

EUGENE, OREGON COMMUNITY CLIMATE AND ENERGY ACTION PLAN: *ISSUES AND OPTIONS*

INTRODUCTION:

It's becoming increasingly clear that our national, state, and local communities must take significant action in the face of climate change – both to reduce our greenhouse gas emissions, and to prepare our community for the effects of climate change. Rising fuel prices, due to the increasing global demand and limited supply of easily-accessed petroleum, provide additional motivation to reduce our everyday reliance on fossil fuels. This report provides background information to help our community discussion as we create Eugene's Community Climate and Energy Action Plan.

CLIMATE CHANGE AND THE ROLE OF GREENHOUSES GASES

The earth receives energy from the sun, part of which is reflected back to space. Greenhouse gases, including carbon dioxide, methane, and water vapor, surround the earth and trap much of this energy—keeping the surface warm and making life on

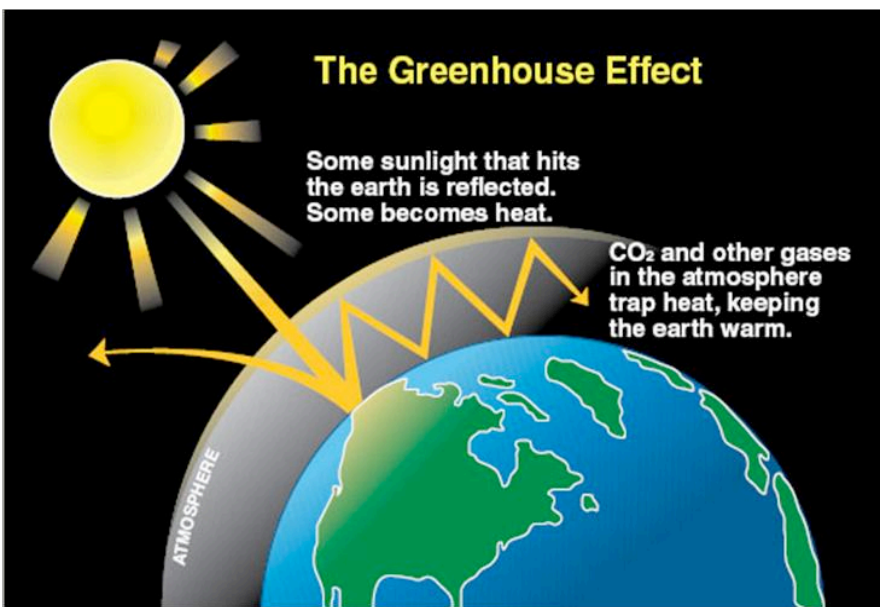


Figure 1 - Source: State of Washington Dept. of Ecology

earth possible (see Figure 1). For over 50 years we have been driving cars, heating our homes and businesses, and creating electricity by burning fossil fuels such as oil, coal, and natural gas. This has increased the amount of greenhouse gases in the atmosphere, causing more of the sun's energy to be trapped. The trapped energy warms the earth and changes our climate. Climate scientists have been telling us that we need to reduce our greenhouse gas emissions to avoid further intensifying the greenhouse effect. Communities like our own must work to decrease our greenhouse gas emissions and start planning for changes to our climate.

THE NEED TO ADAPT TO A CHANGING CLIMATE

Reducing our greenhouse gas emissions now is expected to decrease the magnitude of climate change over time. However, carbon dioxide and other greenhouse gases produced today will remain in the atmosphere and continue to affect the climate for decades to come. Making plans to prepare for, and adapt to, the economic, social, and environmental impacts of climate change can help reduce the cost and severity of those impacts. A February 2009 report entitled "Preparing for Climate Change in the Upper Willamette River Basin of Western Oregon: Co-Beneficial Planning for Communities and Ecosystems"¹ highlights several important changes expected to affect Eugene, including:

- More rain in the winter and less rain in the summer
- Reduced snowpack, lower summer stream flows

- Increased demand for water for agricultural uses
- Reduced summer hydroelectric power (due to lower summer stream flows) while summer demand for electricity is likely to increase
- Increased storm intensity, flooding, and wildfires
- Higher rates of heat related illness – exhaustion, asthma, respiratory diseases

There are a number of actions that our community will need to take to prepare for climate change.

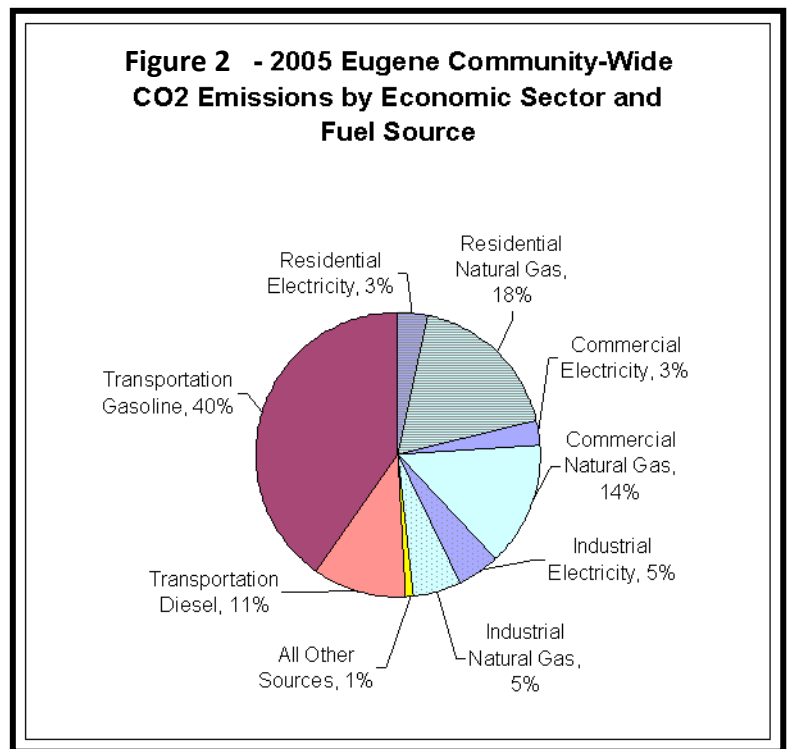
ANTICIPATING RISING FUEL PRICES

Over the last decade, there has been increasing concern about the supply and cost of oil and natural gas. Global demand for oil and natural gas has increased rapidly over the last 30 years, but there is a limited supply of these non-renewable resources. Gas prices over \$4 per gallon during the summer of 2008 reminded us how dependent we are on those fuels for our daily activities. These increasing costs took a big bite out of many home and business budgets. Many things cost more when transportation costs increase, making this especially challenging for small businesses and lower or fixed income families.

A 2007 Portland report titled “Descending the Oil Peak: Navigating the Transition from Oil and Natural Gas” (City of Portland Peak Oil Task Force)ⁱⁱ has identified a number of issues that are applicable to Eugene. For example, transportation of freight via air and truck is expected to become more costly and food prices are expected to increase. The hardest hit by increasing fuel prices in Eugene will be those with lower or fixed incomes. It is important that we make our homes, businesses, and community as resilient as possible in the face of rising fuel prices in the coming years. To reduce our dependence on oil and natural gas we will need to make many changes in our community. Some will take years to complete, so it is important that we increase our efforts now.

EUGENE’S RESPONSE TO CLIMATE CHANGE AND RISING FUEL PRICES

Eugene’s City Council and staff have already begun work to help address climate change and increasing oil prices. In 2007, in response to the Mayor’s climate initiative, and as a first step toward creating a climate and energy action plan, City staff and community partners compiled an inventory of our community’s greenhouse gas (GHG) emissionsⁱⁱⁱ (Figure 2). The inventory showed that combined residential, commercial and industrial transportation within Eugene is the source of 51 percent of our community’s total greenhouse gas emissions. Residential energy uses are the next largest source of GHG emissions at 22 percent of total emissions, due primarily to the use of natural gas for space and water heating. Commercial space heating accounts for 17 percent of total GHG emissions, mostly related to the use of natural gas. Industrial energy uses contribute 10 percent of the community’s GHG emissions, again related to natural gas usage in industrial processes and space heating. It is important to note that this inventory does not account for energy “embodied” in consumer goods. Embodied energy is all of the energy, including electricity, oil and natural gas, used in the making, transporting, storing, distributing and disposing of the consumer goods we use; from drinking cups and lawn furniture, to refrigerators and cars. It is the energy used to mine the



metal, harvest the wood, grow the cotton, or make the plastic, then to manufacture and transport these items, and finally to dispose of them. Because many of these goods come from several places and often get shipped around the world in the process, it is very difficult to calculate the amount of energy in any one item. Though it is difficult to calculate, we know that making and disposing of consumer goods contributes a large amount of greenhouse gases.

In response to recommendations from Eugene’s Sustainability Commission, City Council adopted the following directive:

In conjunction with a wide variety of community partners, by August 2010, develop a community climate and energy action plan that will (1) reduce greenhouse gas emissions and (2) reduce total, current community-wide fossil fuel consumption 50 percent by 2030 (as an absolute not a per capita reduction) by:

- Establishing a greenhouse gas emissions reduction goal
- Establishing targets for achieving those goals;
- Identifying strategies to achieve those targets;
- Identifying necessary adaptations;
- Developing measures for tracking success;
- Identifying financial impacts, and
- Including periodic progress reports back to the community with annual reports of progress to the Sustainability Commission.

EUGENE’S COMMUNITY CLIMATE AND ENERGY ACTION PLAN: ACTION AREAS

It is important to start by setting the goal for reducing greenhouse gas emissions. Many plans, including those of Berkeley, Portland, and other cities around the country, have identified a common goal of reducing emissions 80 percent by 2050. This is the same goal recommended by the United Nations International Panel on Climate Change (IPCC), a team of international climate scientists. The goal adopted by Eugene’s City Council to reduce community-wide fossil fuel use 50 percent by 2030 is well aligned to meet that target.

As we develop Eugene’s Climate and Energy Action Plan, we will look at land use and transportation, buildings and energy, food and agriculture, health and social services, consumption and waste management, and natural resources. Other communities have used these topics to organize their climate and energy action plans and it’s a good starting place for ours. Under each topic, you will find:

- A short description of the topic and how it relates to *greenhouse gas emissions* and *rising fuel prices*, followed by examples of recommendations that other communities have identified to address and prepare for these challenges. (Community name in parentheses)
- A short description of the topic and how it relates to *climate preparations*, followed by examples of recommendations identified to prepare for climate change. (Report or community name in parentheses)



The examples provided are not an exhaustive list of solutions, but rather a place to begin the discussion.

LAND USE AND TRANSPORTATION

Land use decisions such as where we live, do business, and locate industry have a big influence on how, where, and how far we travel. If we can create and maintain land use patterns that reduce dependence on automobiles and increase busing, walking, and biking, there is less reliance on daily use of fossil fuels.

Examples of Possible Actions – Greenhouse Gas Reductions and Adapting to Rising Fuel Costs:

- Create walkable and bikeable neighborhoods by locating stores and businesses within short distance of homes and improving sidewalks and bike lanes (Portland)
- Improve busing and other public transportation services (Several communities)
- Implement tailpipe emissions standards (Portland)
- Accelerate creation of electric vehicle system by supporting installation of charging stations (Boulder, Portland)
- Encourage increased use of biking and public transportation (Boulder, Portland)

The report titled, “Preparing for Climate Change in the Upper Willamette River Basin of Western Oregon” suggests that there will likely be increased flooding and fires due to changes in climate. This will become a factor when making land use and transportation decisions.

Examples of Possible Actions – Climate Change Preparations:

- Preserve farmland and expand local food production and processing (Portland – Descending the Oil Peak)
- Limit development in forested areas and floodplains (Preparing for Climate Change in the Upper Willamette)

BUILDINGS AND ENERGY

Buildings account for the second largest energy use in our community, next to transportation. Many buildings are energy inefficient and rely on fossil fuels for heat (natural gas or electricity with some fossil fuel sources). In addition, building materials (metal, concrete, wood) take significant energy (oil, gas, electricity) to mine, harvest, manufacture, and transport.

Examples of Possible Actions – Greenhouse Gas Reductions and Adapting to Rising Fuel Costs:

- Require green building standards for all new construction (Sonoma County, Portland)
- Encourage business owners and residents to replace appliances and improve energy efficiency (Boulder)
- Encourage passive cooling such as planting shade trees and using light colored roofs that reflect heat (Berkeley)
- Encourage home or business owners to install on-site solar panels or wind turbines (Many)
- Encourage water conservation and re-use of grey water (Berkeley)



According to “Preparing for Climate Change in the Upper Willamette River Basin of Western Oregon” there will likely be an increased risk of winter flooding and summer forest fires. Our buildings and energy use will need to account for these

Examples of Possible Actions – Climate Change Preparations:

- Encourage the construction of vegetated drainage ditches that can slow runoff from heavy rains (Preparing for Climate Change in the Upper Willamette)
- Make sure that building codes provide protection from increased storm events, rising temperatures, and flooding (Preparing for Climate Change in the Upper Willamette)

FOOD AND AGRICULTURE



Production and transportation of foods uses large amounts of fossil fuels. Oil and natural gas are used in the making of conventional fertilizers. As fuel prices increase, imported food will become more costly and we will look to local growers to produce more of our food.

Examples of Possible Actions – Greenhouse Gas Reductions and Adapting to Rising Fuel Costs:

- Create a public engagement campaign highlighting food choice as a key action to live a climate-friendly lifestyle (Portland, Berkeley)
- Create new community garden plots and encourage home gardening (Portland, Burlington)
- Plant food-bearing trees and shrubs on public lands and in schoolyards, where appropriate, with harvest rights available to groups caring for the trees and/or to the public (Burlington)
- Encourage rooftop gardens through tax subsidies or other incentives (Chicago, New York City, Washington D.C.)

According to the report, “Preparing for Climate Change in the Upper Willamette River Basin of Western Oregon,” as our valley climate changes, we will need to be prepared for warmer, wetter winters and drier summers, factors that will undoubtedly effect the growing potential of the valley.

Examples of Possible Actions – Climate Change Preparations:

- Preserve farmland and expand local food production and processing (Portland – Descending the Oil Peak)
- Increase water efficiency in agricultural practices and start to develop new crop varieties (Preparing for Climate Change in the Upper Willamette)

HEALTH AND SOCIAL SERVICES

With changes in climate and unpredictable fuel supply, we can expect more demand for health and social services. Heat waves, higher rates of asthma and other respiratory diseases are expected. Higher costs for home energy and transportation will be especially difficult for vulnerable populations.

Examples of Possible Actions – Climate Change Preparations:

- Plan for increased demand on the safety net (Portland – Descending the Oil Peak)
- Prepare emergency plans for sudden and severe fuel shortages (Portland – Descending the Oil Peak)
- Update emergency management plans (Preparing for Climate Change in the Upper Willamette)
- Improve disease control programs (Preparing for Climate Change...)
- Protect water quality (Preparing for Climate Change...)
- Educate the public on health risks associated with climate change (Preparing for Climate Change...)



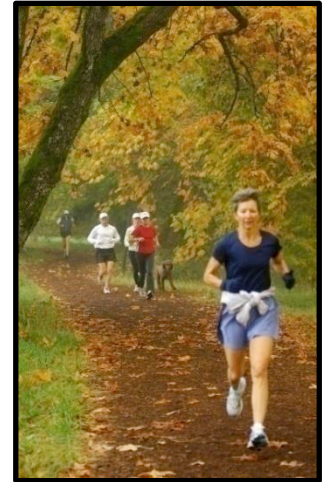
CONSUMPTION AND WASTE MANAGEMENT

Fossil fuels are used in the production and packaging of goods that we buy and use every day. Because embodied energy is expected to be a large source of greenhouse gas emissions, it will be important to address our purchasing habits. Lane County residents and businesses already recycle 53 percent of their solid waste but there is still room for improvement. Reducing

consumption and waste also reduces the amount of gas and diesel used for hauling and handling waste.

Examples of Possible Actions – Greenhouse Gas Reductions and Adapting to Rising Fuel Costs:

- Encourage businesses and residents to purchase new and reused goods with minimal packaging that are durable, repairable, and reusable (Portland, Sonoma County)
- Implement mandatory commercial food waste collection in city and begin collection of residential food waste (Portland)
- Provide technical assistance to contractors and construction firms to meet city’s new requirement to recycle 75 percent of all construction and demolition debris (Portland)
- Increase producers’ responsibility for product waste and packaging (Berkeley)



NATURAL RESOURCES

Trees, water, air quality, and open space are all critical assets to our community and they will all be affected by changes in climate. By shading the pavement, urban trees reduce urban heating thereby reducing the need for air-conditioning. Tree canopies also catch rainfall, slowing the flow of heavy runoff and reducing flooding. The unpaved ground in parks and around trees allow water to soak into the soil, further reducing runoff. Planting trees and protecting wetlands, forests, and agricultural lands can absorb carbon dioxide (a greenhouse gas) locally.

Examples of Possible Actions – Greenhouse Gas Reductions and Adapting to Rising Fuel Costs:

- Purchase, restore, and protect open spaces to promote forests, grasslands, and wetland ecosystems with high potential to absorb carbon dioxide (Portland, Berkeley, Sonoma County)
- Expand public and private programs to encourage planting and preserving trees (Portland)

Examples of Possible Actions – Climate Change Preparations:

- Prepare for increased flooding around waterways (Preparing for Climate Change in the Upper Willamette)
- Plan for increased fires in the forests surrounding the urban area (Preparing for Climate Change...)
- Protect native species and intact habitats (Preparing for Climate Change...)
- Increase efforts to manage invasive species (Preparing for Climate Change...)

SUMMARY

Once complete in the summer of 2010, Eugene’s Climate and Energy Action Plan will provide direction to help us adapt to a changing climate, and to transition away from our dependence on fossil fuels and toward a more resilient Eugene. The plan is only a plan and it will be critical that we put effort toward turning the recommendations into reality.

ⁱ “Preparing for Climate Change in the Upper Willamette River Basin of Western Oregon: Co-Beneficial Planning for Communities and Ecosystems” Report prepared by US Department of Agriculture, Climate Leadership Initiative, and National Center for Conservation Science and Policy. Full document available online at: http://www.uoregon.edu/~climlead/pdfs/willamette_report3.11FINAL.pdf

ⁱⁱ The complete document, “Descending the Oil Peak: Navigating the Transition from Oil and Natural Gas”, prepared by the City of Portland Peak Oil Task Force is available online at: <http://www.portlandonline.com/osd/index.cfm?c=42894>

ⁱⁱⁱ The complete document, “Eugene Community Greenhouse Gas Emissions Inventory Report. July 2007” is available online at: http://www.eugene-or.gov/portal/server.pt/gateway/PTARGS_0_2_252312_0_0_18/GHGpercent20Inventorypercent20Finalpercent20070801.pdf

