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March 4, 2016

James Gardner
Acting Executive Director
Public Service Commission
211 Sower Blvd.
Frankfort, KY 40601

Re: Atmos Energy Corporation
Case No. 2016-00070

Dear Mr. Gardner:

Atmos Energy Corporation submits the responses to the Commission's First Data Requests. I certify that the electronic documents are true and correct copies of the original documents.

If you have any questions about this filing, please contact me.

Submitted By:

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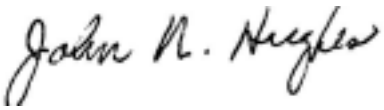
And



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AFFIDAVIT

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

IN THE MATTER OF AN INVESTIGATION OF AN INCREASE IN R & D RIDER PROPOSED BY ATMOS ENERGY	))))	Case No. 2016-00070

AFFIDAVIT

The Affiant, Mark A. Martin, being duly sworn, deposes and states that the attached responses to Commission Staff's first request for information are true and correct to the best of his knowledge and belief.

Mark A. Martin

STATE OF KENTUCKY

COUNTY OF DAVIESS

SUBSCRIBED AND SWORN to before me by Mark A. Martin on this the 1st day of March, 2016.

PEARL ANN SIMON
NOTARY PUBLIC
KENTUCKY, STATE AT LARGE
MY COMMISSION EXPIRES 09-26-17
NOTARY ID 496385

Notary Public - State of KY at Large

My Commission Expires: Sept. 26, 2017

Notary ID: 496385

REQUEST:

Refer to the application, the Direct Testimony of Mark A. Martin, page 3, question at line 16. Provide the answer to the question of why Atmos never increased its Research and Development ("R&D") unit charge, which is not answered on lines 17-18.

RESPONSE:

The Company inadvertently failed to increase the R&D unit charge after initial implementation. It was purely an oversight.

Respondent: Mark Martin

REQUEST:

State whether Atmos-Kentucky is able to choose projects in which R&D funds will be invested. If so, explain the process by which projects are chosen to benefit Kentucky customers. If not, explain how projects are chosen by Atmos on behalf of the Atmos distribution utilities and how Kentucky customers benefit from the chosen projects.

RESPONSE:

GTI is a national organization and does not conduct research specifically to benefit a certain state. GTI's focus is broader to benefit all natural gas consumers. GTI has sub-organizations in which the Company has representation: Operations Technology Development (OTD) and Utilization Technology Development (UTD). OTD and UTD project proposals are vetted by the Technical Project Committee (TPC) representatives from UTD/OTD member companies, including representatives from Atmos Energy. The TPC Committee members go through a process of participating in working group calls to discuss potential R&D needs, provide input to pre-proposals, review written proposals and participate in meetings where the project proposals are presented. The field of projects is narrowed by the TPC to those deemed to support the needs of customers from the member companies. Then, each member company, including Atmos Energy, allocates funding to the specific projects that are of interest and have direct applicability for their company and their customers. GTI uses a stage-gate (milestone) process. So, in addition to the initial project funding choice, each project is reviewed at the next gate, to determine if technical and cost goal milestones are met, before a decision is made by Atmos Energy as to whether or not to continue funding a project beyond the current gate.

Respondent: Mark Martin

REQUEST:

Provide a list and description of projects in which Atmos is currently investing that is more current and specific than what is provided in response to Commission Staff's Initial Request for Information ("Staff's First Request"), Item 53, in Case No. 2015-00343,1 which is provided as an attachment to the application in this proceeding.

RESPONSE:

Please see Attachment 1 and Attachment 2.

ATTACHMENTS:

ATTACHMENT 1 - Atmos Energy Corporation, Staff_1-03_Att1 - OTD.pdf, 5 Pages.

ATTACHMENT 2 - Atmos Energy Corporation, Staff_1-03_Att2 - UTD.pdf, 2 Pages.

Respondent: Mark Martin

Provide a list and description of OTD projects in which Atmos is currently investing:

(1.08.a) GPS Excavation Encroachment Notification (EEN) - Phase 2
The EEN system is a cost effective combination of smartphones/tablets and server side GIS process which can notify a gas operator of potential damage by identifying the risk behaviors of excavation equipment operating within areas where underground pipe facilities are present along the ROW. Phase 1 of this project established the base technology platform and initial behavioral models necessary to validate the feasibility of the system. Field evaluations were conducted in multiple states including Texas. EEN Phase 2 will 1) Refine the algorithms and models used to characterize construction activities, 2) Investigate additional models to characterize the movements of agricultural equipment, 3) Enhance and modify the mobile data collection process, 4) Further define and build the backend server processing capabilities and alerting/awareness protocols, 5) Evaluate additional hardware for use on excavators, and 6) Determine a commercialization path.

(1.09.a) GPS Leak Survey - Phase 2
Conduct a field evaluation of the mobile GIS tool developed in phase 1 that uses GPS-enabled smartphones to track and record the routes and findings of leak surveys. A trail is created from the GPS-enabled smartphone and overlaid on an operator's GIS to document which pipe segments have been surveyed. Customized report forms allow users to enter leaks as well as other field findings such as abnormal conditions and emergencies. The software provides a visualization of mains and services and shows the GPS trail to users in the field. Pipe segments are color coded to indicate the survey status (complete, incomplete, no access, etc.). Field survey status can be reported to the web application for real-time viewing in the office. The web application will allow office users to run reports on survey completion status, crew productivity, and other configurable metrics.

(1.15.a) Cross Bores - Sewer System Cleanout Safeguard Device
Develop and deploy a safety device that allows sewer system clearing operations to occur with the ability to seal the sewer system cleanout opening in the event a natural gas line (inadvertently installed in a sewer) is struck by a power auger or other mechanical tool and natural gas starts coming back into the building structure through the cleanout pipe. This will allow the plumber and/or residents to get out of the house safely by minimizing/eliminating blowing gas into the house through the sewer clean out.

(1.15.c) Pipeline Defense with Combined Vibration, Earth Movement, and Current Monitoring
Demonstrate the feasibility of a pipeline right-of-way (ROW) monitoring and defense system based on stationary sensors mounted on, or adjacent to, the pipeline. The sensor data from multiple locations along the pipe will be wirelessly forwarded to a central location for further analysis. Analytics residing at the central location will correlate the data from multiple sensors to alert operators to events of interest occurring in the ROW with minimal latency. A test site for the demonstration system is sought from the OTD companies.

(1.15.d) Improved Camera Imaging to Identify Cross Bores
Identify and evaluate camera/imaging tools that can identify cross bores during gas pipe installations. The systems need to work in conjunction with various types of trenchless pipe installation technologies, including the use of HDD with drilling mud and still be able to positively identify a cross bore.

(2.14.c) Assessment of Squeeze off Location for Small Diameter Polyethylene (PE) Pipe and Tubing
Scientifically investigate the applicability of minimum squeeze-off distances from fittings and other appurtenances in the case of small diameter (2" or less) PE pipe and tubing. Study findings may result in recommended changes to current squeeze-off procedures with potential efficiency and economic benefits for O&M activities. This study aims to develop, and experimentally validate a model for predicting effects of squeeze-off incurred as a function of pipe diameter, temperature, and pinch-point location in relation to proximity of fittings and other appurtenances. In addition, this study presents an opportunity to investigate modern bi-modal (Medium Density and High Density) materials which have not previously been formally evaluated for squeeze-off.

(2.15.a) Semi Automated Fusion Equipment Industry Steering Committee
Capture and analyze the technical and market requirements, needs and manufacturing issues related to semi-automated fusion equipment for common PE fusion operations (butt and sidewall fusions). An industry steering committee (OTD sponsors and fusion manufacturers) will be assembled to address the industry needs related to fusion equipment for the natural gas industry. This will positively affect new product development by bringing the fusion manufacturers and the customers together in order to generate ideas, develop concepts, and perform business analysis.

(2.15.b) Long Term Performance Evaluation of Mechanical Fittings for Gas Distribution Systems
Scientifically investigate and evaluate the long-term performance of mechanical fittings currently used in the gas distribution system.

(2.15.c) Qualifying PE Joining Procedures
Bring together the project sponsors and other interested LDC experts to gain knowledge, understanding, and focus to the issues related to qualification of joining procedures and develop a consensus on a quality framework with which to address these potential PE joining qualification issues.

(4.13.c) EMAT Sensor for Small Diameter and Unpiggable Pipe - Construct and Test Field Ready Prototype –Phase 2
Develop a bi-directional electromagnetic acoustic transducer (EMAT) sensor that can be used to assess small diameter and unpiggable pipelines containing reduced diameter fittings and other restricting features. Phase 2 focuses on constructing and testing the field-ready prototype based on the bench-scale prototype sensor that was successfully developed and tested in Phase 1.

(4.13.d) Hydro-testing Alternative Program - Phase 3
Phase 3 will identify and validate inspection and assessment technologies that are equivalent to a 1.25x Maximum Allowable Operating Pressure (MAOP) hydro-test for Integrity Verification Process (IVP) compliance. The work in phase 2 created the Finite Element Analysis (FEA) critical flaw data and collected Probability of Detection (POD) data for Electromagnetic Acoustic Transducer (EMAT) and Acoustic Resonance Technology (ART) sensors. Phase 3 will create the critical flaw curves to allow a comparison to In-Line Inspection (ILI) tool detection capabilities. The deliverable of Phase 3 will be a tool that operators can potentially use to demonstrate equivalence to a hydrotest for a specific pipe segment. AGA and/or the appropriate standards organizations will be consulted to implement the results of this project.

(4.14.c) Surface Indentation for Material Characterization Correlation of Surface Properties Based on Vintage
Develop correlation factors to relate surface properties to actual material properties to allow surface indentation techniques to be used for material property validation for pipelines. The correlation factors will be based on pipe vintage by decade. Past research has proven the ability of surface indentation techniques such as stress-strain microprobes and hardness testing to accurately determine material properties of pipes within a localized area, but variations in material properties through the wall are problematic for local interrogation techniques. Probabilistic confidence intervals will be developed to allow operators to use surface indentation techniques by applying correlation factors to pipe materials that may have through-wall variability.

(4.15.a) Field Ready Butt Fusion Inspector - Phase 2a
To provide a portable and field-hardened ultrasonic tool to reliably inspect PE butt fusion joints in a field environment. The device must require little to no operator expertise. It must not require the operator to understand or interpret ultrasonic waveforms, yet ultimately provide a good or bad output indicator. The tool must require little or no field calibration, however, it may require a verification standard to confirm proper device functionality.

(5.07.p) GPS Consortium
Utilities work together to better understand this rapidly growing technology field and how GPS technology can best be applied to daily operations to create operational efficiencies, enhance regulatory compliance, and improve the quality of field collected data. The program activities include technology development and integration, workshops, pilot projects, demonstrations, best practices/standards development and general information sharing. Over the last two years, the GPS Consortium has focused on technology development that will reduce the cost and complexity of deploying GPS for routine construction and O&M activities.

(5.11.e) Intelligent Utility System - Automated Component Validation Software – Phase 3
Develop software that provides automated, real-time validation of components and equipment installed during construction. This software will create a set of construction records at the time of installation that will reflect the actual components that were installed in the field. The software will also create accurate as-built drawings that are available at the end of each construction day to eliminate engineering and mapping backlogs. This technology builds on the Intelligent Utility Program.

(5.14.d) Tracking and Traceability for Transmission - Data Collection and Standards for MTR and Coating Reports – Phases 2 and 3
Develop standards, guidelines, and technology for tracking and traceability of transmission pipe. The results of this project will provide the industry with a standardized approach for capturing pipe, appurtenance, welding and coating data. Phase 1 identified data collection requirements, developed barcode labeling specifications, and created a design document for field data collection software. Phase 2 will create the technology to capture manufacturer information using standardized barcodes and develop and test the technology in a proof-of-concept project. Also standardized forms for Mill Test Reports (MTR) and factory applied coating information will be created. In phase 3, results will provide the industry with a tested, standardized approach for capturing pipe, appurtenance, welding and coating data.

(5.14.n) Construction Compliance Monitoring System – Phase 2
Phase 2 will build upon the success of the Phase 1 to produce an enhanced software and implementation blueprint for the Construction Compliance Monitoring (CCM) system. The CCM solution developed for Phase 1 demonstrated the effectiveness of this system and approach. Phase 2 seeks to enhance the effectiveness of this solution in four key areas: 1) Refine implementation and integration with company processes and systems, 2) Incorporate knowledge management tools within the inspection tablets, 3) Extend RCA into other operations activities, and 4) Enhance the application of statistical tools. A pilot project will be conducted at Atmos.

(5.15.a) Cybersecurity Collaborative
Create a multi-year collaborative program between natural gas distribution companies and the Department of Homeland Security (DHS) to address the high priority cybersecurity issues of participating members through a focused outreach and education process and a technology evaluation and transfer initiative.

(5.15.h) Evaluation of Meter Set Placement and Clearances
Provide utilities and their customers with additional knowledge and more options regarding the placement of meter sets. Clearance distances from various sources of ignition and house openings have been in place for many years. However, no one can point to data or other information as to why and how these clearance distances were determined. This project will provide utilities with additional knowledge and data to support meter set placement options and potentially support changes to applicable codes.

(5.15.k) Asset Lifecycle Tracking – Warehousing
Implement the Intelligent Utility System (IUS) technology within a gas company's asset/inventory management process by integrating the attributes available from the ASTM F2897 barcode on gas system components.

(6.06.a) Keyhole Collaboration Program
Provides an arena for keyhole technology innovation including developing, testing, and implementing innovative keyhole technologies for utility system installations, repairs, and renovations. Additionally the program facilitates information sharing between utilities themselves and manufacturers, and gives utilities a unified voice in the marketplace. Manufacturers can receive feedback and understand the needs of the utilities with respect to keyhole technology through this unified voice. Utilities can efficiently share best practice information among themselves through the Keyhole Technology Program.

(6.08.a) Carbon Management Information Center
Contribute to the progress of U.S. green building practices and rating systems by providing credible and unbiased technical data regarding the benefits of source energy in reducing energy consumption and carbon emissions. Through the CMIC program, technical experts are directly involved in technical committees and public review processes on full-fuel-cycle analysis and bringing greater awareness to the many ways that the direct use of natural gas can improve source energy efficiency, reduce greenhouse gas emissions and lower energy costs for consumers.

(7.10.c) Improving Methane Emission Estimates for Natural Gas Distribution Companies - Phase 4
Enhance the accuracy of fugitive methane emissions estimates from natural gas underground pipelines and integrate the results with current industry practices and regulations. Updated emission factors for plastic, cast iron and unprotected steel pipe materials have been obtained in the prior phases of this project. Phase 4, completes and closes out this program by reviewing methods to improve activity data reported by utilities, as well as, seeking regulatory approval for the devised implementation strategies.

7.15.b Remote Gas Sensing and Monitoring
Phase 2 will develop an unattended methane monitoring device. This monitor would be placed in the vicinity of a suspected (or recently repaired) leak to provide 24 to 48 hours of unattended monitoring. Placement of the device would be at the discretion of the investigator, determined by the hazards at a particular site. The ability to post unattended wireless notifications of hazardous levels back to the utility in real time is the focus of phase 2. The methane sensor from phase 1 will be modified and used for phase 2. Ongoing Phase 1 is developing a system to allow a leak investigator to monitor methane levels at multiple points within a site under investigation. The investigator uses a tablet or phone to see the gas values in real time.

Provide a list and description of UTD projects in which Atmos is currently investing:

(1.11.F) North American 100 Unit Combo Field Demo
Ensure appropriate analytical treatment of natural gas systems in combo standards development and to collect performance data on a large sample of combination space and water heating systems for evaluation and use in policy papers, energy efficiency programs, and in guiding future product improvements and development. Also looks at high-efficiency, fully condensing or instantaneous water heaters used as part of the system.

(1.11.G) Integrated Contact Condensing Water Heater (ICCWH) – Low Cost Condensing Prototype - Phase 2
Develop a working prototype water heater incorporating successes from previous work on Low Cost High-Efficiency, Condensing Water Heater (1.9.C) and phase 1 in this project on the condensing water heater. This can help low-income customers gain the advantage of high efficiency units.

(1.11.H) Gas Heat Pump Water Heater Reliability Phase 3
Development of the industry's first gas heat pump water heater (GHPWH) requires final refinements to the technology concerning long term reliability, which are addressed as follows. 1) Refine expansion valve design – electronic expansion valves (EEV) designed for this scale of ammonia (NH3) service have worked sufficiently for the experimental and early field testing phase, but minor issues requiring adjustments to the control architecture are not feasible in a commercialized product. The EEV orifice/plunger geometry will be redesigned to accommodate long-life operation, addressing minor issues observed in the field data. 2) Develop datasets on solution pump failure modes: Prior UTD-supported FEA analysis predicted the solution pump diaphragm would fail after 100 million cycles (roughly 2-3 years under normal operation), however room temperature testing has pumps operating with 3 X this without failure. This is a good thing, however it is critical to induce and understand failure modes prior to rollout. An accelerated-life pump test loop would be built, creating elevated temperature pump seal failures. The project features a GHPWH with equivalent efficiencies of 138% (1.38 coefficient of performance – COP), a breakthrough on water heater efficiency.

(1.11.M) Building America Whole House Retrofit Program (Phase 5)
Provide support for the gas option for measures and measure packages that are designed to reduce source energy and energy costs in existing residential buildings. Field studies, analytical tasks, and energy analysis options will be pursued in the proposed work. This project provides the required cofunding for the mid 2015 – mid 2018 (Department of Energy FY 16-FY18) GTI Building America (BA) team. As existing home stock is over 110 million residences, this program is targeted toward the vast majority of existing homes and customers, not just new homes and new customers.

(1.13.I) Gas Appliances in Tight Houses - Phase 2 and 3
Support the gas options in new construction and whole house retrofit where construction processes include the use of air sealing to reduce the infiltration-based heating and cooling load. Builders and the building research community commonly avoid non-direct-vent combustion appliances in this type of construction to eliminate the risk of backdrafting and spillage. Field studies and analysis will be conducted. The Phase 3 effort is proposed to cover testing additional equipment in the lab and new common venting scenarios, as well as the field data collection tasks. The benefits are increased safety of gas users.

(1.13.M) Field Demonstration of Model E NextAire Gas Engine-driven Heat Pump
Monitor the performance of the new Model E design of the NextAire™ Multi-Zone gas engine-driven heat pump (GHP) to be installed in a municipal building in Dublin, Georgia. The Model E is the latest design of the NextAire™ Multi-Zone GHP and incorporates several design changes. The Model E uses two compressors instead of four. The unit has a higher ventilation rate and has a slightly smaller footprint. Unlike the previous model which required significant changes for hot, moderate or cold climates, the Model E will be used for all U.S. locations and only requires a retrofit kit for installations in colder climates. This GHP features a heating COP of over 1.6, equivalent to 160% efficiency, and a cooling COP of over 1.2, 120 equivalent efficiency, a breakthrough improvement in heating and cooling efficiency.

(6.0) Carbon Management Information Center
Contribute to the progress of U.S. green building practices and rating systems by providing credible and unbiased technical data regarding the benefits of source energy in reducing energy consumption and carbon emissions. Through the CMIC program, technical experts are directly involved in technical committees and public review processes on full-fuel-cycle analysis and bringing greater awareness to the many ways that the direct use of natural gas can improve source energy efficiency, reduce greenhouse gas emissions and lower energy costs for consumers. This program provides users and builders with full information on full fuel cycle efficiencies and CO2 emissions.

REQUEST:

Refer to the response to Staff's First Request, Item 53.a., in Case No. 2015-00343, which is provided as an attachment to the application in this proceeding. Explain why 2012 expenses are so much higher than collections for that year and so much higher than expenses for 2013 and 2014.

RESPONSE:

The 2012 expense amount provided in the Company's response to Staff DR No. 1-53 subpart (a) was incorrect and the Company apologizes for this oversight. The correct amount is $60.922.15.

Respondent: Mark Martin

REQUEST:

Confirm that Atmos, as required by its tariff, files annual statements regarding its R&D fund remittance along with copies of Gas Technology Institute project information.

RESPONSE:

The Company believes that it is in compliance with its tariff.

Respondent: Mark Martin