# Energy Management and Conservation: Municipal Best Practices







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# Energy Management and Conservation: Municipal Best Practices







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#### Colorado Municipal League 1144 Sherman St., Denver, CO 80203

This report was produced by the Wirth Chair in Environmental and Community Development Policy in conjunction with the Colorado Municipal League. It was written by Andrew Pattison, M.P.A. the IGERT Research Fellow at the Wirth Chair and PhD student in the School of Public Affairs at the University of Colorado at Denver Health Science Center. Andrew worked as a conservation biologist for New York State Department of Environmental Conservation and The Nature Conservancy in both New York and Colorado before working as a research associate at CU Boulder's biology department. He later moved to Santa Fe, NM and helped open a public charter high school focusing in experiential education where he taught biology and environmental studies. In 2003 Andrew moved to Denver to work in public policy and in 2005, after working on a number of campaigns and issues within the environmental and nonprofit fields, was hired by Wirth Chair. Andrew can be reached at 303-315-2072 or andrew.pattison@cudenver.edu Thanks also go to CML staff Sam Mamet, executive director, and Traci Stoffel, publications specialist, for their work on the publication.

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The mission of the Wirth Chair is to foster effective sustainable development strategies that will strive to meet the needs of the present without compromising the ability of future generations to meet their own needs. The Wirth Chair works to carefully balance economic, environmental and expanded social welfare objectives while developing:meaningful environmental protection policies and programs, cost-effective energy management and energy efficiency programs, sound greenhouse gas emission reduction strategies, and fair and effective growth management strategies.

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The mission of the Colorado Municipal League is to build strong cities and towns through advocacy, information and training. CML has a commitment to providing community leaders with information about changes and trends, as well as sharing examples of how some communities are adapting to changes.

Colorado Municipal League 1144 Sherman Street Denver, CO 80203 303-831-6411 www.cml.org Dear municipal leader,

Escalating energy prices worldwide and growing awareness of the connection between fossil fuel use, global climate change and dependence on unstable international geopolitics have stimulated a dramatic increase in the public dialogue relating to energy management and conservation.

A government can address energy management and conservation by reducing energy consumption within a town, city, state, region or country either absolutely or per capita. This is most often addressed through energy efficiency programs and projects. These programs and projects offer municipalities the opportunity to address socially responsible concerns through sound fiscal policy by saving communities both energy resources and much needed financial resources.

Countless successful energy management and conservation programs have been documented at the international, national and local levels. These efforts by municipalities are incredibly important because cities consume approximately 75 percent of the world's energy and, for the first time in our history, the majority of people on the planet live in cities. For these reasons and many more, it is crucial for municipalities in Colorado and the U.S. to set the agenda on energy management and conservation and show leadership through action.

We hope some of the municipal energy management and conservation program lessons being learned in communities across Colorado provide you with greater awareness and fresh ideas on how you can actively engage energy management and conservation and hopefully integrate these principals into your municipalities.

Sincerely,

Sen. Gary Hart Wirth Chair Professor Wirth Chair in Environmental and Community Development Policy

Sam Mamet Executive Director Colorado Municipal League

# INTRODUCTION

The overarching goal of this project is to create a workshop and a handbook which will serve as a Colorado focused guidebook for Colorado municipal leaders regarding energy management and conservation programs and policies.

The specific goal of this project is two fold: to allow CML members to learn more about the principles of energy management and conservation and to educate members on how they can more fully integrate these principles into the management and operations of their respective municipalities through fiscally sound and socially responsible energy programs and projects. This handbook is relevant and specific enough to be useful to you and your communities.

Eight case studies are presented from cities and towns in Colorado which have enacted relevant energy management and conservation programs or polices. This section serves as a "how-to guide" or a policy menu from which to choose. Contact information for the relevant staff or administrators of these programs are provided so you can learn more about the details through one on one conversations. The case studies focus on the early stages of developing these programs and policies, rather than displaying the oldest and most comprehensive energy management and conservation programs in Colorado municipalities. In this way, the handbook will serve as a guide to help Colorado municipal leaders begin similar programs in their own cites and towns. In the final section of the handbook a glossary of relevant terms and a resource list of agencies, companies and organizations involved in municipal energy management and conservation are provided.



Colorado Municipal League

This handbook reveals that municipalities in Colorado can actively address energy management and conservation by maximizing the efficiency of municipal facilities and the services they typically provide. In doing so, these cities have saved a great deal of financial resources as well. The names of relevant agencies, companies, and organizations provided can help you initiate, maintain or expand energy management and conservation programs in your own communities.

In addition to advice and support which is available from agencies such as the Governor's Energy Office, proven effective policy research and recommendation tools exist, such as the Sustainability Inventory, developed by the International Council for Local Environmental Initiatives or utility management software programs such as Utility Manager Pro (UMPro). These services can also help advance the ability of municipalities to move forward with energy efficiency programs.

The Governor's Energy Office program description is provided in the resources section. The GEO is an excellent place for a Colorado municipality to begin when they are starting to address energy management and conservation.

#### **CASE STUDIES**

## Just getting started

Basalt - Contact: Bill Efting, City Manager bille@basalt.net, 970-927-4701

group of citizens was interested in seriously addressing energy management and conservation in the Town of Basalt for both financial and environmental reasons. Many of these citizens had been involved in the creation of the Town recycling program and were now interested in expanding their scope of work but were uncertain how to begin to work towards increased energy efficiency in their

The first recommendation made by the Green Team was that the Town needed to "walk the walk" and increase the energy efficiency profile of the Town government.

municipality. Fortuitously, the Sonoran Institute (with four offices in the nation including Grand Junction) was sponsoring a workshop training session, *Community Energy Futures Institute*, during this time. Funding was acquired from a local foundation to send three citizens, two Town staff and one councilmember to this three day training session which focused on "how to sell the idea of energy management and conservation without scaring people ... talking about it in a positive, fiscally sound way as opposed to scaring people with global warming".



Upon returning to Basalt, these six individuals met with and briefed the Town Council. The conversation turned towards how a plan could be formulated to allow Basalt to move forward with this idea and it was decided that the six workshop attendees would become a standing committee known as the "Green Team" which would make recommendations to the Council. The first recommendation made by the Green Team was that the Town needed to "walk the walk" and increase the energy efficiency profile of the Town government.

Dan Richardson from the engineering and surveying company Schmueser, Gordon and Meyer (with four offices in Colorado) was brought in to help Basalt perform an energy audit on all of its municipal buildings. Working with Richardson, the Town is currently determining where improvements can be made in their energy management systems and infrastructure in order to increase energy efficiency and save money. Results from this audit are expected in September 2007 which will help the Green Team and Town Council determine where investments can be best made in facilities and maintenance. It is anticipated that updated lighting control devices and more efficient bulbs will be targeted first in their attempt to "green the City buildings".

In addition to the energy audit, the Green Team is trying to stimulate community engagement. They have begun a "Green Business of the Month" and "Green Citizen of the Month" awards program across the town. In the future, the Green Team and the Town Council will get input from the community on the Green Team plan and recommendations through a series of Town meetings.

## One light bulb at a time

Central City – Contact: Brook Svoboda, Community Development Director, planner@centralcitycolorado.us, 303-582-5251

The City Council wanted to address energy efficiency and conservation in Central City and to "go green" in general. By June 2007, all light bulbs in all City buildings which could be changed had been replaced with energy efficient bulbs.

After reviewing reports from staff, the Council and staff also decided to initiate a program to provide residents with free energy efficient light bulbs for their homes paid for by Council's discretionary funds. This program provides 29 free energy efficient light bulbs to any and every resident homeowner (light bulbs are not provided to commercial businesses or multi-unit apartment houses). Approximately one third

After reviewing reports from staff, the Council and staff also decided to initiate a program to provide residents with free energy efficient light bulbs for their homes paid for by Council's discretionary funds.

of the 300 hundred homeowners in Central City have participated in the program and over 2,100 bulbs have been given out as of mid-June. The City is hoping to complete an energy audit of municipal buildings and facilities in the near future.



## Progress on the Green Team plan

Breckenridge – Contact: Peter Grosshuesch, Community Development Director, Peterg@breckgov.com, 970-453-2251

The preliminary audit performed by GEO was the essential step in the process of Breckenridge beginning to address energy management and conservation.

The Town of Breckenridge wanted to become a leading "green" organization within the community. A multi-disciplinary "Green Team" committee of Town employees from all departments was formed to "reduce the ecological footprint of the Town by promoting and demonstrating commitment to responsible stewardship of our resources and encourage a culture of sustainability within the community".

In order to make recommendations to the Council, the Green Team began researching the low level / high impact changes that could be made to facility maintenance. This led the team to the Governor's Energy Office. The GEO provided the Town with a free preliminary energy audit of all municipal buildings and facilities as part of the Rebuild Colorado program.

The preliminary audit determined that changes in the lighting, heating and ventilation automation systems could be made to four major municipal facilities. System upgrades could be initiated in the recreation center, public works building and maintenance shops which would increase energy efficiency and save financial resources. The Town is currently in the process of selecting an energy service company (ESCO) to perform a more in-depth audit and follow through with the energy efficiency upgrades needed. For this reason the exact figures of estimated costs, estimated yearly savings and payback timeline are confidential at the time of publication, but the overall package is considered "very attractive" by Town employees.

The preliminary audit performed by GEO was the essential step in the process of Breckenridge beginning to address energy management and conservation. Additionally, "GEO has been very helpful in terms of organizing the carbon [emissions] footprint component of the Green Team's plan". Help from Xcel Energy was also crucial during this process as it was their data that was used to perform the energy audit. Also involved is High Country Conservation, a community resource conservation center in Frisco. HCC has hosted workshops and training sessions for City staff and residents and has been instrumental in the creation of City "green building codes".municipal

# A City and a community electric power co-op team up to address energy efficiency

Durango – Contact: Roy Petersen, Director of General Services, petersenrl@ci.durango.co.us, 970-375-4999

The purchase of green power as an alternative to energy generated from more typical non renewable fuels, along with addressing energy management and conservation in general had been a priority for the City Manager and City Council of Durango for some time. In the winter of 2006, the City of Durango was informed by La Plata Electric Association (the local electrical power cooperative) that the

The audit analyzed current energy usage across many aspects of municipal facilities and helped target areas for energy efficiency projects and programs.

City could purchase "green power" (generated by wind, solar and other sustainable resources) at a much lower rate than had been previously available. The City would now be able to purchase 100 percent of all municipal energy from renewable resources for an annual cost of \$120,000, representing an approximate 12 percent increase in costs from the traditional annual municipal energy bill. This price change opened the door for the City to address both



electrical power purchasing as well as more comprehensive energy management and conservation strategies. City officials and staff were hoping not only to decrease the Town's environmental impact but to do so by saving resources and money through energy efficiency programs in the City's municipal buildings and management strategies.

The process began when La Plata Electric offered to perform a free preliminary energy audit for the City of Durango. The audit analyzed current energy usage across many aspects of municipalfacilities and helped target areas for energy efficiency projects and programs. One of the first recommendations of the audit was to install demand meters on four municipal buildings: City Hall, Chapman Hill, the winter recreation center (ice caking rink), and the automotive service center. These demand meters measure and record the electrical power demand for each of these buildings throughout each daily, weekly, and monthly cycle. This allowed the City and La Plata Electric to have a much better understanding of the electrical power demand needs of Durango which led to the next step.

La Plata Electric then recommended different electric power purchasing rate structures to be put in place which would be tailored to the specific electrical power demands times of the City. Additionally, changing the operating time of the City's electrical engines and heaters to more "off peak" times would also help streamline the electrical power use and decrease costs. "The changes in the running times for these electrical components involves budgetary and staff management concerns. The City is working through these alternatives that have a positive environmental impact."

Hopefully, a total of seven municipal buildings will have demand meters shortly, which will dramatically increase the effectiveness of this already tremendously successful program. In the first year, this program may create \$20,000 in total savings and it is projected that the program could save the City \$40,000-\$50,000 annually in the second year. Starting in the third year the City projects the program

will create savings in excess of \$60,000 annually. This is the ultimate goal of the project, to reduce electrical consumption through energy efficiency projects and programs. "Coordinating high demand utilities with La Plata Electric has the potential to save the City substantial funds, with advice and help from La Plata we hope to harvest these savings."

The ultimate goal of the project: To reduce electrical consumption through energy efficiency projects and programs.

## Lighting efficiency

Evans – Contact: Andy McRoberts, Director of Parks and Recreation, amcroberts@ci.evans.co.us, 970-475-1129

In the City of Evans, energy management and conservation programs began when the City needed to replace an aging boiler in the old City Hall building which has become the Community Resource Center. City staff began working with employees at the Governor's Energy Office while researching the energy efficiency opportunities available with different boiler options. GEO helped the City get

The GEO helped the City get information on what other cities and local college campuses were doing in terms of energy management and conservation.

information on what other cities and local college campuses were doing in terms of energy management and conservation. The University of Northern Colorado (UNC) in nearby Greeley was in the process of finding an energy service company (ESCO) to help with an energy audit and begin working to perform energy and cost savings upgrades on campus buildings. The purchasing power of the City allowed the City of Evans to partner up and use the bidding process of UNC. Evans then began working with the ESCO Long Energy Solutions, which has four offices in Colorado.

Long Energy Solutions began by providing a free initial energy audit focused on lighting infrastructure in all municipal buildings in the winter of 2005. The audit contained many recommendations for upgrades in lighting ballasts, bulbs, and fixtures and provided energy savings and costs savings estimates that Evans could achieve if the City chose to implement these upgrades. The total estimated savings projections were over \$7,000 annually with an average approximate pay back of 5 years. The City followed through on the vast majority of the recommendations from the audit within one year but due to staff and resource constraints have been unable to calculate the actual savings realized over the past year. City staff is hopeful that they can complete this assessment soon, perhaps with the help of GEO.

## A partnership for huge savings

Arvada – Contact: Phillip Hensley, Manager of City Facilities, Phil-h@arvada.org, 720-898-7000

Arvada also benefited greatly financially from the energy service company's buying power in acquiring the electronic control devices put in place with this program.

In the City of Arvada, energy efficient buildings "have always been important". City staff has historically tried to incorporate energy use and life-cycle cost factors into all municipal building decisions. After Arvada contacted the Governor's Energy Office to see what resources might be available, GEO provided a free preliminary audit through the Rebuild Colorado program. The preliminary audit found enough energy

efficiency improvement opportunities and recommended that the City follow through with an in-depth audit and energy performance contract with an energy service company. Arvada then opened the Request for Qualifications process and interviewed more than five companies to perform a comprehensive energy audit and complete the needed electrical system upgrades. Arvada selected Siemens Building Technology (which has multiple offices in Colorado) and Siemens completed a "huge" audit on the electricity, gas and water systems for all municipal buildings.

This comprehensive audit named many recommendations to improve the energy efficiency of buildings systems and Arvada arranged a lease/purchase agreement with a lending agency to fund the initial investment. All City traffic lights were replaced with light emitting diode (LED) lights and a lighting retrofit program was initiated in all municipal buildings. Additionally, some boilers and chillers were replaced and the building automation systems were updated. Many of these energy management and conservation strategies would have been put in place eventually but working with Siemens allowed Arvada to speed up the replacement



schedule from a timeline of many years to only a few months. Arvada also benefited greatly financially from the energy service company's buying power in acquiring the electronic control devices put in place with this program.

The initial projected estimates contained in the Siemens energy audit revealed that Arvada could save upwards of \$800,000 over 10 years with these energy management and conservation recommendations. At the beginning of this year the combined actual measured savings plus the estimated operational savings were \$145,000 in the first year. This program has been an immense success for the City. "GEO provided the consultant and reviewed the contacts, audits and proposals. GEO was a knowledgeable expert that was a FREE consulting service, they acted as an unbiased eye ... I should have used them even more."

# A holistic approach to energy management and conservation

Frisco – Contact: Jocelyn Mills, Senior Planner, Jmills131@comcast.net, 970-668-9130

The Town has also launched a program called Environmental Stewardship and Sustainability (ES2) that "encourages residents, business and visitors to find ways in our own lives to be stewards of the earth."

Prisco is addressing energy management and conservation very comprehensively with a number of projects and programs across the Town. In 2005, the comprehensive master plan created by Town staff and the community included for the first time a chapter on environmental sustainability. Environmental stewardship and resource conservation are priorities for the Town Council and in 2006 Frisco became part of the U.S. Mayors Climate Protection Agreement.

While searching for grants to fund possible energy management and conservation programs Town staff came across the Governor's Energy Office. Through the Rebuild Colorado program, GEO performed a free preliminary energy audit that targeted some areas of municipal building and facilities that can be upgraded to increase the Town's energy efficiency profile. Frisco is currently in the process of assessing Town needs and opportunities and will soon be entering into the process of hiring an ESCO to complete some energy performance contacting.



The Town has also launched a program called Environmental Stewardship and Sustainability (ES2) that "encourages residents, businesses and visitors to find ways in our own lives to be stewards of the earth." ES2 works with Town employees on office management techniques and practices (such as printing protocols, paper recycling and lighting control devices) that can save both energy and money. ES2 also works with High Country Conservation, a community resource conservation center in Frisco that is helping to get the community engaged in environmental stewardship with community events including the promotion of many energy conservation practices for homes and businesses. In this way Frisco is hoping to address energy management and conservation both within Town government and the community as a whole.

In addition to the energy management and conservation mentioned above, Frisco is working to engaging climate change by addressing the connection between energy

use and greenhouse gas emissions. By signing onto the U.S. Mayors Climate Protection Agreement in 2006 Frisco committed to complete a Town-wide greenhouse gas inventory. Frisco contracted Climate Mitigation Services out of Snowmass Village to perform this inventory which involved the collection of a great deal of energy information from the electrical service providers involved. The inventory is currently being completed and its findings will no doubt be factored in with the Town's other energy management and conservation efforts.

# You can't change what you can't measure – A centralized energy management system

Longmont – Contact: Mike Frailey, Energy Management Engineer, Mike.frailey@ci.longmont.co.us, 303-774-4767

... without a centralized energy management system or baseline information on municipal energy use, they would be unable to measure or quantify any substantial improvements to the system.

In 2003, Longmont citizens and City staff expressed a desire to address energy management and conservation as one aspect of resource conservation. A Resource Conservation Committee was formed which was made up of City staff from many different departments. The RCC was tasked with a broad examination of municipal resource conservation opportunities. RCC recommendations were reviewed and integrated into City departments as appropriate including a municipa utility database. Subsequent

organizational changes left the utility database without an administrator and the City no way to measure energy use.

In 2006, funding was pulled together to hire a dedicated energy management engineer. A new committee, the Energy Management Team, was formed to concentrate on energy management and conservation specifically. The energy management engineer and team are developing an energy management program for all municipal buildings and facilities, including public facilities, parks and open space. They are also making recommendations to the city manager and the city manager's Leadership Team.

The energy management team and engineer determined that, without a centralized energy management system or baseline information on municipal energy use, they would be unable to measure or quantify any substantial improvements to the system. LPB Energy Consulting (headquartered in Dallas) worked with the City and recommended a utility management software and database program called Utility Manager Pro (UMPro) that would allow the City to track and monitor municipal use of gas and electrical power in all municipal buildings. The City has been using UMPro for about a year and has four years of historical data. Demand use, billing and accounts are all streamlined with the UMPro program which was especially important for Longmont as the City has three different energy providers. It was admittedly "challenging" at first for City staff to get all the necessary

energy data imported into UMPro but the system helped Longmont save \$9,000 in the first year of the program.municipal

Longmont became connected with the Governor's Energy Office. The GEO performed a free preliminary energy audit as part of the Rebuild Colorado program. The conclusions of this energy audit are that the City should move forward with a financial-grade energy audit and an energy performance contract with an energy service company. GEO is in the process of streamlining their own municipal assistance program, Rebuild Colorado, and has just released a list of pre-qualified ESCOs for municipalities to choose from once they get to this phase. This will save municipalities from having to undertake a lengthy and costly public RFP and RFQ processes once the results of the free preliminary energy audit have concluded that an energy performance contact would be an efficient use of City funds. This new GEO program is the Commercial and Public Buildings Program (information on this new program is presented in the Resources section at the back of this booklet). Longmont is waiting to select



an ESCO from the GEO list prequalified companies and the City's data gained from the UMPro program will no doubt be invaluable when the City begins to move forward with any energy efficiency programs or projects.

In addition to the above mentioned efforts the Energy management Engineer has launched an Energy Awareness Outreach effort to all employees. Through printed and electronic media this effort attempts to keep energy management and conservation on the mind of City employees while at work. Posters and emails remind employees to shut off lights not in use and to select energy efficient products in all office purchases.

# **GLOSSARY**

**energy audit**: A comprehensive analysis of energy use which can be used to determine ways in which energy can be saved through investments in infrastructure or shifting use patterns.

energy service company (ESCO): An energy service company, or ESCO, is a business that develops, installs, and finances projects designed to improve the energy efficiency and maintenance costs for facilities over an extended time period. ESCOs generally act as project developers for a wide range of tasks and assume the technical and performance risk associated with the project. Typically, they offer the following services: develop, design, and finance energy efficiency projects, install and maintain the energy efficient equipment involved, measure, monitor, and verify the project's energy savings, and assume the risk that the project will save the amount of energy guaranteed. These services are typically bundled into the project's cost and are repaid through the dollar savings generated. (From the National Association of Energy Service Companies Web site: <a href="https://www.naesco.org/about/esco.htm">www.naesco.org/about/esco.htm</a>)

energy performance contract: Energy performance contracts are generally financing or operating leases provided by an energy service company (ESCO) or equipment manufacturer. What distinguishes these contracts is that they provide a guarantee on energy savings from the installed retrofit measures, and they usually also offer a range of associated design, installation, and maintenance services. The contract period can range from five to 10 years or more. (From the Department of Energy Web site: <a href="https://www.eere.energy.gov/buildings/info/plan/financing/contracts.html">www.eere.energy.gov/buildings/info/plan/financing/contracts.html</a>)

## **RESOURCES**

Below is a list of resources that, along with the project managers listed in the case studies, can help your municipality begin, maintain, and expand on an energy management and conservation program. Although this list does not contain the names of all agencies, organization, and companies in the field of municipal energy management and conservation it is filled with excellent resources. All companies and organizations mentioned in the case studies are included along with several others.

## Governor's Energy Office

www.colorado.gov/energy

#### How to get started with GEO— The Commercial & Public Buildings Program

The Governor's Energy Office developed the Rebuild Colorado program to help building owners identify and assess energy-saving projects in buildings and help make those projects a reality. While the GEO will continue to provide many of the same services that Rebuild Colorado has in the past, the primary focus of the new Commercial and Public Buildings program will be to implement key pieces of legislation such as HB1309 which calls for improved energy efficiency in K-12 schools, SB51 which requires new state funded buildings to strive for LEED Gold certification, and the Greening Government Executive Order, which calls for a 20 percent reduction in energy consumption in state buildings over the next five years.

The primary tool for addressing the needs of existing state and public buildings will be the energy performance contracting program. The GEO has streamlined the performance contracting process by pre-approving 11 energy service companies for 11 state and public market sectors. The GEO plans to take performance contracting to the next level in many ways. For example, GEO will encourage ESCOs to incorporate renewable energy measures into future state and public building projects.

Through the high performance design component of the program, the GEO will change the way that new buildings are designed and built from the start, before low cost energy savings opportunities are lost forever. GEO's new construction design services are intended to minimize peak demand, energy and water consumption while maximizing comfort and performance.

GEO's performance contracting and high performance design services are provided at no cost to state and public entities. For more information on theses programs visit <a href="https://www.colorado.gov/energy">www.colorado.gov/energy</a>.

#### Other resources

#### State and federal government agencies

Colorado Department of Public Health and the Environment – www.cdphe.state.co.us/el/index.html

U.S. Department of Energy's Energy Efficiency & Renewable Energy – www.eere.energy.gov

U.S. EPA Climate Change – State and Local Governments – epa.gov/climatechange/wycd/stateandlocalgov/local.html

U.S. EPA Clean Energy – Environment Municipal Network – epa.gov/cleanenergy/stateandlocal/network.htm

#### **Private energy companies and ESCOs**

Johnson Controls – www.johnsoncontrols.com

La Plata Electric Association – www.lpea.com

Long Energy Solutions – www.long.com

LPB Energy Consulting - www.lpbenergy.com/municipal

Schmueser, Gordon, and Meyer - www.sgm-inc.com

Siemens Building Technology – www.us.sbt.siemens.com/home.asp

#### **Private energy companies and ESCOs**

Alliance for Sustainable Colorado - allianceforcolorado.org

Climate Mitigation Services

High Country Conservation – www.highcountryconservation.org

 ${\tt ICLEI-Local\ Governments\ for\ Sustainability-} \textit{www.iclei.org}$ 

Local Government Commission - www.lgc.org

National Association of Energy Service Companies – www.naesco.org/about/esco.htm

Public Technology Institute - www.pti.org/index.php/ptiee1/inside/C26

Sonoran Institute – sonoran.org/municipal

The Municipal Network for Energy Efficiency – www.munee.org

Urbanicity – www.urbanicity.org/Default.asp

U.S. Mayors Climate Protection Agreement – www.seattle.gov/mayor/climate

Xcel Energy – www.xcelenergy.com



