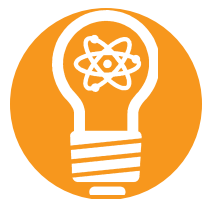




Energy Conservation

“Land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based upon sound economic principles.”





Our way of life is powered by energy. From the construction process to home heating to getting around the community, affordable and reliable energy sources are counted upon to sustain our needs. Energy also drives the economy and has a significant impact on the environment. These roles are important to consider when planning for future sources, distribution, conservation efforts, land use, transportation, and development patterns. The City's commitment to manage land use to conserve energy is based on Oregon Statewide Planning Goal 13.

GOAL 13: Energy Conservation

“Land and uses developed on the land shall be managed and controlled so as to maximize the conservation of all forms of energy, based on sound economic principles.”

Tigard residents envision a future where access to reliable energy supplies and their use do not degrade the environmental quality of the community. They recognize the importance of renewable energy resources for the economy, the value in conservation efforts, and the significance of land use and transportation planning on energy consumption. Public transportation and a well-connected bicycle and pedestrian network are services greatly supported by the community. The community also recognizes that the City can employ new techniques and technologies in municipal operations, as well as encouraging citizens to take a personal interest in energy consumption and conservation.

The City of Tigard currently has no energy resources and no future plans to develop any generation or supply facilities. The Oregon Department of Energy (DOE) has taken the statewide lead by planning to ensure an adequate, affordable, and clean energy supply is available for Oregonians. The DOE produces the *Oregon Energy Plan* on a biennial basis. It assesses energy demand and supply in the state, identifies issues affecting energy, and presents an action plan to meet the goals of the plan.

Energy conditions and future issues identified by the 2005-2007 *Oregon Energy Plan* include:

- Unstable energy pricing and supply will continue to affect communities as it did in 2002 when Oregonians spent 50% more per unit of energy to heat their homes than in 1998.
- World oil production may peak in the next decade and begin a long-term decline. Coupled with a growth in worldwide demand, peak oil will maintain or increase already high oil prices.



- Natural gas supplies from North America are declining, while prices have doubled in the past five years. Worldwide competition for the gas is also expected to increase.

To address these issues, the *Oregon Energy Plan* recommends conservation efforts for households, businesses, industry, and transportation, as well as developing

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clean and renewable energy resources. These efforts can provide insulation from, and reduce the community’s vulnerability to, volatile pricing and supplies. They are also consistent with statewide planning Goal 13 for maximizing the conservation of all forms of energy. Building efficiency standards, the Leadership in Energy and Environmental Design (LEED) rating system, and weatherization programs are options for promoting energy conservation in buildings. Metro’s *Regional Transportation Plan (RTP)* is required to address energy conservation, efficiency, and alternative transportation options under state and federal law. Options include driving less, buying fuel-efficient vehicles, or using alternative fuels.

Tigard has the ability to affect energy conservation efforts through developing efficient land use and transportation plans that reduce automobile trips. This includes promoting compact mixed use communities, and transit use and development. The City can lead by example in utilizing alternative energies and becoming more energy efficient in municipal operations. Tigard can also challenge residents to reach energy conservation goals set by the community.

KEY FINDINGS

- Transportation is the largest use of energy in the state at 38%. A considerable reduction in energy use can be made with individuals altering their habits related to the use of motor vehicles.
- The City has no energy generation or supply facilities and therefore the



community's energy supply and pricing is controlled by forces beyond its direct influence.

- A number of alternative fuel options exist for motor vehicles, but supplies and availability are limited.
- Large energy uses which the City has control over include street lighting, water transfer pumps, heating and cooling of municipal buildings, and the motor vehicle pool.
- Solar-generated power and wood heating are the two most common options available to the community for producing their own energy. Wood heating can be problematic to air quality due to the release of fine particulate matter.
- Weatherization, energy efficient building materials and appliances, and alternative energy sources can all reduce energy consumption in buildings.
- The citizens of Tigard value pedestrian and bicycle paths in the community and support the development of a well connected network.
- The citizens of Tigard value access to bus service in the community.
- The following land use planning strategies can result in a more energy-efficient community:
 - Establishing mixed-use zones to encourage working, living, and shopping in the same neighborhood
 - Providing opportunities for increased density along public transit lines
 - Developing a public transit system that is reliable, connected, and efficient
 - Building a bicycle and pedestrian network that is connected, safe, and accessible
 - Connecting streets for efficiency and reducing congestion
 - Re-use of vacant and underutilized land.

GOAL

13.1 Reduce energy consumption.

POLICIES

1. The City shall promote the reduction of energy consumption associated with vehicle miles traveled through:
 - A. Land use patterns that reduce dependency on the automobile;
 - B. Public transit that is reliable, connected, and efficient; and
 - C. Bicycle and pedestrian infrastructure that is safe and well connected.



2. The City shall implement regional and state regulations, plans, and programs that promote energy conservation.
3. The City shall require future development to consider topography, vegetation, and solar access during the design phase to reduce demands for artificial heating, cooling, and lighting.
4. The City shall implement and enforce state energy efficiency standards during the building permit review process.
5. The City shall take a leadership role in local energy matters by:
 - A. Designing and developing public facilities, wherever possible, that take advantage of alternative energy sources and conserve energy in operations;
 - B. Conducting energy audits on existing City facilities and implementing cost-effective recommendations as soon as possible;
 - C. Investigating and participating in, when feasible, green energy programs, which use renewable energy resources; and
 - D. Continuing to investigate new technologies that can reduce municipal energy consumption.
6. The City shall support energy conservation by:
 - A. Encouraging designs that incorporate Leadership in Energy and Environmental Design (LEED) standards or achieve a minimum certification;
 - B. Educating the public about personal actions that can be taken to improve energy efficiency and reduce energy consumption;
 - C. Directing the private sector to the variety of available incentives programs; and
 - D. Providing flexibility in the land use process to take advantage of solar radiation.

Energy also drives the economy and has a significant impact on the environment.

RECOMMENDED ACTION MEASURES

- i. Create a process that requires new development to consider topography, vegetation, and solar access during the design phase.



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- ii. Develop target decreases for energy consumption associated with municipal operations.
 - iii. Purchase a percentage of Green Energy for municipal operations and then challenge the community to do the same.
 - iv. Research and implement incentives and development codes that would encourage energy efficiency in new developments.
 - v. Survey the community about energy consumption and identify top concerns that could be addressed through conservation incentives.

9. ENERGY

Statewide Planning Goal #13;

~~Energy Conservation, requires localities to manage and control land uses and development "so as to maximize the conservation of all forms of energy, based on sound economic principles." The following policies accomplish the objectives of the goal but they are not written at the level of detail necessary to provide the community with a comprehensive energy program. However, the potential need for such a program is becoming increasingly evident as the cost of energy supplies increases and the availability of non-renewable energy sources decreases. The increasing cost of energy combined with the fact that most localities are importers of energy could potentially have a negative impact on local economies. The impact[s] could range from work stoppage[s] or slowdown[s] to reduced disposable income[s] and a disruption of monies within the local economy.~~

~~The energy findings, policies and implementation strategies identify conservation as the initial energy source that the community should explore. They do so based on the fact that conservation is the cheapest energy source, most readily available, least environmentally detrimental and most influenced by local policy.~~

~~Additional information on this topic is available in the "Comprehensive Plan Report: Energy."~~

Findings

- ~~• Transportation and residential uses account for approximately half of the total energy consumption in the Portland Metropolitan Area. Industrial and commercial uses comprise the other half of energy consumption.~~
- ~~• The City of Tigard has no developed energy sources.~~
- ~~• Conservation of energy at the local level is best achieved through programs aimed at energy efficient transportation modes and land use patterns, reducing travel distances between residential and work areas, infilling vacant land, increasing densities of land uses as a whole and encouraging alternative energy uses.~~
- ~~• All forms of non-renewable energy sources used today are finite and the cost of these sources has increased as the supply has decreased.~~
- ~~• A reduction in the community-wide use of nonrenewable energy sources and the development of renewable energy resources would have a beneficial impact on both local and national economy.~~
- ~~• Mass transit systems can have a positive influence upon energy consumption but require higher density corridors and activity areas to be effective.~~
- ~~• The availability of cheap energy in the past has resulted in the construction of residential and commercial buildings that are energy inefficient. Weatherization and insulation of existing and new structures would substantially reduce energy consumption for heating and cooling these structures.~~
- ~~• Although it is a widely used substitute for traditional energy sources, woodburning stoves can have adverse effects on air quality if improperly used.~~

- ~~Alternative architecture and site design considerations can affect energy consumption; such as structure orientation to the sun, landscaping, topography and adjacent structures.~~
- ~~Small scale wind generating devices may be a viable alternative energy source for Tigard residences.~~
- ~~The private automobile consumes about 75% of all petroleum used in transportation in the Portland Area.~~

POLICIES

- 9.1.1 ~~THE CITY SHALL ENCOURAGE A REDUCTION IN ENERGY CONSUMPTION BY INCREASED OPPORTUNITIES FOR ENERGY CONSERVATION AND THE PRODUCTION OF ENERGY FROM ALTERNATIVE SOURCES.~~
- 9.1.2 ~~THE CITY SHALL ESTABLISH A BALANCED AND EFFICIENT TRANSPORTATION SYSTEM WHICH COMPLEMENTS THE LAND USE PLAN AND IS DESIGNED TO MINIMIZE ENERGY IMPACTS.~~
- 9.1.3 ~~THE CITY SHALL ENCOURAGE LAND USE DEVELOPMENT WHICH EMPHASIZES SOUND ENERGY CONSERVATION, DESIGN AND CONSTRUCTION.~~

IMPLEMENTATION STRATEGIES

1. ~~The City shall encourage public and private programs that offer weatherization and energy conservation programs, e.g., tax credits, low-interest weatherization loans, etc.~~
2. ~~The Tigard Community Development Code shall allow for a variety of housing unit types in most residential development districts which have proven to be energy efficient, e.g., common-wall or clustering of dwelling units.~~
3. ~~The City shall locate higher densities and intensities of land use in proximity to existing and potential transit routes specifically with convenient access to federal and state highways, arterials and major collector streets.~~
4. ~~The City shall, in the Tigard Community Development Code, allow for more flexibility in structure siting to provide for maximum solar exposure.~~
5. ~~The City shall review the feasibility of implementing a solar access ordinance and wind generation provisions.~~
6. ~~The City shall cooperate with both public and private agencies that make use of site development and architectural techniques using natural elements for heating and cooling in all developments.~~
7. ~~The Tigard Community Development Code shall allow for mixed use developments which will support a reduction in traffic trip generation.~~
8. ~~The City shall coordinate with and support public and private planning efforts that advocate alternative forms of transportation such as mass transit, carpooling, ride share, bicycling and walking for commuter purposes.~~
9. ~~Locational criteria shall be established to minimize vehicular travel in order to conserve energy.~~

- ~~e. Impacts upon drainage;~~
- ~~d. Water quality degradation or similar problems.~~
- ~~3. The City shall ensure that future land use activities with significant waste and process discharges conform to all State and Federal environmental quality standards.~~
- ~~4. The City shall seek a response or assistance from the Department of Environmental Quality or any other interested State or Federal agency when reviewing proposed land uses with potential for significant waste and process discharges.~~
- ~~5. The City shall continue to use local recycling services and shall encourage and cooperate with all recycling agencies which conform to all state and federal environmental quality standards.~~
- ~~6. The City shall recognize MSD's role in preparing and implementing a solid waste management plan. The City shall support MSD's "Procedures for Siting Sanitary Landfill," and will participate in these procedures as appropriate.~~