

Chapter 12. Energy Element

12.1 Purpose

The purpose of this chapter is to present policies and programs to address energy needs, use, and conservation. This chapter provides goals, policies, standards, and implementation measures that strive for sustainable renewable energy and self-sufficiency.

12.2 Relationship to Other Elements

Energy conservation is reflected in the Land Use and Circulation elements' policies, promoting in-fill development supported by transit, bike, and pedestrian transportation options; and in Housing Element policies promoting construction of energy efficient homes. Policies that facilitate energy production are located in the Land Use Element and Water Resources Element.

12.3 Background

Energy and Land Use

There is a close link between energy consumption and production and the physical development of land. Land use development policies strongly impact how much energy is consumed, and zoning and development strategies can affect the ability to develop and transport future energy resources.

Humboldt County has a number of unique features with respect to energy. It is isolated at the end of electricity and natural gas transmission lines, and the capacity of these lines is not great enough to import all of the county's required energy. Related to these capacity constraints is the fact that the county currently produces a large portion of its electricity locally and also supplies some of its own natural gas needs. The county also has a tremendous amount of potential local energy resources, in the form of wind, wave, biomass, hydroelectric, and solar power. Conservation is also viewed as an energy resource and is considered in the Housing and Circulation elements of this Plan. And finally, there is much local interest and expertise and a strong desire to develop long-term energy self-sufficiency for the region.

Local Energy Resources

The majority of primary energy used in Humboldt County is imported, with the exception of biomass energy. There are sufficient supplies of biomass from lumber mill wood residues to supply more than 10% of the county's electricity needs. Forest biomass such as slash from logging operations, thinning, and fuel-load reduction programs could potentially be a major source of fuel under favorable economic conditions.

Pacific Gas and Electric Company is replacing the existing Humboldt Bay Power Plant (HBPP) with a new 163-megawatt power plant that will be 35% more efficient. Although the majority of electricity consumed is generated in the county—and County government has the ability to generate all of its own electricity—a large portion of electric demand is generated using imported natural gas. The county imports about 90% of its natural gas; the rest is obtained locally from fields in the Eel River valley. Total net gas production in the county in 2007 was 1.1 BCF (billion cubic feet). Active gas wells are concentrated in the Tompkins Hill gas field, where there are 31 producing wells. There is also an on-going project to develop gas reserves in the Grizzly Bluff area near Alton.

It is estimated that the total electricity generation from local renewable resources could provide as much as six times the county's current electricity consumption rate. However, there is a lot of uncertainty about how much of these resources can realistically be developed. For example, over 75% of the estimated renewable electricity resource would come from wave power, a technology that is in its early stages of development and therefore is quite uncertain. Even for well-proven resources like wind, solar, and hydropower, there are many potential barriers that could impede development, including high costs, regulatory hurdles, lack of financing, siting, and transmission access issues, and lack of public support. Nonetheless, the potential of these local resources is large and offers significant economic development potential. Using local resources to meet local energy needs would keep energy dollars circulating in the local economy, and exporting local energy resources to surrounding communities could bring in a new source of income to the county.

Opportunities to Reduce Energy Use

The results of statewide energy efficiency potential studies were used to estimate the efficiency potential in Humboldt County. It is estimated that in ten years, electricity savings in Humboldt County could total 8% of the county's projected total electricity use, and natural gas savings could total 5% of the county's projected total natural gas use. This represents a total retail value for electricity cost savings of \$11.9 million per year and for natural gas of \$1.8 million per year.

Efforts to reduce energy consumption in the transportation sector are also critical to the establishment of a secure energy future for the county, and decreasing the number of vehicle miles traveled is probably the most effective measure for reducing transportation energy use. Implementing land use planning that locates housing, jobs, and shopping in close proximity to one another and provides bicycle, pedestrian, and public transit

Energy Use and Cost

It is estimated that in 2003 Humboldt County spent \$319 million to meet local energy demands, the majority of which left the county. Approximately half of the energy was used as a transportation fuel (gasoline and diesel), with large amounts also used to meet end use electrical demands and end use natural gas heating demands. It is estimated the county's end use energy consumption totaled about 17.4 trillion BTUs. Humboldt County electricity use totaled 940 GWh. Natural gas was 93.9 million therms, with almost half of this being used to generate electricity at both the Pacific Gas and Electric Company (PG&E) Humboldt Bay Power Plant and the Samoa pulp mill.

Growth in electricity and natural gas demand over the next 20 years will range from 0.5% per year to 1.5% per year. Gasoline and diesel consumption in Humboldt County in 2003 was about 71 million gallons. Between 1997 and 2003, consumption rose at 1.5% per year. Future consumption rates will depend primarily on changes in vehicle miles traveled (VMT).

access will encourage alternative transportation modes and result in reduced vehicle travel. Replacing the importation of goods and exportation of waste with increased production and consumption of local goods (such as locally grown food) and local waste processing (through recycling, reusing, and composting) can also help reduce vehicle miles traveled.

Strategic Energy Planning

In 2003, the Redwood Coast Energy Authority (RCEA) was formed as a joint powers authority (JPA), representing seven municipalities (the cities of Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Trinidad, and Rio Dell) and Humboldt County. As a JPA, RCEA is governed by a board composed of a representative from each jurisdiction. RCEA's mission statement is:

The Redwood Coast Energy Authority's purpose is to develop and implement sustainable energy initiatives that reduce energy demand, increase energy efficiency, and advance the use of clean, efficient, and renewable resources available in the region.

As the regional energy authority, the Board of Supervisors has designated RCEA to implement Energy Element strategies on a regional basis through a Comprehensive Action Plan for Energy. This action plan will be maintained by the RCEA Board and periodically presented to the Humboldt County Board of Supervisors for review. The County will also implement Energy Element strategies through policies, implementation measures, and standards contained in this Plan.

This Energy Element promotes self-sufficiency, independence, and local control in energy management and supports diversity and creativity in energy resource development, conservation, and efficiency. This strategy can reduce the drain on the county's economy for energy, stimulate local businesses and the economy, and help the county meet greenhouse gas emission reduction targets.

12.4 Goals and Policies

Goals

- E-G1. Countywide Strategic Energy Planning.** An effective energy strategy based on self-sufficiency, development of renewable energy resources and conservation that is actively implemented countywide through local General Plans and the Redwood Coast Energy Authority's Comprehensive Energy Action Plan.
- E-G2. Increase Energy Efficiency and Conservation.** Decrease energy consumption through increased energy conservation and efficiency in building, transportation, business, industry, government, water and waste management.
- E-G3. Supply of Energy from Local Renewable Sources.** Increased energy supply and purchases from a distributed and diverse array of local renewable energy sources and providers.
- E-G4. Local Management of Energy Supply.** Increased local control, management,

and ownership of energy sources with greater diversification and competition among suppliers.

Policies

- E-P1. Land Use and Development Review.** The County shall provide incentives for discretionary development incorporating renewable energy sources and conservation measures consistent with this Plan.
- E-P2. Oil and Gas Development.** Oil and gas development shall be permitted consistent with the following:
- A. The development is performed safely and consistent with the geologic conditions of the well site.
 - B. New or expanded facilities related to such development are consolidated, to the maximum extent feasible and legally permissible, unless consolidation will have adverse environmental consequences and will not significantly reduce the number of producing wells, support facilities, or sites required to produce the reservoir economically and with minimal environmental impacts.
 - C. Such development will not cause or contribute to subsidence hazards unless it is determined that adequate measures will be undertaken to prevent damage from such subsidence.
- E-P3. Local Management and Ownership of Energy Supply.** The County shall support projects consistent with this Plan that increase local management and ownership of energy supply and decrease expenditures for imported energy.
- E-P4. Revitalization and Reinvestment in Existing Resources.** Support revitalization and infilling of Urban Development Areas to reduce long-term vehicle miles traveled as an energy conservation strategy. Favor rehabilitation and revitalization of older existing buildings over replacement when doing so would conserve energy resources.
- E-P5. Regional Energy Authority.** Recognize the Redwood Coast Energy Authority (RCEA) as the regional energy authority, which will foster, coordinate, and facilitate countywide strategic energy planning and education. Direct RCEA to administer the Comprehensive Action Plan for Energy.
- E-P6. Comprehensive Action Plan for Energy.** The County shall assist in the implementation and align its energy strategy with the Redwood Coast Energy Authority (RCEA) Comprehensive Action Plan for Energy, as amended.

12.5 Standards

E-S1. Oil and Gas.

- A. Development associated with onshore oil and gas wells shall be conditionally permitted by a conditional use permit in agricultural, timber, rural lands, industrial general, and resource-related industrial land use classifications.
- B. A permit will be required for each drill site and a separate permit will be required for production facilities. Additional wells proposed for an approved drill site may be administratively approved provided that they can be accomplished within the limitations and conditions of the original use permit for the drill site.

E-S2. **Application and Initial Study Information Requirements for Oil and Gas Energy Exploration or Extraction Projects.** California Environmental Quality Act (CEQA) applications for oil and gas exploration or extraction projects shall include the following:

- A. A plot plan for the entire area under lease or ownership, showing the relationship of the proposed facilities to ultimate potential development, and a map showing the relationship of contours, buildings, structures, and/or natural features.
- B. A description of the relationship of the proposed facilities to existing facilities.
- C. Procedures for the transport and disposal of all solid and liquid wastes to meet discharge requirements of the North Coast Regional Water Quality Control Board (NCRWQCB).
- D. Grading plans and procedures for minimizing erosion.
- E. Where public views are affected by production facilities, landscaping plans and measures for minimizing visual impacts.
- F. Fire prevention procedures.
- G. Air emission control measures.
- H. Oil spill contingency procedures.
- I. For production facilities, a phasing plan for the staging of development, indicating an approximate anticipated timetable and production levels for the project.
- J. Procedures for the abandonment and restoration of the site, which provide for removal of all equipment; disposal of wastes; and re-contouring, reseeded, and planting to conform to surrounding topography and vegetation.

- K. Drill sites should generally not be established at a density greater than one per 80 acres.
- L. All solid and liquid wastes shall meet the discharge requirements of the NCRWQCB.
- M. Projects shall meet all applicable air quality regulations.
- N. All earthen sumps or other depressions shall be regraded to restore the area to its original condition.

E-S3. Wind Generating Facilities.

- A. Unless allowed by right pursuant to California Government Code, Section 65892.13(f) as amended, wind generating facilities shall be a conditionally permitted use in all land use designations except "resource dependent" (MR).
- B. The following shall be considered in reviewing proposed wind generating facilities: parcel size, relationship to other structures, effect on potential down-wind sites, compliance with Uniform Building Code and national Electrical Code, rotor and tower safety, noise, electromagnetic interference, utility notification, height, liability insurance, and appearance and design.
- C. Findings necessary for project approval shall be:
 - 1) The proposed use is not detrimental to the public health, convenience, safety, and welfare.
 - 2) That the use of the property for such purposes will not result in material damage or prejudice to other property in the vicinity.
 - 3) The project will not have a significant adverse effect on coastal resources, including wildlife qualities.

E-S4. Oil and Gas Pipelines. For pipelines serving oil and gas facilities, the following shall apply:

- A. Pipelines should, where feasible, avoid sensitive habitat areas and archaeological sites and follow existing utility corridors where they are present. Active faults or other geologically unstable areas should be avoided where feasible, or be designed to mitigate against such hazards.
- B. When avoidance of a sensitive habitat area is not feasible, effective mitigation measures shall be employed to minimize adverse impacts. Directional drilling shall be employed to avoid wetlands and riparian habitats, unless an independent engineering contractor selected by the County determines that to do so would not be feasible.
- C. All right-of-ways shall be regraded and revegetated to their original state. When a responsible agency identifies a degraded habitat along the proposed right-of-way, when it might be preferable to restore it to a

condition other than its present state, said agency shall recommend plans to the lead agency for restoration of the habitat. The lead agency shall require restoration of the habitat as a condition of approval, unless a review of the public record indicates it would be more appropriate to do otherwise.

- D. All compressor, metering, or odorizing stations shall be visually and acoustically buffered with vegetation and other means as necessary.
- E. Above-ground pipelines should be sited to minimize visual impacts, when feasible. When an aboveground pipeline must be sited in a highly scenic area, it shall be visually buffered with vegetation and other means as necessary.
- F. For liquid carrying pipelines passing through important coastal resource areas including recreation, habitat, and archaeological sites and geologically unstable areas, segments shall be isolated by automatic shutoff valves. The County may determine whether spacing of automatic shutoff valves is required at intervals less than the maximum set by the U.S. Department of Transportation to protect sensitive coastal resources.

E-S5. Electrical Transmission Lines.

- A. Transmission line rights-of-way shall be routed to minimize impacts on the viewshed in the coastal zone, especially in highly scenic areas, and to avoid locations that are on or near habitat, recreational, or archaeological resources, whenever feasible. Scarring, grading, or other vegetative removal shall be minimized and revegetated with plants similar to those in the area.
- B. Where above-ground transmission line placement would unavoidably affect views, underground placement shall be required where it is technically and economically feasible, unless it can be shown that other alternatives are less environmentally damaging. When above-ground facilities are necessary, design of the support towers shall be compatible with the surroundings to the extent safety and economic considerations allow.
- C. Above-ground transmission lines should be sited so as to minimize visual impacts.
- D. Siting of transmission lines should avoid the crests of roadways to minimize their visibility on distant views. Where visual impacts would be minimized, lines should cross the roadway at a downhill low elevation site or a curve in the road.
- E. New major steel tower electrical transmission facilities should be consolidated with existing electrical steel-tower transmission facilities unless there are social, aesthetic, or significant economic concerns.
- F. Existing rights-of-way should be utilized for other related utilities to provide consolidated corridors wherever such uses are compatible or feasible.

- G. Access and construction roads should be located to minimize landform alterations. Road grades and alignments should follow the contour of the land with smooth, gradual curves where possible.

E-S6. Consistency with Climate Action Plan. The County's implementation of the Redwood Energy Authority (RCEA) Comprehensive Action Plan for Energy shall be consistent with the Board-adopted Climate Action Plan.

12.6 Implementation Measures

- E-IM1. Alternative Energy Use.** Develop or modify regulations that eliminate obstacles to alternative energy use. Regulations may include, but are not limited to:
- A. Allowing height exceptions for solar equipment.
 - B. Allowing alternative heating and cooling systems components such as collectors, shading louvers, or reflectors to project into yards in a manner similar to cornices and canopies.
 - C. Defining solar heating systems and cogeneration facilities as accessory uses.
 - D. Preventing planned development covenants, conditions, and restrictions (CC&Rs) from unreasonably restricting alternative energy systems.
- E-IM2. Comprehensive Action Plan for Energy.** Seek funding and support efforts to implement the Redwood Coast Energy Authority (RCEA) Comprehensive Action Plan for Energy, as amended.
- E-IM3. County Energy Consumption Reduction.** Develop a comprehensive program to reduce County energy consumption in operations including: public buildings and facilities, street lighting, vehicle fleet management, equipment procurement, and employee energy awareness program.
- E-IM4. Install County Systems.** Pursue the installation of cost-effective conservation measures, renewable energy systems, cogeneration systems, and distributed energy systems in County facilities.
- E-IM5. Wind Energy Development.** Develop wind-permitting guidelines for residential and small commercial-scale wind energy systems. Adopt and modify, as appropriate, the guidelines established in California State Law AB 1207. Educate the public about the benefits of small-scale wind energy systems.
- E-IM6. Energy-conserving Landscaping.** Consider the use of natural and drought-resistant planting materials and efficient irrigation systems and the siting of trees to reduce energy demand in the preparation of the County landscaping ordinance.
- E-IM7. Small Hydroelectric Development.** Support local efforts to develop cost-effective, environmentally sensitive, small-scale, run-of-the-river hydroelectric facilities in the County.