



# OFFICE OF THE CITY AUDITOR COLORADO SPRINGS, COLORADO

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## 15-38 Colorado Springs Utilities Smart Grid Implementation

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### **Purpose**

The purpose of this audit was to assess the status of the implementation of the Smart Grid for Colorado Springs Utilities customers.

### **Highlights**

Colorado Springs Utilities smart grid technologies were in the early stages of implementation. Therefore, our review was limited.

Smart grid is the application of information technology, tools and techniques that can make a utility delivery infrastructure run more efficiently. Smart grid commonly refers to electricity. However, Colorado Springs Utilities considers smart technologies for electric, gas, water and wastewater services. The smart grid empowers customers and encourages efficiencies by providing usage data to customers and by allowing the utility greater visibility into the distribution systems.

Utility usage is typically measured by a utility supply meter located at a consumer's location (e.g., home or business building). Originally, these meters were manually read on-site. Technological advances allowed for new digital meters that provide automated meter reading (AMR). Digital meters can transmit consumption information back to the utility on a much more frequent schedule than analog meters. AMR has been successfully implemented for Colorado Springs Utilities.

Further technological advances in meters allowed for utility service providers to obtain more frequent end-use consumption data, to help temporarily reduce the overall demand, and to diagnose disturbances of utility service. This two-way communication metering is part of an overall concept referred to as advanced metering infrastructure (AMI). AMI enables better overall utility and individual customer analysis along with control of utility usage. AMI is the major component of the concept of a "smart grid." Smart Grid Consumer Collaborative research indicates when a customer has information about how much energy they use, they will reduce their usage. Other smart grid components include grid fault tolerance and service provider controllable thermostats. Colorado Springs Utilities is currently in the process of upgrading to AMI meter technology and is testing fault tolerant technologies as well as controllable thermostats.

Colorado Springs Utilities recognizes major benefits of a smart grid implementation to consumers such as a more reliable infrastructure (e.g., less outages, quicker recovery when outages occur) and better rates for different times of day. Better pricing options along with the already implemented "My Usage" program will allow customers to analyze their own usage and make decisions to help reduce their monthly bill. In turn, utility demand during peak times should be reduced. The reduction of peak energy usage will help Colorado Springs Utilities defer investments in infrastructure, which should help delay rate increases.

This audit was conducted in conformance with the International Standards for the Professional Practice of Internal Auditing, a part of the Professional Practices Framework promulgated by the Institute of Internal Auditors.

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