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HIGHLIGHTS

Highlights of City Auditor Report #1114, a report to the City Commission and City management

WHY THIS AUDIT WAS CONDUCTED

The Smart Metering Project is the development and installation of utility metering infrastructure and computer systems that will automate the metering function of the City's utilities. The information provided by the smart metering system is important to the success of the City's demand side management plans which are intended to assist utility customers to reduce electric consumption. As such it is a very important project for the City and its citizens.

The project is anticipated to cost approximately \$40 million. To date, approximately \$32 million has been expended for project purposes.

This audit was conducted to (1) identify what the smart metering project is; (2) describe why the City is installing the smart metering system; (3) determine how the City has done in implementing the smart metering project so far; and (4) determine if both Honeywell and the City have complied with the provisions of the contract for the acquisition of the smart metering system.

WHAT WE RECOMMENDED

In the course of our audit we noted that there have been issues that have caused the project to not be finished by its original completion date of October 2009. Management has worked with the contract manager as well as vendors and suppliers to address the issues that have caused the project to extend beyond its scheduled completion date. We recommend that management continue to work diligently with the project's contract manager and other vendors to complete the project as soon as possible, and to keep the City Commission up to date on the status of the completion schedule.

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July 1, 2011

AUDIT OF THE SMART METERING PROJECT

While work on the smart metering system remains, the City has made significant progress in completing the project. Areas yet to be completed include the finalization of the installation of the gas and water meters and the completion of the Meter Data Management System.

WHAT WE CONCLUDED

The City has made significant progress in the installation of the smart metering system. The critical parts of the smart metering system (i.e., electric meters and communication network) have been installed and many of the benefits projected to be obtained from the system have been received.

Actions remaining before the project is completed include:

- The installation of the relatively few water meters not yet installed.
- The installation of the redesigned gas meters.
- The completion of the development of the meter data management system.

City management has indicated a commitment to work with the construction manager and the other vendors to follow through on these remaining actions.

Some of the important items we noted in the course of this audit include:

- The project is progressing within its budget and is expected to be completed within that budget.
- The project is past the amended completion date of July 2010 but is expected to be completed by the end of the 2011 calendar year.
- The functionality identified in the contract for the acquisition of the smart metering system either has been delivered or is in the process of being developed.
- The contracts and agreements associated with the project have been approved by the City Commission.

We would like to thank staff in the various City departments involved in the smart metering project and Honeywell for their assistance during this audit.

Office of the City Auditor

Audit of the Smart Metering Project

AUDIT REPORT #1114

July 1, 2011



Copies of this audit report #1114 may be obtained from the City Auditor's web site (<http://talgov.com/auditing/index.cfm>), by telephone (850 / 891-8397), by FAX (850 / 891-0912), by mail or in person (City Auditor, 300 S. Adams Street, Mail Box A-22, Tallahassee, FL 32301-1731), or by e-mail (auditors@talgov.com).

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Audit of the Smart Metering Project



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Report #1114

July 1, 2011

Executive Summary

A key part of the City's utilities operation is the measurement of the electricity, water, and natural gas that is sold and delivered to customers. The reading of the utility meters has traditionally been a manual procedure where meter readers move from house to house and business to business recording the meter readings on a monthly basis and delivering those readings back to the City's Utility Business and Customer Services department.

For many years the City has been aware of technologies that could automate the reading of utility meters but has not felt that simply automating the monthly meter reading process justified the expense of replacing the metering infrastructure. In recent years however, technology in the area of meter reading has progressed substantially.

These advances in technology have expanded the functionality of utility meters. These new types of meters and/or metering systems have now reached a point where management believes the benefits of automating the metering process justify the cost of upgrading the metering infrastructure. These advanced meters have come to be called "smart meters" and/or "smart metering systems."

In September of 2007 the City entered into a contract with Honeywell for the acquisition of a smart metering system. The contract called for Honeywell to provide project management services and oversee/guarantee the development and installation of the system. A significant portion of the cost of the project was for the advanced metering system's infrastructure, and that cost was paid by the City directly to the vendor supplying the infrastructure. The process used

for the selection of Honeywell is discussed in greater detail in the background section of this report.

What is the Smart Metering System?

The smart metering system that the City has contracted for is a large and complex system that will allow for many changes in the way the City conducts its utility business and provide many benefits to the City utility customers. Some of the changes and customer benefits include:

- the elimination of manual meter reading as a regular part of the business process;
- the ability to offer alternative utility pricing models that will enable some customers to save money;
- increasing the detail and variety of information relating to energy and water consumption available to both the City and its customers;
- providing faster and more complete outage notification to the City utilities when they occur rather than the City relying on customers to report outages; and
- allowing the City to identify abnormally high customer water usage and notify the customer of potential water leaks before the customer receives a very large bill for the high usage.

There are many parts of the smart metering system, however for purposes of this report we have grouped those parts into two general groups; advanced meter infrastructure (AMI) and, meter data management system (MDMS).

The AMI portion of the smart metering system is comprised of the utility meters, a network that transmits the meter data, and a “head-end” that receives the meter data and keeps track of the other parts of the AMI.

The MDMS portion of the smart metering system is a separate computer system that receives the meter data from the head-end. It is responsible for maintaining that data, analyzing and reporting on the

For purposes of this report we have divided the smart metering system into two main groups, the advanced metering infrastructure (AMI) and the meter data management system (MDMS).

data, interfacing with various other City systems that can utilize the meter data, and transmitting the meter data to the City's PeopleSoft Customer Information System for billing purposes.

What does the project entail?

The City entered into a contract with Honeywell that provides for the acquisition of a smart metering system.

The details of the smart metering project and the specifications of the smart metering project are laid out in the contract with Honeywell for construction management services. The contract with Honeywell, which is identified as an "Agreement for Construction Management" provides for the acquisition of a smart metering system. The contract lays out the general terms and conditions of the agreement; items such as insurance obligations, indemnity, dispute resolution, termination, changes in the work, acceptance of the work, project schedule, and terms of payments. Most importantly though, the contract includes the system specifications and performance requirements for the smart metering system and the additional responsibilities that Honeywell has agreed to as part of its construction management responsibilities.

General contract provisions

The general provisions in the contract are items that lay out the basic terms of the agreement between the City and Honeywell but do not include the specifications for the project. Included in the general provisions are items such as:

- insurance obligations of both parties,
- responsibilities of both parties relating to work conditions and hazardous substances,
- the process that will be used in the event of a dispute relating to the project,
- the methods either party can use to terminate the agreement,
- the terms of how payments for the contract will be made,
- how change orders will be handled, and

- the process that will be used for accepting the project.

In the course of our audit work relating to this project there were no issues that came to our attention in any of the areas identified above. These areas will continue to be followed throughout the course of the project as part of this ongoing audit. Final conclusions as to the satisfactory compliance with each of these contract provisions will be made in the final audit report relating to the smart metering project.

Contracted system requirements

The majority of the contract with Honeywell is devoted to laying out the system specifications and performance standards of the smart metering system. The contract splits the specifications into multiple divisions; Honeywell management scope of services, system technology, system performance, endpoint implementation, City of Tallahassee rights and obligations, contingency planning, and project acceptance. A summary of the specifications and a brief summary of our assessment of the status of those specifications are as follows:

The majority of the contract is devoted to laying out the smart metering system's specifications and performance standards.

- Honeywell Management Scope of Services
 - Process evaluation and design – Honeywell reviewed and made recommendations to improve the design/specification of the smart metering system and the City's processes relating to customer billing.
 - Communication – Adequate and appropriate communication was made with utility customers to alert them to the smart metering project.
 - Training of City employees – Training sessions with City employees were in accordance with the terms of the contract.
 - System installation – The installation of the smart metering system infrastructure is substantially complete. However, there has been an issue with the gas meters (that issue is discussed in more detail later in the report).
 - Software installation – The development of the software for the smart metering system is partially complete.

- System Technology
 - System architecture – The design and architecture of the smart metering system, as installed, provides the functionality laid out in the contract.
 - System software – The smart metering system’s software is in the process of being developed and deployed.
 - In-home messaging – This part of the smart metering system is currently under development and has not yet been made available to customers.
 - Metering requirements – The specifications identified in the contract for the smart metering system have been delivered.
- System Performance
 - Host system performance - The performance standards for the host system have been achieved in accordance with the terms of the contract.
 - Network communications – The network communications are functioning in accordance with the terms of the contract.
 - Meter performance - Electric and water meters are performing in accordance with the standards identified in the contract. Communication issues were identified with the gas meters and their deployment has been delayed. The issue with gas meters is further discussed later in this report.
 - In-home messaging – This part of the smart metering system is currently under development and has not yet been made available to customers.
- Endpoint Implementation – The smart metering system infrastructure has been installed in accordance with the terms included in the contract.
- City of Tallahassee Rights and Obligations – To date, the terms of this portion of the contract have been satisfied by both the City and Honeywell.
- Contingency Planning - To date, the terms of this portion of the contract have been satisfied by both the City and Honeywell.
- Project Acceptance – The contract for the smart metering system did not include a detailed project acceptance plan. However, the

contract did include provisions for one to be developed that would be acceptable to both the City and Honeywell.

Where does the project stand?

The project is approximately 75% complete.

It is currently estimated that as of January 2011, the smart metering project is approximately 75% complete and is progressing within the projected budgeted dollar amount.

Is the Project Within Budget Financially?

The contract for project management and equipment acquisition for the smart metering system was for \$35.3 million. That contract allocated \$14.8 million to Honeywell and the remaining \$20.5 million to the City for acquisition of the equipment, hardware, and software needed for the smart metering system. The contract also included a provision to allow for an increase to the total contract due to uncertainties relating to the final/total cost to develop the MDMS, which had not been determined when the contract with Honeywell was finalized. When the City Commission approved the project/contract for the smart metering system a contingency of 10% of the contract was included in the funding; this brought the total funding approved for the project to \$38.8 million.

The smart metering system, in total, is anticipated to cost approximately \$40 million.

In May of 2009 an amendment to the contract with Honeywell for the smart metering system was finalized. The amendment provided for an additional \$1.2 million to finalize the MDMS. This amendment brought the total cost of the smart metering system to \$37 million and the total approved funding to \$40.1 million.

Table 1 shows the project status from a financial standpoint as of January 2011.

**Table 1
Project Expenditures**

	Contract / Approved Funding	Expended	Remaining
Contract Management/ Honeywell	\$16,020,082	\$13,798,391	\$2,221,691
AMI Infrastructure, Software, and Other (directly purchased by the City)	24,077,118	18,223,022	5,854,096
Total	\$40,097,200	\$32,021,413	\$8,075,787

Management estimates that the smart metering project will be completed sometime near the end of the 2011 calendar year.

The original contracted completion date for the project was October of 2009, however the May 2009 amendment extended that completion date to July of 2010. Management estimates that the project will be completed sometime near the end of the 2011 calendar year.

Table 2 below shows the numbers of meters that have been contracted for; the number of meters that have been installed; and the number of meters yet to be installed under the terms of the contract.

**Table 2
Meter Installations**

	Project Total	Installed	Difference	% Complete
Electric Meters	108,823	108,643	(180)	99.8%
Water Meters	83,486	81,396	(2,090)	97.5%
Gas Meters	27,566	1,300	(26,266)	4.7%
Total Meters	219,875	190,339	(29,536)	86.5%

Gas meter installations are significantly behind the progress of the other meter types.

As can be seen in Table 2 gas meter installations are substantially behind the other meter types. This delay in gas meter installations was caused by a problem with the meters communicating with the rest of the smart metering system.

Gas meters did not report consumption data reliably.

During the course of the project there were problems noted with the gas meters not reporting consumption data reliably. After much work to resolve this issue the City, in conjunction with Honeywell and the vendor producing/supplying the gas meters, decided that the best course of action to resolve the issue was to; (1) stop progress on the installation of gas meters, (2) have the vendor redesign and produce new gas meters that would meet the contractual requirements, and (3) proceed with the rest of the project until the gas meter issue was resolved. It was also decided that the cost of manually reading the gas meters that are not being read through the smart metering system would be borne by the meter vendor by directly hiring a sub-contractor that would provide manual gas meter reading services to the City.

The development of the MDMS is behind schedule.

In addition to the delays in the project caused by the issue with the gas meters, the completion of the project has been delayed due to issues associated with the development of the MDMS. The development of the MDMS has been delayed due to two main items. The first was a delay in the selection of the vendor to develop the MDMS. The second reason for the delay is the development has been more complicated and taken longer than the City, Honeywell, or the vendor anticipated. Currently, the MDMS is approximately 60% complete.

As of January 31, 2011, approximately \$32 million has been spent of the smart metering project.

As of January 31, 2011, approximately \$32 million has been expended for the smart metering project. This amount is within the total amount budgeted for the smart metering system and is reasonable based on the overall percentage of completion for the project. Management anticipates the project being completed within budget.

Meter Testing

Meter accuracy is very important and the City established a two part process to ensure all electric meters read and record electric consumption accurately. The first process was to require the vendor producing the meters to test 100% of the meters prior to delivery to the

City. The second part was for the City to randomly retest meters once they were delivered to the City. The City retested approximately 8% of the meters. In all, the City identified 7 meters that tested outside the tolerable limits of accuracy and these meters were “fixed” prior to being made available for installation in customer locations. The tolerable limit for meter accuracy, for the City, is that the meter must read consumption within 0.5% of actual consumption. As noted in Table 2 above there were over 100,000 electric meters replaced as part of the smart metering project. Therefore the testing of 8% of the meters equates to testing of approximately 8,000 meters. With only 7 meters out of the 8,000 tested being outside the tolerable limits there was an error/failure rate of less than .08%. Extrapolating that error rate to the entire population we can assume that there could be 73 of the 100,000 meters in operation that may be outside the tolerable limits of accuracy installed at customer locations. In addition to responding to customer complaints there are processes in place going forward to identify those incorrect meters through the periodic testing of electric meters.

Conclusion

Overall, the project is making progress toward completion and should be completed within the project’s financial budget. However, at this point the project is currently behind schedule by approximately 18 months.

The main issue that has arisen during the course of the project is a defect in the design of the gas meters which prevented the meters from communicating in accordance with the requirements of the contract. To address this issue, the vendor agreed to redesign the communication module, retrofit and/or replace the communication module in all meters, and hire a subcontractor for manually reading all gas meters until the issue is resolved.

The project is making progress toward completion and should be completed within the financial budget.

The other issue that has delayed the project is the development of the MDMS software. This delay has been caused by the complexity of the software and designing the system to handle and process the large amount of data involved.

Management anticipates the project to be completed in the fall/winter of 2011. We will continue to monitor the project and provide another report at the completion of the project where we will summarize the final outcome of the project and conclude as to its success.

Audit of the Smart Metering Project



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City Auditor

Report #1114

July 1, 2011

Scope, Objectives & Methodology

The overall objective of this audit of the City's project for the acquisition of a "Smart Metering System" was to answer the following questions:

- What is smart metering and what is the City's smart metering project?
- Why did the City undertake the smart metering project and what are the planned benefits the system is supposed to provide?
- How has the City done in implementing the smart metering project so far?, and
- Have both Honeywell and the City complied with the provisions of the contract for the acquisition of the smart metering system?

The scope of this project included gaining an understanding of the project and reviewing the progress to date.

The scope of this audit included gaining an understanding of the smart metering project and reviewing the installation/implementation of the smart metering system to date. We did not include an evaluation of the adequacy of the engineering design or the quality of the components of the system.

To address the stated audit objectives we:

- Reviewed relevant contracts and financial records;
- Interviewed staff;
- Observed project management meetings, and;
- Reviewed industry materials and publications relating to smart metering.

This audit was conducted in accordance with the International Standards for the Professional Practice of Internal Auditing and Generally Accepted Government Auditing Standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

Background

The City of Tallahassee operates its own Electric, Water, and Gas Utilities. An important part of the utilities is the meters that record the customer's utility consumption. For many years the City has utilized traditional metering as the method of tracking customer consumption. Traditional metering is where the meter uses a mechanical process to track utility consumption followed by a manual reading of the consumption.

The City has been monitoring the development of advanced metering technology for many years.

As part of its due diligence in running a multimillion dollar utility, the City has monitored the development of advanced metering for many years. In general, advanced metering can first be divided into automated meter reading (AMR) and what has become known as "smart meters." AMR is much like it sounds and allows for the automated reading of customers utility meters but not much more in the way of additional functionality. Smart metering on the other hand is a much more comprehensive metering system and provides many benefits that are not possible with an AMR system. Some of the benefits available with a smart metering system include; the ability to obtain more timely and detailed consumption information, the ability to conduct remote disconnects and reconnects of electric power, the ability for the customers to manage consumption remotely, the ability to receive more timely and complete power outage notifications, and the ability to offer specialized utility pricing models.

When the City first began looking into advanced metering the available technology was mostly limited to AMR. In City management's opinion, AMR did not provide enough benefits to justify the expenditures associated with upgrading the existing utility metering infrastructure. However, over time, the technology relating to advanced metering has increased and the functionality and benefits envisioned with a smart metering system have become commercially available. With these advancements in advanced metering, City management decided the long term benefits and cost savings potential of a smart metering system justified the cost of upgrading the City's metering system.

***How was the
Smart Metering
Construction
Contract Manager
selected?***

In accordance with Section 242.06 B. of the City of Tallahassee Procurement Policy, the City Commission is responsible for rendering final decisions on awards regarding any action for procurement of supplies or services presented by the City Manager. The most significant actions taken by the City Commission relating to the Smart Metering Project and leading up to a contract occurred in March and September 2007.

At the March 28, 2007, Target Issue Workshop attended by the full City Commission, staff recommended the Commission approve (1) moving forward with a smart metering program and vendor selection process and (2) staff negotiating a contract with Honeywell to provide contract management services for deployment of the Smart Metering network and Smart Thermostats. Information presented to the City Commission and relating to the decision process included the following:

- Section 1252 of the Energy Policy Act of 2005 requires state commissioners and non-jurisdictional utilities to consider five new standards including an Advanced Metering Infrastructure (AMI) that would include a fixed metering network.

- In 2005, staff received and viewed proposals from Honeywell and Johnson Controls for an AMI and in 2006 staff recommended Honeywell to be the contract manager with product and installation to be separately bid.
- In December 2006, the City Attorney provided a written opinion that previous evaluations with respect to implementation of automatic meter technologies prepared by the two above companies could be considered as meeting the requirements of a competitive selection process to provide ESCO (Energy Services Company) services, but not Automated Meter Reading services. He recommended an RFP and bid process for the AMR services. Subsequently, on March 12, 2007, the City Attorney concluded the proposal for Honeywell to perform contract management services and for the purchase of meters and installation to be separately bid was legally acceptable.
- The City Manager advised the City Commission that putting this issue through the Request for Proposal process would be an acceptable route to take, but that would add a minimum of nine (9) months to the 2 ½ years already expended on the evaluation.

After presentation of the above, staff's recommendation to move forward with a smart metering program was unanimously approved. A second recommendation to contract with Honeywell for contract management services was amended to make approval action contingent on negotiation of the administrative (management services) fee. That second recommendation was approved 3-1 with one Commissioner abstaining due to a conflict of interest.

Subsequently, at the September 19, 2009, City Commission meeting the four City Commission members present approved a recommendation to authorize the City Manager to (1) approve and execute the final agreement with Honeywell for a total project amount of \$35.3 million to be adjusted upward or downward based on software cost and (2) approve and execute contract amendments and pay City internal expenses and additional service in an amount of \$3.53 million or 10% of the Guaranteed Maximum Price.

On September 28, 2007, the City entered into an Agreement for Construction Management services with Honeywell in the amount of \$14,868,082. As part of the contract, the City was to purchase meters and other equipment, software, and materials for use by Honeywell in performance of the work totaling \$20,431,918 for a total contract amount of \$ 35,300,000.

Overview of the Smart Metering Project

Smart metering is the automation of the metering operations of the City utilities.

The implementation of a smart metering system is a major advancement in the City's utility business process and is a key tool that will be utilized to promote the City's demand side management (DSM) plans.

What is the Smart Metering Project?

In short and very simplified terms, smart metering is the automation of the metering function of the City's utilities. The functionality brought about through the smart metering system will precipitate major changes in how the City's utilities operate. Those changes will include:

- the elimination of manual meter reading as a regular part of the business process;
- the ability to offer alternative utility pricing models that will enable some customers to save money while also working toward achieving one of the City's DSM goals (shifting electric consumption to off peak times);
- increasing the detail and variety of information relating to energy and water consumption available to both the City and its customers;
- providing outage notification to the City utilities when they occur rather than relying on notification from customers; and
- allowing the City to identify abnormally high customer water usage and notify the customer of potential water leaks before the customer receives a very large bill for the usage.

What are the Major Components of the System?

The Smart Metering system is comprised of many individual components. However, for the purpose of this report we have grouped those components into two main areas with several sub-groups. The names of those areas roughly parallel the terminology used within the City. Those areas and subgroups include:

- Advanced Metering Infrastructure (AMI);
 - Utility meters
 - Collectors
 - Head-end
- Meter Data Management System (MDMS);
- Enterprise Software System; and
- Customer Web Interface.

Each of these parts of the system will be described in greater detail later in this report.

What is the Anticipated Life of the System?

According to management the smart metering system does not have an anticipated life span. This means that the system is expected to continue in its designed form until a major technological development renders this system obsolete. However, management asserts that there is no reason to believe that this system would need to be replaced in the next 25 years.

Why did the City Undertake the Project?

For many years the City has recognized the importance of DSM. However, in recent years there has been an increased emphasis on DSM due to the rapid increase of energy costs.

DSM is a set of related programs that work together to allow and encourage customers to reduce electric consumption and shift electric consumption to off peak times. The goal of DSM is to postpone or reduce the need for future growth/expansions of the City's generation and transmission capacity. Expansion of the City's electric generation capacity for electricity is a very costly undertaking. For example, the recent repowering of the Hopkins Unit 2 cost approximately \$156 million and provided for a 30% gain in efficiency and an additional 72 megawatts of generation capacity.

If the City's DSM programs are successful, future growth of the Electric Utility can be deferred thus postponing the need for large utility expansions/expenditures and potentially customer rate increases.

Smart metering is a key tool in allowing DSM to achieve its desired results because it will allow customers and the City to have more detailed and near real-time information on which to make electric usage decisions. With that information and incentives from the City, customers can be encouraged, through saving money, to alter their electric usage.

The smart metering system will also save the City money by greatly reducing the need for manual reading of utility meters.

How does the Project Facilitate the City's Demand Side Management Efforts?

As envisioned in the planning and decision making process for the determination to go forward with the project, the smart metering system is one of the key components that will allow the City's DSM activities to progress and hopefully succeed. Smart metering will help the City's DSM efforts by making near real time energy usage information available to both the customer and the City.

The City undertook the smart metering project to support the City's DSM efforts and provide customers with better information about, and control over their utility usage.

The smart metering system will allow the City to offer alternative utility pricing models that will encourage conservation.

Smart metering will give the City the ability to offer incentives that will encourage customers to change their energy usage habits. For example, the City can:

- Offer lower electric rates for off peak energy usage thus enticing customers to shift some of their energy consumption to nights and/or weekends, and
- Offer monetary incentives that will encourage the customers to allow the City to adjust in-home energy consumption (i.e., the customer allows the City to adjust the customer's thermostat remotely based on agreed upon parameters) to eliminate the need for the City to use the least efficient generation (peaking) methods.

How do the major Components of the Project Fit Together?

In order to achieve the envisioned benefits of the smart metering project, each of the major parts of the system must work and work together.

As previously stated, for ease of understanding, we have divided the smart metering system into two main parts. The first, which has come to be known as the AMI, is the infrastructure that includes the equipment needed to read the customer's utility consumption and transmit that data to the City. The second of the two main parts of the smart metering system is the MDMS and its computer interfaces to the AMI, the PeopleSoft CIS, and the customer web application.

To better understand each of the parts of the smart meter system and how those parts work we have described those parts in detail below:

Water and gas meters communicate consumption data to the electric meters wirelessly.

- The water and gas meters communicate wirelessly to the electric meter. Each water and gas meter is specifically identified by a unique serial number and associated with a specific customer account. This prevents a customer from accidentally being charged for their neighbor's usage.
- The electric meters are one of the most important pieces of the smart metering system. They track electric consumption as

Electric meters receive the gas and water consumption data and relay that data along with electric consumption data to collectors.

would be expected of any electric meter. However, they also have the capability to perform many other duties. They receive the consumption data from the water and gas meters and transmit the consumption data from all three meters through the collectors to the head-end. They also have many other capabilities that can be utilized when needed, those capabilities include:

- The ability to transmit consumption data on demand rather than only at predetermined intervals;
- Certain meters will have the ability to disconnect and reconnect electric service at customer locations by remote command from the City;
- The ability to serve as a communication bridge between a central home control thermostat or other in-home device and computers from outside the home (i.e., the internet); and
- A digital display which will make it easier for customers to read their meters and monitor their consumption themselves.

In order to be able to perform these functions there are two-way communications between the City and the electric meters.

Like the gas and water meters there are unique serial/identification numbers assigned to each electric meter and those numbers are associated with specific customer accounts to ensure that customers are only billed for their consumption and not another customers'.

- Repeaters are used in some parts of the utility service area where the City utilities only provides gas and/or water service but not electric service. As previously explained, the electric meters are the part of the system that transmits consumption data (water, gas, and electric) from the customer's location to the rest of the smart metering system. As a result of not providing electric power to certain service areas those meters are not available. To overcome this problem the system will use repeaters to collect the water/gas consumption from multiple customers and relay that data to the rest of the smart metering system.

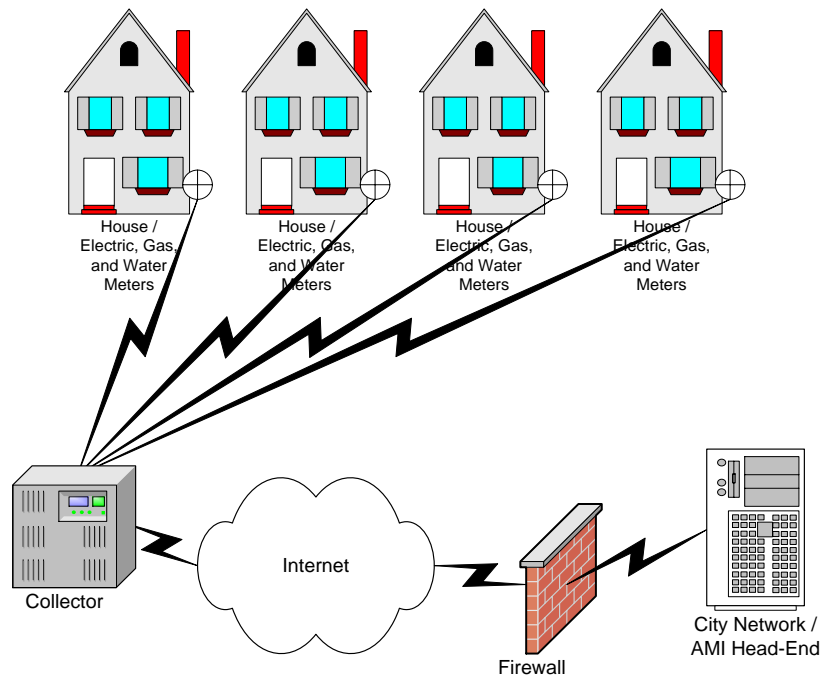
Collectors receive utility consumption data from multiple electric meters and relay that data to the City.

- A collector is a piece of computer hardware that serves as a communication bridge between many individual electric meters (and repeaters) and the rest of the smart metering system. The collectors receive data from the electric meters wirelessly and then relay the data to the City through commercial internet service providers (ISPs).
- The head-end is the central hub of the smart metering system. It is also sometimes referred to as the MAS (Metering Automation Server) which is the trade name of the head-end component given by the vendor that supplied the AMI to the City. The main function of the head-end is to manage the meters, repeaters, and collectors and compile the utility consumption data for the MDMS. The head-end also must communicate with the City PeopleSoft CIS System to ensure that management of the meters works properly.

An important fact that should be noted is that the head-end is behind the City's computer firewalls and as such is protected from unauthorized access by the City's network security protocols.

Figure 1 is an illustration of how the AMI portion of the City's smart metering system works.

Figure 1
Illustration of Communication to the City's Network



The MDMS stores, analyzes, and reports consumption data received from the rest of the smart metering system.

- Meter Data Management System (MDMS) is the component of the smart metering system that stores, analyzes, and reports on the data obtained from the meters. For example, the MDMS will:
 - Store meter data for three years
 - Facilitate customer billing
 - Monitor and alert for potential meter tampering and/or diversion activities
 - Support customer notification of items such as high bill alerts, energy bills to date and outages, and
 - Provide rate analysis functions to allow customers to analyze the effect of various rates and usage patterns on their utility bills.

The MDMS will also serve as the data source and main link between the smart metering system and the other City systems that use utility consumption data.

Where Does the Project Stand?

As described previously, we have divided the smart metering project into two main parts, the AMI and the MDMS. The project began with the construction of the AMI portion of the project. Without the meter reading data generated and provided by the AMI, it would be very difficult to ensure the MDMS was working as intended. Therefore, the MDMS should lag behind the AMI part of the project in terms of percentage of completion.

The AMI Portion of the Smart Metering System

Currently the AMI portion of the project is considered mostly complete. However, major issues with the gas meters (described in greater detail later in the report) have prevented this part of the project from being completed.

In excess of 99% of the electric meters are functioning within the performance standards of the contract.

Electric Meters

The installation of the electric meters has been completed and they are now functioning as intended. On a regular basis in excess of 99% of electric meters are transmitting consumption data.

Water Meters

In excess of 95% of the water meters are reporting consumption data as provided for in the contract.

Currently, approximately 75% of the meters are being read for billing purposes (the percentage of meter reporting consumption on a regular basis is much higher than 75%) of the water meters are reporting as provided for in the contract. Efforts to increase this rate of reporting have been placed on hold temporarily until issues with the gas meters can be resolved (gas meter issue to be explained in greater detail later in the report). The reasons for the temporary hold in troubleshooting the water meters were to save money and decrease customer inconvenience by reducing the number of repeated trips to customer locations. The plan is to troubleshoot issues with both the gas and water meters simultaneously. Management does not anticipate any problem with

water meters achieving the greater than 99% reporting criteria provided for in the contract for the smart metering system.

Gas Meters

Currently there are no gas meters reporting consumption. During the course of the installation of gas meters, it became apparent there were problems with the meters' communication ability. Management, in conjunction with Honeywell and the vendor providing the meters, decided that it was unlikely that, based on the current design, the gas meters would ever achieve the greater than 99% reporting required. Therefore, the installation process for gas meters was halted and the vendor agreed to redesign and replace the gas meters. The contract for the smart metering system provided for the installation of over 27,000 gas meters and will include both residential and commercial gas meters.

An issue with the design of the gas meters prevented them from meeting performance standards required by the contract.

Currently the vendor has completed the redesign and a pilot project of 1,300 redesigned gas meters is being deployed to determine if the new redesigned meters can achieve the reporting percentage required by contract.

Collectors

All collectors are now in place and functioning as planned in accordance with the terms of the contract for the smart metering system. Initially, there were minor issues in supplying electrical power to the collector. Those issues have now been resolved through a variety of means including batteries being recharged by solar energy.

Head-end

The head-end is operating as planned and is receiving consumption data from electric meters, passing that data through to the MDMS, and able to send instructions back to the electric meters.

In all, with the exception of the gas meters, the AMI portion of the smart metering project is substantially complete.

The MDMS Portion of the Smart Metering System

MDMS development is behind schedule but is progressing toward completion.

Overall, management is satisfied with the progress being made toward the completion of the MDMS portion of the smart metering system. The MDMS is not yet complete but much of the contracted functionality has been delivered. Currently, the first phase of the development of the MDMS has been completed and work is progressing on phase II. The current functionality of the MDMS includes:

- Communicating with both the head-end and the City's PeopleSoft CIS;
- Providing analysis to help manage the smart metering system;
- Storing, processing, estimating when applicable, and analyzing metered consumption data;
- Supporting multiple rates or billing models (i.e., night and weekend rates); and
- Delivering information to customers through the City's e+ web portal where the customers can access their consumption data.

The second phase of the development of the MDMS is underway and nearing completion. Once this phase is completed the MDMS will be able to:

- Provide much more information to customers through the web portal;
- Monitor the system, in near real time, for tampering or reverse flow of energy; and
- Automatically send high bill alerts to customers in the middle of billing cycles.

The third phase of the MDMS development has yet to begin. This third phase should deliver the remainder of the functionality provided for in the contract for the smart metering system.

Overall project schedule summary

The smart metering project was initially scheduled to be completed by October of 2009. In May of 2009 an amendment to the contract for the acquisition of the smart metering system was finalized and approved by the City Commission. That amendment provides for additional funding for the development of the MDMS and an extension of the completion date of the project to July 31, 2010. This amendment was anticipated in the original contract due to uncertainty as to the vendor that would be selected for the development of the MDMS. The extension in the completion date of the project was included because of delays in selecting the vendor to the MDMS and negotiating a contract with that vendor.

Recent discussions with management have shown that the project is not anticipated to be completed until near the end of the 2011 calendar year. Reasons the project was not completed by the revised scheduled date include; (1) the previously identified issue with the gas meters communicating with the rest of the smart metering system, and (2) the development of the MDMS has been more complex than anticipated by the vendor. Regardless of the delays, the contract for the smart metering system is a fixed price contract and the delays will not cause the City to increase the amount to be paid to Honeywell or the other vendors associated with the smart metering project. There may be increased internal costs for the City as staff will be working on the project longer than originally anticipated; at this time however, those increased internal costs are not known.

As a result of these delays, the City has not paid Honeywell or the vendors in several months. Table 3 below is a summary of the amounts outstanding to be paid to Honeywell and the AMI suppliers.

**Table 3
Summary of Outstanding Contract Balances**

	Contract / Approved Funding	Expended	Remaining	% Not Yet Paid
Contract Management/ Honeywell	\$16,020,082	\$13,798,391	\$2,221,691	14%
AMI Infrastructure, Software, and Other (includes contingencies)	24,077,118	18,223,022	5,854,096	24%
Total	\$40,097,200	\$32,021,413	\$8,075,787	20%

Also, there are likely additional costs being incurred in the form of additional fuel purchases and customer utility bills as full implementation of the project is now almost two years beyond its original completion date. While these forgone savings are not readily known, it does emphasize the need to identify and closely monitor the status of the steps that need to be performed to finish the project, and keep the City Commission up to date on their completion schedule.

What Parts of the Project are Complete and what parts are not yet Complete?

As described earlier, the basics of the smart metering system are complete and it is working as intended. Those parts include the electric meters, the collectors, the AMI head-end, and some of the functionality of the MDMS. These completed parts allow the City to offer many of the benefits of the smart metering system to its customers before the project is completed. Functionality that is currently being utilized that will help customers reduce their utility bills includes the ability to offer an alternative electric rate program and detailed utility consumption information. The alternative electric rate program is being offered to up to 2,000 customers on a pilot program basis.

The main parts/functionality of the system that has yet to be completed includes:

- Water Meters – The meter installations are substantially complete however they are not reporting consumption data as required in the

Water meters, gas meters, and the MDMS are the main parts of the smart metering system that are not yet complete.

contract. Currently greater than 90% of the meters are reporting consumption through the smart metering system. Efforts to troubleshoot the meters should raise the reporting levels to the greater than 99% required by the contract.

- Gas Meters – The installation of the gas meters was progressing on schedule when the communication/connectivity issue was identified and the determination was made to redesign and replace all gas meters. Due to the decision to redesign and reinstall all gas meters, this portion of the project should be considered 5% complete.
- MDMS – The development of the MDMS is approximately 60% complete. According to management, Honeywell and its subcontractor are making satisfactory progress on the development of the MDMS. The MDMS development is planned for completion in the last quarter of calendar year 2011.

What is the Percentage of Completion?

Overall the smart metering project is approximately 75% complete.

Based on the work that has been completed to date and the amount of work that remains to be completed, management estimates that the overall smart metering project is approximately 75% complete. In our opinion, this estimate appears to be reasonable as the majority of the AMI (the infrastructure that makes up the smart metering system) is in place and functioning as required and the MDMS is functioning at a level that allows utility billing data to be obtained from the smart metering system. The functionality that remains to be delivered is important to the overall performance of the system but is not critical to the system as a whole. The following table shows the estimated completion of the various major components of the project.

Table 4
Estimated Percentage of Completion

Component	Est. % Complete
Electric Meters	100%
Water Meters	90%
Gas Meters	5%
Collectors	100%
AMI Head-end	100%
MDMS	60%

Contract Compliance and Provisions

The substance of the project is governed and laid out in the contract with Honeywell. The contract is divided into two main parts, the first is general terms and conditions and the second are the attachments. The attachments to the contract are where the specifications and performance standards of the smart metering system are identified and documented; this portion of the contract also lays out the duties and responsibilities of Honeywell as the construction manager.

General terms and conditions

The general terms and conditions portion of the contract includes items that are in most City acquisition contracts and can be thought of as “boilerplate” items. Those items are summarized in Table 5 below.

**Table 5
Status of General Terms and Conditions of the Contract for the
Acquisition of the Smart Metering System**

General Terms and Conditions Contract Sections	Auditor Comments
Working Hours	No issues relating to working hours have come to our attention in the course of our audit.
Taxes	This relates to Honeywell being responsible for taxes assessed in relation to the project. No issues relating to taxes were noted.
Proprietary information	This section of the contract related to the City’s use of proprietary information owned by Honeywell. There were no issues relating to proprietary information noted.
Insurance obligations	This section relates to obligation placed on Honeywell and its subcontracts for carrying certain levels of insurance. We did not note any issues relating to insurance coverage.
Responsibilities relating to working conditions and hazardous substances	No issues were noted relating to unsafe working conditions or hazardous substances.
Warranty	No issues relating to warranties have been noted.
Indemnity (Hold Harmless)	To date, no material issues were noted in the course of the project.
Limitation of liability	No issues relating to liability concerns have been noted.
Excusable delays	While the project is behind schedule, this section does not apply to those issues as it only applies to fire, flood, and other such items that are out of Honeywell or the City’s control. There have been no delays caused by those type issues.
Patent indemnity	There have not been any suits brought against the City or

	Honeywell for patent infringement.
Dispute resolution	To date any disputes that have arisen have been resolved in an amicable manner.
Contract acceptance	This section states that the contract is the complete agreement between the City and Honeywell and is not altered by previously issued purchase orders. No exceptions to this were noted.
Miscellaneous	This section addressed many items and no issues relating to those items were noted in the course of our audit.
Terms of payment	The City has made payments in accordance with this section of the contract and retained the appropriate amount from each of the payments to Honeywell.
Damage or loss	There have not been any issues noted relating to loss or damage of materials in the course of the project.
Termination	There are no plans for the termination of this contract.
Changes in the work	Change orders have not been issued in relation to the smart metering project. Therefore this part of the contract has not been applicable to date.
Acceptance of the work	Project acceptance is specifically addressed in a separate attachment to the contract and will be addressed later in the report.
Project schedule	The project is behind schedule due to issues with the gas meters and the development of the MDMS, as noted in other parts of this report.

The smart metering project has not been completed within the time frame provided for in the contract.

As can be seen in the table above there is only one issue that came to our attention relating to the general terms and conditions of the contract for the acquisition of the smart metering system. That one issue relates to the time schedule for the completion of the project. The reasons for the delay, gas meters and delays in the development of the MDMS, are discussed in other parts of this report.

Attachments to the Contract

The specifications and performance standards of the smart metering system are laid out in attachments to the contract with Honeywell. There are 12 separate attachments; those attachments and our assessment of the status of those portions of the contract are as follows:

- Honeywell Management Scope of Services – As the construction manager for the smart metering project there are many responsibilities that Honeywell must bear and services that Honeywell must deliver. Those services and responsibilities are detailed in this attachment and include:
 - Process evaluation and design – The exact design of the smart metering system had not been determined when the contract with Honeywell was entered into. Therefore, Honeywell was charged with responsibility for reviewing the current business practices of the City that relate to the metering of and billing for utilities. Based on that review, Honeywell would make recommendations as to the final design of the system as well as recommendations for changes to the City’s business process that would coincide with the system implementation to improve the delivery of services to the City’s customers. Honeywell performed the evaluation and made recommendations as required by the contract.

Honeywell has complied with the provisions of the contract in “Honeywell Management Scope of Services” section of the contract.

- Communications – Honeywell was required to develop and implement a process whereby the City’s customers would be informed and educated about the smart metering project and what they could expect during the installation process. Additionally, Honeywell was required to notify customers when the installation of the smart meters would take place to avoid concern by customers about people making changes to the meters at the customer’s location. Honeywell completed these requirements to the satisfaction of the City.
- Training – Honeywell was responsible for training City personnel on the smart metering system, including meters, system hardware and infrastructure, and software. Honeywell provided training for City staff in accordance with the provisions of the contract.
- Installation – Honeywell was responsible for managing the change out of the existing utility metering infrastructure with the new smart metering infrastructure as well as preparation of the old equipment (i.e., meters) for City disposal. Additionally, Honeywell was responsible for implementing an inventory management system for the components of the smart metering system to facilitate future City operations. The metering infrastructure was replaced without incident and a new inventory system for the metering infrastructure was implemented.
- Software Installation – Honeywell was responsible for conducting a competitive selection process to select a vendor for the development of the MDMS and managing the selected vendor to ensure the MDMS provides the functionality laid out in the contract. The vendor for the development of the MDMS was selected and the development of the MDMS is progressing

at a slower than anticipated pace. Honeywell continues to manage this part of the system development at the previously agreed upon price even though the project is approximately 18 months behind schedule.

As designed, the smart metering system will deliver the functionality provided for in the contract.

- System Technology – This attachment required Honeywell to conduct a competitive (RFP) process for the selection of the vendor to supply the AMI portion of the smart metering system where the vendor would be selected by both the City and Honeywell jointly. This attachment also included; the mandatory network functionality (meters and communications network), the required AMI head-end functionality, the required MDMS functionality, the functionality of the system that is provided through the world wide web, and the functional requirements that must be incorporated in all meters (electric, water, and gas). The system that is under development delivers all the functionality required by the contract.
- System Performance – This attachment reiterates and expands upon the functionality identified in the previous attachment (system technology). These specifications have been delivered.
- AMI Endpoint Implementation – This attachment lays out the process and expectations of the City for the installation of the AMI portion of the smart metering system. These requirements have been met by Honeywell.
- City of Tallahassee Rights and Obligations – This attachment gives the City the right to inspect AMI infrastructure components during the project, Honeywell the right to reasonable access of City facilities for the purposes of the project, identifies other areas of City support (i.e., Honeywell use of the GIS system), and finally the attachment lists the parts of the AMI that the City will purchase

To date, the City has fulfilled its' rights and obligations as outlined in the contract.

directly and the cost of those parts. Table 6 is a listing of those parts and the costs.

Table 6
City Supplied AMI

AMI Components	Cost
Electric Meters	\$8,747,045
Electric Remote Disconnect	820,000
Gas Meters	1,117,476
Water Meters	5,795,440
Network collector/repeaters	450,760
Head-end server and software	266,518
Water registers	3,234,679
Totals	\$20,431,918

To date there have not been any issues noted in this area.

- Contingency Planning – This attachment is intended to address items which were not relevant at the time the contract was entered into but may impact project items such as; regulatory uncertainty, new customer service location beyond those contracted for, and possibility of minor utility infrastructure repair. The only aspect of this attachment that has been applicable is the addition of new service locations and any new locations have been the responsibility of the City. No other issues have arisen that relate to this attachment.
- Project Acceptance – Due to the many uncertainties relating to the overall smart metering project it was not practical to have a project/system acceptance plan included in the contract. However, the contract did place responsibility for the development of an acceptance plan with Honeywell and required the City to approve the acceptance plan once it was developed. As the project is still ongoing the acceptance plan has not yet been developed.

What is the financial status of the project?

The smart metering system is projected to cost approximately \$40.1 million.

How Much Does the Smart Metering System Cost?

The City entered into a contract with Honeywell in September of 2007 for the acquisition of a smart metering system that included approximately 220,000 utility meters. The contract with Honeywell is a “fixed price” contract. This means that Honeywell has guaranteed to deliver the smart metering system as described in the contract for the amount of the contract.

The initial contract provided for the City to pay Honeywell, for contract management services, \$14,868,082. The contract also provided for the City to pay \$20,431,918 for the acquisition of the AMI equipment related to the project (as shown in Table 6 above). The contract also included provisions for an increase due to uncertainty as to the total cost of developing the MDMS. In total, the City agreed to pay \$35,300,000 (plus any increases due to the MDMS) for the smart metering system. In addition to the provision for an increase in the contract for MDMS development, the City Commission’s approval of the contract also included a 10% allowance for unforeseen costs and internal costs related to the project. Table 7 below lays out the initial contract and additional funding provision.

**Table 7
Original Contract/Project and Funding**

Item	Amount
Construction Management (Honeywell)	\$14,868,082
AMI Equipment (directly purchased by City)	20,431,918
Subtotal	35,300,000
Approved Contingency	10%
Contingency Amount	3,530,000
Contract plus Contingency	\$38,830,000

In early 2009 the vendor for the development of the MDMS was selected and a firm cost for the MDMS was determined. With the total cost of the MDMS now known, the original contract was amended. The amendment to the contract provided for additional costs of developing the MDMS and increased the contract by \$1.65 million to cover the cost of the MDMS that exceeded the estimated amount included in the original contract.

Management does not anticipate the project to exceed the amount budgeted for the project.

In total, with the original contract, the 10% allowance, and the contract amendment the project is projected to cost approximately \$40.1 million. Table 8 shows the total amount of the project including the amounts for the contract amendment.

**Table 8
Contract Amount, Including Amendment**

Item	Amount
Construction Management (Honeywell)	\$16,020,082
AMI Equipment (directly purchased by City)	20,431,918
Subtotal	36,452,000
Approved Contingency	10%
Contingency Amount	3,645,200
Contract plus Contingency	\$40,097,200

Is the Project Within Budget Financially?

Currently, approximately \$32 million has been expended for the smart metering project, which is within the total amount budgeted for the project. Management does not anticipate the project to exceed the amount budgeted for the project.

What Have Been the Major Obstacles?

*One significant obstacle
in the project has been
the gas meters.*

*The gas meter supplier is
redesigning and
replacing all previously
installed gas meters at its
own expense.*

For a project of this size, complexity and uniqueness there have been relatively few issues. There have, however, been two significant obstacles that have delayed the completion of the project. Those issues, gas meters and MDMS development, are being addressed.

The installation of gas meters began at the same time as the water and electric meter installations. However, as the installation progressed it was noted by management that connectivity between the gas meters and the electric meters was problematic. Specifically, for the meters that had been installed, reporting of consumption was not reaching the contracted percentage of greater than 99%. Research into the connectivity issue identified a design flaw in the communication module of the gas meter that would need to be corrected.

The gas meter vendor agreed to; redesign the communication module, retrofit and/or replace the communication module in all previously installed meters, and hire a subcontractor for manually reading all gas meters until the issue could be resolved.

By April of 2011 the gas meter vendor had supplied 1,300 of the redesigned meters/communication modules for testing. Those meters have now been installed and will be monitored to assess their connectivity and potential for meeting the standards set out in the contract for the smart metering system.

We will continue to monitor this issue and report on its status in a subsequent report. At this time it appears that management is taking reasonable and appropriate actions to ensure that the issue relating to gas meters is resolved satisfactorily.

The second issue that has caused delays in the completion of the project has been the development of the MDMS. The beginning of the development of the MDMS was delayed because of the length of time it

The MDMS development is behind schedule because it has been more complex and difficult than initially anticipated.

took to select and negotiate a contract with a vendor to develop the system. Additionally, the MDMS development has been delayed because the project has been much more complex and difficult than the vendor, Honeywell, or the City had anticipated. The main problem causing the delay has been processing the large quantities of data generated by the smart metering system. As noted previously, the smart metering system is a fixed price contract therefore these delays are not increasing the cost of the project to the City.

In all, these obstacles have caused the smart metering project to have gone beyond the initial planned end date of May 2009. The delays in the completion of the project however, have not resulted in the project going over-budget. Additional costs related to the delays in the project have been borne by Honeywell and/or the vendor that produced and supplied the meters to the City for the project or the vendor developing the MDMS. For example, the cost of the redesign and installation of the replacement gas meters and continued manual reading of meters has been borne by the vendor supplying the meters.

Asset Management

Accuracy of the meters in the smart metering system has been a concern of many citizens as well as the City Utilities. To provide assurance that the meters in the smart metering system are accurate, we reviewed the testing process used on the meters before installation.

Accuracy of Meters

To ensure that electric meters reported accurate and true consumption through the smart metering network, extensive testing of the meters was conducted.

As previously noted, the smart metering system involved the replacement of every electric meter in the City's electric utility. The City utilized two mechanisms to ensure that the new meters that were installed were accurately recording the customer's electric consumption.

The first mechanism was requiring that the manufacturer of the electric meters test 100% of the meters it produced for accuracy. The results of the vendors testing were relayed to the City for its review and verification that the meters were tested and measured consumption accurately. The City has obtained and reviewed the vendor's reports relating to testing and did not note any discrepancies that raised a concern. The reports provided by the vendor showed that their testing did not identify any meters that did not read consumption accurately.

The second mechanism used to ensure accuracy of the meters was the City testing a random selection of the meters received. This testing was conducted by the City's Meter Shop. The Meter Shop randomly selected 8 meters from every pallet of meters received for secondary/verification testing. Each pallet contained 96 meters; therefore the City retested approximately 8% of the meters. There were approximately 100,000 electric meters replaced as part of the project, meaning that the City tested approximately 8,000 meters. Of the 8,000 meters tested the City identified seven (7) meters that were not reading consumption within the allowable tolerances of +/- 0.5% of actual consumption. This equates to a rate of 0.08% of the electric meters in the project being outside tolerable allowances. If we extrapolate the 0.08% rate to the entire population of 100,000 electric meters we would expect there to be 73 electric meters that went into service that were outside tolerable allowances. When we inquired as to how these meters would be identified management responded that there are two mechanisms to find mis-reading meters. The first is through responding to customer complaints and the second is the City's normal meter testing process which requires all meters in the Electric Utility to be tested for accuracy periodically.

The City re-tested 8,000 of the over 100,000 electric meters installed as part of the smart metering project.

During the course of the project there have been several complaints from customers of large increases in their electric bills after their electric meter was replaced with a new "smart" meter. However, as

Based on the City's testing of electric meters we anticipate that 99.92% of meters installed as part of the project are functioning within tolerable limits.

noted above, due to the testing of smart electric meters prior to receipt from the vendor and the City's further testing of meters after receipt from the vendor, the City has a very high degree of assurance that the new meters are operating correctly. Testing showed that 99.92% of meters should be accurate. However, there may be a very limited number of meters (less than 1 per 1,000 meters installed) that are not reading consumption accurately.

In response to many of these complaints, the City has attempted to test the customer's old meter to determine if it was functioning properly rather than replace a new meter. In most instances the old meter had already been disposed of (in accordance with the planned meter disposal procedures developed as part of the project) and was not available for testing. However, in one instance the old meter had not yet been disposed of and was available for testing. Testing of the old meter showed that the old meter was not functioning properly and was reading less electric consumption than it should have. Therefore, in this one instance where the original meter was available for testing, the City was able to determine that the customer's electric bill increase was appropriate because the customer's old meter was inaccurate and read less consumption than it should have read.

Conclusion

In September 2007 the City entered into a contract for the acquisition of a smart metering system with Honeywell. To date the project is behind the schedule provided for in the contract. However, the project is within the anticipated budget as provided for in the contract.

The major issues that have arisen in the course of the project have been a problem with the original design of the gas meters and the slower than anticipated development of the MDMS. The vendor of the gas meters, Honeywell, and the City have worked together to resolve this issue and

anticipate having it resolved by late spring 2011. The vendor developing the MDMS continues to work on the MDMS.

For the project as a whole, management anticipates completion in the last quarter of calendar year 2011. We will continue to monitor this project and provide another report at the completion of the project where we will summarize the final outcome of the project.

*Appointed
Official's
Response*

City Manager:

I am pleased with the results of the Smart Metering Project audit. This project represents the City's commitment to modernizing its utility infrastructure to promote operational and environmental effectiveness. Infrastructure is critical to the long-term competitiveness of our local economy and to our quality of life. The Smart Grid will facilitate new electric vehicles, help to restore power outages quicker, reduce the need for new power generation, and provide customers with options to reduce their consumption and utility bills. I am proud that Tallahassee is one of the first cities in the nation to lead the way to a 21st Century grid.

The results of this audit demonstrate that we are able to meet the challenges of this unique and complex project. While the project has extended beyond the originally anticipated schedule, staff has worked to implement the most meaningful new functions, including a new rate option for customers, up-to-date customer information via the web, and automatic field functions such as meter reading. And as the audit notes, there have been relatively few issues. Staff continues to work with the construction manager, the systems software vendor, and the automated metering infrastructure vendor to complete the installation of the new gas modules and finalize the implementation of the Meter Data Management System.

I would like to thank the City Auditor's Office for their detailed and thorough analysis. The report provides an easily understandable summary of the systems architecture and software systems, and how the grid works. I look forward to the completion of the project and the great benefits our citizens will experience.