the efficiency of energy use. The Company believes research is being done to improve natural gas metering technology and those advances should be incorporated into the smart grid discussion. The Company believes that policymakers should encourage the inclusion of all “smart meters” into the smart grid discussion. The second bullet asks to “Ensure that future federal funding programs including Smart Grid encourage and allow the use of funding for dedicated natural gas projects and combined electric/natural gas projects”. Please refer to the comments to the first bullet above. The third bullet asks to “Develop a technology roadmap for natural gas in a smart energy future, including critical input from a broad group of stakeholders and the energy technology R&D community”. Due to the efficiency and abundant supply of natural gas, the Company believes that natural gas should be included in all smart energy discussions. While smart grid is perceived to be an electric-only issue, the Company hopes that policymakers will continue to include natural gas in any and all discussions related to smarter energy use. The fourth bullet asks to “Increase governmental funding for basic as well as applied research in natural gas safety and reliability and smart energy infrastructure technology”. The Company believes that policymakers should be looking to increase the use of abundant, reliable and efficient natural gas. The fifth bullet asks to “Establish a governmental public-private research, development and deployment program for natural gas similar in size to the electric Smart Grid programs that includes component and system suppliers”. Please refer to the comment to the fourth bullet above.**

**There are eight bullets under the Regulatory category. The first bullet asks to “Expand the use of source energy standards to recognize the value of full-fuel-cycle energy efficiency and carbon emission benefits and incorporate full-fuel-cycle analysis in all conservation and energy efficiency standards, including common measures of energy and greenhouse gas emissions”. Obviously, when the full-fuel-cycle is considered, the direct use of natural gas is far superior. As such, policymakers should promote the use of full-fuel-cycle standards as well as incorporating such into the design and analysis of energy efficiency programs. The second bullet asks to “Expand ongoing Smart Grid standards development efforts to include natural**



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gas". By encouraging more direct use of natural gas, new electric generation may not be needed. Policymakers should encourage the direct use of natural gas for appropriate appliances such as water heaters, furnaces and clothes dryers. The third bullet asks to

"Provide consumers information about energy usage and energy appliance selections so they can make educated decisions". The Company strongly believes that more education is needed. Customers need to fully understand each appliance usage and long term costs. Policymakers should promote more consumer education efforts related to initial costs, energy usage, incremental costs, carbon emissions, full-fuel-cycle costs, etc. The fourth bullet asks to "Modify the International Green Construction Code to ensure that every new building has access to natural gas service where available". The Company does not seek preferential treatment, but does expect a fair opportunity. Policymakers should be directing contractors to install the smartest technology in all new construction and contractors should also factor in the full-fuel-cycle in their analysis. The fifth bullet asks to "Modify market rules to facilitate and create procedures for direct communication between pipeline and electric grid operators to fully optimize the usage of energy". The Company believes that policymakers should remove any existing communication barriers and set policy to encourage more optimal communication. The sixth bullet asks to "Promote real-time communications between the gas and electricity grids". The Company believes that policymakers should set policy to encourage such communications. The seventh bullet asks to "Approve projects in a timely manner to ensure natural gas infrastructure can meet the need of all current and future end-uses". Policymakers need to review and make necessary revisions to the decision making process to ensure projects are reviewed and approved in a timely fashion. The eighth bullet asks to "Make energy efficiency programs neutral with respect to energy sources, and encourage collaboration among all energy providers". Policymakers should consider the full-fuel-cycle in determining the most appropriate appliances, where available, to be included in energy efficiency programs. Policymakers should encourage more collaboration amongst all energy providers.

There were three bullets under the Enhance or Create Capabilities for Supply category. The first bullet asks to "Create and expand real-time communications between the gas and electric grids". The Company supports this recommendation, but is unsure how to implement. Policymakers should help support and encourage such communications. The second bullet asks to "Enhance systems to manage natural gas supply for fast-ramping generation to complement variable renewable resources and provide ancillary services". As mentioned in response to part a.i., the Company believes that it currently has processes in place to assist with high ramping supply response. The Company thoroughly reviews the capabilities of its system on an annual basis. The goal of the review is to ensure that the Company has sufficient capacity to meet our customers' needs on a peak day. The review considers any new load that has been or is planned to be added to our system. Our system is designed to meet our customers' hourly and daily needs. The Company's entire system is monitored 24/7 to ensure proper pressures are maintained. The Company also has considerable storage to be able to handle hourly and daily swings on our system. The Company believes that policymakers have traditionally supported this recommendation. The third bullet asks to "Actively engage federal, provincial, and state regulators to help resolve the issues related to developing shale gas as a long-term energy source". The Company contracts for as much local production gas as possible and believes that policymakers already support this recommendation.

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There were four bullets under the Enhance or Create Capabilities for Delivery category. The first bullet asks to “Ensure the natural gas infrastructure can meet the needs of all current and future end-users”. As mentioned in response to part a.i., the Company believes that it currently has processes in place to assist with high ramping supply response. The Company thoroughly reviews the capabilities of its system on an annual basis. The goal of the review is to ensure that the Company has sufficient capacity to meet our customers’ needs on a peak day. The review considers any new load that has been or is planned to be added to our system. Our system is designed to meet our customers’ hourly and daily needs. Also, the Company has a Commission approved PRP program which is designed to modernize our distribution system. The Company believes that policymakers already support this recommendation. The second bullet asks to “Enhance the system capability to accept and distribute a wide range of renewable gas sources”. The Company is open to such a recommendation, but the source must be cost effective. The Company competes with other fuel sources and prides itself on being a low-cost provider. The Company urges policymakers to not choose winners and losers and let the market decide the source. The third bullet asks to “Ensure current and future natural gas infrastructure can accommodate emerging technologies, peak demand, energy efficiency programs, and new sources of supply”. The Company believes that policymakers already support this recommendation. The fourth bullet asks to “Create or enhance capabilities to improve natural gas asset utilization on a real-time basis”. Policymakers should set policy to encourage investment to support this recommendation.

There were four bullets under the Enhance or Create Capabilities for End Use category. The first bullet asks to “Develop cost effective systems to be used to moderate peak electricity demand by using natural gas powered cooling solutions in the commercial applications and natural gas powered DG/CHP systems on an aggregated basis of as part of a microgrid for residential and/or commercial consumers”. The Company believes that policymakers should consider the full-fuel-cycle analysis in determining the most appropriate application. The second bullet asks to “Advocate the use of DG/CHP systems to supply power, heat and cooling at industrial and commercial applications”. The Company has a long history of working with all of our customers. The Company sought and received approval to expand its DSM program to include the commercial class. Also, the Company routinely visits with our industrial class to determine how to best serve their needs. The third bullet asks to “Develop hybrid electric/natural gas appliances capable of providing space conditioning, water heating, cooking, and clothes drying”. While the Company is not necessarily opposed to the concept, the Company is more of an advocate for the direct use of natural gas. The Company believes that when the full-fuel-cycle is considered, natural gas appliances would be more advantageous to reducing energy consumption. The Company urges policymakers to consider the full-fuel-cycle analysis in their decision-making processes. The fourth bullet asks to “Provide customers the information to make educated choices about their energy usage and energy appliance selections”. The Company supports and believes that policymakers support this recommendation. More education is needed as well as better appliance labeling.

e. Discuss the five categories of benefits of a smarter gas infrastructure which are listed as bullet points on page 17 and are further discussed through page 22. The discussion should include the extent to which the joint LDCs have achieved, are in the process of achieving, or have plans to achieve an increased level of infrastructure as it related to the five categories.

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**RESPONSE:**

The five categories of benefits listed on page 17 of the “white paper” were Safety, Economic, Reliability and Service Quality, Environmental, and Energy Security. In regards to Safety benefits, the Company has, is and will always operate a safe and reliable system. Safety is a top priority and we have dedicated resources to make sure that our employees are well trained and that our system is safe. The Company has a state-of-the-art training facility in Plano, TX that during fiscal year 2012 (October 2011-September 2012) delivered 24,594 hours of technical training to 863 employees in 104 classes. During that same time period, 4,302 employees attended 56 Operator Qualification (OQ) courses and 68 tours where given to 1,050 individuals. The Company’s PRP program also assists in providing a more safe and reliable system. In regards to Economic benefits, the Company is proud to be a low-cost provider. The Company strives to keep costs low while constantly looking to increase efficiencies. Through planning and forecasting, the Company believes that it has and will continue to achieve asset utilization. Also, the Company believes that the education component of its DSM program is an avenue to better inform and empower consumers. In regards to Reliability and Service Quality benefits, the Company believes that it currently operates a safe and reliable system. That system will only improve through the implementation of the Company’s PRP program. The Company’s 24/7 Gas Control department helps ensure the appropriate pressures are maintained throughout our distribution system. In regards to Environmental benefits, the Company believes that due to natural gas being clean, affordable, abundant, reliable and efficient, the direct use of natural gas can lower emissions. In regards to Energy Security benefits, the Company believes that due to natural gas’ domestic nature, fleet conversions could reduce our Country’s dependency on foreign oil.

f. To the extent not previously addressed, discuss the 20 functions included in the table on page 27 that would contribute to achieving the objectives of energy resources and infrastructures being clean and sustainable; reliable and secure; affordable and efficient; and robust and flexible as outlined on page 26, as they relate to jurisdictional Kentucky LDCs and their ability to achieve the benefits included in the table on page 33.

**RESPONSE:** The Company has nothing further to add to the 20 functions included on page 27 of the “white paper”.



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113. Provide a description of the type of meters (mechanical, electromechanical, AMR (one-way communication), AMI (two-way communication) currently used by the utility. Include in the description the reasons the current meters were chosen and any plans to move to a different type of metering configuration.

**RESPONSE:**

**Automated meter reading devices for a gas meter are installed on the existing gas meter. The actual gas measurement continues to be performed by the same high quality measurement device used for decades. The automated meter reading device is installed in place of the existing index that is used to read the meter. Then the index is reinstalled on the device. This reinstallation results in the meter reading being the same after the device is installed for continuity of meter readings.**

**The automated meter reading devices being installed by Atmos Energy are AMI and two-way devices manufactured by Sensus. The system operates in the following way: A transmitting device on a meter transmits to an antenna located on a tower or very tall structure in the service area. Equipment at that location delivers the data across a secure telecom connection to the Company's data collection system, located in its corporate data center. The readings are held there and accessible to the Company's other systems, such as its billing system.**

**The Company selected the FlexNet AMI system by Sensus due to several key factors. First, the radio frequency is FCC-licensed, and rights to the frequency are owned by Sensus and Sensus allows the Company to use this frequency. Licensed frequencies are separate from public frequencies where anyone has a right to use the frequency and no one is guaranteed clear channels to transmit on. By using the FCC frequency, Atmos Energy is assured that nothing will interfere with the transmission, assuring high meter reading success. Second, the range of transmission from the FCC frequency is much greater than over private frequency. Therefore less network infrastructure is needed by Atmos to collect meter readings. This significantly reduces the cost of installing the network while also enabling the same system to be installed in very large or very small service areas. The Company has no plans to change systems.**



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114. If either AMR or AMI metering is in use, state whether the utility has received any customer complaints concerning those meters. If the response is yes, provide the following:

**RESPONSE:**

**Yes, however, customer complaints have been very limited.**

- a. the number of complaints, separated by gas and electric if a combination utility, along with the total of customers serviced.

**RESPONSE:**

**Atmos Energy has received so few complaints that no statistics exist for them. The questions we receive generally occur when the devices are being installed in a new city. Those questions generally are related to confusion between information about electric Smart Meters versus gas automated meter reading devices.**

- b. how the complaints were addressed by the utility.

**RESPONSE:**

**Atmos Energy has chosen to brand our system as Wireless Meter Reading to help separate the issues associated with electric smart meters/smart grid. Questions from customers are handled one on one with the customer through both the Atmos call center and the local office. In addition to this live support, our website contains information explaining the wireless meter reading.**

- c. a detailed explanation as to whether customers should have the ability to opt out of using AMR or AMI metering

**RESPONSE:**

**We do not believe that a customer should have the ability to opt out of AMI reading. The objections to these systems are based on false or misleading information about radio frequencies, security, customer privacy etc. None of these issues have been substantiated. The benefit from these systems is derived from all meters being read in the same manner and customers opting out of the system would defeat the purpose and reasoning for an AMI system.**

- d. if customers were to be given the opportunity to opt out of using either AMR or Ami metering, provide:
- i. an explanation as to whether the utility should establish a monthly manual metering reading tariff or charge applied to the opt-out customers to recover the costs associated with manually reading the non-AMR or –AMI accounts.

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**RESPONSE:**

**Should the Commission impose an opt-out provision then Atmos believes, the customer who opts out should be charged the incremental cost of reading their meter manually through a monthly tariff rate or charge. Those costs should not be borne by other utility customers.**

- ii. an explanation as to whether these opt-out customers could still receive benefit from the utility using either AMR or AMI metering.

**RESPONSE:**

**Without access to the data, the customer would have no access to their consumption. However, the overall benefits achieved from the system would flow down to all customers through future rate changes due to expected savings achieved through the AMI program.**

- iii. an explanation addressing the point at which opt-out customers, either in terms of number of customers or a percent of customers, affect the benefits of the utility using either the AMR or AMI metering.

**RESPONSE:**

**Atmos Energy has no opt-out programs offered or required in any of the states where AMI is implemented, therefore no data exists upon which to base this response. However, if customers would be allowed to opt out, then there is a clear reduction in the benefits. The monthly meter reading cost in question 114(d)(i) should include a cost component for this loss of efficiency so that these costs are not borne by other customers.**





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115. In testimony, each utility cited cybersecurity as an area of concern related to the implementation of Smart Grid Technologies. Provide and describe your company's policy regarding cybersecurity or the standard your company has adopted governing cybersecurity. If your company has not adopted any policy or standard, identify and describe any industry or nationally recognized standards or guidelines that you may be aware of that the Commission should consider relating to cybersecurity issues and concerns.

**RESPONSE:**

**The risks associated with cyber security are much lower for a gas utility that uses two-way meter reading communication devices in a more limited manner. The gas transmitter does not control any gas flow at a customer's premise. There is presently no risk of a cyber-attack interrupting a customer's gas service. Should a hacker overcome all the security measures listed below, the worst case scenario would be that a meter reading may not reach the company, or a meter reading would be altered in some way. In those cases, the meter reading validation and exception processes in our customer billing system would kick out those readings as being outside acceptable ranges and an investigation would occur prior to a customer bill generated with those readings.**

**The Sensus FlexNet system has the following security measures incorporated and meets the described standards:**

- **Utilize FCC licensed frequency's with proprietary over the air protocol, frequency shift keying and AES 256 support**
- **Products part of a Secure Development Lifecycle, validation and certification with adherence to industry stands (NIST, NERC-CIP, SANS, US-CERT)**
- **Security controls provide Confidentiality, Integrity and Resiliency throughout the solution**
- **Products part of Wurldtech security certification and additional 3<sup>rd</sup> party security testing programs**
- **System architecture segmentation to support security zones, OS integrated firewall**
- **Data Center provides physical security control, network based firewalls and DMZ segmentation security zones and IPS services**
- **Field devices have tamper seals and provide tamper and tilt alarms**
- **Tower base stations provide physical locks & seals, locked down Linux kernel, secure tunnel used for backhaul communication**



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116. If not previously addressed, provide a detailed discussion of whether deployment of smart meters should allow for an opt-out provision.

**RESPONSE:**

**Please refer to the Company's response to #114.**