

COMMUNITY ENERGY STRATEGY: A 2020 FRAMEWORK

Adopted by the Corvallis City Council on January 4, 2010

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Executive Summary

The intent of this strategy is to provide specific, publicly approved guidance to the City Council and the community about how to build a more secure, resilient Corvallis in the face of an uncertain energy future. It aims to move our town away from its total reliance on fossil fuels for its building and transportation energy needs, and towards increased self-sufficiency in meeting those needs.

This strategy is based on existing public policies that can begin to be implemented today. It has been developed in a context of increasing urgency and a strong sense that we need to begin acting now in order to decrease vulnerability to energy cost and supply fluctuations; reduce our contribution to global climate change; increase local economic vitality and diversity; achieve sustainable mobility; and accomplish other related goals.

The strategy focuses on three components:

- Energy conservation and efficiency (reducing energy use),
- Renewable and/or low-carbon energy sources,
- Local clean-energy business.

Each component contains a built-environment element and a transportation element (with the exception of the third component, local clean-energy business, which addresses only the built environment).

Each component of the strategy considers numerous aspects of the topic with regard to objectives and goals, policy direction and support, community actions already under way, examples of actions to help attain the goals and objectives, potential partners in such actions, challenges, and suggestions for ways to measure progress. A set of recommended next steps concludes every section.

This strategy is based on current policy only. In the creation of the strategy, it became apparent that numerous additional actions could be taken, or policies developed, for which no official guidance exists today. These gaps have been identified in a separate document, *Community Energy Gap Assessment*.

Finally, it's important to remember that the planning horizon for this strategy is the year 2020. As the community moves forward to begin implementing this work, it will be important to continue considering possible new policies, actions, and strategic directions in the light of changing circumstances such as technological developments, new scientific information, and community will, values, and needs.

Introduction

Context

Consideration of energy conservation and security for its citizens is an important role for the City of Corvallis. It's also a longstanding one. Many of the ideas on which this strategy is based have been part of city policies for as long as thirty years—and went through extensive public processes before they were officially adopted. What is new is a commitment to organizing the relevant policies into **an action plan for implementation**.

An interruption in the flow of foreign oil led to city, state, and national energy planning in the 1970s and early 1980s. Today, the challenges are far larger and more serious. The ramifications of global climate change—and its relationship to human energy consumption—will have both direct and indirect consequences in our region for generations to come. Additionally, our existing energy infrastructure (power plants, transmission grids, transportation networks) cannot continue to support rampant growth in energy consumption. Cost estimates for additional energy infrastructure targets to meet that demand are so astronomically high that most national and West Coast experts believe they are unattainable.

As we prepare for an uncertain energy future, energy assurance planning is needed to guide our entire community and measure our progress. It involves rethinking the sources of energy that power our community, adjusting our consumption level, and coming to terms with the problems associated with energy consumption byproducts.

Today, Corvallis imports virtually all of our energy. By far the majority of it comes from burning fossil fuels. These facts alone indicate economic, environmental, and social vulnerabilities. Fortunately, our community is rich in the human resources needed—the scientific and engineering talent, ingenuity, and positive, can-do spirit—to take on the challenges and come up with solutions that work for all of us.

Basis

This energy strategy is derived from numerous existing City of Corvallis documents, which have been developed, adopted, and used by the community and City Councils over the past decades. These documents include the *Corvallis 2020 Vision Statement*, the *Corvallis Comprehensive Plan*, the *Land Development Code*, various master plans and City Council policies. These all underwent extensive public processes before being adopted. Additionally, the strategy takes guidance at certain points from various State of Oregon mandates, such as land-use and transportation policies and administrative rules. References to relevant sources are contained in each section of this document.

The strategy uses the year 2020 as its target date. It does so because the *2020 Vision Statement* reflects participation by the broadest numbers of residents and sectors of our community, and because much of the material in the other documents takes guidance from that effort.

The strategy describes what is in place and can be done today to authorize and accomplish actions for our energy future. It provides examples of possible actions but does not require them. A separate “gap analysis” document pinpoints identified needs for additional policies, goals, or actions where our existing framework appears insufficient to fully achieve our objectives. If the City Council decides to proceed with the adoption of additional policies, it is expected that they will develop those through a public process that involves the community.

Finally, the strategy assumes partners, incentives, and public information efforts as the key elements for accomplishing a more secure energy future for our own local community. It does not take into consideration future regulatory approaches that may be required by state and federal mandates, as these are unknown at this time.

Partners

Changing our approaches to energy use will benefit all of Corvallis, and we all can be a part of the solution in our own ways. Building partnerships can enable us to achieve more effective results than individual efforts alone can accomplish. For example, city government cooperates with state and local agencies to assist it in providing community services, such as the Corvallis Area Metropolitan Planning Organization, 509J School District, Oregon State University, and Benton County.

But we cannot rely on government alone to make the necessary changes. Our entire community—everyone who lives, works, and operates here—needs to participate. While industrial and commercial users consume the majority of our energy, households and individuals consume their fair share too. The key to success will be the extent to which partnerships can be built among all parts of the community--by families, businesses, neighborhoods, nonprofit groups of all kinds, schools, industries, professional and religious organizations, and major and minor energy suppliers. The result of such combined efforts will make Corvallis more economically secure, healthier, safer, and more livable.

Overview

Mission

The aim of this energy strategy is to move Corvallis away from total reliance on fossil fuels to meet the community's building and transportation energy needs, and towards increased self-reliance in meeting those needs.

*"We envision that in 2020 Corvallis will be a compact city, ...economically strong, ...environmentally aware, ...employing benchmarks to measure progress... [and] a hub in a regional transportation system." **Corvallis 2020 Vision Statement***

Objectives

The strategy seeks to accomplish a number of positive outcomes for the community, including but not necessarily limited to the following:

- decrease our community's vulnerability to energy cost and supply fluctuations;
- cut energy costs as percentage of household/business/community budgets;
- reduce our community's contribution to global climate change;
- improve community health through better air quality;
- increase local economic vitality and diversity.

Components

To accomplish the mission and attain the objectives, the strategy focuses on three areas of activity:

- Energy conservation and efficiency
- Renewable energy
- Local clean-energy business.

A fourth component, measurement, intends to track actions and results to evaluate our progress and measure success in these areas. A recommended measurement approach is

1. Provide a starting point by establishing baseline information about activities.
2. Establish realistic, aggressive benchmarks through research of best practices and comparable experience in other communities.
3. Measure the activity indicators at intervals to track progress.
4. Evaluate progress at a mid-term point, such as 2013, to determine whether additional actions or changes are needed.
5. Implement changes as indicated by evaluation.

Conservation and efficiency: *reduce the amount we consume.*

Introduction

Energy specialists frequently remind the public that the single biggest source of renewable energy is reducing the amount we consume. For households and businesses alike, conservation and efficiency measures provide some of the most immediate and cost-effective, and least disruptive, reductions in transportation and structural energy consumption.

Conservation and efficiency measures focus on individual and community actions that are readily understandable, most notably changing habits and targeted investments. (Examples of habit-changing actions include turning off lights and small appliances when not in use, not idling an automobile for more than 20 seconds, etc. Examples of targeted investments would be replacing an inefficient furnace, installing storm windows or insulation, or purchasing a new fuel-efficient vehicle.) While targeted investments may face some resistance due to initial costs, a growing number of incentive and assistance programs is available to help individuals and businesses surmount those barriers. Changing our habits, on the other hand, involves each person using his or her own powers of thought, initiative, and desire to bring about reductions in our energy consumption.

“The concept of energy conservation is not new, nor is it a question of if there is, or is not, an ‘energy crisis.’ It is simply a matter of necessary prudence and thrift in the economics of daily living—an attribute which has been deemed noble throughout the history of this country.” Prologue, Corvallis Energy Planning Framework (1979)

“The number of daily auto trips and the length of those trips have been significantly reduced...Public and private incentives exist which encourage employees to use mass transit. This, in turn, has reduced the reliance on the automobile as well as eased traffic congestion and air pollution... A cooperative strategy has created a cleaner, healthier environment by...reducing fossil fuel emissions and significantly reducing the amount and toxicity of emissions...Water conservation efforts decrease the amount of water residents consume....Businesses...encourage employee use of alternative modes of transportation to and from work...” Corvallis 2020 Vision Statement.

Objectives:

1. By 2020, Corvallis will have significantly reduced its building and transportation energy consumption through energy efficiency and conservation measures, working with partners and in coordination with the state.

2. By 2020, our community will have greatly reduced its contribution to global climate change through energy conservation and efficiency.
3. By 2020, our community will have reduced its reliance on imported oil and fossil fuels through energy efficiency and conservation measures.

*Localities shall control land uses and development “so as to maximize the conservation of all forms of energy, based on sound economic principles.” **Statewide Planning Goal 13***

*“The city shall coordinate its activities with the State to establish energy efficiency goals and create incentive or rebate programs to expedite implementation of new programs.” **Corvallis Comprehensive Plan Policy 12.2.2***

The Built Environment

“The built environment” in this strategy means buildings and structures that require heating, cooling, electricity, and/or other types of energy to fulfill their basic functions. This includes single-family homes, apartment buildings, commercial and industrial buildings and processes, and utility structures like power or sewage treatment plants.

The majority of electricity used in the Corvallis area comes from coal-burning power plants. Thus, when we use electricity, we are actually burning coal. Conversely, when we reduce our use of electricity in our homes and businesses, we reduce our individual and community contribution to the damages caused by coal emissions. Natural gas, while far less harmful to the environment than coal, still emits its fair share of greenhouse gasses.

Additionally, according to data from local utilities, the community spends millions of dollars on energy every year. Virtually all that money leaves the local economy.

City policies direct us to ensure the conservation of existing non-renewable energy through tactics for existing buildings, new construction, and strategic land use planning. Other tactics exist as well, and the current environment makes a number of Federal, state, local, and nonprofit policies and assistance options available to support that direction.

City Policy support. The objective with regard to the built environment is supported by numerous Comprehensive Plan policies. Of particular note are:

- CP 7.2.5** “The City shall encourage the use of the most appropriate technology in all new developments and existing businesses and industries to comply with or exceed State and Federal environmental standards.”
- CP 7.3.10** “The City shall encourage citizens to modify their household actions to reduce emissions. This can include items such as alternatives for heating, transportation, and lawn equipment.”
- CP 12.2.4.E** “The City shall take a leadership role in local energy matters to ensure the conservation of existing nonrenewable energy resources by:...coordinating with the local utilities to establish an energy information center within the one stop permit center which would provide the public with information on weatherization programs, loan information,

renewable energy resources, and consumer protection information related to new energy conserving and generating devices.”

Additional relevant policies include Comprehensive Plan policies 7.2.2, 7.2.3, 7.2.6, 10.3.3, 12.2.2, 12.2.3, 12.2.5, and Council Policy 4.1.08.043 (reduce energy demand first before expanding supply).

Community support. Our community is not starting from scratch to work towards reaching our objective. Many examples already exist of our awareness and support for efforts to reduce energy consumption through energy efficiency and conservation. These include, but are not limited to, the following:

- Over 800 home and business energy audits completed as part of the Corvallis Energy Challenge, an Energy Trust of Oregon pilot program promoting energy efficiency and conservation.
- Adoption in 2006 of City *Land Development Code*, containing emphasis on reducing demands for energy use by considering topography, microclimates, vegetation, and site and structure orientation.
- Benton County and School District 509J sustainability initiatives for energy conservation in their facilities.
- Lighting retrofits completed or under way at numerous city and county buildings such as the County Courthouse, Law Enforcement Building, Corvallis City Hall, and Majestic Theatre.
- City and County use of Federal stimulus and other funds to help fund major energy efficiency improvements.
- County government energy efficiency improvements ongoing since 1986.
- City of Corvallis energy efficiency efforts intensified as major part of organizational Sustainability Management System development.
- OSU President Ray’s commitment to combating climate change (2009).
- LEED certification for new construction of four large private and public structures in downtown Corvallis and OSU.
- Over \$300,000 in federal energy grant awards to local groups to encourage weatherization and other energy efficiency measures for residences, businesses, and public buildings (2009).
- Corvallis-Benton County Library’s 45% reduction in energy use through its energy management system; additional reductions in most other city buildings in 2007-08.
- City street light system set to minimize unnecessary burning through time and motion devices.
- Recognition of Corvallis as #1 City in the U.S. for green buildings per capita (*The Professional Geographer*, May 2009).

These examples demonstrate a community readiness to achieve significant changes in our energy consumption. They reflect many efforts by individuals or organizations, without community-wide coordination.

Goals

Three goals encompass the activities necessary to reach the objective of reducing energy consumption through efficiency and conservation measures in the built environment.

1. Increase the efficiency of existing structures.
2. Require new construction to meet statewide energy efficiency standards.
3. Bring about changes in individual and organizational energy use practices.

Partners

Homeowners, rental property owners (commercial and residential), businesses, OSU, 509J, Corvallis Boys and Girls Club, large employers, Energy Trust of Oregon, gas and electric utilities,

Energy Action Team volunteers, OSU Student Sustainability Center, Willamette Neighborhood Housing Service, Community Services Consortium, Linn Benton Community College, City of Corvallis, Corvallis Environmental Center, OSU Extension, Benton County, builders, contractors, individuals, engineers, print and electronic media outlets

Challenges

- *Funding possibilities* include federal grants; energy financing programs through Oregon Department of Energy; Oregon Economic and Community Development Department; Oregon Housing and Community Services; private organizations focused on energy efficiency, climate change, poverty reduction, watershed issues and other related interests; partner collaborations that leverage resources; city water and sewer funds.
- *Overcoming existing habits in the community* can be tackled with a mix of public information programs that target both individuals and community groups, and financial incentives such as rebates and savings on energy bills.
- *Cost-effectiveness* is marginal in the short run.
- *High number of rental properties.* Since tenants pay energy bills, property owners may not acknowledge the need for increased efficiency.

Measurement

Examples of measurable actions or items that can be tracked over time to indicate our progress towards reducing our energy use include:

gas and electric usage data from Pacific Power, NW Natural, and Consumers Power;
EPA and DEQ air pollution data;
information from Energy Trust of Oregon on energy efficiency rebates/incentives in Corvallis;
information from City of Corvallis on energy efficient appliance rebates
water use information from City of Corvallis
building permits for heat pump installation?

Actions

Examples of actions possible under current policy include:

1. Community continues Corvallis Energy Challenge efforts to follow up on 800 residential and 50 business energy audits already conducted, to encourage achievement of structure-specific recommendations for weatherization and energy efficiency improvements. (already under way)
2. City government adopts new “green building” standards currently under revision by the State (state mandate).
3. Establish an energy information center to provide public information on weatherization programs, energy improvement loans, ways to conserve energy use through common practices, consumer protection information about energy conservation devices, and other relevant matters.
4. Continue to provide incentives/rebates for energy efficient appliances.
5. Continue to promote community efforts to reduce water and wastewater usage, thus reducing the extensive energy operating requirements for the water and wastewater treatment plants.
6. Extend the energy audit program model pioneered by the Corvallis Energy Challenge to broaden its reach to a wider segment of the community, and to include followup and tracking capability.
7. Expand the energy efficiency revolving loan program capacity to benefit more participants.
8. Wage a public information campaign to encourage more conservation and less energy waste in personal, household, and organizational practices.

Next Steps:

The community should continue to build on the groundwork already laid by the Corvallis Energy Challenge and by local government:

- A. Implement followup communications and financial incentives to promote weatherization and efficiency measures in homes and businesses throughout the community.
 - Funding: Federal Energy Efficiency Block Grants.
 - Partners: City of Corvallis, Corvallis Environmental Center, Corvallis Sustainability Coalition Energy Action Team

- B. Seek ways to expand and/or extend the reach of the energy efficiency revolving loan program to benefit more participants.
 - Funding: Federal Energy Efficiency Block Grants, Oregon Department of Energy, Energy Trust of Oregon
 - Partners: City of Corvallis, state and federal governments, Energy Trust of Oregon, community lending institutions

- C. Establish a Community Energy Information Center to provide the public with information on weatherization and efficiency programs, energy improvement loans, ways to conserve energy use through common practices, consumer information about energy conservation devices, and other related matters. May be augmented with targeted public information campaigns as opportunities become available.

Funding and partners could include, but need not be limited to, utility companies, Energy Trust of Oregon, city and county government, OSU Extension and other OSU entities, Linn-Benton Community College, 509J School District, Community Services Consortium, Corvallis Environmental Center, and Corvallis Sustainability Coalition Energy Action Team.

- D. Continue City of Corvallis programs to:
 - * Provide incentives/rebates for energy efficient appliances, and
 - * Promote community efforts to reduce water and wastewater usage.
 - Funding: City Water Fund, City General Fund
 - Partners: all Corvallis water users, property taxpayers

- E. City adopts new Green Building Standards. NOTE: This important action is on hold due to the recession-caused delay in finalizing new statewide standards (based on the Portland model). It should become a key part of the city staff work program once the new state standards become official. For more information, see:

[www.cbs.state.or.us/external/bcd/bldg_newsletter/documents/Green Building Update.pdf](http://www.cbs.state.or.us/external/bcd/bldg_newsletter/documents/Green_Building_Update.pdf)

Transportation

Transportation, in particular the automobile, consumes a significant portion of our nation's and community's energy. Furthermore, all petroleum products used in our community are imported. Based on ODOT data for vehicle miles traveled, we estimate that \$90 million leaves the community annually to pay for fuel. Additionally, emissions from gasoline-powered vehicles are a major contributor to the aggregated greenhouse gases that are producing global climate change. Therefore, seeking ways to use

less petroleum falls under multiple energy strategy objectives. We will need to reduce our gasoline consumption if we want sustainable mobility into the future.

Commuters to and from Corvallis are the source of much of the community's transportation-related greenhouse gas emissions, according to data from the Oregon Department of Transportation and the Corvallis Area Metropolitan Planning Organization. While the actual numbers of commuters is a relatively small percentage of drivers, the number of miles they drive per capita is much larger than the average per capita daily miles driven within the city. This reflects the fact that the southern Willamette Valley region functions as a regional economy sharing a single airshed and commute-shed. Tackling the problem of commuter vehicle emissions necessarily will necessarily involve all communities in the region along with state government and regional organizations.

This transportation section focuses on how to use efficiency and conservation measures to reduce our existing appetite for petroleum. The strategy component that deals with renewable or low-carbon energy (pp.11-13) contains a transportation section focused on non-petroleum forms of transportation.

City policies direct Corvallis toward energy efficient transportation modes and land use planning tactics that reduce automobile dependency.

City Policy Support

CP 11.4.6: "New industrial and commercial development shall provide preferential car pool and van pool parking near primary building entrances."

CP 12.2.5: "The City shall encourage land use patterns and development that ...have ready access to transit and other energy efficient modes of transportation..."

CP 12.2.6: "The City shall actively promote the use of energy efficient modes of transportation."

CP 12.2.7: "The City shall encourage the development of high density uses that are significantly less dependent on automobile transportation."

Vision 2020: "Corvallis will be...a hub in a regional transportation system that connects Linn and Benton counties and provides a link to the north-south...rail system...The number of daily auto trips and the lengths of those trips have been significantly reduced..."

Community support

Changing our driving habits and using our cars less are two areas where it's difficult to identify success stories that show we're starting to move in the direction of breaking our petroleum dependency. Still, there are some indicators of growing community awareness that we can improve our efficient use of gasoline.

- 2006 City adoption, through extensive public process, of land use policies and codes aimed at reducing driving needs and encouraging alternative transportation modes
- City government downsizing its police fleet from 8 to 6 cylinders
- City government replacing gas cars with hybrids
- City transit system receipt of national recognition for its multiple improvements and successes, such as increased routes (e.g., link to Crescent Valley High School), improved scheduling coordination for linking routes, bus use of 20% biofuel

- Linn-Benton Loop transit system provision of important functional link in regional transportation system.
- Cascades-West Council of Governments work with regional partners to provide vanpool and ride-sharing information clearinghouse.
- OSU transit subsidies, allowing students to ride for free
- OSU student partnership with city transit and private businesses to fund Beaver Bus
- Allied Waste funding for school-age children to ride bus for free during summer
- Employee transportation coordinators group of large private and public employers
- City government and OSU purchase of high-efficiency electric vehicles
- City allocation of funds for four public electric-vehicle charging stations
- City traffic light timing synchronized on major arterials to reduce vehicle idling and increase efficient traffic movement
- Actions under consideration by adjacent communities in both Linn and Benton Counties, supported by county officials, to develop public transit links throughout region on both east-west and north-south axes.

Goals

1. Reduce single-occupancy vehicle trips.
2. Improve efficiency of current Corvallis vehicles.
3. Increase usage of new, more efficient vehicles.
4. Increase transit ridership.

Partners: Community members, auto dealers and mechanics, automobile and driving interest groups, ODOT-DMV, employers with parking lots, driving instructors, Allied Waste, Corvallis Transit System, OSU, LBCC, Benton County, City of Albany, Linn County, local retailers, Cascades West Council of Governments (COG), CAMPO, Lane Transit, UO, City of Salem.

Challenges:

- *High percentage of commuters:* the mismatch among local labor force skills, housing prices, and employment opportunities. Many local residents commute to specialized jobs in larger cities, and many employees of local businesses can't afford the residential options available near Corvallis employers.
- *Funding possibilities* include use of Oregon's Business Energy Tax Credit and federal support to operate the transit system, federal and state incentives to purchase fuel-efficient vehicles, and businesses establishing electric vehicle charging stations for employees or customers. Other transit financing alternatives include paying from current general revenues at expense of other city programs; local option property tax levy; utility bill assessment; local gas tax or vehicle registration fee; local payroll or income tax.
- *Overcoming existing habits:* the single biggest challenge to reducing our existing petroleum use through conservation and efficiency is overcoming apathy and inertia—the difficulty of persuading community members to take responsibility for the problems their driving causes, the need to change their driving behavior, and the power they possess to do so.
- *High turnover of youth residency:* this poses a challenge for public information programs, because OSU students, more than 25% of the community, leave after being here a couple of years and are replaced by new students who also must be trained.

Measurement

Examples of possible measurable actions or items that can be tracked over time to indicate our progress towards reducing our gasoline use include:

Vmt data from CAMPO

Corvallis Transit System ridership data

electric and hybrid vehicle data from ODOT and manufacturers

carpool/rideshare data from Cascades West Council of Governments (COG)

data on vanpool participation from COG and Valley Vanpool

Corvallis vehicle registration by weight/class/mpg

Gasoline purchasing data?

Employers' (OSU, Hewlett Packard, UO, State of Oregon) data on parking demand and allocation for carpools, vanpools, electric vehicles

Sales of new vehicles with higher efficiency mpg rating

Actions

Examples of actions possible under current policy include:

1. Citizens and government continue to support local land use policies that promote compact urban development and de-emphasize autocentric development.
2. Corvallis works with regional Council of Governments, CAMPO, state, and regional partners to develop a regional transit system designed to serve commuters.
3. Large employers facilitate carpooling, ride sharing, and transit use by their employees.
4. OSU, UO, State of Oregon, and other large employers throughout region shift parking subsidies away from single-occupancy vehicle use and towards favoring energy-efficient transportation practices and modes.
5. OSU, Corvallis Transit, and Benton County collaborate to establish shuttle service to a medium- to long-term student car park facility at Fairgrounds or other remote location.
6. Establish park-and-ride location at eastern edge of city, paired with shuttle service to hospital, HP, and OSU.
7. Corvallis Transit System improves transfer connections both internally (within City) and externally (intercity).
8. Public information efforts encourage community members to increase their vehicle efficiency through improved maintenance (e.g., properly inflated tires) and operating practices (e.g., stop engine idling beyond 20 seconds).
9. Community members reduce vehicle trips through efficient trip planning.
10. Community members take advantage of state and federal incentives to purchase more efficient vehicles.
11. Corvallis Transit System increases number, frequency, and hours of routes; reduces fares.
12. Corvallis Transit System improves bus stops by
 - Adding shelters,
 - Improving bus access,
 - Increasing lighting,
 - Add bicycle tie-up facilities.
13. Businesses, city, and county government opt to provide more electric vehicle charging stations and reserved parking for electric vehicles.

Next steps

- A. Continue to support and uphold local land use policies that promote compact urban development and de-emphasize autocentric development.

- Partners: citizens, developers and redevelopers, city staff, Planning Commission, City Council
- Funding: City Community Development Department budget

B. Provide an automotive energy conservation and efficiency component of the proposed Community Energy Information Center (see p. 7, item C). May include possible transportation audits and driving efficiency information. Augment with public information campaign as opportunities become available. (See Attachment X for public information campaign ideas)

Funding/partners could include, but are not limited to, ODOT, automobile and driving interest groups, City of Corvallis, automobile dealers and parts suppliers, driving instructors, and others.

C. Implement long-range planning for Corvallis Transit System.

- Funding: Business Energy Tax Credit, Federal Dept. of Transportation, current general revenues at expense of other city programs; OSU; local option property tax levy; utility bill assessment; local gas tax or vehicle registration fee; local payroll or income tax.
- Partners: City of Corvallis, Allied Waste, Corvallis School District 509J, OSU.

D. Work with regional partners to develop regional transportation system designed to serve commuters. Funding sources and key partners include Linn-Benton Loop, Philomath Connection, Linn and Benton Counties, Lane Transit System, Cities of Corvallis, Albany, Adair Village, Philomath, Monroe, Lebanon, Eugene, Salem, ODOT, Cascades West Council of Governments.

E. Encourage electric vehicle use.

Funding sources and partners include Federal Depts. of Transportation and Energy; State of Oregon Depts. of Transportation, Energy, Environmental Quality, and Economic and Community Development; Oregon Transportation Research Education Consortium (OTREC); Metro (Portland area regional government); Pacific Power and Consumers Power; local governments and businesses; auto manufacturers.

Renewables/low-carbon sources:

for the energy we still need, increase the proportion we obtain from renewable and/or low-carbon sources.

Introduction

While energy conservation and efficiency measures can and will go a long ways toward reducing our community's overall energy consumption, people are still going to need energy to heat and cool their homes and businesses; provide power for lighting and appliances; operate large equipment and drive industrial-level activities; and transport goods and people. And today, most of that energy, as previously mentioned, comes from burning fossil fuels—coal, natural gas, and fuel oil.

We need to look seriously at what alternative fuel choices are available if we really intend to decrease our dependency on coal, natural gas, and petroleum. Just as economic diversity helps insulate a community somewhat from the negative effects of economic factors beyond local control, so building a variety of energy options into our energy portfolio can help us better adapt to changes in energy markets that are beyond our control.

Local utility suppliers are key partners in our energy strategy, and particularly with regard to diversifying the Corvallis energy portfolio. They face specific federal government requirements to increase the renewables share of the energy they supply. We will need to work with them as we move to increase community consumption of electricity from renewable sources, whether generated elsewhere or locally.

“Air pollution has been lessened, thanks to changing attitudes and actions by residents, strict environmental regulations, an increased emphasis on non-polluting forms of heating and transportation...and technological advances...[N]eighborhoods are safe, easy, and convenient to walk and bicycle in, [with]pedestrian connections between neighborhoods.” **Corvallis 2020 Vision Statement**

Objectives:

1. By 2020, Corvallis will obtain a significant percentage of its building, appliance and equipment, and transportation energy from renewable and/or low-carbon sources.
2. By 2020, our community will have further reduced its contribution to global climate change through increased use of renewable and/or low-carbon energy sources.
3. By 2020, our community will have reduced its reliance on imported oil and fossil fuels through increased use of renewable and/or low-carbon energy sources.

The built environment

“Renewable” or “alternative” energy has consistently been considered the energy of the future, with technical and economic challenges stifling large-scale deployment. But today, multiple factors have combined to cause a quantum shift in how we view our energy sources. National security and foreign policy, hard economic truths, global climate change, and major technological developments have in the past decade created an environment wherein renewable energy is no longer an intriguing concept: it is an increasingly important part of our future.

City policies direct us to take renewable energy seriously, learn more about it, and consider how we can use naturally occurring resources around us (such as solar and wind power) and new technologies to reduce harmful emissions and increase support for renewable energy. Just like the technologies that ushered in the information revolution of the past generation, rapid technological advances and changing assumptions in the world of energy are making renewable or low-carbon alternative fuels increasingly available for mainstream use.

City Policy Support

- CP 7.3.10** “The City shall encourage citizens to modify their household actions to reduce emissions. This can include items such as alternatives for heating, transportation, and lawn equipment.”
- CP 12.2.1:** “The City shall encourage the investigation, development, and use of renewable energy resources by both the public and private sectors in order to reduce the community’s immediate and long-range need to import energy.”
- CP 12.2.4** “The City shall take a leadership role in local energy matters ...by

- C) Investigating the retrofitting of existing municipal buildings with renewable energy space and water heating systems and retrofitting those buildings as soon as practical; ...
- E) Coordinating with the local utilities to establish an energy information center ...which would provide the public with information on ...loan information, renewable energy resources, and consumer protection information related to new energy...generating devices.”

Community Support

- High participation rate in Pacific Power’s Blue Sky program, directing payments to support renewable energy credits.
- OSU purchase of renewable energy with student fees
- Solar generator on OSU’s Kelley Engineering Building
- Solar access standards for new development siting in Corvallis Land Development Code
- Capture of methane at city wastewater treatment plant contributing a portion of energy needed for plant operations.
- City of Corvallis authorization of solar photovoltaic facility at the water and wastewater plants (business partner awaiting financing)
- City award of \$120,000 in federal grant funds for geothermal heat pump for Corvallis Senior Center (pending federal approval)
- Proposal for mini-hydro capability of city’s Rock Creek water facility developed, now in City’s Capital Improvement Plan (funding sources not identified)
- Increased demand for solar contractors
- Pacific Power plan for 20 percent of its total energy portfolio to be from renewable energy by 2025 (federal requirement). Renewable energy credits (RECs) already in use; wind power infrastructure under construction.
- EPA recognition of Corvallis as #1 on list of Green Power Communities.

These examples reveal a seriousness, an eagerness, and a willingness for increased access to and use of renewable energy on the part of Corvallis residents and their government, OSU and its students, and the community’s major utility providers.

Goal

This goal supports a range of activities that can help move Corvallis away from fossil fuel reliance through use of renewable and/or low-carbon alternatives in our built environment:

Work with utility providers to accomplish community compliance with federal green power mandates of approximately 17-20 percent by 2020.

Partners: Pacific Power, NW Natural, Consumers Power, Bonneville Environmental Foundation, Energy Trust of Oregon, Oregon Department of Energy, City of Corvallis, Community Services Consortium, Willamette Neighborhood Housing Services, Corvallis Environmental Center, local lending institutions, architects, engineers, electricians, solar contractors, heat pump installers, and plumbers

Challenges:

- *Funding* can be a major barrier to a business or property owner wanting to invest in renewable energy. Possible sources for assistance include electric utility programs, federal agencies, energy advocacy groups, private alternative-energy firms seeking partnership opportunities, financial

institutions (home improvement loans), City's Housing Division programs and Community Services Consortium as sources for low-interest loans for low-income or subsidized housing.

- *Overcoming existing habits* appears to be less of a challenge than the financial one. With major utilities and institutions already moving towards more reliance on renewable/low carbon energy choices, acceptance of the concept is not the problem. A significant push from the state or federal government that features tax credits or incentives could change the picture in a major way, as it has in other jurisdictions and countries.
- *Limited local supply of sun, wind, and hydropower.*
- *Cost-effectiveness.*
- *Redevelopment*

Measurement

Examples of possible measurable actions or items that can be tracked over time to indicate our progress towards increased use of renewable or low-carbon energy sources include:

Data from utility companies

Data from Energy Trust of Oregon?

Electricity costs for City wastewater treatment plant

Information from property owners using renewable energy

Demand for services from local renewable energy businesses

City building permits for solar energy installation

Actions

Examples of actions possible under current policy include:

1. Create mechanisms to achieve community-wide enrollment in low-carbon development programs provided through existing energy suppliers.
2. Establish public-private Energy Information Center to encourage and facilitate use of alternative energy sources and programs.
3. Seek ways to establish incentives to encourage investment in renewable energy projects.
4. Promote use of renewable energy credits (RECs) where practicable.
5. Install equipment at wastewater treatment plant to increase methane capture and use in providing power for additional buildings in Public Works complex (already in CIP).
6. Promote and encourage installation of renewable energy capability on highly visible public and private buildings.
7. Uphold solar access provisions of City Land Development Code in land use decisions.

Next Steps

- A. Include information on renewable energy in the Community Energy Information Center (CEIC).
 - Partners include OSU Extension, City of Corvallis Sustainability Coordinator, OSU Sustainability Coordinator, Energy Trust of Oregon, and others.
 - Funding—would be within that of the CEIC.
- B. Aggressively pursue funding for equipment at wastewater treatment plant to increase methane capture and use in providing power for additional buildings in Public Works complex (already in CIP).
 - Partners include City of Corvallis and Pacific Power.
 - Possible funding sources include Federal government, city utility customers.
- C. Enroll entire community in renewable energy programs provided through existing energy suppliers.

- Partners include Pacific Power, Consumers Power, NW Natural, City of Corvallis.
- Funding possibilities include City General Fund or surcharge on utility bills.

D. Promote and encourage installation of renewable energy capability on highly visible public and private buildings

- Partners include property owners, solar and heat pump contractors, electricians, plumbers, carpenters, and other construction trades workers
- Funding possibilities include Energy Trust of Oregon, Oregon Dept. of Energy, Federal Energy Efficiency Block Grants, private investors, and corporate partners.

Transportation

Renewable or low-carbon energy to power vehicles, like renewable energy generally, has lately become a topic of intense research and development focus. New products like plug-in hybrid vehicles and hydrogen-powered cars are entering the market with almost dizzying speed.

With such a profusion of new-technology products abounding, however, it's important to remember that two traditional means of transportation are extremely common and popular in Corvallis: walking and bicycling. Citizens of all ages do both, and have also worked with their government for decades to encourage more participation, investing in the infrastructure, amenities, and general environment to make Corvallis a safe, enjoyable, and excellent place for either foot or bicycle travel.

City Policy support:

- CP 7.3.7** "The City...shall actively promote the use of modes of transportation that minimize impacts on air quality."
- CP 11.2.5** "The transportation system shall given special consideration to providing energy efficient transportation alternatives."
- CP 11.4.5** "The City shall continue to promote the use of other modes of transportation as an alternative to the automobile, especially in areas where there is a shortage of parking facilities."
- CP 12.2.6** "The City shall actively promote the use of energy efficient modes of transportation."

Additional relevant policies include Comprehensive Plan policies 7.3.8, 11.2.3, 11.2.4, 11.2.5, 11.2.10, 11.5.1-16, 11.6.1-13, 11.7.1-7 and City Administrative Policy 99-1.03.10, which references "the citywide goal to increase use of renewable energy."

Community support

- City bicycle advisory group formed in 1971; pedestrian interests added in 1990s
- Bicycle lanes and off-road paths network throughout city
- Bike/walk to school program
- Safe Routes to School, a partnership of federal, county, and city government with the school district to ensure safe routes to school
- Use of biofuels in city vehicles
- Use of solar capability to recharge electric vehicles
- Bicycle coordinator on city staff
- City police bicycle patrols
- City recognition and awards from national bicycle advocacy groups
- City policies and codes requiring pedestrian-oriented design, sidewalks, circulation networks, and multi-use paths

- Corvallis named the third greenest commuter city (people who bike or walk) by *AARP Magazine*
- Recognized by *Prevention Magazine* as one of the top 100 Best Walking Cities in America

Goals

1. Increase the numbers of community members who regularly bike, walk, or use other non-gas-powered transportation.
2. Increase percent of vehicles operating fully or partially on non-fossil fuels.

Partners:

City of Corvallis, Benton County Health Department, OSU, LBCC, 509J schools, other public and private local employers, bicycle shops, bicycle advocacy groups, senior and neighborhood walking groups, physical fitness businesses, sporting goods shops, public health and fitness advocates, property owners.

Challenges:

- *Funding* Possible sources for improving bike and pedestrian amenities include federal and state funds for transportation enhancements in road construction and repair, and use of transportation utility fee to cover sidewalk repairs.
- *Overcoming existing habits in community.* The challenge is getting more people to drive less and choose to walk or bike instead. While Corvallis has a high percentage of residents who walk or bike compared to other cities, the percentage is still very small compared to residents who always drive. If public health advocates continue efforts to emphasize obesity reduction, these percentages may increase.

Measurement

Examples of possible measurable actions or items that can be tracked over time to indicate our progress towards use of renewable or low-carbon-based transportation:

Use of biofuels by public motor pools (city, county, school district)

Miles of bicycle and pedestrian facilities

Demand for bike racks and bike training (city, OSU, businesses)

City variances requested/granted for compliance with PODS; cases exceeding standards

Sources of measurement data for bicycling or walking?

Actions

Examples of actions possible under current policy include:

1. Continue to improve bike routes.
2. Improve bike parking facilities at destinations.
3. Provide bike and pedestrian safety training, including protection, visibility, and reduced distraction.
4. Heighten emphasis on vehicle driver awareness of pedestrians and bicycles, for a safer and more encouraging walking/biking environment.
5. Promote more bike and pedestrian use through incentives and publicizing benefits.
6. Repaint crosswalks more frequently in high foot-traffic areas (e.g. near OSU, schools, shopping destinations on major arterials).
7. Collaborate with OSU and industrial and commercial partners to provide refueling station for vehicles using alternative fuels.
8. Provide electric vehicle charging stations that are powered by renewable energy.
9. Continue to promote “Get there another way” events as well as ongoing promotion of non-vehicular transportation.

10. Increase transit fuel composition to 20 percent renewable fuels.
11. Link destinations by pedestrian routes.
12. Increase number of pedestrian routes.
13. Maintain safe sidewalks.

Next Steps

- A. Promote more bicycle and pedestrian use through publicizing benefits, conducting safety training, and including comparative carbon footprint information at Community Energy Information Center.
 - Partners: City of Corvallis, bicycle shops, bike advocacy groups, OSU/ASOSU, Corvallis School District 509J, and CEIC partners.
 - Funding: A staff position dedicated to bike safety and promotion is in city budget (property tax-funded).
- B. Continue to improve bicycle and pedestrian infrastructure such as increasing bike parking facilities, more frequent crosswalk repainting, maintaining safe sidewalks, increasing number of pedestrian routes and general safety of bike routes.
 - Partners: City of Corvallis, OSU, School District 509J, Benton County, local businesses and employers.
 - Funding: grants from federal and state government and other sources, and ongoing city maintenance budgets as opportunities become available.
- C. Continue to uphold city policies and codes requiring pedestrian-oriented design standards, sidewalks, circulation networks, and multi-use paths.
 - Partners: City Community Development Department, Planning Commission, and City Council.
 - *Funding*: ongoing in city budget.

Local clean energy business: *support development of local renewable energy options*

Introduction

While many may question whether Corvallis could ever become totally energy self-sufficient, the fact is that energy purchases leave Corvallis every day. Any reduction in the millions of dollars annually taken out of our local economy, and replacement by local sources, improves both our local energy market and our local economy as a whole. Through collaboration among partners, even small amounts of locally generated energy can help our community become more energy secure than we would otherwise be. For example, unforeseen emergencies and disasters carry the potential for disruption of energy transmission lines and transportation corridors. In such circumstances, access to rudimentary sources of locally generated energy can contribute to the community's ability to sustain crucial activities such as water treatment and medical service.

Additionally, seeking ways to build local energy generation capacity also correlates with community economic development goals for a more diversified business environment than currently exists in Corvallis. Inherent capabilities already exist in our community, such as OSU, ONAMI, and Hewlett Packard, to further local transformation of energy markets, if the means exist to do so. Robust growth in a locally based energy sector can result in job creation in both energy generation itself and specialized energy expertise and skills.

Harnessing our local energy expertise can mean not only developing our own local energy sources but also showcasing our local energy talent and building intellectual capital that can be exported throughout our region.

“We envision that in 2010 Corvallis will be an economically strong and well-integrated City, fostering local businesses, regional cooperation and clean industry.” Corvallis 2020 Vision Statement

Objectives

1. By 2020, a growing percentage of our renewable energy consumption will be generated locally or regionally.
2. By 2020, our community will have further reduced its contribution to global climate change through development of local renewable energy sources and initiatives.
3. By 2020, our community will have further reduced its reliance on imported oil and fossil fuels through development of local renewable energy sources and initiatives.

The built environment

City Policy support

- CP 8.2.8** “The City shall stay responsive to emerging technologies that support local business.”
- CP 8.9.7.D** “The RTC [Research-Technology Center] district shall be used to help assure the availability and adequacy of sites for ‘high-tech,’ ‘biotech,’ and renewable resource-based businesses and industries, and to foster the transfer of academic and private research results into practical applications.”
- CP 10.4.5** “The City...shall seek opportunities to promote reliable, efficient, affordable, environmentally-sound, and equitable energy services within the community.”

Additional relevant policy support includes Comprehensive Plan policy findings 5.3.b., c, e, and f; and policies 5.3.1-5, 8.2.1, 8.2.3, 8.4.2, 8.9.8, 12.2.1, 12.2.3, 12.2.4.A, 13.2.1, 13.2.4.

Community support

- OSU electric co-generation plant (nat. gas powered, surplus available locally)
- City contract with SunEnergy Power corporation to build a 2Mw solar array at the wastewater treatment plant
- Creation of “green” Enterprise Zone at Airport Industrial Park
- City lease with Trillium Fiber Fuels to further OSU technology transfer from lab to industrial scale
- Consumers Power conversion of methane from Coffin Butte landfill to provide electricity to its customers
- Growth in number of qualified solar contractors
- Award of federal energy grant funds to local renewable energy contractors
- Existence of urban forest, OSU- and privately-owned forests and greenbelts, city-owned watershed forest, Benton County natural areas, which contain thousands of trees to provide carbon sequestration
- Local qualified geothermal heat pump installers

Goals

1. Develop and grow local pool of experienced, knowledgeable renewable energy professionals adequate to meet community need, and in demand for their expertise and services beyond the immediate community.
2. Make Corvallis a center of alternative/renewable energy research, development, and industry.

Partners

OSU, Business Enterprise Center, Oregon Dept. of Energy, USDOE, Oregon Dept. of Community and Economic Development, Energy Trust of Oregon, Benton Chamber Coalition, Allied Waste, Benton County, Greenbelt Land Trust, City of Corvallis, local farms and forest lands, Pacific Power, Consumers Power, local entrepreneurs

Challenges

Technology is in various stages of development ranging from infancy to full usability, is growing quickly and is constantly changing; thus risk is a related factor where investments are concerned.

Financing prospects are difficult in the current constrained venture capital market, and even more so due to the risk as described above.

Building market capacity is related to public understanding of the viability of various technologies; however, a local market for solar energy in particular could be expanded with aggressive marketing, increasing variety of solar options and products, and related improving costs/benefit ratios.

Overcoming public resistance to change will depend on future costs and availability of conventional, fossil-fuel based energy sources. Acceptance will be also depend on leadership in government, business, industry, and other partners demonstrating the viability of renewable technologies in their own facilities

Measurement

Examples of possible measurable actions or items that can be tracked over time to indicate our progress towards development of local renewable energy capacity:

Demand for services from local renewable energy businesses

Pacific Power data

Data from Business Enterprise Center and Chamber Coalition;
city and OSU tree planting programs,

information from OSU's technology transfer office on emerging technologies and their status,

Tracking of GHG through methods adapted from Western Climate Initiative or Portland Office of Sustainability

Actions

Examples of actions possible under current policy include:

1. Work with Energy Trust of Oregon to publicize their local solar installation trade allies
2. Work with multiple partners to sponsor advertising campaign about benefits of local renewable energy
3. Redirect full or partial community support from utility company renewable energy programs to local renewable energy suppliers.
4. Evaluate local building codes to determine whether possible modification could help lower cost as a barrier to solar installation.
5. Community, businesses, and state and local governments work with OSU to facilitate and support conversion of renewable and/or low-carbon energy research into development of viable processes adaptable for large scale use in the community and beyond.
6. Support increased power supply to Airport Industrial Park, adequate for photovoltaics manufacture or similar industry.
7. Expand City's wastewater treatment plant capacity for methane capture and use to provide power for additional buildings beyond Public Works complex
8. Establish local energy offsets or carbon trading capability through carbon sequestration; increase viability through work with large public and private forestland owners and nonprofit land trusts.

9. Investigate feasibility of large public-private solar array to provide solar power to businesses and residents lacking their own solar access.
10. Consider joint city-county venture to provide power to their public facilities
11. Investigate hydropower, wind, and biological sources for power production.

Next Steps

- A. Expand City wastewater treatment plant capacity for methane capture and use, to provide power for additional buildings beyond Public Works complex.
 - Partners include Pacific Power and City of Corvallis.
 - Funding sources include Federal government and city utility customers.
- B. Redirect full or partial community support from utility company renewable energy programs to local renewable energy uses.
 - Partners include Pacific Power, other utility providers, local energy businesses, City of Corvallis, Benton County, Oregon PUC, Oregon Dept. of Energy
 - Funding sources includes renewable energy program portion of city and private utility bills, City budget, Energy Trust of Oregon.
- C. Implement Corvallis Urban Forest Plan.
 - Partners: City of Corvallis, *see Plan for more information*
 - Funding: *see Plan*
- D. Identify a site at the Airport Industrial Park that is suitable for a future electrical substation, and reserve it for that purpose.
 - Partners: City of Corvallis, Pacific Power
 - Funding: within current city budget capability

Transportation

The most realistic, reliable, and widely accepted local renewable options for local transportation are bicycling, walking, and alternatively-fueled buses—all of which are already discussed in the “renewable/low carbon sources” section of this strategy.

Conclusion

As stated in the introduction, this strategy is focused on what we can do today, based on existing policies. Clearly, throughout our community, many activities have already gotten under way or been completed that forward the strategy of reducing reliance on fossil fuels and improving our energy self-sufficiency. The underlying policy framework also makes it clear that Corvallis citizens and their elected leaders have been thinking about this strategy direction for decades.

Much similar work was done in the community in the 1970s and early 80s, responding to the energy crises of that era. While not all of that work was able to move forward due to circumstances beyond the community’s control, the policy direction begun at that time was carried forward in successive Comprehensive Plans and other documents over the years, and still inheres in the *2000 Comprehensive Plan* we use today. Now, with global as well as national and local security, economic, and environmental factors converging, it is time for the community to act.

This strategy is absolutely dependent on the work of many partners in our community to accomplish its mission. Individuals can do a lot; government can also help; but without working with all the relevant organizations and entities, it's doubtful that we will achieve what we envision. Indeed, many of the concepts embedded in this strategy spring from the visionary community documents created by the Corvallis Sustainability Coalition and the Economic Vitality Partnership. Both the *Community Sustainability Final Action Plan* and the *Prosperity That Fits* plan demonstrate that collaborative approaches are the way Corvallis sees itself tackling and surmounting the challenges we face.

A key example: the City of Corvallis has completed an inventory of greenhouse gas emissions for its organization's operations, which could serve as a model for a community-wide inventory—but that larger task would require resources beyond those of city government alone.

This strategy reveals that one of the biggest challenges we face is the reluctance of the public to change their energy habits and practices. Therefore, public information programs at all levels are imperative if the objectives and goals are to be accomplished—programs that raise awareness of consequences from unbridled energy consumption, dispel common misconceptions, and encourage changes on various scales.

Global environmental and economic threats loom large today and demand real urgency in our actions with regard to energy. Yet the task truly should be no more daunting to us today than it was to our predecessors 30 years ago, when Ralph A. Morrill, author of the *Corvallis Energy Planning Framework*, wrote, "We must take a hard look at our housing, transportation, services and utility needs now and in the future, and make the most energy-efficient use of all the resources available in our immediate community." This Energy Strategy is intended to move that work forward today.

Appendix A References

City policies that support this strategy are cited below. Most are from the *Corvallis Comprehensive Plan*. If they are from another document, the document name is given.

5.3.b, c, e, and f (findings)

5.3.1-5

7.2.2

7.2.3

7.2.5

7.2.6

7.3.7

7.3.8

7.3.10

8.2.1

8.2.3

8.2.8

8.4.2

8.9.7.D

8.9.8

10.3.3

10.4.5

11.2.3

11.2.4

11.2.5

11.2.10

11.4.5

11.4.6

11.5.1-16

11.6.1-13

11.7.1-7

12.2.1

12.2.2

12.2.3

12.2.4.A

12.2.4.C

12.2.4.E

12.2.5

12.2.6

12.2.7

13.2.1

13.2.4

City Council Policy 4.1.08.043

Statewide Planning Goal 13

City Administrative Policy 99-1.02.10

Appendix B

Suggestions for public information campaign (transportation)

Build emphasis on culture of popularity/trendsetting re vehicle mpg changing

PR the positive: “90 % of purchasers increase their mpg”

Mailers: where you stand relative to the community as a whole (smiley face, frown only)

Ask intent: in survey, ask if intending to increase mileage with next purchase

Offer mileage info assistance to prospective purchasers via website

Channel behavior: Provide maps to local dealers of top 10% best mileage cars

Give feedback: send letter to low-mpg buyers indicating where they are (mpg) compared to all purchases that year

Program website:

- Do what others do—publish database by neighborhood, rank neighborhoods

- Highlight biggest mpg changes, showcase truck/prius types

- Structure choices—website groups optimum choices by mpg; gives range and position in range (color bar) for each make/model

- Cost/benefit data--\$/mile, 5-year fuel cost including inflation; GHG/mile; net costs including insurance, maintenance, cost to community re energy security goals, international impact of fossil fuel reliance

- Warning labels on low mpg models

- Promote car-share services in Corvallis/OSU

- Promote electric car use via publicizing location of charging stations

APPENDIX C

COMMUNITY ENERGY GAP ASSESSMENT

I. URGENCY GAP

The Energy Strategy *ad hoc* Committee was convened by Mayor Tomlinson in the Fall of 2009, and the Committee completed their work in December. Some members of the Energy Strategy *ad hoc* Committee feel a sense of urgency for rapid change in the Corvallis community's energy-related behaviors. In contrast to the aggressive list of concerns from the Corvallis Sustainability Coalition (CSC) last year and recent legislation in other jurisdictions, our review of policies from the past 30 years indicate that the Corvallis community became generally complacent after the oil crisis was over in the 1980s. In order to address this gap, the community would need to update their sustainability goals, policies, and strategies -- perhaps as outlined below. The *Gap Assessment* is a compilation of committee members' and CSC ideas about possible actions that the community could take to achieve urgent energy goals. It has not been refined, sorted, or prioritized. Financial and political feasibility for the ideas has not been established; that is, we do not know what amount of change the community will support or how much that change will cost. What we do know is that the many policies in place for thirty years have not led to energy efficiencies on the scale that is now needed. The *Gap Assessment* may be neither complete nor comprehensive, but it represents a sample of the many possible improvements that could be initiated. The *Gap Assessment* is meant to be a starting point from which future community sustainability policies can develop.

II. OVERALL GAPS

1. **Timeline:** With the exception of the *Vision 2020* plan, City sustainability goals do not contain deadlines by which the goal must be achieved. Members of the committee recommend that, to be operational, all goals should contain a deadline (e.g. 2020) and intermediate progress dates.
2. **Measurements:** None of the City goals contain specific, measurable levels of change. In order for the community to achieve their sustainability goals, the magnitude of proposed changes must be specified. Members of the committee recommend that all goals identify the level of change desired (e.g. to reduce total energy consumption by X% by 20XX).
3. **Standards:** Our community's energy sustainability goals adhere to federal and state standards. These standards have been found to be inadequate to meet community values in some areas (CP 7.2.d). We have the opportunity to lead other communities by stipulating more aggressive goals.
4. **Collaboration:** Many energy sustainability goals will require collaboration, cooperation, and coordination from more than one jurisdiction. As a matter of policy and execution, our community should work closely with other local governments, such as Oregon State University, 509J School District, LBCC, Benton County, Linn County, Albany, Philomath, etc.

5. **Coordination:** The *Transportation Master plan* was adopted in 1996 and the *Comprehensive Plan* in 2000. These documents made a good start at coordinating transportation and land use, but more can be done now to encourage coordination within and between systems.
6. **Incentives and Regulations:** Current approaches to changing community energy-related behavior focus on education: through school programs, energy audits, promotion, etc. To a lesser extent, various kinds of incentives are utilized. In order to get to where we want to go, monitoring and follow through will be required. Some committee members, as well as the CSC, feel that government should be prepared to provide bigger incentives or to discourage energy consumption through regulation.
7. **Funding:** Governments are currently under financial stress due to the economy, but even during good times, local funding is dependent on a property tax system which does not provide surpluses. Without diverting monies from existing services, local governments do not currently possess the funds or the staff to implement all of the desired goal, policy, and strategy changes expressed in this gap assessment. Members of the committee recommend that we continue to seek funding for incentive programs that will help achieve sustainability goals.
8. **Embedded Energy:** One of the largest gaps in existing policy is embedded energy. The committee's scope does not address the energy used in the production of consumable goods and services. This topic is discussed under "Life-Cycle Analysis" in the City's "Sustainability" policy or "Embedded Energy" in the OSU Greenhouse Gas report.
9. **Definitions:** The *Comprehensive Plan* defines "Goal" and "Policy." For the benefit of City Councilors, it would be useful to have official working definitions of two other concepts with which the Committee worked. Here are starting points:
 - "**Strategy**" – A plan of action intended to accomplish a specific goal. Strategy involves a choice of goals to pursue and a choice of an interrelated set of methods to achieve those goals. Strategy may be enhanced or constrained by policies.
 - "**Implementation**" - A tactical action, either a specific project or an ongoing activity, to put policies and strategies needed to achieve a goal, into practical effect (i.e. how to). Implementation implies that a decision has been made and provides direction (not just guidance) for the community, City staff, and the City Council to act.

III. ENERGY IN THE BUILT ENVIRONMENT

Goal gaps: Where we want to be by 2020.

These are gaps between the energy goals stated or implied in existing Council-approved documents and the goals that some members of the committee or the Corvallis Sustainability Coalition would like our community to achieve. The Committee's consensus is that the goals below are aggressive, and if achieved, would be of great value; however, they exceed current City Council policy and may exceed technical, financial and political feasibility. Additionally, achieving the goals will require extensive community commitment.

A "goal gap" may mean that a goal is simply missing, or that the existing goal may not reflect sufficient urgency in terms of magnitude of change or time horizon.

1. Energy Usage, Energy Conservation, and Energy Efficiency
 - a. By 2020, the Community of Corvallis should reduce per capita consumption in buildings by 50%. Despite concerted efforts, local energy consumption is actually increasing annually.
 - b. By 2020, in order to reduce municipal water pumping and treatment, Corvallis should reduce community per capita consumption of water in buildings by 25% using water conservation.
 - c. By 2020, all energy-using devices in all public buildings should be outfitted with energy-efficient alternatives. We do not know the 2010 baseline, but it is likely much lower than 100%.
2. Renewable Energy
 - a. After achieving 1a above, by 2020 the remaining energy for buildings should be supplied using renewable energy.
In contrast, in order to meet federal guidelines, PacificCorp plans to increase its renewable sources by about 61% by 2020 and 190% by 2025.
3. Local Energy Production and Carbon Sequestration
 - a. By 2025, Corvallis should become a net energy producer with 100% of all energy produced in the built environment being renewable energy.
 - b. By 2020, air pollution within the Corvallis city limits should be reduced, such that all 365 days each year receive a rating of "Good" on the EPA Air Quality Index.
 - c. The following greenhouse gas emissions goals reflect information from two different sources; each has a different area of emphasis:
 - i. By 2020, Corvallis should eliminate total greenhouse gas emissions from *energy use and production*. This goal is supported by the Corvallis Sustainability Coalition (CSC).
 - ii. By 2020, Corvallis should reduce total greenhouse gas emissions by 15% over 2005 levels. This goal is supported by the Western Climate Initiative (WCI).

Policy gaps: Changes in guidance for the community.

In order to achieve both existing and aspired-to goals, some members of the committee or the CSC feel that the community needs to adjust existing policy or create new policies.

1. Energy Usage, Energy Conservation, and Energy Efficiency
 - a. Industrial and commercial entities (including schools, businesses, etc.) consume the majority of electrical and natural gas energy in our community. City policies and those suggested by the Corvallis Sustainability Coalition usually do not specifically address those who are responsible for most of the energy. Members of the committee recommend that government policies include guidance for industrial and commercial entities as well as individual citizens.
 - b. Most residential units and many commercial buildings in Corvallis are rented, and tenants pay utility bills. Lack of energy efficiency is not a compelling problem for landlords, i.e. those who would pay for weatherization. Because there are so many of them, the community should place high priority on weatherizing rental units.
 - c. The community should provide economic incentives for businesses and industries to conserve energy.
 - d. When allocating new building permits, the City should give preferential treatment to proposed developments that utilize energy-conserving building techniques and devices including heat pumps, geothermal and others.
 - e. The community should require all energy-consuming devices in public buildings to be energy efficient, according to federal standards of energy efficiency.
 - f. By 2020, all existing buildings, both public and private, within the Corvallis City limits should be fully weatherized. We do not know the 2010 baseline, but this goal will likely require a substantial increase in weatherization, involving many buildings and many property owners.
 - g. Starting in 2012, all new buildings should be built according to LEED standards. We do not know the 2010 baseline, but it is likely much lower than 100%.
 - h. To encourage energy efficiency, establish a market for Tradable Energy Efficiency Credits (also known as “white certificates” or “white tags” that reward energy savings.
 - i. The City of Corvallis should enact a ban on the sale of T-12 lamps and ballasts, accompanied by a tax credit or incentive program to encourage replacement of T-12s with more energy efficient T-8 lamps.
2. Renewable Energy
 - a. Starting in 2012, working with local utilities, Blue Sky contributions and any similar contributions should be applied towards local renewable energy projects which directly benefit our local community.
 - b. The community should establish quotas on imported fossil fuels for non-essential services to encourage the use of locally-produced, renewable energy.

3. Local Energy Production and Carbon Sequestration
 - a. The community should provide economic incentives to attract green industries to Corvallis and encourage local energy producers.
 - b. The community should provide incentives for the investigation, development, and use of local renewable energy, including solar, hydroelectric, thermoelectric, wind, wave, geothermal, algae and ligno-cellulosic biofuels and other sources using a system of tax credits or other devices.
 - c. The City should prohibit the removal of existing trees within the Corvallis City limits unless there is a verifiable health, safety or easement violation that necessitates the removal of a tree.

Strategy Gaps: Changes in the community’s energy sustainability plan.

These are gaps between the strategies articulated in existing Council-approved documents and the strategies we need in order to achieve existing and aspired-to goals. Strategic steps include:

- Consider alternative revenue sources to finance strategies to reduce gaps;
- Adopt revenue plan and implementation schedule;
- Implement plan;
- Review metrics and monitor progress on strategies;
- Adjust as necessary.

At minimum, some members of the committee or the CSC recommend implementing the following high-priority strategies:

1. Develop materials regarding energy conservation, energy efficiency, weatherization and renewable energy for the proposed Energy Information Center. These materials shall be reviewed and updated every two years.
2. Replace all energy-consuming devices in public buildings to energy efficient alternatives. Install energy efficient traffic lights and street lamps (using LED lights, compact florescent bulbs, sodium lamps, metal halide lamps, or induction lighting).
3. Seek technical or professional assessment on local and regional potential for production of renewable fuels, considering all viable (i.e. triple bottom line) state-of-the-art technologies. Investigate the possibility of hydro, wind, and wave energy production on remote sites and invest in off-site systems.
4. Make greenhouse gas sequestration more comprehensive and more affordable by coordinating with other Oregon sustainability initiatives.
5. Organize and train volunteers to assist citizens in implementing conservation recommendations from Energy Trust audits and renewable energy for buildings.
6. Establish criteria for reducing energy use and provide incentives for new or existing construction to meet these criteria.
7. Employ inspectors to ensure that required weatherization is being implemented in new buildings.
8. Establish a managed, forested greenbelt and network of high diversity native species grasslands that sequesters 100% of remaining greenhouse gas emissions from energy use and production for the community.

9. Work with utility companies to develop smart grid technology for the City's electricity network.
10. Create a policy that requires public employees to turn off desktop computers when not in use.
11. Utilize paint colors and reflective roofing materials on municipal buildings to increase energy efficiency.

Once high-priority changes have been achieved, the development of incentive programs is a logical next step. If incentive programs are unsuccessful at curbing energy consumption, regulation should be considered:

1. Create special incentive programs for weatherization that cater to low-income residents and owners of rental units, as these two groups are particularly disempowered to pursue weatherization.
2. Provide incentives to utility companies to support the development of local renewable energy sources.
3. Participate in a regional cap-and-trade program, such as the one developed by the Western Climate Initiative, to apply a market-based approach towards greenhouse gas emissions reduction.
4. Provide tax credits for citizens who switch to more energy efficient vehicles or other large energy-consuming devices (i.e. heaters or air conditioners, refrigerators, etc.)
5. Offer financial incentives to encourage photovoltaic installation on new and existing structures. Provide local installation rebates in addition to current state and federal rebates.
6. Provide economic incentives and/or disincentives to enable and encourage the use of energy efficient devices in residential, commercial and industrial facilities.
7. Establish a system of Renewable Energy Credits (RECs) to encourage the production and use of renewable energy.
8. Make greenhouse gas elimination more affordable by using Western Climate Initiatives or other cap and trade dollars to subsidize local efforts.
9. Establish Corvallis surcharges on energy utilization to pay for greenhouse gas elimination. Create a multi-tiered surcharge that progressively increases per unit cost of power as more power is used.
10. Starting in 2012, developers who ignore weatherization standards in new buildings will be required to pay a fine.
11. Establish quotas for imported fossil fuels; smaller supply of such fuels will raise prices and make renewable energy options more attractive to consumers.
12. Through regulation, implement time of use or peak demand energy pricing.

IV. ENERGY IN TRANSPORTATION

Goal gaps: Where we want to be by 2020

These are gaps between the energy goals stated or implied in existing Council-approved documents and the goals some members of the committee or the Corvallis Sustainability Coalition would like the community to achieve. A goal may simply be missing, or the existing goal may not reflect sufficient urgency in terms of magnitude of change or time horizon. The Committee's consensus is that the goals below are aggressive, and if achieved, would be of great value; however, they exceed current City Council policy and may exceed technical, financial and political feasibility

1. Gasoline-powered vehicles
 - a. By 2020, community members should reduce per-capita gasoline consumption by 50%.
 - b. By 2020, single occupancy vehicle trips to work should be reduced from 46% to 30%
 - c. By 2020, increase the number of electric vehicle owners by 500%, from baseline measurements.
 - d. By 2020, achieve a 50% reduction in personal automobile CO2 releases per year
2. Transit
 - a. By 2020, citizens should double the average monthly ridership on the Corvallis Transit system; by 2015 increase ridership by 50%.
 - b. By 2020, the percentage of community members who rode the bus during the last year should increase from 30% to 61%.
3. Bicycles
 - a. By 2020, increase the percentage of commuting bicyclists from existing baseline measurements of approximately 10% - 22% to at least 50%.
4. Pedestrians
 - a. By 2020, citizens increase the percentage of pedestrian trips to work from 12% to 25%.
5. Fuel technology
 - a. By 2020, Corvallis should establish itself as a regional leader in sustainable fuel technology and usage.

Policy gaps: Changes in guidance for the community.

In order to achieve both existing and aspired-to goals, some members of the committee or the CSC feel that the community should adjust existing policy or create new policies.

1. Commuters, those driving to jobs in Corvallis from remote locations and those driving from Corvallis to jobs in other cities, account for a majority of miles traveled and gasoline consumed in the community. The behavior of these people should receive more attention from the community.
2. Many transportation energy sustainability goals will require coordination and regional agencies (such as ODOT, CAMPO, COG, etc.)

3. The community should redevelop properties toward higher densities, not just around OSU, in order to shorten travel distances from residences to local employment and shopping.
4. Regarding transit:
 - a. Alternative transportation linkages to destinations beyond Corvallis should be increased so that people have a variety of energy-efficient options for travel throughout the region.
7. Regarding gasoline-powered vehicles:
 - a. Government agencies should impose an estimated mileage tax on all registered vehicles.
 - b. The City should maintain an incentive program to encourage citizens to transition to lower MPG, hybrid, electric, or alternative vehicles.
 - c. The community should encourage the purchase of more fuel-efficient vehicles.
8. Regarding bicycles:
 - a. The City should empower the Bicycle Coordinator to facilitate incentive programs or regulations to encourage cycling and the development of safe, efficient bicycle pathways.
 - b. The City should ensure that all public roadways within the Corvallis City limits are equipped with adequate, functioning lighting systems to protect bicyclists and pedestrians after dark.
 - c. Police officers should respond to reported acts of discrimination or harassment directed at bicyclists and shall refrain from such actions themselves.
2. Regarding pedestrians:
 - a. 100% of public roadways should include well-maintained sidewalks or pedestrian pathways.

Strategy Gaps: Changes in the community’s energy sustainability plan.

These are gaps between the strategies articulated in existing Council-approved documents and the strategies we need in order to achieve existing and aspired-to GOALS. Strategic steps include:

- Consider alternative revenue sources to finance strategies to reduce gaps;
- Adopt revenue plan and implementation schedule;
- Implement plan;
- Review metrics and monitor progress on strategies;
- Adjust as necessary.

At minimum, some members of the committee or the CSC recommend implementing the following high-priority strategies:

1. Encourage carpools to Eugene, Salem, etc. and from Albany, Philomath, Lebanon, etc.
2. Have the City show leadership by purchasing highly efficient vehicles and labeling them prominently.
3. Develop materials about alternative fuels and alternative transportation options for the proposed Energy Information Center. These materials shall be updated every two years.
4. Bring car share programs (e.g. Zipcar, Hour Car) to Corvallis.

5. Add pedestrian activated signal lights, where missing, and improve the synchronization of traffic lights.
6. Encourage local businesses to provide price break incentives for bus and bike patrons or to subsidize such incentives. Encourage employers to cash out unused parking spaces to employees that use alternative transportation, or offer a similar reward.
7. Train public employees on fuel efficient driving techniques. Distribute information to the public about these techniques through the proposed Energy Information Center. Develop an idle-reduction education campaign to dispel myths about idling (i.e. turning your engine on and off frequently is bad for the vehicle, etc).
8. By 2020, the community should install 200 additional electric vehicle charging stations throughout the Corvallis community.
9. Expand and improve the Corvallis Transit System by implementing the following changes:
 - a. Eliminate bus fares. If bus fares cannot be eliminated, use more efficient collection methods (i.e. smart cards that can be re-charged online by the consumer).
 - b. Improve the Corvallis Transit System's website and informational materials so that they are integrated with other regional mass transit options (i.e. Linn-Benton Loop, Albany Transit, Amtrak, etc).
 - c. Increase transit linkages to destinations beyond Corvallis so that people have efficient options for travel throughout the region.
 - d. Provide public transportation to recreational areas. This may include adding scheduled stops at trail heads, increasing the use and frequency of ski buses, and increasing the Parks and Recreation outings with shared or provided transit.
 - e. Add buses to decrease wait times and improve the timing of existing connections.
 - f. Increase the frequency of Corvallis Transit System buses such that each route has a frequency of 15 minutes peak and 30 minutes off-peak, or better.
 - g. Increase the hours of operation of Corvallis Transit System buses by extending evening hours and offering Sunday service.
 - h. Provide bicycle lock-ups at transit stops.
 - i. Implement a Guaranteed Ride Home program, providing subsidized taxi vouchers to qualifying workers that enroll in the program.
10. Encourage bicycling as alternative mode of transportation by implementing the following changes:
 - a. Develop a public education campaign to encourage awareness of bicyclists and air public service announcements about the presence of bicycles on public roads. Increasing the safety of the cycling activity should lead to increased bicycle usage.
 - b. Develop a bike-sharing program.
 - c. Add bike lanes or bikeways to streets that do not already contain them, such that 100% of all public roads in Corvallis contain bike lanes or bikeways.
 - d. Re-paint street lines to give bicycles priority at intersections.
 - e. Station police officers on bicycles.
 - f.

11. Encourage walking as an alternative mode of transportation by implementing the following changes:
 - g. Add sidewalks to streets that do not already possess sidewalks.
 - h. Reduce road widths while simultaneously widening sidewalks to slow down traffic and encourage pedestrians.

Once high-priority changes have been achieved, the development of incentive programs is a logical next step. If incentive programs are unsuccessful at curbing energy consumption, regulation should be considered:

- a. Establish an organization based on the Energy Trust model to provide free audits of transportation use and help people plan to meet their transport needs more efficiently.
- b. Encourage the purchase of more fuel-efficient vehicles through a rebate program.
- c. Promote and encourage neighborhood electric vehicle use by developing a system of tax credits, priority parking, and availability of charging stations.
- d. Promote and encourage compressed natural gas (CNG) use in the public, private and commercial sectors using a system of tax credits.
- e. Subsidize Transportation Demand Management (TDM) strategies for Corvallis businesses with more than 20 employees; money to be used to offer employees incentives to participate.
- f. Fund alternative fuels research and development at OSU.
- g. Redevelop property to higher densities per current *Land Development Code* and *Comprehensive Plan*.
- h. Redevelop properties to create neighborhood centers in existing neighborhoods. Also plan to include such centers in all new neighborhood developments.
- i. Install City-wide WiFi to encourage telecommuting and to reduce the number of single occupancy vehicle trips.
- j. Put infrastructure in place to support neighborhood centers.
- k. Build a Park-n-Ride on the east side of VanBuren or Harrison St. bridge, with city-sponsored shuttles to hospital, HP, OSU – seek ODOT subsidy for same in lieu of building another bridge over the Willamette.
- l. Leverage a “new car buyers charge” based on DMV registration with the cost decreasing for every mile per gallon over 30, reaching zero at 40 miles per gallon or greater.
- m. Increase parking charges.

To fund incentive programs and transportation improvements, the City may consider the following funding strategies:

- Pay from current general revenues at the expense of other city programs;
- Special “Local Option” property tax levy;
- Utility bill assessment;
- Local gas tax or vehicle registration fee;
- Local payroll tax;
- Local income tax;

V. MEASUREMENT GAP

These are gaps between metrics we currently have and metrics we need to obtain in order to measure progress toward goal achievement, action completion and resource requirements. For each of the aforementioned gaps, we need to establish valid and reliable metrics to keep Corvallis on track towards its sustainability goals. Additionally, we need to determine **who** will be responsible for monitoring progress towards our goals, and how that person or group will be supported. Members of the committee recommend that if measurement gaps can feasibly be filled (that is, without the excessive use of City government or community resources) they should be filled by the end of 2011.

Currently, we can obtain annual natural gas and electricity usage data, within organizationally-specified areas and broken down into residential and non-residential usage, from the local utility companies. We have access to air pollution data on a daily basis, and Vehicle Miles Traveled (VMT) data every three years. Additionally, we have access to limited survey data that provides information about citizen behavior. Unfortunately, this data may not prove to be sensitive enough to tell if we are meeting our sustainability goals.

Some of the metrics that we need in order to measure our progress towards our goals, implementation of planned actions, or application of resources suffer from availability. We do not have direct, frequently-gathered measures of gasoline consumed, miles walked, thermostat settings, energy-efficient light bulbs, etc. Other metrics, particularly from surveys such as the *Corvallis Annual Attitude Survey*, suffer from reliability and validity problems as well as estimation limits.

Car travel is measured in VMT or in gallons of gasoline consumed, and electricity is measured in kilowatt hours. To compare overall energy impacts, we need to apply the same measurement units to both the built environment and transportation. For example, the OSU *Climate Change Inventory* uses BTUs and contribution to climate change. Similar tactics could be applied in order to consistently track our own progress.

In order to measure the community's achievement of energy sustainability goals (i.e. reduced electricity usage, reduced VMT, local energy production, etc.) we need an operational definition of the "community." To date, we do not have a consistent one. The following three questions address this issue.

What is the Corvallis community? Three possible answers are: 1) It is a social group of people who know and interact with each other; 2) it is a political unit bound together by political control and voting blocs; 3) it is an economic market with shared supply and demand for energy.

What is the geographic scope of the community? Of the many potential answers to this question, the geographic scope of the community may include the following: 1) The City regulates what happens within the city limits and the urban growth boundary; 2) the 509J school district serves students and operates facilities within the City limits and in Benton County and in Linn County; 3) the Corvallis Metropolitan Planning Organization includes Adair Village and parts of Philomath.

Who is and who is not a part of the Corvallis community? One operational definition is those who live, operate and/or work within the chosen geographic boundary. People live at the addresses identified on the tax rolls. Businesses, government service organizations, not for profits, etc. operate within the geographic boundary; they are especially important because they use the majority of electricity and natural gas. Many commuters to jobs in Corvallis come from far away, and they are responsible for most of the petroleum fuel consumed here.

If we cannot measure progress towards our goals, we cannot begin to work towards those goals. The measurement gaps that we have addressed in this assessment need to be filled prior to taking action towards community sustainability objectives. Members of the committee recommend that current and future energy strategies give the resolution of measurement gaps a high priority.