Chapter II. Aurora's Sustainability Plan

VISION

When the goals of the city are achieved…

Energy Efficiency and Conservation:

- The city is reducing its greenhouse gas emissions and moving toward its greenhouse gas emissions goals using a well-defined baseline and continuous measurements.
- New buildings are built above the minimum building code and existing buildings in Aurora are retrofitted to be more energy efficient and contain more conservation features.
- Recycling is available to all members of the community.
- Incentives are available to residents and businesses to encourage energy efficiency and installation of conservation features.
- Community gardens are incorporated into neighborhoods, designated parks and open space areas to ensure all citizens have access to healthy and sustainable eating opportunities.
- Aurora elected officials and staff evaluate projects to assure sustainable implementation.
- The city identifies opportunities to incorporate green infrastructure.
- The city will be a leader in e-government by expanding city e-services.

Renewable Energy:

- A variety of renewable energy projects associated with residential, commercial and city buildings are located throughout the city.
- Incentives are available for residential and commercial renewable energy projects.
- Aurora facilitates implementation of smart grid technology, including addressing security vulnerabilities, and adequate transmission capacity.
- Improved building and development codes maximize the number and types of renewable energy projects allowed in city and residential and commercial buildings.

Economic Growth:

- Businesses involved with production and dissemination of renewable energy are an integral part of Aurora's economy.
- Aurora's community colleges provide training for green jobs.
- Members of the community have more sustainable business, housing and transportation choices.
- The city has capitalized on the new energy economy to support economic growth in Aurora.
- The Aurora Campus for Renewable Energy (ACRE) is fully functioning in its research and development (R&D), educational and energy production roles.

DISCUSSION

Defining Sustainability in Aurora

Sustainability is commonly defined as meeting the needs of the present without compromising the needs of the future. Typically, sustainability is portrayed as a three-legged stool with the seat resting on legs comprised of social, environmental and economic sustainability.

The Three–Legged Stool of Sustainability

Social Sustainability. To be a sustainable city, Aurora must be a city with strong social networks and civic participation. It must be a city with complete services and high quality amenities for its citizens. It must have great places for people to congregate and participate in the life of the city. Parks, recreation facilities and programs, open space and a high-quality network of pedestrian and bicycle routes are essential to promote good health within Aurora. All of these benefits must be provided in a manner that promotes Aurora's special diversity and must be provided for all demographic groups. These social characteristics are necessary to promote environmental and economic sustainability.

Environmental Sustainability

Protecting our environment and conserving natural resources for future generations is essential. America is dependent on fossil fuels to run our vehicles and to heat and cool our buildings. The nation has used millions of years' worth of fossil fuel deposits in the past 100 years, and the carbon and other pollutants in those fuels have been released into the atmosphere in a very short period of time. Environmental sustainability must include slowing this process by reducing reliance on fossil fuels.

Economic Sustainability. A new economy will emerge from the current crisis, one based on energy conservation, energy efficiency and renewable energy. Aurora is well-positioned to take advantage of this greener future. Green jobs and green industries are both high tech and labor intensive. This New Energy Economy cannot be out-sourced but will be defined by local responses to local conditions. Colorado is already a leader among states in this focus on sustainable economic development. Within Colorado, Aurora's assets of land, labor market, high tech industries, military sector and higher education opportunities favor a leading role in creatively responding to this paradigm shift. Development of transit and mixed-use urban centers will enhance Aurora's appeal to those wanting to partake of opportunities in the new economy.

Developing Aurora's Sustainability Plan

The first step toward developing Aurora's Sustainability Plan was to gather sustainability experts from the region to assist city staff in holding a public meeting and workshop. The purpose of the workshop was to solicit feedback from the community about what they wanted to see in the Sustainability Plan. To begin the discussion, staff proposed the plan be centered on three primary components:

- energy efficiency and conservation
- renewable energy
- economic growth based on the first two components

Energy Efficiency is defined as implementing an energy-savings technology. *Energy Conservation* is defined as only using energy as needed.

Renewable Energy is defined as energy from a resource that cannot be depleted from overuse.

Economic Growth can be accelerated through improved energy efficiency and renewable energy and by taking advantage of new industries based on renewable energy and conservation.

Staff and regional experts provided basic information about these components in a workshop format followed by a group discussion. Three public workshops were held simultaneously on January 29, 2009. The workshop sessions were well attended and participants provided significant and valuable feedback at each of the three workshops. Additional outreach was conducted during the first quarter 2009 with the commercial building sector and small businesses.

A follow-up focus group was convened in April 2009 by two students from the University of Colorado-Denver (UCD) as part of a Masters in Urban and Regional Planning curriculum. Focus group participants were comprised of January 2009 Sustainability Workshop attendees who agreed to attend an additional group discussion about sustainability in Aurora. Although no new strategies were identified during the focus group, the message was clear: the community wants a more sustainable Aurora and they are willing to assist the city in initiating and implementing tried-and-true strategies to achieve our goals.

Global Climate Change

On April 17, 2009, the Environmental Protection Agency (EPA) announced that the Clean Air Act will be revised to include regulation of greenhouse gas emissions from specific sources for the purpose of mitigating global climate change. Recently, EPA determined that federal actions requiring National Environmental Policy Act (NEPA) review are now required to address climate change consequences.

The number of climate change litigation suits is increasing, along with general awareness that consequences of climate change affect the ability of the community to be sustainable. Drought conditions impact the cost of water. Rising fuel and energy costs impact family budgets. Levels of hazardous emissions in the air impact our health.

Science of Climate Change. For more than 200 years, burning of fossil fuels and decimation of carbon-sequestering forests has caused concentrations of heat-trapping greenhouse gas to increase significantly in our atmosphere. These gases prevent heat from escaping into space in the same way a plant greenhouse stays warm during the cold months of the year. Balanced concentrations of greenhouse gas sustain global temperatures, but as excess greenhouse gases collect in the atmosphere, temperatures go up.

Global Temperature Change. According to NOAA and NASA data, the earth's average temperature has increased by 1.2 to 1.4ºF in the last 100 years. The eight warmest days on record since 1850 have all occurred between 1998 and 2009.

U.S. Climate Policy. The federal government has implemented voluntary and incentive-based programs, such as Energy Star, to reduce emissions and has established programs to promote climate technology and science. On April 17, 2009, EPA confirmed the Clean Air Act will be revised to regulate five greenhouse gases from specific sources. EPA's decision is a result of "compelling and overwhelming" science pointing to man-made pollution as a cause of global warming.

Health and Environmental Effects. Scientists are working to better understand future climate change and how effects will vary by region and over time. In Colorado, climate change is evidenced through weather patterns that affect our water cycle and impact vegetation. Colorado is experiencing some significant changes and many of them are preventable. With our physical, economic and environmental health at stake, it is time to effect change.

http://www.epa.gov/climatechange/

There is a long list of federal and international entities that support reducing greenhouse gas emissions from a variety of sources. This list includes such diverse partners such as:

- U.S. Department of Energy (DOE)
- U.S. Department of Defense (DOD)
- Environmental Protection Agency (EPA)
- National Aeronautical and Space Administration (NASA)
- Federal Aviation Administration (FAA)
- National Oceanic and Atmospheric Administration (NOAA)
- European Commission (EU)

The global scientific and political communities have moved beyond discussing whether climate change is happening to embracing solutions for reducing impacts and adapting to inevitable changes in our climate.

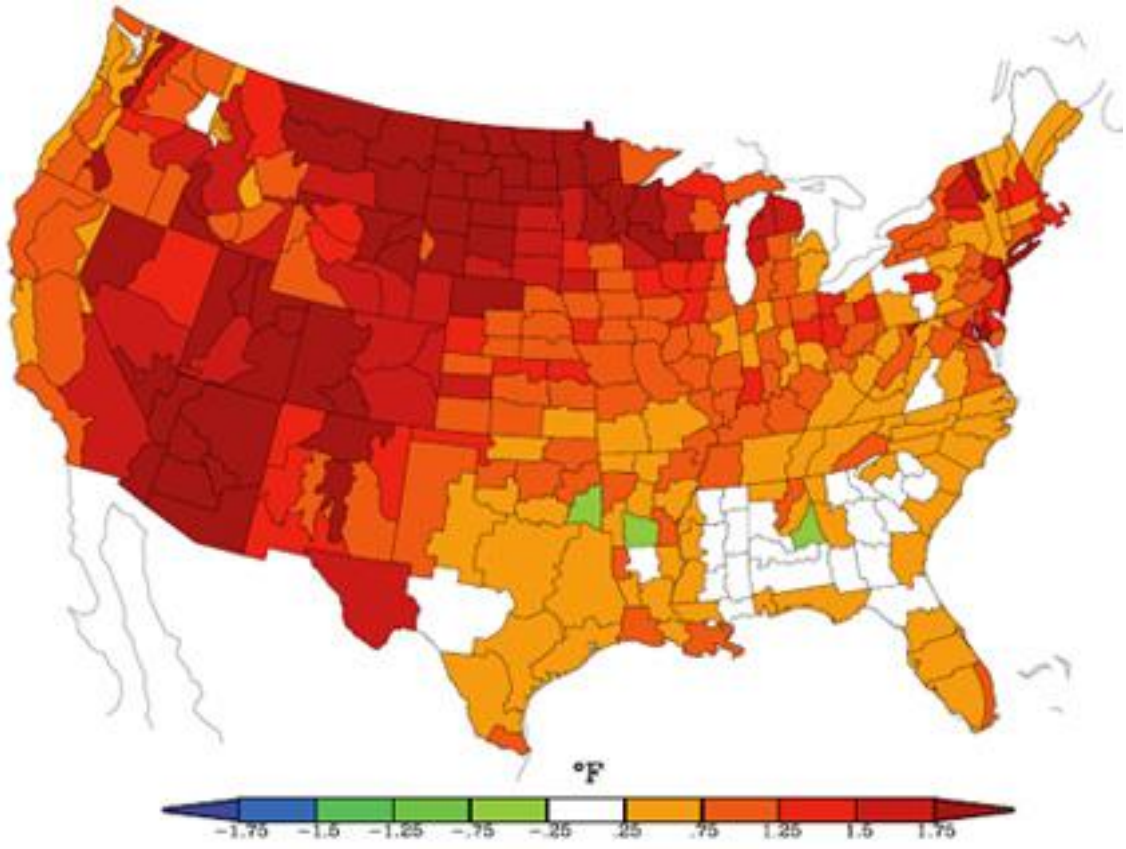
Colorado Climate Action Plan (CAP)

In late 2007, the Rocky Mountain Climate Organization (RMCO), of which Aurora is a member, began the effort to develop a comprehensive list of strategies to reduce the state's greenhouse gas emissions. This project was called the Colorado Climate Project. City staff participated in the Colorado Climate Project's Residential, Commercial and Industrial Buildings working group and the Water working

group. The strategies developed as part of these working groups were the basis for the Colorado Climate Action Plan. This plan sets aggressive greenhouse gas emissions reduction goals for the state and targets energy efficiency, conservation, renewable energy, economic growth and adaptation. The City of Aurora partnered with other Colorado jurisdictions to evaluate and select strategies and recommendations for reducing Colorado's carbon footprint and adapting to a changing climate.

Governor Ritter unveiled the Colorado Climate Action Plan in November 2007. This document represented a consensus of Colorado jurisdictions on the very best strategies for reducing greenhouse gas emissions with the lowest cost premiums. As part of RMCO's comprehensive effort to identify greenhouse gas emission strategies, they measured the state's carbon footprint. This combined effort set the stage for many communities to develop their own specific action plans.

Governor Bill Ritter convened a Climate Advisory Panel in June 2009 to begin working on implementation of the CAP and developing additional strategies that reach across all economic and environmental sectors.



Average Temperatures 2000-2007 Compared with Averages for 1901-2000
National Oceanic and Atmospheric Administration

Fig II-1

Aurora's Carbon Footprint

A "carbon footprint" is a measure of the impact that human activities have on the environment in terms of the amount of greenhouse gasses produced, measured in units of carbon dioxide. It is essentially a measure of energy use.

Aurora contracted with the University of Colorado-Denver (UCD) to measure the city's greenhouse gas emissions inventory (GHGEI) and give us a baseline for calendar year 2007. This baseline provides information needed to identify the city's goals for reducing our footprint. The preliminary results of Aurora's GHGEI confirm staff's initial recommendation to center the sustainability chapter on three primary components:

- energy efficiency and conservation
- renewable energy
- economic growth

Why Do a Carbon Footprint Inventory?

As prices for fossil fuels rise, families and businesses can use this GHGEI information to identify ways to decrease their carbon footprint and in doing so, reduce negative health impacts and monthly expenses for food, transportation and utilities, i.e., the environmental, social and economic "legs" of the sustainability stool.

From the city government perspective, it is vital to understand the source of GHG emissions in order to craft useful policy to mitigate those emissions. It is a step toward developing a sustainable energy plan.

Methodology. Aurora's greenhouse gas emissions inventory was prepared by Dr. Anu Ramaswami of the University of Colorado-Denver (UCD) with assistance from graduate students in UCD's sustainable urban infrastructure program. The methodology conforms to the widely-accepted guidelines developed by the World Resources Institute (WRI) and the World Business Council on Sustainable Development. The purpose of the WRI "protocol" is to standardize reporting for comparison purposes among businesses and units of government.

UCD staff obtained information about estimated tailpipe emissions, recycling volume, wastewater volume and other sectors from city staff, county records, DRCOG and other sources to develop input to the computer model. City staff worked closely with UCD staff to assure quality data input.

The GHGEI measures three dominant greenhouse gases: carbon dioxide, methane and nitrous oxides. These are referred to collectively as carbon dioxide equivalents and are reported on a common, standardized basis as metric tons (mt) of CO_2e.

Consistent with the WRI protocol, Aurora's greenhouse gas emissions inventory was divided into two broad areas or "scopes":

> Scope 1: energy used in buildings and other facilities within the city itself and for transportation operations (so-called "in-boundary activities"). All of the City of Aurora is located in Xcel Energy territory; no other primary electric utility providers operate in Aurora. Information provided by Xcel included data about the number of WindSource® customers in Aurora, both commercial and residential. (WindSource® is Xcel's voluntary renewable energy purchase program for residents and businesses).
>
> Scope 2 is not relevant to Aurora because it entails emissions from power plants to produce electricity. Although fossil fuels are extracted and processed within Aurora's city limits, any electricity generated is owned by the utility and included as

a Scope 1 activity. Aurora's emissions in this area are accounted through Scope 1 data received from Xcel, the exclusive provider of electricity in Aurora.

Scope 3: These are "out-of-boundary" activities in the sense that they occur beyond the boundary of Aurora but are partially attributable to Aurora. One such activity is cement production, reported by many scientists to be upwards of five percent of global GHG emissions.

Airline emissions are based on a metric centered on trips to the airport (DIA) and corrected to account for those residents who travel to DIA for employment.

Ponnequin Wind Farm
Provided by Xcel Energy

A full description of the methodology is contained in the UCD report, titled "City of Aurora GHG Inventory," accessible on the City of Aurora website (navigate to "Documents and Publications" on the Planning & Development Services home page). City staff will monitor results of additional studies and continue to refine and update Aurora's GHGEI to reflect the most current data sources.

Along those same lines, The Journal of Record (February 20, 2009) reports the supply chains through which foods are produced, processed and transported can have a significant impact on the environment in terms of GHG emitted. Members of our community need more resources to make responsible food choices and contribute to a more economical, environmentally friendly and health-based diet. The City of Aurora has a commitment to being a part of the solution to the problem of a largely non-sustainable food supply.

How Does Aurora Compare?

Aurora has now measured its carbon footprint for baseline year 2007. Pie charts comparing Aurora's emissions to national and state percentages begin on page 9.

Results of Aurora's Carbon Footprint

The results of the greenhouse gas emissions inventory are summarized below. The four largest emissions sectors are commercial, residential, vehicle fuel and "food purchase", i.e., emissions associated with the production of food consumed by city residents. Residential and commercial buildings represent more than half (54 percent) of Aurora's GHGEI which is generally consistent with national and state of Colorado GHGEIs. GHG emissions from the transportation sector are only two-thirds that of the U.S. and state of Colorado greenhouse gas emissions inventories. Aurora's lower emissions per capita might be linked to lower employment intensity than elsewhere in the region.

Buckley AFB is not included in Aurora's GHG inventory, although the city hopes to include their data as part of a future update.

Description of Benchmark	US National[1]	CO State[1]	Denver, CO (2007)[2]	Aurora, CO (2007)	Units of Measurement
Average residential electricity use	888	674	528	614	kWh/hh/month
Average residential natural gas use	58	57	65	47	Therms/hh/month
Average commercial/industrial/public building energy use	90	104[3]	179	117	Kbtu/square feet/year
Vehicle miles traveled per person per day	27	24.5	25	15	Vehicle Miles Traveled/person/day
Water/wastewater	100	154	168	147	Gallon/person/day
Municipal solid waste	4.62	6.3	6.85	6.3	pound/person/day
GHG emissions	25.2	24.5	25.3	15	Mt-CO_2e/person/year

[1]Source from Greenprint Denver 2005 report and 2006 Community of Arvada GHG inventory reports
[2]Source from Denver 2007 GHG inventory update
[3]Data for Mountain regions (2005)
Units: kWh=kilowatt hours; hh=half hourly; Kbtu=kilo (i.e, 1,000) British Thermal Units;
Mt-CO_2e=metric ton carbon dioxide equivalent

Greenhouse Gas Emissions Inventory Comparison Fig. II-2

National GHG Emissions. Carbon footprints, i.e., greenhouse gas emissions inventories for a specific area, are usually presented as a pie chart. Wedges of the 100 percent pie are expressed as percentages of the total footprint. The U.S. carbon footprint for baseline year 2005 is shown on page 9 and includes four main categories:

- Transportation
- Industry
- Buildings
- Agriculture

Buildings are divided into two categories: residential and commercial.

State of Colorado GHG Emissions. The state greenhouse gas emissions inventory consists of seven categories:

- Buildings
- Fuel Use
- Transportation
- Agriculture
- Fuel Production
- Industrial Process
- Waste

Buildings account for 46 percent of the state's carbon footprint; waste is three percent; transportation 23 percent and fossil fuel production, agricultural and industrial fuel use account for eight to nine percent each. The state pie chart has more "wedges" than the national chart, providing some detail about the contributing sectors. The state and national charts are consistent in identifying buildings and transportation as key sources of GHG emissions. Fuel production and agriculture are additional sources based on the state economy.

As city staff reviewed Aurora's greenhouse gas emissions inventory, some very important disparities between Aurora, Denver, the state and the nation became apparent. Although Aurora has a commitment to making alternate transportation available and creating more walkable neighborhoods, as discussed in Chapter IV, Aurora is still by far a community dependent on the automobile. For this reason, city staff was surprised to find Aurora's transportation emissions were a smaller percentage of our greenhouse gas emissions inventory than of the U.S., the state and Denver.

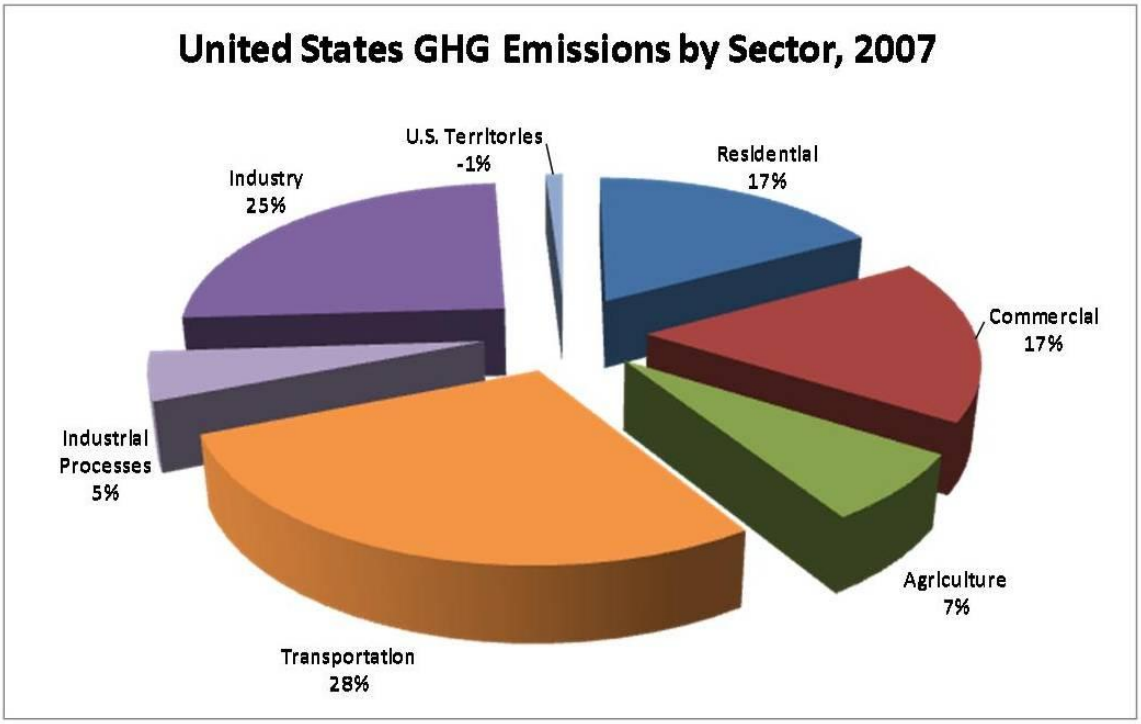
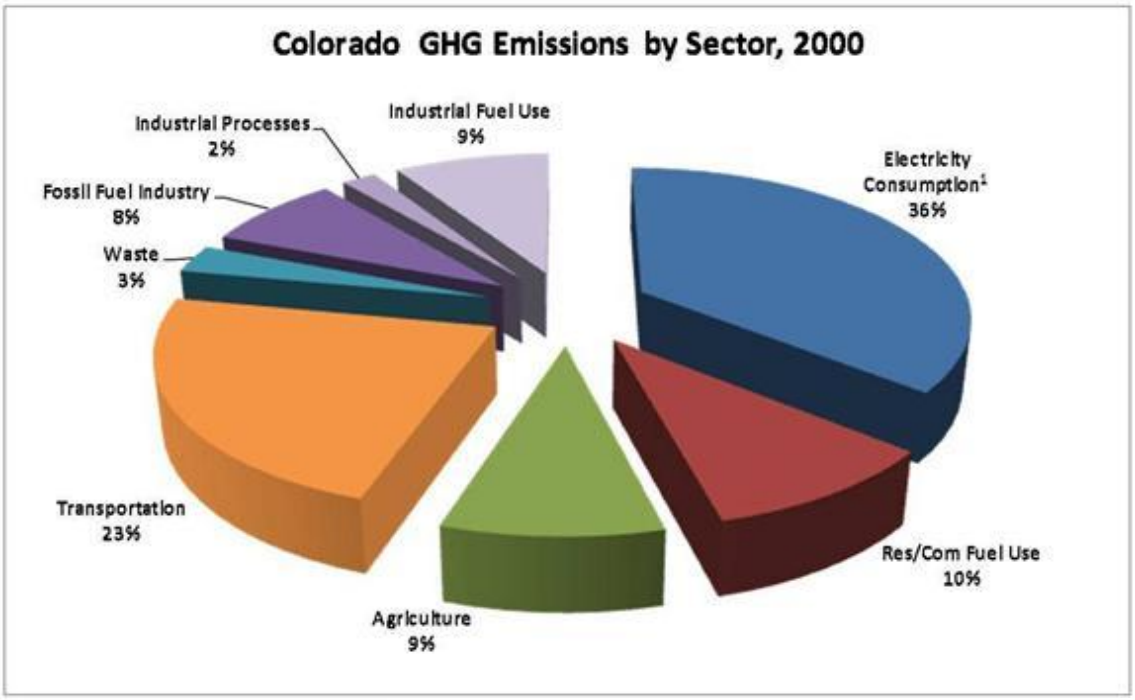
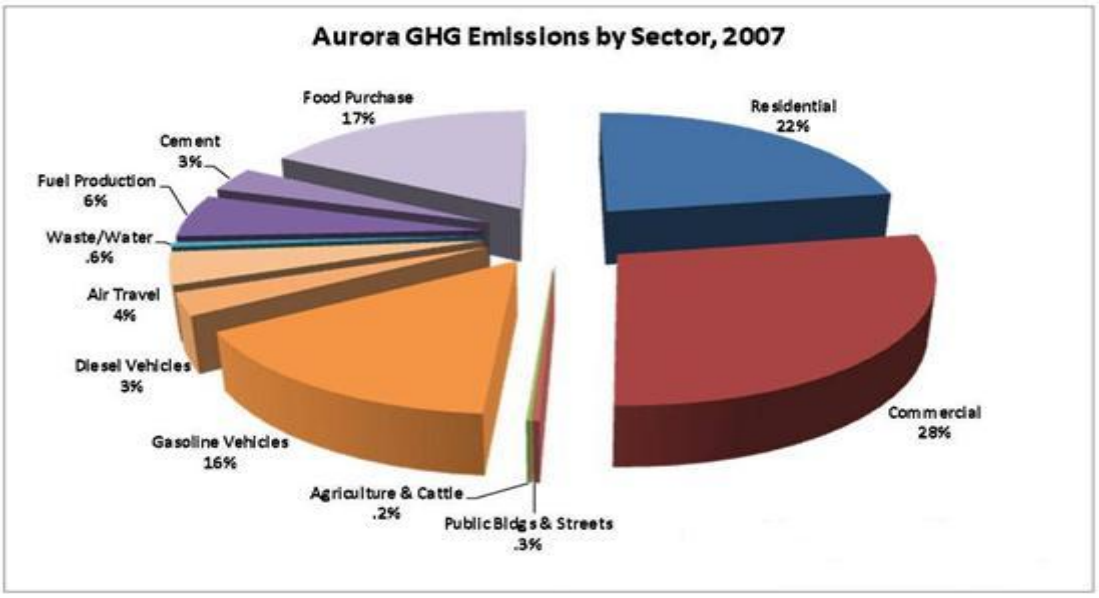


Fig II-3



Electricity primarily consumed by commercial and residential buildings

Fig II-4



Community-Wide Emissions: 4, 632,685 mt-CO2e
Per-capita Emissions: 15 mt-CO2e
***Incorporates a credit of .08 million mt-CO2e for recycling and end of life l and filling (with residual methane capture)**
Fig II-5

One explanation may be Aurora's average household size which is larger than comparison cities. Larger household size may result in fewer drivers per household, fewer vehicle owners per household and as a result, more transit riders.

Aurora's GHG Emissions Goals

Communities such as Aspen, Boulder and Fort Collins are on the forefront of the movement toward sustainability in Colorado and have provided role models for not only other jurisdictions in the state, but the state itself. These cities have adopted very aggressive GHG emissions reduction goals. In June 2009, the Denver Post ran an article about local communities' efforts to meet their self-imposed GHG emissions goals. The article cited the difficulties these three communities are having in achieving their goals as a result of a number of factors such as educating the community and the decline in the economy. All are in danger of missing their targets although they have all made significant progress toward those goals. Aurora wants to profit from these lessons learned by setting aggressive but realistic goals for our community. Our goals must be sustainable from an environmental, social and economic standpoint and each of these legs of the sustainability stool must be equal in size.

One of our resource expert partners who works with economically disadvantaged residents decried the inequity of mandating energy efficiency and conservation upgrades on the "backs of the poor" when these community members are the least able to afford them. Ensuring affordable methods to reduce energy usage is a challenge that Aurora must recognize as we look forward to 2010 and beyond.

For these reasons, the city will propose an initial goal of reducing GHG emissions by 10 percent by the year 2025 from levels shown in the City of Aurora 2007 GHGEI. As programs and projects are funded and progress is made in educating the community about the sustainable features of these programs and projects, the GHGEI will be recalculated to determine

List of Current City of Aurora Sustainability Projects and Programs

Energy Conservation and Efficiency

Efficiency and Conservation

- city LEED Gold resolution for construction of new city facilities
- developing green building code
- auditing, upgrading and retrofitting city buildings for energy efficiency
- ENERGYSTAR™ preference for city purchasing
- lighting and occupancy sensor retrofit in city buildings
- no cost compact fluorescent light bulb distribution (in cooperation with Wal-Mart)
- environment Aurora
- partnering with local schools to provide energy education
- assisting with outreach to small businesses for Xcel lighting retrofit rebate

Waste Reduction and Recycling

- converting paper forms and publications to electronic versions to save paper
- implemented single stream recycling in many city buildings
- single stream recycling in most city buildings
- Saddle Rock Golf Course Maintenance Facility single stream drop-off
- reviewing city processes and practices to cut waste

Water Conservation

- Prairie Waters Program
- water conservation rebates and educational programs
- "Purple Pipe" reuse water program for irrigation at city parks and golf courses
- public pools best practices to reduce water consumption and operational efficiencies

Green Infrastructure/Landscaping Programs

- Community Gardens in partnership with Denver Urban Gardens
- Tree Planting Program
- xeriscape standards
- existing parks and open space contribute green infrastructure
- xeriscape demonstration gardens at the Aurora Municipal Building

Renewable Energy

- Renewable Energy Projects and Sustainability Task Force
- SolarTAC at ACRE
- Solar photovoltaic installation planned for city buildings and property
- Sustainable use neighborhood (SUN) zone district
- Art in Public Places program provides environmentally-themed public art pieces

Economic Growth

Transportation Initiatives

- transit-oriented development program/station area plans
- bicycle/pedestrian program
- Safe Routes to School grant recipient
- Northwest Aurora Bicycle-Pedestrian Plan
- Fitzsimons Multi-Modal Transportation Plan
- urban street standards

Fig II-6

GHG reductions after an initial period of five years. City staff will present findings to City Council and propose measures to continue with or revise goals, as required. Reducing GHG emissions 10 percent by 2025 is the city's goal in spite of significant projected population growth. Aurora recognizes the potential for certain households to see larger reductions than the city average. It is also very likely that unanticipated factors may affect the city's ability to reduce GHG emissions or provide even more reduction potential. These factors must be weighed, measured, and evaluated as staff continues to monitor progress toward "10 by 25."

Plans, Programs and Projects:
Aurora's Commitment to Sustainability

Aurora's strong commitment to a sustainable future is demonstrated through the following:

Environment Aurora. Environment Aurora was formed in 2005 to formalize and focus Aurora's sustainability efforts through the implementation of many citywide programs. Environment Aurora is comprised of leaders from many city departments who meet regularly to discuss ways to improve the city's conservation efforts, develop environmentally friendly programs and educate employees about the important role they play in Aurora's continuing efforts to be environmentally responsible. The committee is guided by the city's "Environmental Policy Statement". It states the following:

- Compliance: The city is committed to compliance with federal, state and local environmental statutes, regulations, enforceable agreements, and permits. Each manager, supervisor and employee shall have a responsibility to meet environmental requirements. The city will provide appropriate environmental training and education to employees in order to protect human, environmental and physical resources.
- Conservation: The city will strive to minimize damage to the environment when conducting business affairs. The city will actively explore, create, and communicate new ways to prevent pollution and to preserve natural resources.
- Continuous Improvement: The city is dedicated to continuous improvement of its overall environmental performance. The city will endeavor to be a model of environmental performance and environmental leadership.
- Co-operation: The city will look for opportunities to partner with the public and its employees to sustain and enhance our environment and to inform them of actions they can take to protect human health and the environment.

Beginning in 2005, Environment Aurora began compiling city sustainability initiatives into an Environment Aurora Report. Information was gathered from city departments about how they are incorporating elements of the Environmental Policy Statement. The report was updated in 2007. This report is available for review by the public on the city's website.

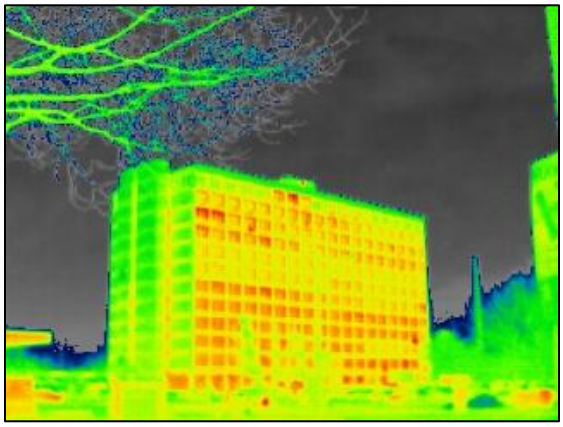
Aurora Wetlands in the Winter

Renewable Energy Projects and Sustainability Task Force. The Renewable Energy Projects and Sustainability Task Force (REPS) was first convened in 2007 as staff began evaluating specific projects for city buildings. REPS meets approximately monthly to guide various projects such as the solar rooftops project and distribution of the city's Energy Efficiency and Conservation Block Grant (EECBG) allocation from the U.S.

Department of Energy. The task force acts as a clearinghouse for the significant volume of information that must be sifted through as more sustainability initiatives are identified locally, regionally and nationally. Many of the projects listed in **Figure II-6** were developed through Environment Aurora.

Leadership in Energy and Environmental Design. The city recognizes that more efficient energy use in buildings decreases energy costs, decreases greenhouse gas emission, improves health and preserves the environment. In May 2007, City Council approved a resolution requiring new city buildings to be built to the Leadership in Energy and Environmental Design (LEED) Gold level and the principles of ENERGYSTAR®. Existing city buildings are required to be upgraded to LEED Existing Building (EB) standards and upgraded using the principles of ENERGYSTAR®. Although many technologies, such as replacing incandescent lighting with compact fluorescent light (CFL) bulbs or light-emitting diodes (LED) result in immediate and significant savings, they have an initial cost.

In city buildings, staff calculates payback before proposing to purchase energy efficiency technology. A payback of three to five years makes purchase of the technology more feasible. Longer paybacks may be more feasible if incentives are available to offset some of the capital cost for the technology. Incentives may include funding to offset all or a part of the cost to purchase technology.



Commercial Building as seen by an infrared camera

To meet the intent of the LEED-Gold standard, the city's Facilities Management staff may choose to retrofit equipment with a long-term payback if the equipment is due for upgrade. Aurora building owners and occupants are encouraged to do their homework, calculating payback. The results of this calculation will help a building owner, whether commercial or residential, determine how long it will take to use energy savings to pay back the purchase price of efficiency technologies In some cases, just upgrading an appliance, regardless of the ENERGYSTAR® rating, will improve energy savings if the original technology is pre-1990.

Beginning in 2004, the city participated in a lighting retrofit program to purchase energy-efficient lighting for all city buildings to replace existing lighting. Utility rebates became available to buy down the cost of the replacement and shorten the payback period. In the Municipal Justice Center Complex, consisting of the Courts Building, Police District 2 and the Aurora History Museum, lighting retrofits combined with scheduled maintenance, repair and replacement of HVAC equipment have significantly reduced the city's energy costs. Facilities Management staff report energy consumption in these buildings with combined HVAC system components were reduced 33 percent from 2004 to 2007, with a savings to the city of $80,000 in avoided utility costs.

What is LEED?

LEED is an internationally recognized green building certification system that certifies a building or community was designed and built in a responsible way. Buildings and associated systems must be constructed using strategies aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, greenhouse gas emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts. Using a holistic approach, LEED addresses water, air, materials, heating and cooling systems and maintenance, to name a few.

Developed by the U.S. Green Building Council (USGBC), LEED provides a specific framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions.

Source: U.S. Green Building Council

ENERGYSTAR® is a joint program of the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE) that was created to help save money and protect the environment through energy efficient products and practices--to the tune of $19 billion savings on residential utility bills alone since its introduction.

For the Home

Energy efficient choices can save families about 30 percent on their energy bill and 30 percent savings of greenhouse gas emissions, without sacrificing features, style or comfort. If you are looking for new household products, look for ones that have earned the ENERGYSTAR® label. They meet strict energy efficiency guidelines set by the EPA and DOE.

For Business

EPA's ENERGYSTAR® partnership offers a proven energy management strategy that helps in measuring current energy performance, setting goals, tracking savings, and rewarding improvements. EPA provides an innovative energy performance rating system used by City of Aurora Facilities Management staff to assure outdated equipment is replaced in an efficient manner.

Source: www.energystar.gov

Other Green Building Programs. Since 2007, when the city passed the Green Building Resolution, the green building industry has expanded significantly to include more building programs, options, products and technologies. The City of Aurora Building Codes Division staff continues to seek out opportunities to learn more about green buildings and assure safe, efficient buildings continue to be constructed. The Building Code Division shows commitment to sustainable practices through their International Accreditation Service (IAS) accreditation.

Conservation. Conservation can be defined as simple actions that prevent the use of energy. If the lights are not needed, no matter how energy efficient, they need to be turned off. The city is increasing opportunities for water conservation and recycling.

Citizens and businesses can take advantage of these opportunities. Many conservation actions have no associated costs, making payback immediate and significant. City of Aurora operations need to set an example by incorporating conservation in their daily operations. The city uses conservation practices whenever and wherever possible. Examples of conservation can be achieved through the implementation of technology such as smart power strips that turn off all peripherals when the computer is turned off. Installing occupancy or light sensors allow conservation of energy resources by assuring energy efficient lighting is not used until needed. These conservation technologies are used every day by city staff.

Recycling. No one activity represents a community's commitment to sustainability more than recycling. The classic "chasing arrows" logo is recognized in every country around the globe identifying opportunities to reduce, reuse and recycle.

Advantages of Recycling. Recycling conserves natural resources and diverts waste from landfills. Landfills generate greenhouse gas emissions in the form of methane gas, which is a potent greenhouse gas. Methane is also a flammable gas requiring landfills to flare to address both safety and air quality. The advantages of recycling are:

- limits the amount of glass, paper and plastic that must be produced
- adds jobs to the economy
- slows consumption of natural resources
- changes behavior, helping the community become more environmentally aware
- promotes scientific advancements to produce recyclable and biodegradable materials and materials reuse
- stimulates conservation policy making

City Recycling Programs. The City of Aurora does not currently own a waste hauling or recycling operation nor does it mandate recycling. Members of the community contract to provide their own waste hauling and recycling services. However, the city is committed to providing resources to the community that increase recycling opportunities.

Single Stream Recycling in City Buildings. In the fall of 2006, nine of Aurora's city buildings received single stream recycling containers as a result of an updated waste hauling contract. Environment Aurora provided training for department staff, and the program was immediately successful. Waste basket emptying was reduced from five days per week to three days per week as a result of the single stream waste diversion opportunity. City staff embraced the program and soon consolidation bins on docks were filled so quickly that additional pick-ups had to be scheduled. The city's waste hauling contract specifies that fees are volume-based. Savings on reduced waste volume were sufficient to cover the additional recycle bin pick-ups.

Recycle Research Project. In the fall of 2007, the city partnered with a graduate student from UCD to assess the recycling needs of the city. The student conducted surveys, interviews and assessments of facilities with the assistance of city staff and local waste haulers. The research project identified the need for single-stream recycling drop-off locations conveniently located throughout the city. As a result of this study, Aurora partnered with Waste Management Recycle America to identify a suitable drop-off facility as a community resource.

Single Stream Drop Off Location
Saddlerock Golf Course Maintenance Facility

Saddle Rock Golf Course Maintenance Facility Single Stream Recycling Drop-Off Center. Staff evaluated several city facilities to determine their suitability for locating a single-stream recycling drop-off center. Chosen for its security, access, pavement rating and an unprecedented commitment by facility staff, Saddle Rock Golf Course Maintenance Facility now offers single stream drop-off for members of the community. The city received a grant from Waste Management Recycle America to make minor upgrades to the site that allow recycle trucks to empty large bins on a regular basis, and the city purchased signage. Community response to this resource was immediately positive and the bins are filled regularly year round. A fully staffed facility has discouraged dumping and allowed the drop-off activities to continue uninterrupted.

Electronics Recycling. Beginning in mid-2006, Aurora partnered with members of the community to hold the first city-sponsored e-cycle event. The turnout and volume collected exceeded expectations. As a result, staff initiated a no-cost contract with a local e-cycler and member of the Basel Action Network (BAN) to offer additional events and resources to City of Aurora residents. More than 270,000 pounds of electronics have been recycled through events held on city property.

Awards and Recognition
City of Aurora
2006 E-Cycling Event

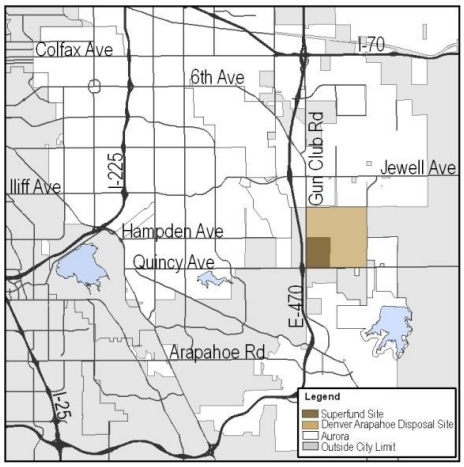
- EPA awarded Aurora with the "Friend of the Environment Award."
- The City of Aurora Public Works Department was recognized by the American Public Works Association for their role in the inaugural e-cycle event.

Aurora e-cycle events remain very popular with our citizens. The city schedules events throughout the city and has added an event location at the request of community members. All four past e-cycle events, with the exception of the first corporate-sponsored event, have required fees to be collected to offset the cost of disposing of electronics containing specific hazardous wastes. Community members willingly pay fees in exchange for the city and contractor offering responsible recycling and disposal choices. City staff receives requests for recycling opportunities so frequently that a Recycling Hotline has been set up so members of the community can access information easily.

City of Aurora Recycling Hotline
(303) 739-7173

Denver-Arapahoe Disposal Site Recycling Facility. The Denver-Arapahoe Disposal Site (DADS) is located adjacent to Aurora at Hampden Avenue and Harvest Road. DADS has recently added a single stream recycling facility at the site that is open to all members of the community. Because of its proximity to Aurora, it is a valuable resource for residents. Most items can be dropped off at this facility at no charge, although there is a small fee for tires and appliances.

Landfill gas consists of approximately 50 percent methane, 45 percent carbon dioxide and a balance of other gases (primarily nitrogen). The gas is created by biological decomposition of organic matter in landfills under low oxygen conditions. A new gas-to-energy plant is now online to burn landfill gas for beneficial use. Similar systems are in place at landfills around the country, though this is the only operational plant in Colorado using Waste Management's innovative technology. The plant converts landfill methane gas from both DADS and the adjoining Lowry Landfill sites into 3.2 megawatts of electrical power for distribution by Xcel Energy, thereby reducing greenhouse gas emissions in the process.



DADS Vicinity Map Fig II-7

Benefits to the community and environment include:

- reduction in greenhouse gas and air pollution emissions
- sustainable, long-term energy source
- beneficial use of a waste by-product
- production of enough electricity to provide for the annual electrical demands of approximately 3,000 households

Community Gardens. Locally grown food sources may not seem, on the face of it, to be an energy efficiency and conservation technology. Yet as shown in our GHGEI, when food is transported from long distances, energy is required for transport. The price of the energy is added to the cost of the food product. Studies have touted the health benefits of gardening from the impressive amount of exercise it requires to the health levels of gardeners eating their own locally grown produce. Locally grown food offers social benefits such as physical exercise, a sense of community, healthy food sources and less time spent in single-occupant vehicles. Plants sequester carbon and new gardens that displace traditional blue grass can reduce water needs by 30 percent.

A community garden is defined as any shared space where people come together to grow vegetables, flowers, or any plants. Community gardens may consist of one large plot or many individual plots. Beginning with the Victory Gardens initiative during World War I and World War II, the creation of community gardens has been a public health objective.

Over 20 million Americans produced a staggering 40 percent of the vegetable supply in the U.S. during World War II. Following the troops' return to the United States, the Victory Gardens initiative dwindled. However, many cities in the United States are now turning to community garden initiatives and zoning to redirect their communities to grow produce locally.

A burgeoning movement is underway to provide incentives to local residents to grow their own food and expand the number of urban gradens throughout the city.

Benefits of Community Gardens

- improves the quality of life for people participating in the garden
- provides a catalyst for neighborhood and community development
- stimulates social interaction
- encourages self-reliance
- beautifies neighborhoods
- produces nutritious food
- reduces family food budgets
- conserves resources
- creates opportunities for recreation, exercise, therapy, and education
- reduces crime
- preserves open space
- creates income opportunities and economic development
- reduces city heat from streets and parking lots
- provides opportunities for intergenerational and cross-cultural connections

Source: The American Community Gardening Association Fig. II-8

This recent movement is particularly noticeable in Colorado, since farmland is dwindling statewide. Aurora has the opportunity to incorporate supportive elements into land use plans and regulations to address the increasing demand for community gardens and other methods of producing local foods.

Community Farm at Delaney Farms

The Role of Water. National security and the economic health of the U.S. depend on sustainable energy and water supplies. Water and energy are interdependent. The production of energy requires large volumes of water while treatment and distribution of water is dependent on readily available, low-cost energy.

Drought conditions in Colorado have focused Aurora's effort to seek innovative solutions to capture and conserve this precious natural resource. Conserving water is conserving energy. The City of Aurora is committed to providing a socially, environmentally and economically sustainable water supply. Chapter IV.G discusses in detail Aurora Water's Prairie Waters project to provide a sustainable water supply and Aurora's water reclamation efforts. The "Water Stewardship" section of Chapter IV.G describes recently codified regulatory measures and Aurora's ongoing commitment to water conservation.

Sustainable Building and Zoning Code. The City of Aurora's Planning & Development Services is developing and incorporating sustainability features into the zoning code. This effort will assure that City Code does not preclude sustainable features in the built environment.

This effort also represents a significant step toward implementing sustainable strategies to reduce our carbon footprint and increase sustainability. City staff will propose minimum zoning standards for various uses such as wind turbines, photovoltaics, solar access, geothermal heat, green roofs and community gardens.

Green Infrastructure. The city has opportunities to incorporate green infrastructure into proposed new development, city property and facilities and in areas that are redeveloping. Many organizations such as The Center for Neighborhood Technology, The Conservation Fund and U.S. EPA define green infrastructure as an interconnected network of open spaces and natural areas, such as greenways, wetlands, parks, forest preserves and native plant vegetation, that naturally manages stormwater, reduces flooding risk and improves water quality.

The U.S. Department of Agriculture Forestry Service defines green infrastructure as strategically placed forests, tree cover, vegetation and other urban green space that reduce heat island effect and reduce the amount of runoff, pollutants and sedimentation into urban and rural waterways. The city recognizes the value of "greening" hard infrastructure such as roads and utilities. Green roofs exemplify high-performance infrastructure by reducing the heat island effect, providing energy efficiency and conservation benefits, attenuating noise and improving stormwater quality.

The City of Aurora's zoning code has incorporated several green infrastructure features over the years, including tree requirements for residential, commercial and industrial development projects, development and water incentives for native plant material or xericscape landscaping, and an extensive parks and open space trail and greenway system within the city limits. One of these opportunities is Lend Lease's Horizon Uptown project described in Chapter V.H.

The city's Urban Street Standards described in Chapter IV.H require tree-lined buffers for increased walkability, reduced heat island effect and to sequester carbon from vehicle emissions. The Aurora Campus for Renewable Energy (ACRE) master plan identifies bioswales and other means of working with the natural landscape to reduce impacts of development.

City staff dedicates a significant portion of development application review to working with applicants to incorporate green infrastructure and support developers who proactively initiate green infrastructure elements.

Rooftop Solar Energy Photovoltaic Projects. The city has awarded contracts to a solar electric provider to install photovoltaic electrical power generation systems at three city buildings: Police District 2, Aurora Municipal Justice Center and North Satellite Main Shop. Each system will generate up to 100 kilowatts (kW) of electric power and will reduce the power consumption purchased from the utility by approximately 460,200 kWh/yr, reducing Aurora's greenhouse gas emissions by more than 4,000 tons per year. Each 100 kilowatt "sun-powered" system will provide electrical power equivalent to power 20 average homes.

Aurora Municipal Courts and District 2 Police Station

Meadow Hills Solar Hot Water System

In March of 2009 the city installed a solar hot water system that serves the domestic hot water needs for both the golf clubhouse and the outdoor swimming pool bathhouse of the Meadow Hills Pool. Facilities Management staff evaluated payback and technical options to identify the best system for the facilities. The installed system features evacuated tube collectors that perform well in colder climates.

Solar Thermal at Meadow Hills Pool

When the swimming pool is not in operation, 100 percent of the hot water needs for the clubhouse are met. When the swimming pool is in operation, approximately 40 percent of the total hot water needs for the pool bathhouse and clubhouse are met by the system. Supplemental gas fired water heaters heat the water when the solar water system is not able to keep up with demand.

Aurora Campus for Renewable Energy. During the years 2006 to 2008, Aurora purchased 1,762 acres of land in the northeast plains. The land was purchased with airport noise payments from Denver for the express purpose of precluding residential development in an area zoned to allow residential uses. The renewable energy uses at the Aurora Campus for Renewable Energy (ACRE) are compatible with DIA and Front Range Airport operations and existing land uses which include neighboring residential, commercial and agricultural.

Aurora trail system

The city's plan for ACRE requires that any project on the campus be designed, built and operated in a sustainable manner. The plan maintains the land's natural character by incorporating ecosystem values and surface water corridors into its design.

Research and development at ACRE will focus on developing new and fine tuning existing renewable energy technologies. A primary goal is to create technologies and solutions that can support utility-scale power generation. ACRE projects are expected to assist in the reduction of greenhouse gas emissions. These projects include testing and manufacturing equipment and materials that support renewable energy deployment within the region. Energy education is another important goal at ACRE. Resources will be available to educate visitors about the important environmental, social and economic benefits of projects located on the campus.

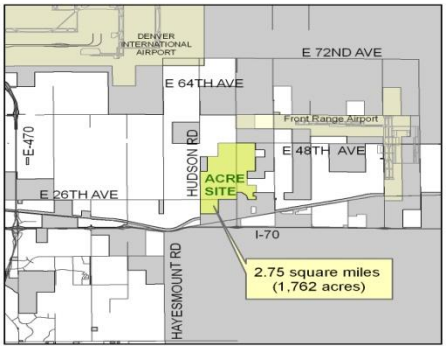


Fig. II-9

Conceptual Drawing of SolarTAC at Full Build-Out Fig II-10

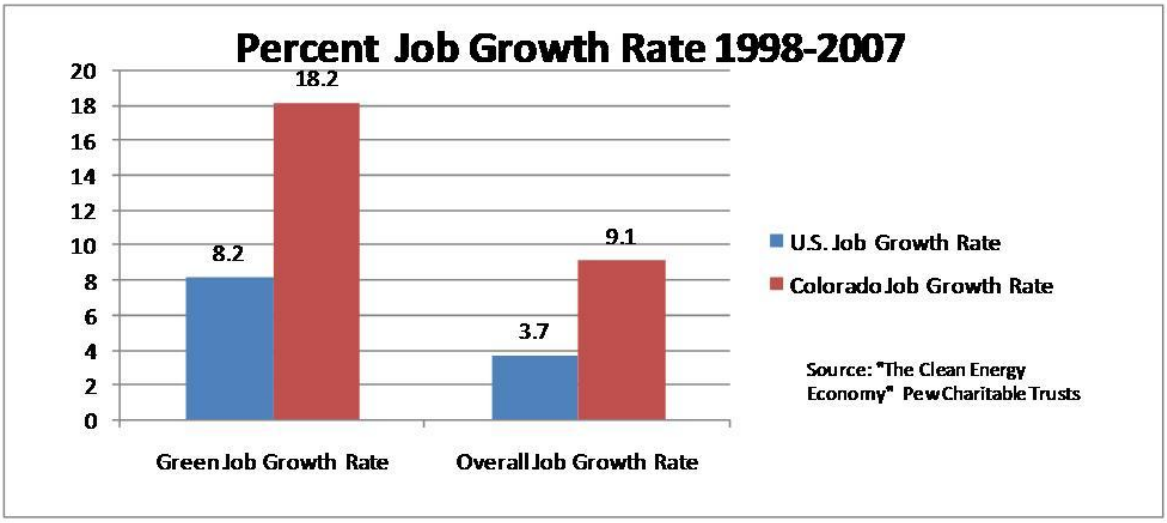
The initial development on ACRE will occur in an area leased by the Solar Technology Acceleration Center (SolarTAC). SolarTAC includes six public and private sector entities that will advance and accelerate the commercialization of solar technology. The entities are:

- Abengoa Solar
- City of Aurora
- Colorado Renewable Energy Collaboratory
- Midwest Research Institute
- SunEdison
- Xcel Energy

These entities have joined forces and signed an agreement to develop one of the world's largest solar test and evaluation facilities. SolarTAC is estimated to be completed and fully operational by late 2009. The exceptional solar resources in Colorado make ACRE an ideal site for this initial project. With the state quickly becoming a leader in renewable energy development, the potential for success at ACRE will be a significant driver of Aurora's vision to become a sustainability role model.

Transmission. Any new renewable energy project must move its power to its customers. Currently this transmission is a challenge in the western states as there is limited capacity on existing transmission lines to handle the extra electricity utilities predict

High Voltage Lines near I-225 &Iliff Avenue



Job Growth Rates 1998-2007 Fig. II-11

is needed, and states want to produce, in the next 20 years. Colorado could face potentially severe energy and economic challenges if the state's utilities are delayed in developing planned high-voltage electric transmission. The Front Range's existing transmission system is already constrained. The Colorado Long Range Transmission Planning Group estimates that, by the year 2015, almost $2 billion must be invested in the "backbone" transmission system of this area alone. Colorado utilities are working cooperatively to develop new transmission projects. These projects must assure reliable electric service and advance renewable energy development.

Several major transmission projects are under development in Colorado. Tri-State Generation and Transmission Association and Western Area Power Administration propose to construct the Eastern Plains Transmission Project. This project consists of a 1,000-mile high-voltage transmission system across eastern and southern Colorado. Failure to upgrade existing transmission lines and build new transmission infrastructure could have long-lasting consequences. One of the most important consequences is an inability to put online the large renewable energy projects that can potentially be located at ACRE. According to a report issued in 2007 by the Colorado Energy Forum, a non-profit education and research organization, failure to upgrade the state's system of high-voltage transmission lines, particularly along the Front Range, could lead Colorado toward a genuine energy crisis.

Colorado's population grew 30 percent in the 1990s to nearly five million and is expected to top seven million in the next 25 years. The Colorado Energy Forum report concludes: "In short, we need more electric transmission capacity and we need it soon." Much of the increasing demand is driven by technology like computers and small electronics which have caused a surge in home energy use by 30 percent.
In 2007, Colorado Governor Bill Ritter signed into law several bills concerning transmission infrastructure and renewable energy development. The Governor's Energy Office (GEO) took the lead to ensure the professional implementation of Senate Bill 07-91, "Mapping Renewable Energy Resources in Colorado". A 16-member Task Force, appointed by the Governor, the Speaker of the House, and the President of the Senate was formed. Senate Bill (SB) 91 set up a procedure for appointing 16 individuals to a task force to create maps of opportunities for Renewable Resource Generation Development Areas. House Bill (HB) 06-1325 created a task force to

evaluate existing barriers to improved transmission capacity and find solutions, including siting, financing and multi-state planning. Utilities across Colorado will be challenged to meet their obligations and need support from regulators and local governments.

Smart Grid. The electric grid delivers electricity from points of generation to consumers. The electricity delivery network functions via two primary systems: the transmission system and the distribution system. The transmission system delivers electricity from power plants to distribution substations, and the distribution system delivers electricity from distribution substations to consumers. The grid also encompasses a myriad of local area networks that use distributed energy resources to serve local loads (i.e., users of electricity) and/or to meet specific requirements for load protection.

When the power goes out, a consumer calls the utility to let them know about the outage. This is not a "smart" solution. An example of a smart solution would be the grid instantaneously informing the utility about the outage so the utility could fix the problem more quickly. A smart grid allows the consumer to view real-time electric use to identify ways to reduce consumption and charges from the utility rather than a consumer receiving a bill with an amount to pay the utility each month. A smart grid is protected from terrorist activity, including undergrounding lines where feasible, and allows renewable energy located in remote areas to reach load in urban areas.

The City of Aurora is actively seeking opportunities to participate in smart grid projects that provide pilot-scale demonstrations and are scalable to larger projects. Aurora is seeking partnerships with technology providers to install advanced metering infrastructure on city renewable energy projects. These opportunities will provide the type of information needed by universities, businesses, cities, utilities, technology companies, military installations and other community partners to advance smart grid technology and assure its integration into our daily lives.

"Green" Collar Jobs. As discussed in Chapter IV.E, Addressing Financial Concerns Associated with Growth, achievement of the city's economic vision for the future requires the type of growth that diversifies and expands the economic base of Aurora and improves its financial strength. Improvements to the economic base will include increased property values, viable retail locations, hotels, and a wide variety of employment opportunities that bring people to the city or dissuade them from leaving. Improvements to financial strength will also diversify the economic base and make the city less susceptible to external factors and economic changes.

As part of the initiative to improve the overall jobs-to-population balance, Aurora's vision is to ensure Aurora is a leader in "green" employment opportunities and job training. According to the American Solar Energy Society's Green Collar Jobs in the U.S. and Colorado, green jobs were booming in 2006. In that year, these industries generated 8.5 million jobs, nearly $970 million in revenue, more than $100 billion in industry profits, and more than $150 billion in increased federal, state, and local government tax revenues.

The potential exists to employ more than 600,000 in renewable energy industries with investment over the next two decades.

The emerging green economy will directly create job opportunities for installers and manufacturers of renewable energy technologies, and opportunities for a variety of administrative and logistical support staff. Bringing this potential economic prosperity to Colorado, and especially the City of Aurora, depends largely on providing the educational opportunities to prepare individuals for jobs in the renewable energy

industry. The city is committed to working closely with the Community College of Aurora as they develop certifications and training programs in energy efficiency and renewable energy career fields.

Success in this arena also depends on creating the kinds of places where such industries, technologies and programs will want to locate, such as at ACRE. Additional community assets will help attract and sustain green jobs. Green infrastructure offers enhanced bicycle and pedestrian mobility, and urban activity centers provide employees readily accessible services, such as shopping, public transportation and other amenities. Investment in green industries is an excellent opportunity to attract new business and residents to Aurora while securing the long term environmental and economic sustainability of the city.

The American Recovery and Reinvestment Act of 2009. On February 17, 2009, President Obama signed into law the American Recovery and Reinvestment Act of 2009 (ARRA). ARRA is a $787 billion spending bill intended to stimulate the U.S. economy in part by spending on projects for education, health care, infrastructure, and specifically the energy sector.

Aurora will receive more than $15 million in ARRA funding to improve transportation infrastructure and fund energy efficiency and conservation projects over the next one to three years. The Colfax/I-225 Interchange project is an ARRA-funded project described in Chapter IV.H.

Energy Efficiency and Conservation Block Grant. To receive the city's formula grant allocation from DOE, city management has approved a list of projects that will help our community meet sustainability goals. Once these projects are approved by DOE, city staff will begin implementing:

- upgrades to city facilities and equipment
- offering incentives for energy efficiency, conservation and renewable energy improvements in residential and commercial buildings
- increasing opportunities for social sustainability by promoting community gardens and implementing elements of the city's Northwest Aurora Bicycle-Pedestrian Plan
- studying ways to make the city more energy and water efficient

These programs and projects were selected to stimulate a sustainable economy and reduce the city's carbon footprint.

A total of 13 projects have been submitted to DOE for review. These projects are listed in **Fig. II-10**. Because these projects will be funded through ARRA, transparency in reporting is not only mandated but essential for taxpayers to understand how, when and why their money has been spent.

For more information, visit

RECOVERY.GOV

Energy Efficiency and Conservation Block Grant
List of Proposed Projects

- retrofit traffic lights with LED
- EE & C upgrades to city facilities
- retrofit baseball field lighting to LED
- purchase controls to make IT equipment more efficient
- prepare planning documents for a fuel-saving facility
- retain sustainability professionals
- participate in Governor's Energy Office (GEO) EE&C rebate programs
- create commercial building EE&C incentives
- improve recycling opportunities
- improve bicycle/pedestrian connections
- create incentives for renewable energy
- increase and/or expand community gardens
- study how to make Aurora Water facilities more energy efficient

Fig II-12

Issues and Needs

Energy Efficiency and Conservation:

- Providing educational resources is essential to inform the public about ways to improve energy efficiency in a way that is both practical and economical.
- Improving energy efficiency is an ongoing goal in Aurora and an important component of new building projects and initiating renovations. Improving energy efficiency is an important step toward conserving our limited resources, reducing our greenhouse gas emissions and ensuring financial sustainability.
- Providing resources for businesses and commercial building owners to reduce their environmental footprint will make emissions reduction achievable for more people.
- Increasing participation in existing GEO energy efficiency and conservation programs will give more homeowners access to financial resources.
- Expanding recycling opportunities will allow the public to participate directly in the city's sustainability initiatives.
- Revising the City Code is necessary to take advantage of new technologies and standards for energy efficiency and to increase opportunities for building owners and operators to reduce their carbon footprint.
- Increasing opportunities for community gardens will expand an important community resource to help meet social sustainability goals and reduce greenhouse gas emissions.
- Initiating green infrastructure projects will reduce urban heat island effect, reduce our carbon footprint and improve the overall appearance of the city.

Renewable Energy:

- Harnessing renewable energy is needed to create energy independence and create local economic opportunities.
- Increasing the use of renewable energy on city property, residential buildings and commercial buildings is needed to offset the use of fossil fuels, reduce peak energy demand and reduce Aurora's greenhouse gas emissions.
- Developing projects at ACRE encourages research and development of renewable energy technologies, increases opportunities to implement existing renewable energy technologies

and stimulates the local and regional economy.
- Facilitating an increase in transmission capacity will contribute to the success of local renewable energy projects, allowing electricity generated from remote renewable energy sources to be efficiently transmitted to demand centers.
- Demonstrating smart grid technology as part of a regional effort will contribute to a more efficient and less vulnerable transmission grid.

Economic Growth:

- Attracting businesses to the city that develop, produce and disseminate renewable energy and energy conservation is essential for Aurora's economic sustainability.
- Developing green technologies within the renewable energy industry locally will stimulate economic growth.
- Increasing opportunities for "green" jobs associated with energy efficiency and conservation will help stimulate the local economy.
- Partnering with local community colleges to increase "green" job training opportunities provides a sustainable workforce.
- Increasing the number of sustainable developments will improve the long term stability of the city and attract new businesses and residents. Implementing policies that make Aurora a healthier and more sustainable community in which to work and play is necessary to attract a desirable employment base.

STRATEGIES

Sustainability

1. Continue developing a sustainable city culture by participating in regional, state and national sustainability initiatives and by promoting sustainable features of the city.

2. Create a Sustainability Coordinator position that will be responsible for identifying and promoting sustainability programs and projects.

3. Provide education and resources to city staff and the community, including identifying and creating those resources, such as a web page devoted to sustainability. Work with community sectors such as building owners, elected officials, schools and businesses to identify needs.

4. Evaluate city projects to incorporate sustainability including potential development applications to identify opportunities.

5. Reduce the city's greenhouse gas emissions 10 percent by 2025 using all resources available.

6. Monitor progress toward greenhouse gas emissions reduction goals. Research, identify and evaluate new information, studies and resources to determine the impact on the City of Aurora's greenhouse gas emissions. Use that information to assess progress toward reduction goals. Expand the annual Environment Aurora report to include progress toward sustainability goals.

7. Continue to engage the community in guiding the city's sustainability efforts wherever and whenever possible. Act as a role model for the community by incorporating sustainable components in city programs, projects, events and actions.

Energy Efficiency and Conservation

1. Use the city's EECBG allocation to improve energy efficiency and conservation in city, residential and commercial buildings and the city's vehicle fleet.

2. Seek opportunities to make energy efficiency and conservation upgrades in city buildings.

3. Identify grant opportunities to fund energy efficiency and conservation upgrades and technologies for all construction in Aurora.

4. Partner with members of the community to educate building owners and occupants about energy efficiency and conservation.

5. Construct single stream recycling drop-off facilities in all quadrants of the city.

6. By partnering with local businesses, increase opportunities for recycling, including paper shredding, electronics, textiles, building materials and other recyclable materials to divert a significant portion of waste sent to landfills.

7. Support existing and proposed community gardening practices that provide responsible and sustainable food production by:

    a. Exploring ways to create new gardens, including how such uses will be effectively developed and managed;

    b. Expanding existing urban gardens, where appropriate;

    c. Considering proposals for identifying garden sites on existing and proposed public property;

    d. Reviewing city planning documents and the City Code to ensure adequate policies are in place to foster and regulate community gardens and other local food production practices as permitted uses.

8. Construct city buildings to LEED Gold standards using the principles of Energy Star in accordance with City Council Resolution R2007-49. System upgrades, major renovations and other improvements will be made in accordance with green building and maintenance standards.

9. Retrofit all lighting in city buildings with energy efficient upgrades. Install occupancy sensors in common areas to conserve energy in unoccupied spaces.

10. Ensure that members of the community have access to low cost home audits to determine the most effective ways to reduce energy use and lower their greenhouse gas emissions.

11. Continually review the zoning code to ensure that it permits and encourages the use of energy efficiency and conservation technologies and green infrastructure.

12. Continue to expand e-services currently available through the city's website and provide additional e-services for citizen involvement in government and civic affairs.

Renewable Energy

1. Designate a portion of the city's EECBG allocation to offset permit fees and create a revolving loan fund to incentivize the use of renewable energy.

2. Use city property for renewable energy, as appropriate. Identify rooftops and vacant ground at city facilities where renewable energy applications may be installed. Promote the use of geothermal heating and cooling for new construction and where upgrades are planned.

3. Increase opportunities at ACRE by incentivizing research and development projects and identifying funding sources to build needed infrastructure.

4. Work with the utilities to expand and upgrade transmission capacity on a regional level. Ensure that the City Code allows smart grid technology upgrades as the national transmission system is renovated.

5. Revise the city zoning code to allow renewable energy installations in residential, commercial and industrial zones.

6. Offset permit fees to incentivize renewable energy applications for solar, wind and geothermal.

Economic Growth

1. Facilitate development projects that incorporate sustainable components and showcase sustainable features.

2. Target the renewable energy sector in economic development.

3. Work with local educational institutions on programs and incentives that support emerging "green collar" services, trades and industries. Maintain and grow the city's existing support system for small businesses.

4. Encourage the local public school districts to develop and implement curricular programs and activities that focus on sustainability.

5. Evaluate changes to the city zoning code to encourage sustainability practices in multiple areas such as residential energy systems, district heating and cooling systems and green infrastructure.

6. Continue to promote policies, programs and environmental changes, as well as behavioral changes among the population to gain widespread acceptance of healthy eating and active living.

7. Establish and promote "green purchasing" and "green leasing" programs that emphasize the purchase and use of environmentally friendly products, city agency services and city vehicle fleet.

8. Create an award program that recognizes superior sustainability practices in new development and redevelopment.

9. Review proposed development in the city to assess very low to zero impact features and educate developers and builders on the financial, social and environmental benefits of this type of development.