

Chapter 17 Energy Element

17.1 Introduction

Purpose

The purpose of this chapter is to present policies and programs to address energy needs, use, and conservation. This is an optional element of the General Plan. Energy use issues have been an important consideration in other sections of the plan as well and are most directly reflected in the land use, circulation and air quality elements. This chapter provides goals, policies, standards and implementation measures that address a vision that strives for sustainability and self-sufficiency with respect to energy use.

17.2 Background

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. The Energy Element of this General Plan Update will help ensure that policy decisions made now, which will guide the County for the next twenty years, take into account the region's need for long-term energy sustainability.

Humboldt County has a number of unique features with respect to energy. It is isolated at the end of the 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. Add to this the fact that the county has a tremendous amount of potential local energy resources, in the form of wind, wave, biomass, hydroelectric and solar power. And finally, there is a lot of local interest and expertise and a strong desire to develop long-term energy sustainability for the region.

Energy resources in Humboldt County include oil and gas, hydropower, wind, biomass and solar energy. Conservation is also viewed as an energy resource, and is considered in context in the housing and circulation elements of this plan.

Extractive types of energy production consist of development of oil and gas resources. The only type of extractive energy production currently occurring in Humboldt County is natural gas. Natural gas is a hydrocarbon fuel that is found in reservoirs beneath the earth's surface. Natural gas is composed primarily of methane and is used for space and water heating, process heating, electricity generation, and as a transportation fuel. There are several known natural gas deposits in Humboldt County, mainly in the Eel River basin. Total net gas production in the county in 2003 was 1,010,605 MCF. 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. The size of the natural gas reservoir(s) in the Alton area is unknown at this time, and data are currently being collected and analyzed to assess reservoir potential.

Strategic Energy Planning

The 1984 Humboldt County Framework Plan included the following statement: "Currently there is a substantial economic drain on the County's economy for energy; in excess of 100 million dollars annually. Energy conservation could help keep a substantial portion of this capital in the County, which would then be spent with other businesses stimulating the local economy. Alternative energy production and conservation could potentially spawn numerous businesses and industries, thereby aiding the diversification of the County's economic base." (Framework 2310)

This statement remains relevant for the General Plan Update and was used as a starting point for building on the previous general plan policies related to energy extraction, energy conservation and alternative energy sources.

Elevating issues relevant to energy is a new approach and the Energy Element is a new addition to the Humboldt County General Plan. The Redwood Coast Energy Authority (RCEA) saw that an exceptional opportunity existed for Humboldt County to develop important and timely regional energy policy for consideration during development of the Humboldt County 2025 General Plan Update. In response to RCEA's recommendation, on September 13, 2004, the Humboldt County Board of Supervisors directed staff to prepare an Energy Element as a part of their review and adoption of the *Sketch Plan Alternatives* report for the General Plan Update.

RCEA was formed in 2003 as a Joint Powers Association (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.

One objective of RCEA's "Redwood Coast Regional Comprehensive Energy Information & Education Program" is to assist local governments with the adoption of energy efficiency policies. RCEA coordinated the preparation and submission of technical information and proposed policies to be used in this Energy Element. The planning process included background and technical research, a series of public meetings, drafting a vision, goals, policy language and implementation strategies, and presenting the draft Energy Element policies to the Humboldt County Board of Supervisors.

The Board of Supervisors uses its discretion to direct other resources to help carry out the implementation strategies which will achieve energy goals. As the current Regional Energy Authority, the Board has designated RCEA to implement much of the Energy Element's strategies. Consistent with this approach, the initially proposed policies, standards and implementation measures proposed by RCEA were sorted into those

appropriate for County administration under the General Plan and those appropriately administered by RCEA under their charter. With this sort, a Comprehensive Action Plan for Energy was developed which includes policies and implementation measures specific to the functions of RCEA as the Regional Energy Authority for Humboldt County. This Action Plan shall be periodically updated by the RCEA Board and presented to the Humboldt County Board of Supervisors for review.

With regards to energy conservation, the Energy Element's planning approach is to be proactive; to foster self-sufficiency, independence, and local control in energy management; to support diversity and creativity in energy resources, conservation, and efficiency; and to be based realistically on constrained resources.

The Comprehensive Action Plan for Energy is modeled as a proactive approach to energy planning issues. This proactive approach includes: fostering self-sufficiency, independence and local control in energy management, supporting diversity and creativity in energy resource, energy conservation and energy efficiency. This type of approach must be based realistically on constrained reserves, and the monitoring of the outcomes of adopted policies to assess their effectiveness. Policies regarding the development of existing and potential energy resources have been designed to mitigate impacts and allow communities to enjoy the benefits of such development.

For a more detailed analysis of existing Humboldt County energy conditions, projections of future energy demands, an assessment of the availability of energy resources and the ability of conservation practices to meet those demands please refer to *Humboldt County Energy Element Background Technical Report*, October 2005.

17.3 Goals and Policies

Goals

The goals are the desired conditions that will help build the envisioned community. The goals also reflect the priority of approaches identified in the State of California Energy Action Plan and referred to as the "loading order" of energy resources. The loading order has been established to guide the decisions made by the State's principal energy agencies. The State priorities, in order, are: 1) to increase energy conservation and efficiency; 2) to meet energy generation needs first by renewable energy resources and distributed generation; 3) to support additional clean, fossil fuel, central-station generation to allow time for preferred resources to "get to scale"; and to simultaneously improve the electricity transmission grid and distribution facility infrastructure (i.e., supply management).

In this Energy Element, countywide strategic energy planning is added as a top priority (E-G1). Energy conservation and demand response are addressed in E-G2. Goal E-G3 addresses renewable energy and Goal E-G4 addresses supply management. Self-sufficiency in energy use is a goal that was included in the 1984 Framework Plan and remains pertinent for the General Plan Update as Goal E-G5.

- E-G1. Develop and implement countywide strategic energy planning.**
Integrate energy planning into all county plans and planning activities, in

order to maximize the effectiveness and success of energy policies and programs. Promote, coordinate, administer, and/or disseminate comprehensive strategic energy planning at all levels, and with other local governments. Have a long-term energy plan for sustainable energy use and increased self-reliance. Be prepared for emergencies that impact energy supply and transmission. Integrate energy efficiency measures into standards and regulations for land use, zoning, site design, building, and transportation facilities.

- E-G2. Increase energy efficiency & conservation.** Decrease energy consumption through increased energy conservation and efficiency. Increase self-reliance and sustainability by decreasing dependence on non-renewable, non-local energy sources. Increase conservation and efficiency in all sectors: building, transportation, business, industry, government, water and waste management, i.e., in all activities that consume energy. Reduce peak demand through efficiency and load management.
- E-G3. Increase the supply of energy from renewable sources, distributed generation, and cogeneration.** Have energy from renewable sources as the primary energy supply in the county. Increase distributed generation. Have a balanced, diverse array of available energy sources. Increase energy independence by decreasing the purchase and use of non-renewable and non-local energy.
- E-G4. Pursue opportunities for local management of energy supply.** Develop greater local control over energy supply sources and prices.
- E-G5. Self-sufficiency in energy use.** To move toward self-sufficiency in energy use, with maximum reliance on local renewable resources for local energy needs.

Policies

Goal E-G1 Strategic Energy Planning

- E-P1. Regional Energy Authority.** Recognize the Redwood Coast Energy Authority (RCEA) as the Regional Energy Authority to foster, coordinate, and facilitate countywide strategic energy planning and education, and administer a Comprehensive Action Plan for Energy.
- E-P8. Development Incentives.** Provide incentives for energy conserving projects (such as expedited permit processing for zoning and permit request) to encourage the generation of local renewable energy that could be offered for sale at competitive prices
- E-P10. Land use and development review.** The energy-efficiency of proposed new development shall be considered when land use and development review decisions are made.
- E-P13. Revitalization and reinvestment in existing resources.** Support revitalization of and reinvestment in existing core areas (commercial, business, employment, and civic centers). Rehabilitation and revitalization of older existing buildings shall be favored over replacement when doing so would conserve energy resources.

Additional policies on Strategic Energy Planning that are specific to the charter of a Regional Energy Authority may be found in the Comprehensive Action Plan for Energy (P-2, P-3, P-4).

Energy Conservation and Efficiency

Goal E-G2. Energy Conservation and Efficiency. Increase energy conservation and efficiency.

E-P34. Municipal Purchasing and Procurement. Encourage the purchase and use of administrative supplies and building materials made from recycled materials and renewable resources whenever cost-effective (considering life-cycle costs). Purchase or operate Energy Star® electrical equipment whenever cost-effective (considering life-cycle costs). Follow principles of energy-efficient source reduction and resource recovery for County operations, and promote these principles in the community.

E-P43. Water Conservation Saves Energy. Commit to the principle that water conservation is also energy conservation given the significant energy required for water pumping, water treatment, and wastewater pumping and treatment.

Renewable Energy, Distributed Generation and Cogeneration

Goal E-G3. Energy Supplies. Increase the supply of energy from renewable sources, distributed generation, and cogeneration.

Note: Policies related to this goal that are specific to the charter of a Regional Energy Authority are included within the Comprehensive Action Plan for Energy to be implemented by the RCEA under Policy E-P1 (P-46, P-50).

Local Management of Energy Supply

Goal E-G4. Local Management. Pursue opportunities for local management of energy supply.

E-P56. 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. *

Additional polices on Local Management of Energy Supply that are specific to the charter of a Regional Energy Authority may be found in the Comprehensive Action Plan for Energy (P-51, P-52, P-54, P-55).

17.4 Standards

Development Standards

E-S7. Oil and Gas.

A. Development associated with onshore oil and gas wells shall be permitted by 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-S8. Application and Initial Study Information Requirements for Energy Exploration or Extraction (Oil and Gas Development) Projects. CEQA requires that an initial study be completed to determine the necessary level of environmental review for discretionary projects. In submitting information for the initial study for energy extraction projects, the applicant shall include information sufficient to determine that the project will be so sited and designed to mitigate to the maximum extent feasible adverse environmental effects. Specifically the following shall be provided for:

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. the relationship of proposed facilities to existing facilities;

C. procedures for the transport and disposal of all solid and liquid wastes to meet discharge requirements of the Regional Water Quality Control Board;

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, and
- H. oil spill contingency procedures;
- I. for production facilities, a phasing plan for the staging of development indicating 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 wastes, and recontouring, reseeding and planting to conform with surrounding topography and vegetation.
- K. In general, drill sites should generally not be established at a density greater than one per eighty (80) acres.
- L. All solid and liquid wastes shall meet the discharge requirements of the Regional Water Quality Control Board.
- M. Project 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. *

17.5 Implementation Measures

STRATEGIC ENERGY PLANNING

- E-IM10. Energy Conservation in GP Elements.** Incorporate energy conservation objectives and policies in applicable General Plan elements, including but not limited to the Circulation, Land Use, Growth Management, Design, Water Resources, and Waste Management Elements.
- E-IM18. Energy-conserving landscaping.** Develop a water-conserving landscape ordinance, for use of natural and drought-resistant planting materials and efficient irrigation systems in new development. Provide information handouts and education to residents on tree selection and preferred siting of trees to reduce energy demand.
- E-IM23. Alternative Energy Use.** Develop 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 CC&R's from unreasonably restricting alternative energy systems.

- E-IM28. Government Energy Consumption Reduction.** Develop a comprehensive program to reduce government energy consumption in operations including: public buildings and facilities; street lighting; vehicle fleet management; equipment procurement; employee energy awareness program.
- E-IM35. Shared Energy Facilities.** Support amendment of Building Codes as necessary to eliminate barriers that may inhibit major commercial, industrial, and public uses from installing and/or using shared energy facilities, such as district heating/cooling systems, solar water heating, photovoltaic grids, and cogeneration systems.
- E-IM44. Develop County Facility Guidelines.** For County facilities, establish guidelines for designing and installing renewable energy, cogeneration, distributed energy, and/or district heating systems in existing, new and acquired County facilities.
- E-IM45. Install County Systems.** Pursue the installation of cost-effective renewable energy systems, cogeneration systems, distributed energy systems, and district heating systems in County facilities. Systems considered to be cost-effective shall be those that exhibit a net dollar savings (compared to reasonable alternatives) over the life of the project.
- E-IM53. 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 which are due to expire in July 2005. Educate the public about the benefits of small-scale wind energy systems.
- E-IM56(p). Small Hydroelectric Development.** Support local efforts to develop cost-effective, environmentally-sensitive, small-scale, run-of-the-river hydroelectric facilities in the county.

17.6 Staff Analysis and Alternatives

State Requirements

While Energy is not a state-required element, the topic was included in the Framework Plan and an Energy Element was requested by the Board of Supervisors to be included in the General Plan Update. Local planning for energy puts in place policies that reflect a recognition of Humboldt County's relative remoteness from conventional energy

resources and a willingness to envision the benefits of a long-term energy sustainability for the County.

Staff Recommendation

Staff recommendation is to implement Alternative B, which includes all of the recommended policies, standards, and implementation measures which could be accommodated under current county staffing or with identifiable sources of funding.

Alternatives

Alternative A is the most energy conservative alternative and would implement all of the policies, standards and implementation measures proposed by the Redwood Coast Energy Authority. Alternative B would implement the policies, standards and implementation measures which could be accommodated under current county staffing or with identifiable sources of funding. Policies, standards and measures which cannot be implemented with current county staffing or identified funding sources would not be included. Alternative C would be the least responsive to energy conservation, opting instead to minimize county government involvement in energy conservation. Alternative C would not adopt any of the proposed policies, standards or implementation measures. Alternative D would continue the energy policies contained in the existing Framework Plan.

Alternative A Policies, Standards and Implementation Measures. Besides all of the policies of the preferred alternative (B), Alternative A includes all of the following additional policies:

- E-P7. Energy-related Research and Economic Development.** Provide economic incentives and opportunities for energy research and development to generate and retain energy revenues locally.
- E-P15. Transportation management plans.** Major commercial, business, industrial, or mixed-use facility developments shall be required to submit a transportation management plan that addresses energy conservation measures such as connectivity to alternative transportation modes; preferential parking for carpools, vanpools, motorcycles, mopeds, and bicycles; shuttle services; alternative fueling stations; transit passes; bike lockers; and locker room facilities. Management plans should include policies to encourage local employers to offer flex-time and/or shifting work schedules which minimize employees' impacts on peak hour traffic and to provide incentives for employees to use alternatives to the single-occupancy automobile mode of travel.
- E-P23. County Site Design Standards** Conform site design standards for County buildings to the US Green Building Council's LEED (Leadership

in Energy and Environmental Design) energy efficiency standards. Promote the "LEED Silver" certification level or higher, in concert with State Executive Order S-20-04 in County buildings.

- E-P29. Energy-Efficient Landscape Design.** Require energy-efficient landscape design in development projects, subdivisions, and in new and existing streets and parking areas in order to reduce impervious surfaces, heat and glare, control soil erosion, conserve water, and to promote pedestrian safety and vehicular traffic calming measures.
- E-IM34. Energy Audit Program.** Program energy audits (i.e., energy efficiency analysis/home energy rating) for planning and building projects that require County approval. The energy audit will review design, energy systems, processes and equipment, will recommend methods for reducing energy demand, and will give costs and savings estimates. Support programs to offer "energy efficient mortgages." Property sellers or property managers shall provide current energy audits and historical energy use data to prospective buyers prior to closing, exchange, or transfer of ownership; to leasers prior to leasing; and to occupants prior to a change in use, service, or license.
- E-P44. Water Efficiency.** Promote the efficient use of water in residences, businesses, industries, and agriculture by requiring water-saving plumbing and landscaping devices in new developments, plumbing-related remodels, or upon change of ownership.
- E-P49. Incentives for Using Alternative Energy.** Provide incentives to encourage the use of renewable energy and environmentally preferable distributed energy generation systems in the county.
- E-P53. Looped Electrical Distribution.** Require main electric distribution lines to be interconnected (looped) wherever feasible to facilitate the reliable electricity delivery and export from the county.
- E-S2. Solar access protection** – Proposed structures and landscaping shall be designed and located to avoid blocking views and solar access from other properties to the maximum extent feasible. The lot size, configuration and proposed building envelope in a subdivision or planned development shall be oriented to ensure that no additional shadows will be cast on the south side or roof of an existing building between the hours of 10:00 a.m. and 2:00 p.m. on December 21. A shadow analysis shall be required identifying proposed height and orientation of proposed building and slope of land to determine the length of shadow. (see IM-21)
- E-S6. Energy-Efficient Performance Standards.** For County buildings, apply 'performance standards' (based on LEED Silver rating) for on-site energy efficiency in buildings, including but not limited to:
- space heating, cooling/air conditioning systems and appliances;
 - insulation requirements;

- water heating;
- indoor and outdoor lighting and natural illumination.
- standard could include: high-efficiency lighting and glass, automatic controls for lighting, photocell dimming, insulation levels, and reflective rooftops.
- labeling, such as Energy Star, for systems and appliances.

- E-IM13. Alternative Transportation Programs.** Promote alternatives to automobile travel, including but not limited to vanpooling and carpooling programs; comprehensive support facilities for bicycling; expanded and coordinated local and regional transit; and multi-modal linkages and facilities.
- E-IM14. Alternative Transportation Incentives.** Offer incentives that encourage the private sector to incorporate alternative and multimodal transportation facilities and connections in all land uses: commercial, residential, industrial, and mixed use.
- E-IM15. Encourage Bicycle Parking.** Encourage local businesses to provide indoor bicycle parking for their employees as well as secure bicycle parking for their customers. [supports HCAOG 2004 Regional Bike Plan policy2.4(3.3)]
- E-IM20. Energy Efficiency Standards.** Develop and implement energy efficiency standards for subdivision, mixed use, infill and planned unit development that shall incorporate LEED Green Building standards, which may include compliance incentives such as tax credits, fee reductions or faster-track permitting for silver rating or higher compliance with LEED standards.
- E-IM21. Solar Access Ordinance.** Review, and where appropriate revise the County Solar Access Ordinance for solar energy use and guaranteed solar access that set higher standard limits on permitted shading from new construction and development siting. Solar access protection is defined by a hypothetical "solar fence" on the property lines of the protected building and protects access for a 4-hour period on December 21.
- E-IM29. County Facility Efficiency Fund.** Establish a "County facility efficiency" fund as a source of funds to support implementation of this Energy Element. The fund would receive up to 50 % of the County's monetary savings from improved municipal energy efficiency and conservation practices. The estimate of monetary savings will be based on the likely energy costs that would have been incurred had the energy efficiency measures and/or conservation practices not been implemented.
- E-IM36(p). Retrofits in Existing Buildings.** County incentives may be clear permitting procedures and fee reductions for projects that either exceed title 24 by 20%, install a renewable energy system that meets 75% of building's needs, or comply with LEED checklist.

- E-IM38. Develop Incentives for Private Sector.** Develop incentives to encourage the installation of cost effective energy efficiency measures in all new construction and building retrofits. Incentives may include: density bonuses, fast-track permitting, fee reductions, expedited low-cost approval of standardized designs, property tax exemptions, sales tax rebates, and award programs that recognize builders and developers for well-designed systems.
- E-IM39. Water Efficiency.** Apply appropriate permitting conditions on new development and reconstruction/rehabilitation projects in order to maximize conservation and efficient water use in new and existing development.
- E-IM46. Assess Existing Regulations.** Assess the existing subdivision, zoning, and building code implications associated with the potential development of renewable energy and distributed energy generation facilities and related electrical transmission lines.
- E-IM47. Fair Regulations.** Develop a clear permitting process to provide for the installation of renewable energy and distributed energy generation systems. Identify zones where renewable energy and distributed energy generation facilities will be allowed as a permitted use. Identify small-scale systems that meet annual onsite energy needs, and that would not require a use permit. Zoning regulations should address the following types of renewable energy and distributed energy generation facilities: commercial wind farms, wave and tidal energy facilities, biomass energy facilities, biogas energy facilities, small scale hydroelectric facilities, cogeneration and distributed generation facilities, solar electric and solar heating facilities.
- E-IM48. Preserve Resource Options.** Update the Project Independence Report to identify the land use issues that could prohibit or facilitate the development of renewable energy and distributed energy generation facilities. Identify the necessary steps to preserve these resource options, including utility easements, rights of way and land set-asides.
- E-IM49. Develop Incentives for Private Sector.** Develop incentives to encourage the installation of cost effective cogeneration, distributed generation, district heating systems, solar electric and solar heating systems in the private sector. Incentives may include: density bonuses, clear permitting procedures, fee reductions, expedited low-cost approval of standardized designs, property tax exemptions, sales tax rebates, and award programs that recognize builders and developers for well-designed systems.

Alternative C Policies, Standards and Implementation Measures.

Alternative C would be the least responsive to energy conservation, opting instead to minimize county government involvement in energy conservation. Alternative C would

not adopt any new proposed policies, standards or implementation measures, but would continue the energy policies contained in the existing Framework Plan (see Alternative D).

Alternative D Policies, Standards and Implementation Measures.

Alternative D would continue the energy policies contained in the existing Framework Plan.

- E-G5. Self-sufficiency in energy use.** To move toward self-sufficiency in energy use, with maximum reliance on local renewable resources for local energy needs. (FRWK 2532.2)
- E-P56 . 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. (FRWK 2533.14)
- E-P57:** Maximize local energy opportunities from the renewable resources found in the County (FRWK 2330.11).
- E-P58:** The County shall encourage the use of low-cost, energy efficient, low-consumptive housing designs, materials and construction methods that reduce costs. (FRWK 2430.5.4).
- E-P59:** The County shall encourage the use of alternative energy resources such as solar and wind power, with consideration for solar and wind rights in residential developments (FRWK 2430.6.4).
- E-P60:** The County shall consider house solar orientation and energy effective landscaping during the review process (FRWK 2430.6.5).
- E-P61:** The County shall support active experimentation with water-conserving waste disposal systems, energy systems, dwelling designs, and uses of recycled materials for building (FRWK 2430.6.6).
- E-P62:** The County encourages future development based on energy efficient travel

patterns and the location of existing services (FRWK 2430.6.7).

E-P63: The County, recognizing the need of tenants for energy efficient housing, shall encourage the weatherization of rental units (FRWK 2430.6.8).

E-S7. Oil and Gas.

A. Development associated with onshore oil and gas wells shall be permitted by 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. (FRWK 2534.2)

E-S8. Application and Initial Study Information Requirements for Energy Exploration or Extraction (Oil and Gas Development) Projects. CEQA requires that an initial study be completed to determine the necessary level of environmental review for discretionary projects. In submitting information for the initial study for energy extraction projects, the applicant shall include information sufficient to determine that the project will be so sited and designed to mitigate to the maximum extent feasible adverse environmental effects. Specifically the following shall be provided for:

- 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. the relationship of proposed facilities to existing facilities;
- C. procedures for the transport and disposal of all solid and liquid wastes to meet discharge requirements of the Regional Water Quality Control Board;
- 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, and
- H. oil spill contingency procedures;

- I. for production facilities, a phasing plan for the staging of development indicating 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 wastes, and recontouring, reseeding and planting to conform with surrounding topography and vegetation.
 - K. In general, drill sites should generally not be established at a density greater than one per eighty (80) acres.
 - L. All solid and liquid wastes shall meet the discharge requirements of the Regional Water Quality Control Board.
 - M. Project 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.
- (FRWK 2534.3)

Plan Alternatives Comparison Chart

The “Vote” column is provided for the user to indicate a policy preference. Enter a **R**etain, **D**elete or **M**odify.

<i>Table 17-1. Plan Alternatives Comparison Chart: Policies, Standards and Implementation Measures</i>					
<i>Plan Alternative</i>		<i>Policies</i>		<i>Staff Remarks</i>	<i>Vote: R, D, M</i>
POLICY ALTERNATIVES					
Strategic Energy Planning Policy Alternatives					
A	B			E-P1. Regional Energy Authority. Recognize the RCEA as the Regional Energy Authority to foster, coordinate, and facilitate countywide strategic energy planning and education, and administer a Comprehensive Action Plan for Energy.	
				E-P2. Regional Energy Forum. The Regional Energy Authority shall serve as the primary forum for countywide energy issues and to provide an open public review process for development proposals relating to energy facilities.	CAPE* *(placed in the Comprehensive Action Plan for Energy)
				E-P3. Coordinated Regional Energy Planning. The Regional Energy Authority shall coordinate energy planning and strategic planning with Humboldt County, the cities within Humboldt, tribal governments, colleges and school districts, and other local agencies.	CAPE
				E-P4. Regional Energy Funding. The Regional Energy Authority shall provide support to the County and act as the fiscal agent and funding clearinghouse for countywide energy programs.	CAPE
Emergency Preparedness Planning Policy Alternatives					
				E-P5. Minimize Energy Interruptions. The Regional Energy Authority shall work with the County and local utility providers to minimize the likelihood and impact of weather-, disaster-, terrorism-, and market-related power outages.	CAPE
				E-P6. Energy Facility Emergency Planning. Ensure preparation and periodic update of state-mandated emergency plans and coordinate such plans with the Humboldt County Office of Emergency Services.	CAPE
Energy-Related Research and Economic Development Policy Alternatives					
A				E-P7. Energy-related Research and Economic Development. Provide economic incentives and opportunities for energy research and development to	

Table 17-1. Plan Alternatives Comparison Chart: Policies, Standards and Implementation Measures						
<i>Plan Alternative</i>				<i>Policies</i>	<i>Staff Remarks</i>	<i>Vote: R, D, M</i>
				generate and retain energy revenues locally.		
A	B			E-P8. Development Incentives. Provide incentives for energy conserving projects (such as expedited permit processing for zoning and permit request) to encourage the generation of local renewable energy that could be offered for sale at competitive prices.		
				E-P9. Emerging Energy Technologies. Support emerging energy technology from local sources, such as Humboldt State University's Industrial Technology Department and the Schatz Energy Research Center, local innovators and inventors, as well as from non-local sources.	CAPE	
Plan Active and Health Communities Policy Alternatives						
A	B			E-P10. Land use and development review. The energy-efficiency of proposed new development shall be considered when land use and development review decisions are made.		
				E-P11. Development planning to reduce automobile miles traveled. Adopt land use patterns which reduce the need to travel outside the local community for basic services.	Incorporate into Circulation and Land Use Elements.	
				E-P12. Transportation linkages. Regulate development patterns to provide clear, safe, and convenient linkages between all modes of travel, including access to transit stations and stops, and bicycle and pedestrian path connections between work, home, school, and commercial services.	Addressed in Circulation Element.	
Rehabilitation and Development Policy Alternatives						
A	B			E-P13. Revitalization and reinvestment in existing resources. Support revitalization of and reinvestment in existing core areas (commercial, business, employment, and civic centers).	Was a part of the Redevelopment Plan; which was not adopted by the Board.	
Transportation-Related Energy Conservation Policy Alternatives						
				E-P14. Balanced access to transportation modes. Make decisions on land use, energy, and transportation planning to facilitate and provide balanced access to alternative modes of travel, and to reduce single-occupancy automobile travel.	Addressed in Land Use and Circulation Elements.	

Table 17-1. Plan Alternatives Comparison Chart: Policies, Standards and Implementation Measures						
<i>Plan Alternative</i>				<i>Policies</i>	<i>Staff Remarks</i>	<i>Vote: R, D, M</i>
A				E-P15. Transportation management plans. Major commercial, business, industrial, or mixed-use facility developments shall be required to submit a transportation management plan that addresses energy conservation measures such as connectivity to alternative transportation modes; preferential parking for carpools, vanpools, motorcycles, mopeds, and bicycles; shuttle services; alternative fueling stations; transit passes; bike lockers; and locker room facilities.	Vague; Requires clarification of "major" and whether or not requirement applies only to discretionary projects. Need threshold for numbers of employees, units, etc.	
				E-P16. Rail Service. The County supports rail service modernization that would provide improved energy conservation and safety in freight and passenger service.	Addressed in Circulation Element.	
				E-P17. Bicycle and pedestrian connectivity. Provide new and improved bicycle and pedestrian links to important destinations including transit, schools, colleges, commercial/shopping and employment centers, residential neighborhoods, civic destinations, nature trails, and other recreation opportunities.	Considered in trails planning.	
				E-P18. Inclusion of Bicycle Facilities. Bicycle support facilities shall be encouraged, and required when appropriate, in private and public uses. Local businesses shall be encouraged to provide indoor bicycle parking for their employees as well as secure bicycle parking for their customers.	Addressed in Circulation Element.	
				E-P19. Community design planning. Provide for bicycle and pedestrian circulation system links between residential neighborhoods, major employment, commercial and civic centers, and transit services.	Considered in trails planning.	
				E-P20. Transit-oriented development. Apply land use patterns that provide favorable access, to local transit, provide appropriate multimodal transit facilities along public transit routes, and facilitate the provision of regional transit routes.	Incorporated into Land Use and Circulation Elements.	
				E-P21. Energy conservation efforts in transit. Participate in the energy management and conservation efforts of the Regional Transportation Authority,	CAPE	

Table 17-1. Plan Alternatives Comparison Chart: Policies, Standards and Implementation Measures						
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				HCAOG, and encourage transit system improvements which enhance overall energy conservation, such as alternative fuel fleets, bike racks on buses, bike racks at major bus stops, and multimodal transit stations.		
				E-P22. Telecommunication systems. The reduction of automobile trips through telecommuting shall be encouraged by allowing home occupation businesses, and by encouraging broad-band telecommunication systems that connect outlying residents and businesses with services in core (urban) areas.	CAPE	
Countywide Design Standards Policy Alternatives						
A				E-P23. County Site Design Standards Conform site design standards for County buildings to the US Green Building Council's LEED (Leadership in Energy and Environmental Design) energy efficiency standards.	Need further assessment of costs, staffing, and analysis effort. Need details on incentives.	
				E-P24. Compact Planned Development. Encourage clustering, zoning densities and mixed-uses for compact development that exceeds current energy efficient design requirements and minimizes the need for motorized transportation.	Incorporated into Housing Element.	
				E-P25. Solar access. Require energy efficient site planning and design with adequate solar access in all planned unit development and subdivisions. Lots and buildings in subdivisions and new development shall be oriented and designed to maximize and protect solar exposure.	Incorporated into Housing Element.	
				E-P26. Natural heating and cooling. Encourage site design to maximize natural heating and cooling factors such as cooling breezes, natural ventilation, solar access and to utilize landscaping to aid in passive cooling and wind protection.	Incorporated into Housing Element.	
				E-P27. Street layout and connectivity. Promote design guidelines for energy efficient site and street layout design, disabled-accessible neighborhoods, and circulation patterns that emphasize maximum solar access such as east/west alignment for local streets, bike, pedestrian	Incorporated into Community Design.	

Table 17-1. Plan Alternatives Comparison Chart: Policies, Standards and Implementation Measures							
<i>Plan Alternative</i>				<i>Policies</i>	<i>Staff Remarks</i>	<i>Vote: R, D, M</i>	
				and trail connectivity and links to residences, neighborhoods, transit stops and services. Cul-de-sacs should be avoided where possible.			
				E-P28. Private Site Design Standards. Promote site design standard conformance, consistent with the US Green Building Council's LEED energy efficiency standards for private construction.	CAPE		
A				E-P29. Energy-Efficient Landscape Design. Require energy-efficient landscape design in development projects, subdivisions, and in new and existing streets and parking areas in order to reduce impervious surfaces, heat and glare, control soil erosion, conserve water, and to promote pedestrian safety and vehicular traffic calming measures.	Requires standards to be implemented by ordinance. No standards are yet drafted. Could be reworded to pursue development of standards.		
Energy Education and Policy Dissemination Policy Alternatives							
				E-P30. Energy Efficiency Education and Training. Support the Regional Energy Authority in its effort to provide community education on energy issues, including the benefits of reduced energy consumption, and increased energy efficiency.	CAPE		
				E-P31. Education on Balanced Modes of Travel. Educate the public on the need to reduce automobile travel, and encourage energy-efficient, health-promoting modes of travel such as walking, bicycling, and public transit.	CAPE		
				E-P32. Education on Renewable Energy and Distributed Generation. Provide educational and promotional programs that encourage and demonstrate the use of renewable energy and environmentally-preferable distributed energy generation and cogeneration systems.	CAPE		
				E-P33. Energy Policies and Plans. Encourage other jurisdictions and entities to adopt and implement sound energy plans and policies, including encouraging Humboldt County cities to include energy elements and/or energy policies in their General Plans and ordinances.	CAPE		
Energy Conservation and Efficiency Policy Alternatives							
A	B			E-P34. Municipal Purchasing and			

<i>Table 17-1. Plan Alternatives Comparison Chart: Policies, Standards and Implementation Measures</i>						
<i>Plan Alternative</i>				<i>Policies</i>	<i>Staff Remarks</i>	<i>Vote: R, D, M</i>
				Procurement. Encourage the purchase and use of administrative supplies and building materials made from recycled materials and renewable resources whenever cost-effective (considering life-cycle costs).		
				E-P35. Access to Alternative Transportation. Locate public facilities, events and activities in areas easily served by transit and other forms of alternative transportation.	Addressed in Public Facilities Element.	
				E-P36. New, Renovated, and Leased Facilities. Consider energy efficiency and potential energy cost reductions when prioritizing County facility renovation, construction, and procurement of leased space.	Addressed in Public Facilities Element.	
				E-P37. Landscaping of County Facilities. Plant native and non-invasive drought-tolerant landscaping, and install efficient irrigation systems at County parks and grounds.	Addressed in Public Facilities Element.	
				E-P38. Lighting of County Facilities. Install or upgrade to energy efficient street and exterior lighting on County roadways and at County facilities.	Addressed in Public Facilities Element.	
				E-P39. Energy Efficient Construction. Encourage County facilities to use of the most energy-efficient design, construction technologies, equipment, appliances, building materials and operations.	Addressed in Public Facilities Element.	
				E-P40. Waste Management in Construction. Continue to support construction waste reduction and recycling programs and the use of recycled-content building materials wherever possible.	Addressed in Waste Management Element	
				E-P41. Energy Audits and Retrofits. To encourage full knowledge of the costs and benefits of energy-efficiency retrofitting in all structures, support programs that encourage and facilitate energy audits for all existing buildings and developments.	CAPE	
				E-P42. Retrofitting for Energy Efficiency. Promote Retrofit of existing buildings to meet or exceed current energy efficiency standards.	CAPE	
A	B			E-P43. Water Conservation Saves Energy.		

Table 17-1. Plan Alternatives Comparison Chart: Policies, Standards and Implementation Measures						
<i>Plan Alternative</i>				<i>Policies</i>	<i>Staff Remarks</i>	<i>Vote: R, D, M</i>
				Commit to the principle that water conservation is also energy conservation given the significant energy required for water pumping, water treatment, and wastewater pumping and treatment.		
A				E-P44. Water Efficiency. Promote the efficient use of water in residences, businesses, industries, and agriculture by requiring water-saving plumbing and landscaping devices in new developments, plumbing-related remodels, or upon change of ownership.	Requires ordinance revisions and development of standards. No standards are proposed. Could reword to specify development of standards.	
				E-P45. Material Waste Reduction. Continue to support the County's established Integrated Waste Management programs, and continue to cooperate with the Humboldt Waste Management Authority, and with cities, tribes, and other jurisdictions, to reduce energy consumption of raw materials through waste reduction and elimination; reuse and recycling; composting and soil remediation; decreased landfill transport; and reclamation of waste and sewage.	Addressed in Waste Management Element.	
Renewable Energy, Distribution, Generation and Cogeneration Policy Alternatives						
				E-P46. Renewable Energy Resources as First Choice. Consistent with the California Energy Action Plan, the RCEA will promote policies that seek to meet new generation needs first with renewable energy resources, distributed generation, and cogeneration.	CAPE	
				E-P47. County Operations and Facilities. Develop renewable energy and distributed energy resources for County operations and facilities where feasible, environmentally preferable, and cost effective based on life-cycle cost.	Addressed in Public Facilities Element.	
				E-P48. Energy Facilities Siting. Allow the appropriate and safe siting of renewable and distributed energy facilities.	Addressed by existing policies.	
A				E-P49. Incentives for Using Alternative Energy. Provide incentives to encourage the use of renewable energy and environmentally preferable distributed energy generation systems in the county.	Need further details on "incentives", costs, and sources of funding.	
				E-P50. Resource Development and General Plan Consistency. RCEA to encourage energy generators to develop	CAPE	

Table 17-1. Plan Alternatives Comparison Chart: Policies, Standards and Implementation Measures						
<i>Plan Alternative</i>				<i>Policies</i>	<i>Staff Remarks</i>	<i>Vote: R, D, M</i>
				renewable energy and environmentally-preferable distributed energy generation systems in the county, while ensuring that such development is done in a manner consistent with overall General Plan goals and policies.		
Local Management of Energy Supplies Policy Alternatives						
				E-P51. Diversity in local sources. Pursue development of a diverse, locally-produced energy supply, with an emphasis on renewable resources, that is price-competitive in the California market and that can be generated in a way that minimizes adverse environmental impacts.	CAPE	
				E-P52. Transmission assessments and monitoring. Continue to work with PG&E to develop long-term transmission assessments and, if necessary, electrical and natural gas transmission grid expansion plans.	CAPE	
A				E-P53. Looped Electrical Distribution. Require main electric distribution lines to be interconnected (looped) wherever feasible to facilitate the reliable electricity delivery and export from the county.	Questionable if County has authority to "require." Could change to "encourage."	
				E-P54. Public Utility Management. Identify or adapt to the best energy delivery mechanism for local energy management.	CAPE	
				E-P55. Intermittent Renewable Resource Development. Pursue local intermittent renewable resources that could significantly contribute to the county's electrical generation.	CAPE	
STANDARDS ALTERNATIVES						
Proposed Standards Alternatives						
				E-S1. Site design standards and incentives. In accordance with LEED standards, site design for County buildings shall maximize energy efficiency by considering natural factors such as maximum solar access, water availability, slope, and air flow and prevailing wind directions (for cooling breezes or wind protection) to reduce energy demand.	Addressed in the Public Facilities element.	
A				E-S2. Solar access protection – Proposed structures and landscaping shall be designed and located to avoid blocking	Equivalent to E-IM21.	

Table 17-1. Plan Alternatives Comparison Chart: Policies, Standards and Implementation Measures						
<i>Plan Alternative</i>				<i>Policies</i>	<i>Staff Remarks</i>	<i>Vote: R, D, M</i>
				views and solar access from other properties to the maximum extent feasible.		
				E-S3. Street layout and design. Within subdivisions and planned development, street layouts shall make the best use of the natural terrain contours to jointly minimize grading and maximize solar access to the maximum extent feasible.	Addressed in Community Design Element	
				E-S4. Bicycle facilities in developments. New commercial, business, industrial, and residential development and redevelopment shall be required to provide on-site bicycle parking and/or secure bike storage.	Addressed in Circulation Element.	
				E-S5. Energy-conserving landscaping. Landscape plans where required shall demonstrate energy-efficient landscape design practices including the use of appropriate native and water-conserving trees and plants; the use of groundcovers or mulch; minimal, water-permeable paving materials; and retention of on-site water run-off for irrigation.	Addressed in IM-18	
A				E-S6. Energy-Efficient Performance Standards. For County buildings, apply 'performance standards' (based on LEED Silver rating) for on-site energy efficiency in buildings.	Need assessment of cost and implementation procedures.	
A	B	C	D	E-S7. Oil and Gas. A. Development associated with onshore oil and gas wells shall be permitted by 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.*		
A	B	C	D	E-S8. Application and Initial Study Information Requirements for Energy Exploration or Extraction (Oil and Gas Development) Projects.		
IMPLEMENTATION ALTERNATIVES						

Table 17-1. Plan Alternatives Comparison Chart: Policies, Standards and Implementation Measures					
<i>Plan Alternative</i>		<i>Policies</i>		<i>Staff Remarks</i>	<i>Vote: R, D, M</i>
Regional Energy Authority					
			E-IM1. REA. The Redwood Coast Energy Authority shall serve as the Regional Energy Authority for Humboldt County.	CAPE	
			E-IM2. Energy Element Review. Encourage new /renewable/ energy production. Periodically review and update, as necessary, the Energy Element to reflect changing production and transmission facility developments and encourage new energy production and transmission facilities.	CAPE	
Emergency Preparedness Planning					
			E-IM3. Energy Emergency Response Procedures. Prepare energy emergency response procedures for the Humboldt County Emergency Response Plan.	CAPE	
			E-IM4. Energy Supply and Transmission/Distribution Report. Prepare a regional energy supply and transmission/distribution report that is updated every five years or sooner, as required.	CAPE	
			E-IM5. Energy Facility Emergency and Contingency Planning. Develop an ordinance requiring emergency plans for energy facilities. Prepare an energy system contingency plan that is updated every five years.	CAPE	
			E-IM6. Energy Resource Center. Establish an energy resource center. The center shall be open to the public and provide energy conservation, energy planning, renewable energy, and energy efficient building design and retrofit information.	CAPE	
Energy-related Research & Economic Development					
			E-IM7. Development of Distributed Generation. Conduct a study to identify key facilities in the county that would benefit from distributed generation and cogeneration energy systems.	CAPE	
			E-IM8. Small-Scale Biomass Generation Sites. Monitor feasibility of smaller and/or mobile biomass electric generators fed with wood waste and very small diameter logs (e.g. from thinning for fire safety and timber harvest slash in National Forest areas).	CAPE	
			E-IM9. Development Incentives. The REA will collaborate with the County Economic	CAPE	

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<i>Plan Alternative</i>				<i>Policies</i>	<i>Staff Remarks</i>	<i>Vote: R, D, M</i>
				Development Division to identify opportunities for developing jobs in the field of energy conservation, efficiency and renewable sources.		
Plan Active and Healthy Communities						
A	B			E-IM10. Energy Conservation in GP Elements. Incorporate energy conservation objectives and policies in applicable General Plan elements, including but not limited to the Circulation, Land Use, Growth Management, Design, Water Resources, and Waste Management Elements.		
				E-IM11. Energy-Efficient Award Program. Initiate award program for high-performing energy-efficient land use and community designs that reflect the goals and objectives of the Comprehensive Action Plan for Energy and GP Energy Element.	CAPE	
				E-IM12. Alternative Transportation Infrastructure. Encourage, and certain cases require, facilities and infrastructure supporting alternative transportation modes.	Redundant with Circulation policies.	
A				E-IM13. Alternative Transportation Programs. Promote alternatives to automobile travel, including but not limited to vanpooling and carpooling programs; comprehensive support facilities for bicycling; expanded and coordinated local and regional transit; and multi-modal linkages and facilities.		
A				E-IM14. Alternative Transportation Incentives. Offer incentives that encourage the private sector to incorporate alternative and multimodal transportation facilities and connections in all land uses: commercial, residential, industrial, and mixed use.		
A				E-IM15. Encourage Bicycle Parking. Encourage local businesses to provide indoor bicycle parking for their employees as well as secure bicycle parking for their customers.		
				E-IM16. Commuting. Encourage alternatives to employee commuting by individual drivers through such means as parking space allocation, ridesharing coordination, and bus and car-pool incentives.	Addressed in Circulation Element.	

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				E-IM17. Circulation System Links. Provide guidelines for bicycle and pedestrian circulation system links between residential neighborhoods, major employment, commercial and civic centers, and transit services.	CAPE	
Countywide Building Codes and Standards						
A	B			E-IM18. Energy-conserving landscaping. Develop a water-conserving landscape ordinance, for use of natural and drought-resistant planting materials and efficient irrigation systems in new development. Provide information handouts and education to residents on tree selection and preferred siting of trees to reduce energy demand.		
				E-IM19. LEED Green Building Information. Develop and promote programs detailing LEED "Green Building" certification standards and rating categories in addition to Title 24 requirements for the County as a resource for the wider community.	CAPE	
A				E-IM20. Energy Efficiency Standards. Develop and implement energy efficiency standards for subdivision, mixed use, infill and planned unit development that shall incorporate LEED Green Building standards, which may include compliance incentives such as tax credits, fee reductions or faster-track permitting for silver rating or higher compliance with LEED standards.		
A				E-IM21. Solar Access Ordinance. Review, and where appropriate revise the County Solar Access Ordinance for solar energy use and guaranteed solar access that set higher standard limits on permitted shading from new construction and development siting. Solar access protection is defined by a hypothetical "solar fence" on the property lines of the protected building and protects access for a 4-hour period on December 21.		
				E-IM22. Energy Efficiency-Based Utility Allowance. Encourage use of Energy Efficiency-Based Utility Allowance schedule in all affordable housing.	CAPE	
A	B			E-IM23. Alternative Energy Use. Develop regulations that eliminate obstacles to alternative energy use.		
Energy Education & Policy Dissemination						

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<i>Plan Alternative</i>				<i>Policies</i>	<i>Staff Remarks</i>	<i>Vote: R, D, M</i>
				E-IM24. Educational Program. Develop educational displays for the first few renewable energy systems, cogeneration systems, and distributed energy systems installed in County facilities.	CAPE	
				E-IM25. Energy Guidelines. Develop energy-efficient guidelines and information handouts and make them available to applicants in the process of obtaining development and land use permits.	CAPE	
				E-IM26. Water Conservation Education Program. Initiate a water conservation education program for citizens with incentive programs that encourage efficiency and water conservation.	CAPE	
				E-IM27. Energy Elements. Disseminate/encourage the adoption of Energy Elements in other jurisdictions.	CAPE	
Energy Efficiency In Public Services, Facilities, & Operations						
A	B			E-IM28. Government Energy Consumption Reduction. Develop a comprehensive program to reduce government energy consumption in operations including: public buildings and facilities; street lighting; vehicle fleet management; equipment procurement; employee energy awareness program.		
A				E-IM29. County Facility Efficiency Fund. Establish a "County facility efficiency" fund as a source of funds to support implementation of this Energy Element.		
Energy Efficiency In Buildings						
				E-IM30. On-site Waste Management. Promote use of source separation recycling storage areas for all multiple-unit residential developments, and commercial developments.	CAPE	
				E-IM31. Energy Efficient Equipment. Encourage the use of the most energy-efficient equipment for space and water heating, ventilation, lighting, refrigeration, and air conditioning in all new buildings and developments, including residential and commercial facilities.	CAPE	
				E-IM32. Solar Equipment. Encourage new construction and renovations/remodeling of appropriate scale to incorporate solar-friendly, "no-regrets" construction features.	CAPE	
				E-IM33. Energy Efficient Retrofits. Investigate energy-efficient retrofitting in the	CAPE	

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				renovation and remodeling of existing buildings and/or at the time of sale or transfer of ownership.		
A				E-IM34. Energy Audit Program. Program energy audits (i.e., energy efficiency analysis/home energy rating) for planning and building projects that require County approval.	Make optional at applicants expense.	
				E-IM35. Shared Energy Facilities. Support State revisions and amendment of Building Codes as necessary to eliminate barriers that may inhibit major commercial, industrial, and public uses from installing and/or using shared energy facilities, such as district heating/cooling systems, solar water heating, photovoltaic grids, and cogeneration systems.	CAPE	
A				E-IM36(p). Retrofits in Existing Buildings. Provide incentives to property owners to upgrade their homes, businesses, or other properties for improved energy conservation and energy efficiency techniques (i.e. energy efficiency retrofits). County incentives may be clear permitting procedures and fee reductions for projects that either exceed title 24 by 20%, install a renewable energy system that meets 75% of building's needs, or complies with LEED checklist.		
				E-IM37. Energy Audits at Time of Sale/Transfer of Ownership. Investigate options for combining energy audits with existing inspections, financing, and data collection activities.	CAPE	
A				E-IM38. Develop Incentives for Private Sector. Develop incentives to encourage the installation of cost effective energy efficiency measures in all new construction and building retrofits.	Who takes the lead, how much staff time and program costs are there?	
Water, Wastewater, & Solid Waste Management						
A				E-IM39. Water Efficiency. Apply appropriate permitting conditions on new development and reconstruction/rehabilitation projects in order to maximize conservation and efficient water use in new and existing development.		
				E-IM40. Wastewater and Reclaimed Water Efficiency. Solicit cooperation from water suppliers, industry, golf courses, landscapers, and agriculture to conserve	CAPE	

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				water through the use of properly treated reclaimed water and wastewater.		
				E-IM41. Water Conservation. Encourage local water providers to enforce water conservation measures cooperatively, using state-mandated powers, to reduce energy consumption at water facilities, associated with various phases of pumping, distribution, treatment, and reclamation.	CAPE	
				E-IM42. Conservation Management Plan. Promote the implementation a County-wide water conservation management plan, which is based on conservation of energy and water resources to maintain and promote water conservation and water recycling programs as a means of conserving energy.	CAPE	
Countywide Renewable Energy, Distributed Generation, & Cogeneration						
				E-IM43. Prepare County Facility Energy Study. For County facilities, prepare a report that examines the economic feasibility of using renewable energy systems (including solar electric and solar hot water), cogeneration systems, distributed energy systems, and district heating systems.	CAPE	
A	B			E-IM44. Develop County Facility Guidelines. For County facilities, establish guidelines for designing and installing renewable energy, cogeneration, distributed energy, and/or district heating systems in existing, new and acquired County facilities.		
A	B			E-IM45. Install County Systems. Pursue the installation of cost-effective renewable energy systems, cogeneration systems, distributed energy systems, and district heating systems in County facilities.		
A				E-IM46. Assess Existing Regulations. Assess the existing subdivision, zoning, and building code implications associated with the potential development of renewable energy and distributed energy generation facilities and related electrical transmission lines.		
A				E-IM47. Fair Regulations. Develop a clear permitting process to provide for the installation of renewable energy and distributed energy generation systems.	We do some of this already.	

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A				E-IM48. Preserve Resource Options. Update the Project Independence Report to identify the land use issues that could prohibit or facilitate the development of renewable energy and distributed energy generation facilities.		
A				E-IM49. Develop Incentives for Private Sector. Develop incentives to encourage the installation of cost effective cogeneration, distributed generation, district heating systems, solar electric and solar heating systems in the private sector.		
				E-IM50. Use of Waste Biomass for Energy Production. Promote forest fuel-reduction programs that provide sustainable forest practices, fire safety, and the use of forest biomass as an energy source.	CAPE	
				E-IM51. Biogas Development. Encourage development of the use of biogas at the Cummings Road Landfill. Develop and publicize dairy biogas demonstration sites.	CAPE	
				E-IM52. Support Wave and Tidal Energy Demonstration Projects. Promote and support local wave and tidal energy systems research and development.	CAPE	
A	B			E-IM53. Wind Energy Development. Develop wind-permitting guidelines for residential and small commercial scale wind energy systems.		
				E-IM54. Large-Scale Wind Energy. Provide information about cost-effective commercial scale wind farms in the county and in off-shore areas adjacent to the county.	CAPE	
				E-IM55. Natural Gas Development. Support efforts to develop local natural gas resources. Develop an updated assessment of onshore natural gas resources in the county.	CAPE	
A	B			E-IM56(p). Small Hydroelectric Development. Support local efforts to develop cost-effective, environmentally-sensitive, small-scale, run-of-the-river hydroelectric facilities in the county.		
				E-IM56(p). Small Hydroelectric Development. Conduct an updated assessment of small hydroelectric resources potential in the county.	CAPE	
				E-IM57. Solar Energy Development. Support local efforts to develop solar electric	CAPE	

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<i>Plan Alternative</i>				<i>Policies</i>	<i>Staff Remarks</i>	<i>Vote: R, D, M</i>
				systems and solar hot water systems in the county.		
				E-IM58. Biodiesel Development from Waste. Utilize waste oils and other biomass wastes for biodiesel production. Assess available waste resources for biodiesel production.	CAPE	
				E-IM59. Energy Grid Connection. Promote appropriate small-scale energy generation where cost-effective connections to the distribution system are available or planned.	CAPE	
				E-IM60. Vehicle-to-Grid Connection. Evaluate long-term integration of motor vehicles with the electric grid, including battery electric vehicles, fuel cell vehicles, plug-in hybrid electric vehicles, and solar-electric vehicles.	CAPE	
New Energy Production and Transmission Facilities						
				E-IM61. Energy Feasibility Study. Examine feasibility of wind, solar and hydro-power as short term intermittent sources, and also emerging technologies such as wave energy as longer term possibilities.	CAPE	
Local Utility Management and Development Options						
				E-IM62. Investor-Owned Utility System. Examine the capital and operating costs for any proposed new utility, factoring in various power supply alternatives, then estimate property value (determining the general condition of the facilities to be acquired) and the cost of separating the new system's facilities from the remaining part of the Investor-Owned Utility system.	CAPE	
				E-IM63. Municipal Utility Feasibility. Conduct a preliminary feasibility study to examine the viability of establishing a Municipal utility.	CAPE	
				E-IM64. Community Choice Aggregation. Explore the feasibility of becoming community-choice aggregators, using funding from the CEC and the U.S. DoE, and with the technical assistance of Navigant Consulting, Inc.	CAPE	
				E-IM65. Renewable Energy Portfolio Standard. Review compatible energy resource development projects that would assist the State of California in meeting Renewable Portfolio Standard goals.	CAPE	
				E-IM66. Pursue Feasibility Studies for Utility Resource Portfolio. Conduct studies to	CAPE	

Table 17-1. Plan Alternatives Comparison Chart: Policies, Standards and Implementation Measures							
<i>Plan Alternative</i>				<i>Policies</i>	<i>Staff Remarks</i>	<i>Vote: R, D, M</i>	
				focus on fuel diversity, environmental concerns, and market uncertainties that are increasingly important in electric utility resource planning and to identify renewable energy technologies that are becoming significant components in utility resource portfolios.			
				E-IM67. Interconnected (Looped) Electrical Grid. Work with PG&E to evaluate an interconnected (looped) electrical grid for the county.	CAPE		
Existing Framework Policy Alternatives							
		C	D	E-P57: Maximize local energy opportunities from the renewable resources found in the County (FRWK 2330.11).	Addressed in Housing Element and Policies E-P46 to E-P50.		
		C	D	E-P58: The County shall encourage the use of low-cost, energy efficient, low-consumptive housing designs, materials and construction methods that reduce costs. (FRWK 2430.5.4).	Addressed in Policies E-P46 to P-50. etc.		
		C	D	E-P59: The County shall encourage the use of alternative energy resources such as solar and wind power, with consideration for solar and wind rights in residential developments (FRWK 2430.6.4).	Addressed in Housing Element and Policies E-P46 to P-50. etc.		
		C	D	E-P60: The County shall consider house solar orientation and energy effective landscaping during the review process (FRWK 2430.6.5).	Addressed in Housing Element and Policies P-25 to P-27.		
		C	D	E-P61: The County shall support active experimentation with water-conserving waste disposal systems, energy systems, dwelling designs, and uses of recycled materials for building (FRWK 2430.6.6).	Addressed in Housing Element and Policies P-34 to P-45.		
		C	D	E-P62: The County encourages future development based on energy efficient travel patterns and the location of existing services (FRWK 2430.6.7).	Addressed in Housing Element and Policies P-14 to P-22.		
		C	D	E-P63: The County, recognizing the need of tenants for energy efficient housing, shall encourage the weatherization of rental units (FRWK 2430.6.8).	Addressed in Housing Element and Policies P-39 to P-42.		

<i>Table 17-1. Plan Alternatives Comparison Chart: Policies, Standards and Implementation Measures</i>						
<i>Plan Alternative</i>				<i>Policies</i>	<i>Staff Remarks</i>	<i>Vote: R, D, M</i>
A	B	C	D	<p>E-P56 Oil and Gas Development. Oil and gas development shall be permitted consistent with the following:</p> <p>A. The development is performed safely and consistent with the geologic conditions of the well site.</p> <p>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.</p> <p>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. (FRMK 2533.14).</p>		

Preliminary CEQA Analysis

The threshold for significance for impacts to energy resource is as follows: Would the project result in the loss of availability of a known energy production site. The energy element deals to a large degree with energy conservation issues, and so incorporation of most of the various policies and implementation measures for each alternative would have no direct effect on energy production sites. Mitigation to address potential loss of availability of known energy production sites is dealt with in the following policies, standards and implementation measures of the Framework Plan which would be continued under the General Plan Update: Policy P-56, and Standards S7 and S8.

Summary

All of the alternatives could continue the existing General Plan Policies and Standards which address potential loss of availability of known energy production sites. Consequently, none of the alternatives would have a significant impact on energy production sites in Humboldt County.

Mitigation

Policy P-56, and Standards S7 and S8.

Glossary

Biodiesel - Any liquid biodegradable fuel (biofuel) suitable as a substitute, additive, or extender to petroleum diesel fuel. Biodiesel, an ester, is made using vegetable oils, animal fats, algae, or recycled cooking greases. It is manufactured in the transesterification process, combined with alcohol (ethanol or methanol).

CC&R's - Covenants, Codes and Restrictions

Cogeneration - The simultaneous production of electricity and useful thermal energy (e.g. heat or steam) from a common fuel source. The byproduct heat ("waste" heat) from industrial processes can sometimes be used to power an electric generator. Conversely, byproduct heat from an electric generator can often be used for industrial processes or for other heating purposes.

CPUC - California Public Utilities Commission.

Energy Star - A program of the U.S. EPA (Environmental Protection Agency); it began in 1992 as a voluntary labeling program designed to identify and promote energy-efficient products to reduce greenhouse gas emissions.

HCAOG - Humboldt County Association of Governments

LEED - Leadership in Energy and Environmental Design. Green Building Rating System[®] is a voluntary national standard for developing high-performance, sustainable buildings. LEED provides a complete framework for assessing building performance and meeting sustainability goals. LEED emphasizes strategies for sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

RCEA - Redwood Coast Energy Authority

REA - Regional Energy Authority

Comprehensive Energy Action Plan

Consistent with Humboldt County General Plan Policy E-P1, the County of Humboldt recognizes the Redwood Coast Energy Authority (RCEA) as the Regional Energy Authority to foster, coordinate, and facilitate countywide strategic energy planning and education, and administer this Comprehensive Energy Action Plan. This Action Plan consists of policies and implementation measures specific to the functions of RCEA as the Regional Energy Authority for Humboldt County. This Action Plan shall be periodically updated by the RCEA Board and presented to the Humboldt County Board of Supervisors for review.

Policies

Strategic Energy Planning

- E-P2. **Regional Energy Forum.** The Regional Energy Authority shall serve as the primary forum for countywide energy issues and to provide an open public review process for development proposals relating to energy facilities.
- E-P3. **Coordinated Regional Energy Planning.** The Regional Energy Authority shall coordinate energy planning and strategic planning with Humboldt County, the cities within Humboldt, tribal governments, colleges and school districts, and other local agencies.
- E-P4. **Regional Energy Funding.** The Regional Energy Authority shall provide support to the County and act as the fiscal agent and funding clearinghouse for countywide energy programs.
- E-P5. **Minimize Energy Interruptions.** The Regional Energy Authority shall work with the County and local utility providers to minimize the likelihood and impact of weather-, disaster-, terrorism-, and market-related power outages.
- E-P6. **Energy Facility Emergency Planning.** Ensure preparation and periodic update of state-mandated emergency plans and coordinate such plans with the Humboldt County Office of Emergency Services.
- E-P9. **Emerging Energy Technologies.** Support emerging energy technology from local sources, such as Humboldt State University's Industrial Technology Department and the Schatz Energy Research Center, local innovators and inventors, as well as from non-local sources.
- E-P22. **Telecommunication systems.** The reduction of automobile trips through telecommuting shall be encouraged by allowing home occupation businesses, and by encouraging broad-band

telecommunication systems that connect outlying residents and businesses with services in core (urban) areas.

- E-P28. **Private Site Design Standards.** Promote site design standards conformance, consistent with the US Green Building Council's LEED energy efficiency standards for private construction.

Energy Conservation and Efficiency

- E-P30. **Energy Efficiency Education and Training.** Support the Regional Energy Authority in its effort to provide community education on energy issues, including the benefits of reduced energy consumption, and increased energy efficiency. Support REA collaborating with schools and colleges for energy-related research, education, and conservation practices.
- E-P31. **Education on Balanced Modes of Travel.** Educate the public on the need to reduce automobile travel, and encourage energy-efficient, health-promoting modes of travel such as walking, bicycling, and public transit.
- E-P32. **Education on Renewable Energy and Distributed Generation.** Provide educational and promotional programs that encourage and demonstrate the use of renewable energy and environmentally-preferable distributed energy generation and cogeneration systems.
- E-P33. **Energy Policies and Plans.** Encourage other jurisdictions and entities to adopt and implement sound energy plans and policies, including encouraging Humboldt County cities to include energy elements and/or energy policies in their General Plans and ordinances. Advocate and disseminate energy planning strategies, policies, and other information.
- E-P41. **Energy Audits and Retrofits.** To encourage full knowledge of the costs and benefits of energy-efficiency retrofitting in all structures, support programs that encourage and facilitate energy audits for all existing buildings and developments.
- E-P42. **Retrofitting for Energy Efficiency.** Promote retrofit of existing buildings to meet or exceed current energy efficiency standards.

Renewable Energy, Distributed Generation and Cogeneration

- E-P46. **Renewable Energy Resources as First Choice.** Consistent with the *California Energy Action Plan*, the RCEA will promote policies that seek to meet new generation needs first with renewable energy resources, distributed generation, and cogeneration.
- E-P50. **Resource Development and General Plan Consistency.** The RCEA is encouraged to work with energy generators to develop

renewable energy and environmentally-preferable distributed energy generation systems in the county, while ensuring that such development is done in a manner consistent with overall General Plan goals and policies.

Local Management of Energy Supply

- E-P51. **Diversity in local sources.** Pursue development of a diverse, locally-produced energy supply, with an emphasis on renewable resources, that is price-competitive in the California market and that can be generated in a way that minimizes adverse environmental impacts.

- E-P52. **Transmission assessments and monitoring.** Continue to work with PG&E to develop long-term transmission assessments and, if necessary, electrical and natural gas transmission grid expansion plans. Monitor local electricity and natural gas transmission system planning to ensure that projected growth areas are adequately served.

- E-P54. **Public Utility Management.** Identify or adapt to the best energy delivery mechanism for local energy management. Options to be considered include continuing with Investor Owned Utility, a municipal utility, and community choice aggregation.

- E-P55. **Intermittent Renewable Resource Development.** Pursue local intermittent renewable resources that could significantly contribute to the county's electrical generation.

IMPLEMENTATION MEASURES

- E-IM1. **RCEA.** The Redwood Coast Energy Authority shall serve as the Regional Energy Authority for Humboldt County.

- E-IM2. **Energy Element Review.** Encourage new /renewable/ energy production. Periodically review and update, as necessary, the Energy Element to reflect changing production and transmission facility developments and encourage new energy production and transmission facilities.

- E-IM3. **Energy Emergency Response Procedures.** Prepare energy emergency response procedures for the Humboldt County Emergency Response Plan.

- E-IM4. **Energy Supply and Transmission/Distribution Report.** Prepare a regional energy supply and transmission/distribution report that is

updated every five years or sooner, as required.

- E-IM5. **Energy Facility Emergency and Contingency Planning.** Develop an ordinance requiring emergency plans for energy facilities. Prepare an energy system contingency plan that is updated every five years.
- E-IM6. **Energy Resource Center.** Establish an energy resource center. The center shall be open to the public and provide energy conservation, energy planning, renewable energy, and energy efficient building design and retrofit information.
- E-IM7. **Development of Distributed Generation.** Conduct a study to identify key facilities in the county that would benefit from distributed generation and cogeneration energy systems. Develop environmentally preferable distributed generation and cogeneration energy systems where appropriate. Develop and publicize demonstration sites.
- E-IM8. **Small-Scale Biomass Generation Sites.** Monitor feasibility of smaller and/or mobile biomass electric generators fed with wood waste and very small diameter logs (e.g. from thinning for fire safety and timber harvest slash in National Forest areas). If/when technology proves feasible and cost effective, promote its use in county areas near National Forests where existing electric transmission lines are available; support projects to convert biomass into competitively-priced renewable energy.
- E-IM9. **Development Incentives.** The REA will collaborate with the County Economic Development Division to identify opportunities for developing jobs in the field of energy conservation, efficiency and renewable sources.
- E-IM11. **Energy-Efficient Award Program.** Initiate award program for high-performing energy-efficient land use and community designs that reflect the goals and objectives of the Comprehensive Energy Action Plan and GP Energy Element.
- E-IM17. **Circulation System Links.** Provide guidelines for bicycle and pedestrian circulation system links between residential neighborhoods, major employment, commercial and civic centers, and transit services.
- E-IM19. **LEED Green Building Information.** Develop and promote programs detailing LEED "Green Building" certification standards and rating categories in addition to Title 24 requirements for the County as a resource for the wider community.
- E-IM22. **Energy Efficiency-Based Utility Allowance.** Encourage use of Energy Efficiency-Based Utility Allowance schedule in all affordable housing.

- E-IM24. **Educational Program.** Develop educational displays for the first few renewable energy systems, cogeneration systems, and distributed energy systems installed in County facilities. Displays are to provide county residents and businesses with information on how the systems work and how well they perform. Educate County residents about the importance of developing local energy resources and the associated benefits, as well as the associated impacts of local energy resource development.
- E-IM25. **Energy Guidelines.** Develop energy-efficient guidelines and information handouts and make them available to applicants in the process of obtaining development and land use permits.
- E-IM26. **Water Conservation Education Program.** Initiate a water conservation education program for citizens with incentive programs that encourage efficiency and water conservation.
- E-IM27. **Energy Elements.** Disseminate/encourage the adoption of Energy Elements in other jurisdictions.
- E-IM30. **On-site Waste Management.** Promote use of source separation recycling storage areas for all multiple-unit residential developments, and commercial developments.
- E-IM31. **Energy Efficient Equipment.** Encourage the use of the most energy-efficient equipment for space and water heating, ventilation, lighting, refrigeration, and air conditioning in all new buildings and developments, including residential and commercial facilities. Solar water heating and solar electric systems shall be encouraged where solar access is available. The County shall endorse the LEED Silver rating, or higher, as the desired level of energy conservation and efficiency in buildings.
- E-IM32. **Solar Equipment.** Encourage new construction and renovations/remodeling of appropriate scale to incorporate solar-friendly, "no-regrets" construction³ features. This shall include the installation of electrical and plumbing connections for potential future solar electric and solar hot water systems, proper solar orientation, and adequate unobstructed south facing roof slopes where solar energy equipment can be installed.
- E-IM33. **Energy Efficient Retrofits.** Investigate energy-efficient retrofitting in the renovation and remodeling of existing buildings and/or at the time of sale or transfer of ownership. Employ a clear permitting process to encourage energy conservation retrofit improvements in existing buildings.
This may include, but is not limited to: upgrading to Title 24 standards for energy efficiency; adding passive solar and natural daylighting; protection of solar access; insulation and weather-stripping; water-conserving and energy-conserving devices; and installation of on-site renewable energy generation. Retrofit

improvements for energy conservation and efficiency are applicable to all land uses.

- E-IM35. **Shared Energy Facilities.** Support State revisions and amendment of Building Codes as necessary to eliminate barriers that may inhibit major commercial, industrial, and public uses from installing and/or using shared energy facilities, such as district heating/cooling systems, solar water heating, photovoltaic grids, and cogeneration systems.
- E-IM36(p). **Retrofits in Existing Buildings.** Investigate both voluntary and mandatory energy efficiency retrofit programs. Provide incentives to property owners to upgrade their homes, businesses, or other properties for improved energy conservation and energy efficiency techniques (i.e. energy efficiency retrofits). Incentives could also include providing assistance to property owners in obtaining rebate programs for retrofitting residential and commercial buildings. Promote the voluntary residential retrofit energy program by encouraging homeowners associations to do the following:
- Purchase bulk solar systems and conservation materials.
 - Sponsor buying clubs, cooperative or other suitable mechanism to purchase, install, and maintain retrofit measures.
- E-IM37. **Energy Audits at Time of Sale/Transfer of Ownership.** Investigate options for combining energy audits with existing inspections, financing, and data collection activities. Develop policies and guidelines to enact appropriate transfer-of-ownership regulations/programs. A primary objective of this program would be to provide prospective homebuyers with an energy efficiency comparison of available units, thereby encouraging potential sellers to retrofit their properties.
- E-IM40. **Wastewater and Reclaimed Water Efficiency.** Solicit cooperation from water suppliers, industry, golf courses, landscapers, and agriculture to conserve water through the use of properly treated reclaimed water and wastewater.
- E-IM41. **Water Conservation.** Encourage local water providers to enforce water conservation measures cooperatively, using state-mandated powers, to reduce energy consumption at water facilities, associated with various phases of pumping, distribution, treatment, and reclamation.
- E-IM42. **Conservation Management Plan.** Promote the implementation of a County-wide water conservation management plan, which is based on conservation of energy and water resources to maintain and promote water conservation and water recycling programs as a means of conserving energy.

- E-IM43. **Prepare County Facility Energy Study.** For County facilities, prepare a report that examines the economic feasibility of using renewable energy systems (including solar electric and solar hot water), cogeneration systems, distributed energy systems, and district heating systems.
- E-IM50. **Use of Waste Biomass for Energy Production.** Promote forest fuel-reduction programs that provide sustainable forest practices, fire safety, and the use of forest biomass as an energy source. Develop and maintain statistics on the use and availability of forest waste biomass resources for energy production.
- E-IM51. **Biogas Development.** Develop the use of biogas at the Cummings Road Landfill. Develop and publicize dairy biogas demonstration sites and work with local farm organizations to promote dairy biogas energy systems where appropriate. Publicize the use of biogas at existing local wastewater treatment facilities and encourage its use at additional facilities where appropriate.
- E-IM52. **Support Wave and Tidal Energy Demonstration Projects.** Promote and support local wave and tidal energy systems research and development. Work with private companies to develop wave and tidal energy demonstration projects.
- E-IM54. **Large-Scale Wind Energy.** Provide information about cost-effective commercial scale wind farms in the county and in off-shore areas adjacent to the county. Assess wind resources in the county and prepare a model draft EIR for large-scale onshore and offshore wind energy facilities. Educate the public about the benefits and impacts of wind energy systems. Focus especially on presenting accurate and balanced information on bird and bat kills and noise and visual impacts.
- E-IM55. **Natural Gas Development.** Support efforts to develop local natural gas resources consistent with oil and gas policies and standards. Develop an updated assessment of onshore natural gas resources in the county.
- E-IM56. **Small Hydroelectric Development.** Support local efforts to develop cost-effective, environmentally-sensitive, small-scale, run-of-the-river hydroelectric facilities in the county. Conduct an updated assessment of small hydroelectric resources potential in the county.
- E-IM57. **Solar Energy Development.** Support local efforts to develop solar electric systems and solar hot water systems in the county. Develop a training program for solar contractors and installers. Educate the public about the benefits of solar energy systems. Develop a database of solar energy systems installed in the

county.

- E-IM58. **Biodiesel Development from Waste.** Utilize waste oils and other biomass wastes for biodiesel production. Assess available waste resources for biodiesel production. Provide current information on the potential opportunities, benefits, and limitations of waste biodiesel production and use in the county. Focus on waste oils and other biomass that are not already being used for other purposes. Develop guidelines and standards for the safe and environmentally responsible production of biodiesel in the county.
- E-IM59. **Energy Grid Connection.** Promote appropriate small-scale energy generation where cost-effective connections to the distribution system are available or planned. Standardize local rules for connecting to the grid, consistent with IEEE interconnection standards. Connections for small generators (under 100 kW) should be simplified and standardized.
- E-IM60. **Vehicle-to-Grid Connection.** Evaluate long-term integration of motor vehicles with the electric grid, including battery electric vehicles, fuel cell vehicles, plug-in hybrid electric vehicles, and solar-electric vehicles. Evaluate development status of vehicle-to-grid interconnect standards and the use of grid-connected vehicles for short-term energy storage.
- E-IM61. **Energy Feasibility Study.** Examine feasibility of wind, solar and hydro-power as short term intermittent sources, and also emerging technologies such as wave energy as longer term possibilities. The feasibility study will also examine potential for local electrical energy storage systems capable of smoothing out electrical generation fluctuations. Intermittent renewable resource load profiles will be studied. (RCEA)
- E-IM62. **Investor-Owned Utility System.** Examine the capital and operating costs for any proposed new utility, factoring in various power supply alternatives, then estimate property value (determining the general condition of the facilities to be acquired) and the cost of separating the new system's facilities from the remaining part of the Investor-Owned Utility system. If building a new, alternative distribution system is to be considered as an option, the feasibility study will estimate the cost of new construction of a distribution system using current technology. (RCEA)
- E-IM63. **Municipal Utility Feasibility.** Conduct a preliminary feasibility study to examine the viability of establishing a Municipal utility.
- E-IM64. **Community Choice Aggregation.** Explore the feasibility of becoming community-choice aggregators, using funding from the CEC and the U.S. DoE, and with the technical assistance of Navigant Consulting, Inc. Apply for technical assistance to

determine cost issues and for information needed to file CCA implementation plans with the California Public Utilities Commission (CPUC).

- E-IM65. **Renewable Energy Portfolio Standard.** Review compatible energy resource development projects that would assist the State of California in meeting Renewable Portfolio Standard goals. In particular, the REA shall engage in the CPUC-led process that directs utilities to investigate transmission upgrades to support the development of renewable energy resources.
- E-IM66. **Pursue Feasibility Studies for Utility Resource Portfolio.** Conduct studies to focus on fuel diversity, environmental concerns, and market uncertainties that are increasingly important in electric utility resource planning and to identify renewable energy technologies that are becoming significant components in utility resource portfolios.
Pursue available grant programs to fund feasibility studies, including funding sources from the CEC which offer support to a wide range of research and development projects through its Public Interest Energy Research (PIER) Program. Also Monitor the U.S. Department of Energy, Energy Efficiency and Renewable Energy program for funding opportunities.
- E-IM67. **Interconnected (Looped) Electrical Grid.** Work with PG&E to evaluate an interconnected (looped) electrical grid for the county. Support systems that will provide land use and population trend data to inform long-term plans for transmission assessments and transmission grid expansion.