

DATE: May 18, 2010
STAFF: Steve Catanach, Kraig Bader,
 Dennis Sumner

AGENDA ITEM SUMMARY
 FORT COLLINS CITY COUNCIL

26

SUBJECT

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 CASE NUMBER: 2016CV144

Items Relating to the Smart Grid Investment Project.

- A. Second Reading of Ordinance No. 043, 2010, Appropriating Unanticipated Revenue and Electric Revenue Bond Proceeds for the Smart Grid Investment Grant Project in the Light and Power Fund and for Bond Issuance Costs.
- B. Resolution 2010-030 Authorizing a Grant Agreement with the U.S. Department of Energy and Intergovernmental Project Agreements with Cities of Longmont, Loveland, and Fountain to Receive Grant Funds for Installation and Deployment of Smart Grid Technology Through the Smart Grid Investment Grant program.

EXECUTIVE SUMMARY

Fort Collins Utilities (FCU) has been selected by the Department of Energy (DOE) for a Smart Grid Investment Grant (SGIG) award. The proposal and award included participation from the Cities of Loveland, Longmont and Fountain for a total award of \$36,202,527. The collaboration with the other cities was done to improve the chances of being selected by DOE as FCU was advised DOE wanted collaborative projects that included larger geographic areas and integrated funding.

Ordinance No. 043, 2010, adopted on First Reading on April 20, 2010 by a vote of 6-1 (Nays: Kottwitz) appropriates \$18,101,264 in unanticipated grant revenues and \$16,788,863 in proceeds from the sale of Electric Revenue Bonds proposed to be issued in Ordinance No. 001 of the Board of the Electric Utility Enterprise, for the purpose of funding the Smart Grid project. Any funds not utilized by the project, will be applied to debt service on the bonds. This ordinance also appropriates \$211,137 for bond issuance costs. These appropriations are all in the Light and Power Fund.

Resolution 2010-030 authorizes the City Manager to execute the agreement with the Department of Energy and enter into intergovernmental agreements with the Cities of Longmont, Loveland and Fountain. The DOE grant provides Fort Collins Utilities with an opportunity to install an AMI system, accelerate the implementation of its long range IT needs and to begin the modernization of its electrical distribution system.

BACKGROUND / DISCUSSION

The project applicant and grant administrator is the City of Fort Collins. The City of Fort Collins project focus is in four primary areas.

- Advanced Metering Infrastructure (AMI) and Meter Data Management System
- Grid Automation
- Cyber Security
- Enhanced Demand Response Programs and Customer Engagement.

The City of Fountain is pursuing a citywide Advanced Metering Infrastructure system; the City of Longmont is installing upgraded relaying in some of its substations; and the City of Loveland is piloting Advanced Metering.

The intergovernmental agreements establish a cooperative agreement between the Cities that ensures that the other Cities agree to comply with the requirement detailed with the grant agreement between the City of Fort Collins and the Department of Energy.

FINANCIAL IMPACT

The total budget for the project is \$36,202,528. This resolution authorizes the City Manager to execute the agreement with the Department of Energy and enter into intergovernmental agreements with Longmont, Loveland and Fountain. The agreements define how matching funds will be distributed from the DOE funds.

Total project budget:	\$ 36,202,528
City of Fort Collins Matching Funds:	\$ 15,741,501
City of Fountain matching funds:	\$ 2,123,500
City of Loveland matching funds:	\$ 150,000
City of Longmont matching funds:	\$ 86,263
Total matching funds:	\$ 18,101,264
Funds requested from DOE:	\$ 18,101,264

Matching funds from the City of Fort Collins will be provided through the issuance of bonds.

SUSTAINABILITY: ECONOMIC, ENVIRONMENTAL AND SOCIAL IMPACTS

The Smart Grid Investment Grant supports a future where customers can choose the option of being engaged in the management of their energy usage and cost. Distributed generation (such as solar panels) is prevalent throughout the electrical system and customers can choose to contribute to the reduction of the use of fossil fuels in electrical generation. In addition, a future where Fort Collins' electric grid better supports customers having plug-in hybrid electric vehicles or electric vehicles can also help further reduce greenhouse gas emissions. More efficient operation and maintenance of the electric grid, as well as the ability for Utilities to reduce or eliminate the fleet of meter reader vehicles through automated meter reading will reduce emissions.

In order to deliver the services and provide the support that Utility customers deserve and will require in the future, it is vital that Fort Collins Utilities begins modernizing the electrical system. Modernization begins with the implementation of Advanced Metering Infrastructure.

STAFF RECOMMENDATION

Staff recommends adoption of the Resolution and the Ordinance on Second Reading.

BOARD / COMMISSION RECOMMENDATION

At its May 5, 2010, meeting, the Electric Board voted unanimously to recommend that the City Council approve a resolution authorizing the City to enter into the grant agreement with the DOE and to enter into partner agreements with the three other municipalities.

PUBLIC OUTREACH

The project will include significant customer communication, engagement and education to insure that as information becomes available to customers they will be able to utilize it to customers make informed financial decisions.

ATTACHMENTS

1. Copy of First Reading Agenda Item Summary-April 20, 2010 (w/o attachments)
2. Excerpt from Electric Board meeting minutes from May 5, 2010 meeting

DATE: April 20, 2010
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AGENDA ITEM SUMMARY
 FORT COLLINS CITY COUNCIL

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SUBJECT

First Reading of Ordinance No. 043, 2010, Appropriating Unanticipated Revenue and Electric Revenue Bond Proceeds for the Smart Grid Investment Grant Project in the Light and Power Fund and for Bond Issuance Costs.

EXECUTIVE SUMMARY

Fort Collins Utilities (FCU) has been selected by the Department of Energy (DOE) for a Smart Grid Investment Grant (SGIG) award. The proposal and award included participation from the Cities of Loveland, Longmont and Fountain for a total award of \$36,202,527. The collaboration with the other cities was done to improve the chances of being selected by DOE – FCU was advised DOE wanted collaborative projects that included larger geographic areas and integrated funding.

FCU projects proposed to the DOE totaled \$31,483,001. The DOE has offered to fund 50% of the proposed projects (\$15,741,500). The largest of the proposed projects was for the installation of an Advanced Metering Infrastructure (AMI) system. In addition to the AMI project, components of the Utilities Information Technology (IT) Long Range Strategic Plan related to the implementation of AMI and smart grid technology were included in the proposal. Expansion of the FCU fiber optic system and grid automation equipment was also included in the proposed projects.

The Ordinance appropriates \$18,101,264 in unanticipated grant revenues and \$15,741,501 in proceeds from the sale of Electric Revenue Bonds proposed to be issued in Ordinance No. 001 of the Board of the Electric Utility Enterprise, for the purpose of funding the Smart Grid project. It appropriates \$258,499 for bond issuance costs. These appropriations are all in the Light and Power Fund.

If this Ordinance is approved on First Reading, staff will bring a resolution to the Council on Second Reading, authorizing the City Manager to execute the contract with the DOE related to the SGIG and authorizing the City Manager to enter into partner agreements with each of the project partners: the Cities of Loveland, Longmont and Fountain, Colorado.

BACKGROUND / DISCUSSION

The DOE grant provides Fort Collins Utilities with an opportunity to install an AMI system, accelerate the implementation of its long range IT needs and to begin the modernization of its electrical distribution system.

Construction, design and operation of the electrical system are fundamentally the same as they were 50 years ago. Today though, the electric industry, the country and the world are faced with significant issues that are the direct result of the use and production of energy. Measures to address these issues are creating momentum for change. Specifically, in relation to the electric utility industry, the issues of greenhouse gases produced through the production of electricity, the changing expectations of customers and the need to address and insure both the physical and cyber security of the electrical infrastructure must be addressed. Each of these elements - customer expectations, use of energy, security and the ability to reduce greenhouse gases - are elements of a smart grid as defined by DOE.

The Department of Energy (DOE) has defined seven principal characteristics as focal points for the modernization of the existing electrical grid. These key elements are becoming recognized as the definition of a smart grid. The characteristics are:

1. Anticipates and responds to system disturbances
2. Enables active consumer participation
3. Operates resiliently against attack and natural disaster
4. Provides power quality for the digital economy
5. Accommodates all generation and storage options
6. Enables new products, services and markets
7. Optimizes asset utilization and operates efficiently

The paragraphs below discuss each of these smart grid elements as defined by DOE. Descriptions of "Today's Grid" and the ideal "Modern Grid" are defined by the National Energy Technology Laboratory, a section of the DOE. Light & Power (L&P) staff is providing two additional descriptions: a third descriptive element that presents the current status of "Today's Fort Collins Grid" and a descriptive element that elaborates on "What the SGIG will do for FCU". The intent is to describe how the Smart Grid Investment Grant will help Fort Collins move towards each of the defined elements of a smart grid.

1. Anticipates and responds to system disturbances

Today's Grid: Responds to prevent further damage. Focus is on protection of assets following system faults.

Modern Grid: It will self heal by performing continuous self-assessments to detect and analyze issues, take corrective action to mitigate them and, if needed, rapidly restore grid components or network sections. It will also handle problems too large or too fast-moving for human intervention.

Today's Fort Collins Grid: FCU's electrical system has an outstanding record of reliability. The almost all underground system is the envy of other utilities. However, as infrastructure ages, it will become more important to be able to monitor the health of the system components and predict failures before they happen. Investment in technology that predicts future failure and reconfigures the grid will need to be made in the future.

What the SGIG will do for FCU: The transition to a self-healing grid will take years. Technology is currently under development that will provide the necessary physical control along with the analysis software necessary to solve how the system should be reconfigured safely and quickly during an event. The SGIG will allow FCU to install approximately 10 remotely controlled switches on the distribution system. The switches will have the capability to be controlled from the Light and Power Systems Control and Operations Center (SCO). Control will be manual by system operators. This will give staff the opportunity to gain experience in the use of remote switching and eventually automated controls that reconfigure the system automatically. Prior to the award of the grant, L&P placed \$125,000 per year in both the 2010 and 2011 budgets for remote switching. The grant will add an additional \$125,000 of funding to the project (DOE: \$125,000, FCU: \$250,000). Additionally, the grant application included \$31,800 (DOE: \$15,900, FCU: \$15,900) for integration of outage communications from the AMI meters into the existing Outage Management System (OMS). The project proposal also included funding for additional fault detection equipment on the system to help identify event locations. (DOE: \$50,000, FCU: \$50,000)

2. Enables active consumer participation

Today's Grid: Consumers are uninformed and non-participative with the power system.

Modern Grid: The smart grid will give consumers information, control, and options that enable them to engage in new "electricity markets." Grid operators will treat willing consumers as resources in the day-to-day operation of the grid. Well-informed consumers will modify consumption based on the balancing of their demands and resources with the electric system's capability to meet those demands.

Today's Fort Collins Grid: FCU has a robust customer-education program. Additionally, the implementation of the Opower program provides significant information to customers that allows them to better manage their electrical usage if they choose to do so. FCU also provides several demand response programs for customers to choose to use. Automated hot water heater control and air conditioning control are offered. A peak demand signal is also provided to customers to help them choose to control costs.

What the SGIG will do for FCU: In addition to the AMI system, which will provide the foundational technology for providing information to customers, the SGIG proposal includes two elements that will provide significant support for the provision of additional information to customers and more demand response program choices for customers.

The grant application included the implementation of a Meter Data Management System (MDMS). A MDMS is a software package that is designed to help manage and analyze the data collected by smart meters. During the original cost benefit analysis performed on the AMI system the size of the FCU system and the total cost of a MDMS made it impractical. However, the funding through the SGIG along with the implementation of smaller lower cost MDMS systems makes installation more attractive. The total amount included in the application for MDMS was \$3,000,000 (DOE: \$1,500,000, FCU: \$1,500,000).

The SGIG also includes a budgeted amount of \$5,314,830 (DOE: \$2,657,415, FCU: \$2,657,415) for an enhanced demand response program. The long range IT plan identified the need to upgrade or replace the demand response software currently used by FCU to send the signal to participating customers' water heaters and air conditioners. In the near future, FCU's existing software will no longer be supported and the devices used to signal and cycle the water heater and air conditioning units for customers will become obsolete. The project includes the upgrade of the software along with an additional 21,000 control devices. However, as staff has worked to refine the projects associated with the SGIG it has become evident that recruiting new participants in programs with the installation of an additional 21,000 devices over a three year period will be a challenge. The overall intent of the enhanced demand response programs is to meet the demand response goal of a 5% reduction in peak demand by 2015 and 10% by 2020 as detailed in the 2009 Energy Policy. Staff is currently reviewing other technologies and customer options to help achieve the demand reduction goal. Technologies under consideration are thermal storage and system voltage reduction utilizing the AMI technology for feedback on system performance. Staff estimates that through peak reduction gained with demand response programs, peak demand charges from Platte River to FCU will be reduced by approximately \$1,260,000 per year.

Recently, several citizens expressed concern in reference to the data Utilities will be gathering with the AMI system and Utilities control of devices through customers participating in the enhanced demand response programs. FCU recognizes the importance of customer confidentiality and the level of trust customers expect when providing information to secure their utility service. Customer records are protected by the FCU Customer Records Policy and FCU takes measures to ensure its compliance with federal and state regulatory standards. The Customer Records Policy is attached. The information FCU will be gathering through the AMI system is similar to the data currently collected for billing purposes. The primary difference is the frequency of the collection. Rather than monthly, the utility will be capable of reading meters every few minutes. The intent is to have the data available for the customer to help them better monitor their costs and usage and to enable customers to make better decisions about their usage. The existing demand response system has been in place since 1982 for electric water heater control and since 2007 for air conditioner control and has only been installed for customers who have volunteered for the program. Load control through the enhanced demand response programs in the SGIG will be voluntary programs just as they are today. It is expected that air conditioner control will be accomplished through an in-home thermostat (IHT) that will allow the customer to cancel a load-control request, should they wish to do so.

AMI meters will also lay the path to allow consideration of dynamic rate structures such as Time-of-Use (TOU), Critical Peak Pricing (CPP) and other rates. A cost of service study is currently underway in Light and Power. Once the cost of service study is completed, the utility will begin rate conversations with Council, the Electric Board and the community. Any changes in rate design will include a transition period appropriate for the change being considered.

3. Operates resiliently against attack and natural disaster

Today's Grid: Vulnerable to malicious acts of terror or natural disasters.

Modern Grid: The Smart Grid will incorporate a system-wide solution that reduces physical and cyber vulnerabilities and enables a rapid recovery from disruptions. Its resilience will create an image that intimidates would-be attackers. It will also be less vulnerable to natural disasters.

Today's Fort Collins Grid: As noted, the reliability of the FCU electrical system is well above national standards. The high reliability is due to the responsiveness of electrical crews when a problem occurs, the design standards used, and the Council direction that all lines should be underground.

The other arena where security is of significant concern is cyber security. The control systems and communication infrastructure that is used throughout the system must be secure from hackers. FCU is not required to comply with North American Electric Reliability Corporation (NERC) Critical Infrastructure Protection (CIP) standards. However, FCU's goal is to comply with those design standards. FCU currently does not completely meet all of the NERC-CIP standards and had planned and budgeted for several projects in the 2010-11 budget to help move toward compliance.

What the SGIG will do for FCU: The SGIG provides \$208,820 towards the implementation of cyber security enhancements. Security enhancements were budgeted at \$385,000 in the 2010-11 budgets. The SGIG will provide funding at 35% (\$208,820) of the total project cost. The intent is to bring the Utilities smart grid infrastructure into compliance with NERC-CIP design standards. Although FCU is not required to comply, it is prudent to adopt the standards as they apply to a distribution system. FCU is not required to, and will not, report to the NERC, which is the most onerous component of the CIP standards.

4. Provides power quality for the digital economy

Today's Grid: Focused on outages rather than power quality problems. Slow response in resolving power quality issues.

Modern Grid: It will monitor, diagnose, and respond to power quality deficiencies resulting in a dramatic reduction in the business losses currently experienced by consumers due to insufficient power quality.

Today's Fort Collins Grid: FCU currently receives relatively few power quality complaints from customers. Typically, power quality problems are associated with either internal issues within a facility, or interference from adjacent properties.

What the SGIG will do for FCU: As Fort Collins moves forward and larger numbers of distributed generation units are connected to the FCU system, it will become more critical to monitor power quality. The SGIG proposal included a project to install waveform recording equipment to monitor high speed events on the system and to install meters capable of recording high speed electrical events at our largest customer sites. The proposed project is \$400,000 (DOE: \$200,000, FCU: \$200,000)

5. Accommodates all generation and storage options

Today's Grid: Relatively small number of large generating plants. Numerous obstacles exist for interconnecting Distributed Energy Resources (DER)

Modern Grid: It will seamlessly integrate all types and sizes of electrical generation and storage systems using simplified interconnection processes and universal interoperability standards to support a "plug-and-play" level of convenience. Large central power plants including environmentally friendly sources, such as wind and solar farms and advanced nuclear plants, will continue to play a major role even as large numbers of smaller distributed resources, including Plug-in Electric Vehicles, are deployed.

Today's Fort Collins Grid: As with most electrical distribution systems the FCU electrical distribution system was designed to be a one-way power delivery system. Small generation resources such as solar panels and small wind turbines can feed electricity back into the grid. At current levels these distributed generation resources have not created any issues. However, as we look to the future and envision solar panels becoming cost competitive or lower than the cost of energy supplied by the local utilities, it becomes evident that the electrical distribution infrastructure could serve a role for which it was never designed. The grid could become a two-way channel for electrical delivery and sales. Additionally, the use of the energy stored in plug-in-hybrid-electric-vehicles to stabilize the intermittent generation from some resources will also tax the existing system.

What the SGIG will do for FCU: Installation of the AMI system will provide feedback to the Utility on current system conditions. This information can then be used to analyze the system and in some cases help manage how and when distributed energy resources feed into the system. With customer consent, plug-in-hybrid-electric-vehicles could be used as stored energy devices. When the energy stored in a vehicle is needed to supplement the grid or level the production from intermittent resources, the utility could contract with customers to purchase the power from their vehicles.

6. Enables new products and markets

Today's Grid: Limited wholesale markets still working to find the best operating models. Not well integrated with each other. Transmission congestion separates buyers and sellers.

Modern Grid: The Smart Grid will link buyers and sellers together – from the consumer to the Regional Transmission Organization (RTO). It will support the creation of new electricity markets from the home energy management system at the consumer's premise to technologies that allow consumers and third parties to bid their energy resources into the electricity market. The Smart Grid will be transactive and will support consistent market operation across regions.

Today's Fort Collins Grid: Utilities within the state of Colorado do not currently trade through an RTO or Independent System Operator (ISO) model for wholesale electricity sales today. The DOE's intent with this smart grid

component is to insure that information from either an RTO or ISO (if developed) is flowing to the retail customer and that they then have a choice on their cost of wholesale electricity.

What the SGIG will do for FCU: The installation of a communication infrastructure including the optional home area networks proposed in the FCU AMI system will support the development of new product and service options that can be delivered via the system to consumers.

7. Optimizes assets and operates efficiently

Today's Grid: Minimal integration of limited operational data with Asset Management processes and technologies. Siloed business processes. Time based maintenance.

Modern Grid: Operationally, the Smart Grid will improve load factors, lower system losses, and dramatically improve outage management performance. The availability of additional grid intelligence will give planners and engineers the knowledge to build what is needed when it is needed, extend the life of assets, repair equipment before it fails unexpectedly, and more effectively manage the work force. Operational, maintenance and capital costs will be reduced thereby keeping downward pressure on prices.

Today's Fort Collins Grid: FCU is currently in the process of implementing an Asset Management program. The intent of the program is to help inventory utility assets, assess infrastructure condition and plan for maintenance and replacement through risk-based modeling.

What the SGIG will do for FCU: The AMI system will be a communication system that provides information on the operation and health of components on the system. The enhanced information will allow FCU to manage and schedule maintenance of the system more efficiently and respond to outages more quickly. Workforce efficiency will also improve if outages can be avoided and problems addressed through scheduled maintenance.

PROJECT EXECUTION PLAN

During the interim period between the announcement of the intent to award the grant and now, a team of City staff has been working to refine the tasks proposed in the original grant application. The table below provides a general summary of the tasks associated with the project.

Staff is currently developing Request-for-Proposal (RFP) documents for a Project Manager / Integrator to assist with the project. The intent is to hire a consulting agency with experience tying the different components of the project together in order to insure a seamless integration between our existing systems and the new.

Staff is also in the process of preparing RFP's for the AMI system, the MDMS system and for a Cyber security evaluation.

FINANCIAL IMPACT

It is estimated the following annual operational savings can be achieved by Light and Power through the installation of an AMI system:

• Labor and operational expenses for meter reading	\$495,755
• Meter accuracy and registration	\$347,944
• Theft from manipulation of meters	\$268,225
• Load control (avoided demand during PRPA peaks)	\$185,760
• Labor dedicated to move-in / move-out and meter changes	\$ 28,410
• Purchase of Xcel data for rate design	\$ 35,574
TOTAL	\$1,361,668

In addition to the annual savings above FCU also sees a significant one-time savings related to improved cash flow achieved by reducing the lag time between meter reads and billing. The one-time benefit is approximately \$1,600,000.

As noted above, staff did anticipate some additional load control benefit in the original AMI project benefits. However, in the SGIG grant proposal a considerable expansion of the program is anticipated. The operational savings from the enhanced demand response projects will reduce utility and customer costs by approximately an additional \$1,074,240 annually.

Calculating the payback period using the values above and a 3.5% interest rate the entire \$31.5 million investment has a pay-back of just over 13 years. The pay-back is just over 7 years for the \$15.7 M cost to the City.

It is more difficult to apply a cost recovery model to the remaining smart grid elements proposed in the SGIG. Many of the benefits gained will enhance operational reliability and performance and improve customer interactions with the utility.

As detailed above, the total project cost submitted to DOE was \$36,202,527. The project cost of the City of Fort Collins is \$31,483,001; Fountain's project cost is \$4,247,000; Loveland's project cost is \$300,000; and Longmont's project cost is \$172,526. The DOE will provide 50% funding for each of the projects. In order to process the grant funds, the DOE matching funds provided to each of the other cities along with the total Fort Collins project cost must be appropriated by City Council. Staff and the Electric Board are recommending the Council approve an appropriation for the project totaling \$33,842,764. This will be offset with SGIG grant revenue of \$18,101,264. A Fort Collins Utilities match is proposed to be funded through the issuance and sale of Electric Revenue Bonds, which will be considered on First Reading by the Electric Enterprise Board on April 6, 2010. In addition to the appropriation for the SGIG project, the proposed appropriation ordinance appropriates \$258,500 in the Light and Power Fund for bond issuance costs.

A table summarizing the appropriations follows:

	SGIG Grant Project	50% DOE Grant Unanticipated Revenue for Fort Collins)	Estimated Bond Proceeds	Appropriation Required
Fort Collins	\$ 31,483,001	\$ 15,741,501	\$ 15,741,501	\$ 31,483,002
Fountain*	\$ 4,247,000	\$ 2,123,500		\$ 2,123,500
Loveland*	\$ 300,000	\$ 150,000		\$ 150,000
Longmont*	\$ 172,526	\$ 86,263		\$ 86,263
Total	\$ 36,202,527	\$ 18,101,264	\$ 15,741,501	\$ 33,842,765
Estimated Bond Issuance Costs			\$ 258,499	\$ 258,499
Total Estimated Bond Proceeds			<u>\$ 16,000,000</u>	
Total Appropriation				<u>\$ 34,101,264</u>

*The expense and revenue will offset each other for the Loveland, Longmont and Fountain's portions of the grant project. Since Fort Collins will administer the grant for the three other cities, the funds will flow into and out of the Light and Power Fund.

SUSTAINABILITY: ECONOMIC, ENVIRONMENTAL AND SOCIAL IMPACTS

The SGIG supports a future where customers can choose the option of being engaged in the management of their energy usage and cost. Distributed generation (such as solar panels) is prevalent throughout the electrical system and customers can choose to contribute to the reduction of the use of fossil fuels in electrical generation. In addition, a future where Fort Collins' electric grid better supports customers having plug-in hybrid electric vehicles or electric vehicles can also help further reduce greenhouse gas emissions. More efficient operation and maintenance of the electric grid, as well as the ability for Utilities to reduce or eliminate the fleet of meter reader vehicles through automated meter reading will reduce emissions.

In order to deliver the services and provide the support that our customers deserve and will require in the future, it is critical that FCU begin modernizing the electrical system. Modernization begins with the implementation of AMI. Prior to the SGIG, AMI provided a positive business case because of its inherent operational savings in the meter reading operation. The SGIG funding enhances the scope and scale of the projects Utilities can accomplish as we begin to implement smart grid technology.

One of the primary social impacts, as described in some of the items above, will be the opportunity for Utilities to improve on its relationship with customers. Many of the primary interactions that customers currently have with Utilities' staff will be enhanced with information available from, and operating flexibility provided by, the SGIG. A customer calling in to request electrical service at an existing location can be provided electrical service immediately (using computerized control of the meter) by the customer service representative receiving the call without the need to dispatch a technician, saving the customer time and the Utilities labor and transportation expenses.

Since the electrical grid will be able to identify problems as they occur and then dispatch a repair crew if necessary, a customer calling in to notify Utilities about an outage can be given the status of the problem and an approximate time for repair. If a customer calls to report an outage in an area that has not been identified by the system as having a problem, the customer service representative can "test" the customer's meter remotely in a matter of seconds to determine if the problem is on the Utilities' system or is a problem on the customer's side of the meter. These enhanced abilities to address customers' issues in a more timely fashion should enhance customers' trust in their Utilities.

Currently, Utilities uses a staff of meter readers and a group of vehicles to collect information necessary to bill customers for utility service. A significant portion of the savings in this project justification is the reduction in force, and related support expenses, related to automating the meter readings. The positions affected by this project have been identified and the individuals in these positions notified that their positions will be affected by the implementation. Efforts are underway to work with these individuals to find alternative positions in Utilities and/or to retrain these individuals for other careers. Any vacancies that occur in the affected positions prior to the completion of the project will only be filled on a contract basis as necessary.

This project will not add a significant number of new positions to Utilities staff or directly provide additional employment in the community. However, as more customers learn about their options for energy savings, it is anticipated that the demand for additional weatherization contractors and energy efficiency consultants may increase.

STAFF RECOMMENDATION

Staff recommends adoption of the Ordinances on First Reading.

BOARD / COMMISSION RECOMMENDATION

At its February 3, 2010 meeting, the Electric Board voted unanimously to recommend that City Council approve the appropriation of funds.

PUBLIC OUTREACH

The proposed project includes extensive customer education and engagement. The intent of the project is to make information and data available to customers to allow them to make informed decisions related to their energy usage. Critical to the success of the program is making the customers aware of the information and tools that will be available. The excerpts below were the elements proposed in the original grant application

“Information Availability to Customers

The Utilities' Smart Grid Web sites will provide the means for customers to track energy usage by logging onto the "AMI Meter" Web-page. This information will be linked to tips regarding how to conserve and information about efficiency programs, rebates and incentives. Customers who participate in the load management program will be provided with useful information through their in-home displays, in-home thermostats, water heater control switches, and other preferred communications media such as text messages, online accounts or e-mails.

A Fort Collins Smart Grid project Web site will provide for information sharing between all utilities in Colorado. Online information regarding Fort Collins, Loveland, Longmont and Fountain's projects will enable others to see the benefits of the Smart Grid.

Customer Outreach and Operations

Customer outreach and education are two of the utilities' fundamental operational principals. Fort Collins' outreach program will inform customers of progress toward sustainability goals and offer transparency for utility decisions. Fort Collins will provide information and education on Smart Grid technologies as well as their impacts on customers and the distribution system. The utilities' organizational messaging will emphasize the importance of the technology to support great service and the customer's role in demand-side management, load control and energy conservation.

The utilities have robust marketing, communications and education programs in place to support the success of Smart Grid. All communications, including call center functions are managed in-house, providing a continuum of customer-facing services. Customer communications can be coordinated through a variety of tools including:

- Bill inserts
- Web site (including City Web sites)
- Weekly electronic newsletters and city newsletters
- News releases to local print media
- Coordinated residential, commercial and key accounts support
- Targeted communications for specific areas of program implementation such as meter installation, deployment of in-home displays, efficiency and renewable energy, etc.
- Well-established education programs (Q&A sessions/seminars) including fact sheets distributed at city facilities

Many business process changes will be required prior to the deployment of the Smart Grid. The following are a few of the key processes the Utilities will review: new cyber security standards and procedures, service switch procedures, service restoration, reliability reporting, power system operational status reporting and posting, customer outage notification methods, real time operation of the T&D system, asset management strategies with the availability of more accurate and timely data on the status of the system will all need to be redesigned. The Utilities will establish a change management plan to drive results in each deployment stage."

ATTACHMENTS

1. Customer Records Policy
2. Electric Board minutes, February 3, 2010
3. Powerpoint presentation

Excerpt from May 5, 2010 Draft Electric Board minutes

Department of Energy (DOE) Contract and Intergovernmental Agreements (IGAs)
Mr. Catanach introduced this topic and sought a recommendation from the Board. Through American Public Power Association (APPA), we were able to have some language added to the Agreement. Our City Attorneys have reviewed this and drafted the agreement.

Motion: Board Member Wolley moved the Electric Board recommends to City Council that they authorize the City Manager to sign the Assistance Agreement between the City of Fort Collins and the DOE, and Intergovernmental/Partner Agreement with the Cities of Loveland, Longmont and Fountain on terms and conditions consistent with those in the presented draft forms, along with such additional terms and conditions as City staff, in consultation with the City Attorney's Office, deems necessary and appropriate to protect the interest of the City. Board Member Bihn seconded the motion.

Vote on the motion: It passed unanimously.

EXHIBIT DD

ORDINANCE NO. 043, 2010
OF THE COUNCIL OF THE CITY OF FORT COLLINS
APPROPRIATING UNANTICIPATED REVENUE AND ELECTRIC REVENUE
BOND PROCEEDS FOR THE SMART GRID INVESTMENT GRANT PROJECT
IN THE LIGHT AND POWER FUND AND FOR BOND ISSUANCE COSTS

WHEREAS, the City has been awarded a Smart Grid Investment Grant in the amount of \$18,101,264 (the "Grant") from the Department of Energy (DOE); and

WHEREAS, the Grant requires matching funds of \$15,741,501; and

WHEREAS, the Electric Utility Enterprise Board (the "Board") has approved on first reading Ordinance No. 001 of the Board authorizing the issuance of ~~\$16,000,000~~ \$17,000,000 in Electric Utility Enterprise Revenue Bonds; and

WHEREAS, the proceeds of such bond issuance will be used for the required Grant match and for bond issuance costs in the approximate amount of ~~\$258,499~~ \$211,137; and

WHEREAS, the Grant provides the City with an opportunity to install an Advanced Metering Infrastructure (AMI) system and accelerate the implementation of the City's long range information technology (IT) needs, and to begin the modernization of its electrical distribution system; and

WHEREAS, the Cities of Loveland, Longmont and Fountain are also participating in this project; and

WHEREAS, Article V, Section 9, of the City Charter permits the City Council to make supplemental appropriations by ordinance at any time during the fiscal year, provided that the total amount of such supplemental appropriations, in combination with all previous appropriations for that fiscal year, does not exceed the current estimate of actual and anticipated revenues to be received during the fiscal year; and

WHEREAS, City staff has determined that the appropriation of the Grant revenue and the bond proceeds will not cause the total amount appropriated in the Light and Power Fund to exceed the current estimate of actual and anticipated revenues to be received in that fund during any fiscal year.

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF FORT COLLINS as follows:

Section 1. That there is hereby appropriated from unanticipated grant revenue in the Light and Power Fund the sum of EIGHTEEN MILLION ONE HUNDRED ONE THOUSAND TWO HUNDRED SIXTY FOUR DOLLARS (\$18,101,264) for expenditure in the Light and Power Fund for the Advanced Metering Infrastructure (AMI) and smart grid technology project.

EXHIBIT DD

Section 2. That there is hereby appropriated from electric revenue bond proceeds in the Light and Power Fund the sum of ~~FIFTEEN MILLION SEVEN HUNDRED FORTY ONE THOUSAND FIVE HUNDRED ONE~~ **SIXTEEN MILLION SEVEN HUNDRED EIGHTY EIGHT THOUSAND EIGHT HUNDRED SIXTY THREE DOLLARS** (~~\$15,741,501~~ **\$16,788,863**) for expenditure in the Light and Power Fund for the Advanced Metering Infrastructure (AMI) and smart grid technology project.

Section 3. That there is hereby appropriated from electric revenue bond proceeds in the Light and Power Fund the sum of ~~TWO HUNDRED FIFTY EIGHT THOUSAND FOUR HUNDRED NINETY NINE~~ **TWO HUNDRED ELEVEN THOUSAND ONE HUNDRED THIRTY SEVEN DOLLARS** (~~\$258,499~~ **\$211,137**) for expenditure in the Light and Power Fund for bond issuance costs.

Introduced, considered favorably on first reading, and ordered published this 20th day of April, A.D. 2010, and to be presented for final passage on the 18th day of May, A.D. 2010.

Mayor

ATTEST:

City Clerk

Passed and adopted on final reading on the 18th day of May, A.D. 2010.

Mayor

ATTEST:

City Clerk

EXHIBIT DD

RESOLUTION 2010-030
OF THE COUNCIL OF THE CITY OF FORT COLLINS
AUTHORIZING A GRANT AGREEMENT WITH THE U.S. DEPARTMENT OF
ENERGY AND INTERGOVERNMENTAL PROJECT AGREEMENTS WITH THE
CITIES OF LONGMONT, LOVELAND, AND FOUNTAIN TO RECEIVE GRANT
FUNDS FOR INSTALLATION AND DEVELOPMENT OF SMART GRID
TECHNOLOGY THROUGH THE SMART GRID INVESTMENT GRANT
PROGRAM

WHEREAS, the City has applied for and been awarded grant funds from the U.S. Department of Energy ("DOE") on behalf of the cities of Fort Collins, Longmont, Loveland, and Fountain (collectively referred to as the "Project Partners"); and

WHEREAS, the purpose of the grant award is for the municipal utilities of each of the Project Partners to carry out individual projects intended to develop smart grid technology (the "Project"); and

WHEREAS, because DOE was interested in funding collaborative smart grid projects to include large geographic areas and integrated funding, the City will act as the project leader in distributing funds and complying with DOE requirements as described by an Assistance Agreement (the "Assistance Agreement"), a copy of which is on file in the office of the City Clerk and available for public inspection; and

WHEREAS, the City's focus in implementing the Project will include the installation of an Advanced Metering Infrastructure ("AMI") System, installation of a meter data management system, grid automation, improved cyber security and enhanced demand response programs designed to increase customer engagement; and

WHEREAS, the total cost of the Project is estimated at \$36,202,528 with total matching funds to be provided by DOE to be \$18,1101,264; and

WHEREAS, pursuant to the terms of the Assistance Agreement, DOE will fund fifty percent (50%) of each of the individual projects proposed by each Project Partner for a Project total no more than that described above; and

WHEREAS, the City's portion of the total cost of the Project is estimated at Fifteen Million Seven Hundred Forty-One Thousand Five Hundred One Dollars (\$15,741,501) and DOE will fund the other fifty percent (50%) of the City's costs; and

WHEREAS, the City of Fountain's portion of the total Project cost is estimated at \$2,123,500; and

WHEREAS, the City of Loveland's portion of the total Project cost is estimated at \$150,000; and

EXHIBIT DD

WHEREAS, the City of Longmont's portion of the total Project cost is estimated at \$86,263;
and

WHEREAS, to receive the grant funds, the City must sign the Assistance Agreement with
DOE; and

WHEREAS, to implement the Project, the City must also enter into subrecipient agreements
("Partner Agreements") with each of the Project Partners, incorporating the requirements of the
Assistance Agreement and specifying the agreed upon grant funds, matching contributions, and
reporting requirements, a copy of which is on file in the office of the City Clerk and available for
public inspection; and

WHEREAS, the City is authorized, under Article II, Section 16 of the Charter of the City
of Fort Collins and Section 29-1-203, C.R.S., to enter into intergovernmental agreements such as
the Assistance Agreement and the Partner Agreements, to provide any function, service or facility;
and

WHEREAS, City staff recommends that the City Council authorize the City Manager to
execute the Assistance Agreement and the Partner Agreements as described herein.

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF FORT
COLLINS as follows:

Section 1. That the City Manager is hereby authorized to enter into an Assistance
Agreement with DOE for the receipt of grant funds, to be used for the installation and deployment
of smart grid technology in Fort Collins, Longmont, Loveland, and Fountain on terms and
conditions consistent with the terms of this Resolution, along with such additional terms and
conditions as the City Manager, in consultation with the City Attorney, deems necessary and
appropriate to protect the interests of the City.

Section 2. That the City Manager is hereby further authorized to enter into Partner
Agreements with each of the Project Partners to describe the grant funding shares, matching
contributions, reporting requirements and to outline each party's responsibilities for carrying out the
Project, as described in the project application submitted to the DOE, on terms and conditions
consistent with the terms of this Resolution, along with such additional terms and conditions as the
City Manager, in consultation with the City Attorney, deems necessary and appropriate to protect
the interests of the City.

Passed and adopted at a regular meeting of the Council of the City of Fort Collins this 18th
day of May A.D. 2010.

Mayor

ATTEST:

City Clerk