State Siting Board Background Research

1. State of California
   - California Energy Aware Planning Guide Volume 2
   - California Facilities Siting Division Website
   - California Siting Regulations
   - California Land Use Siting Issues Report

2. State of Florida
   - Florida House Bill 1473
   - Florida Facility Siting Website
   - Florida Department of Community Affairs Website

3. State of Kentucky
   - Kentucky Public Service Commission Website
   - Kentucky Siting Guide

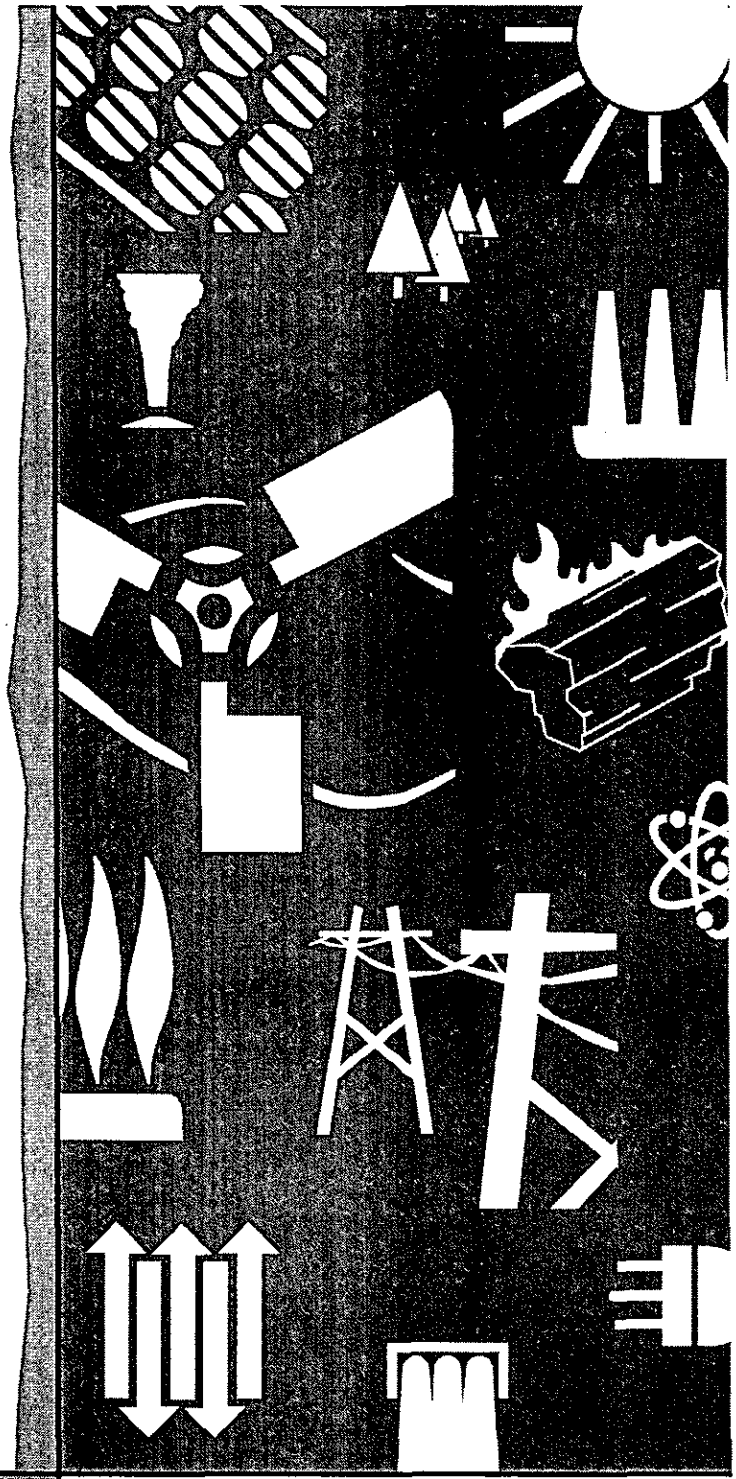
4. State of Massachusetts
   - Massachusetts Siting Division Website
   - Massachusetts Environmental Protection Act Website
   - Massachusetts Siting Handbook
   - Massachusetts Zoning Exemption Checklist

5. State of New York
   - Article "Town Reaches Settlement On Key Span Power Plant"
   - Article "Town Caves to Power Plant Pressure"

6. State of Oregon
   - Oregon Department of Land Conservation and Development Website
   - Oregon Energy Facility Siting Website
   - Oregon Land Use Goals Summary
   - Oregon Siting Application
   - Oregon Siting Guidelines
   - Oregon Siting Task Force Report
   - Oregon Model Energy Ordinance
   - Letter from Oregon County Planning Directors

7. State of Washington
   - Washington Siting Guidelines Website
   - Washington Site Evaluation Council Website

ENERGY AWARE



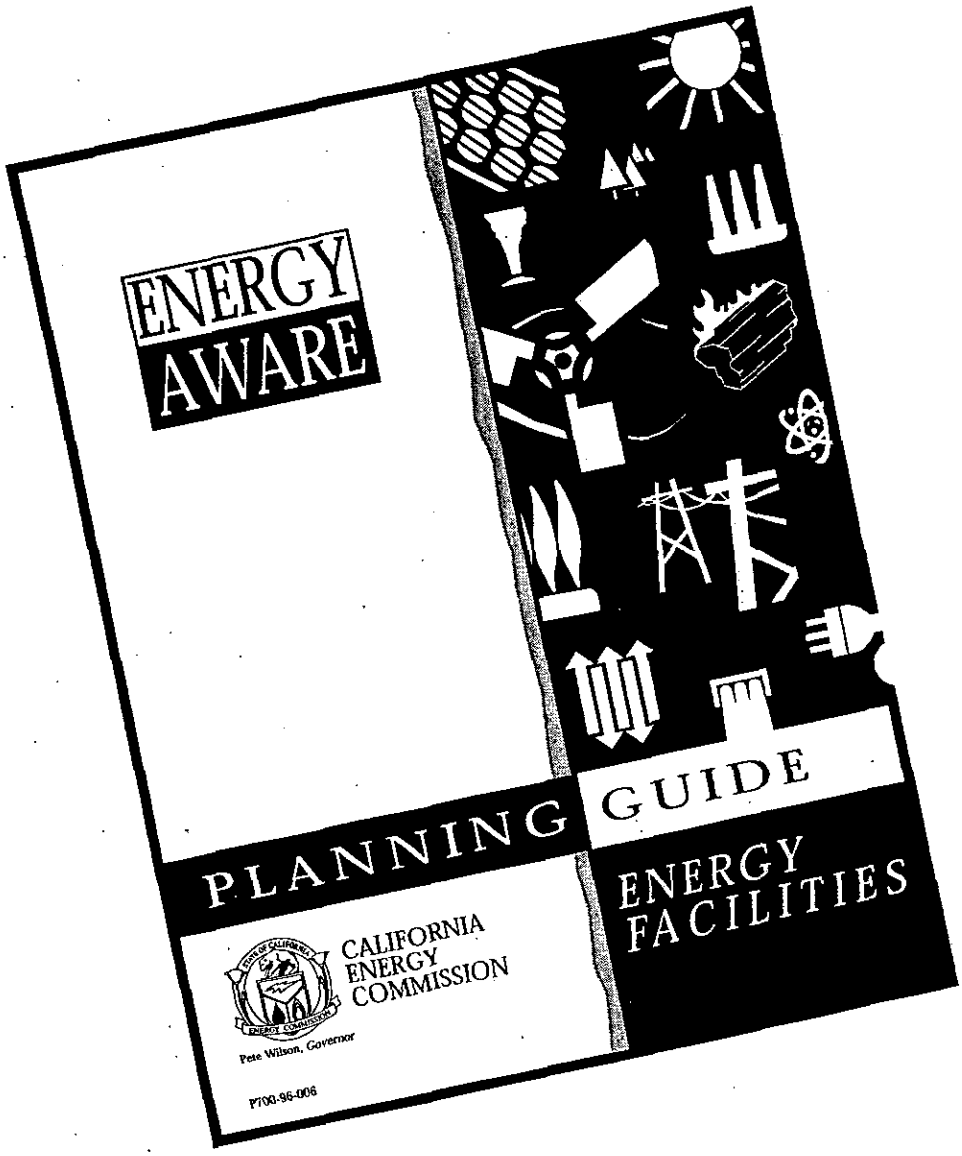
PLANNING GUIDE

ENERGY FACILITIES

CALIFORNIA ENERGY COMMISSION

Pete Wilson, *Governor*

P700-96-006



PREFACE

Energy use is an integral part of our daily life. It is a foundation of our economy and it provides many comforts and conveniences. Yet energy, and its availability, are often taken for granted.

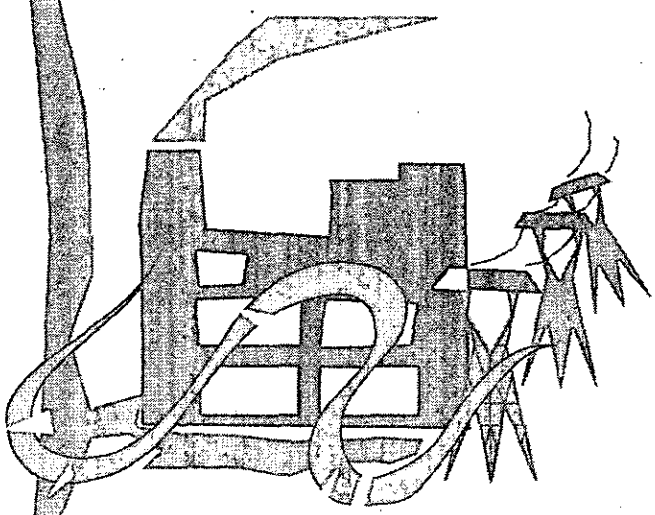
This Energy-Aware Planning Guide is intended to help meet the California Energy Commission's mandate under Public Resource Code section 25616 which directs the Commission to:

1) assist local agencies in the siting of energy projects which are not otherwise subject to the Commission's power plant site certification process,

2) encourage local agencies to expeditiously review permit applications to site energy projects, and

3) encourage project developers to consider all cost-effective and environmentally superior alternatives that achieve their project objectives.

This Guide focuses on energy facilities, and is a companion to the 1993 *Energy-Aware Planning Guide* on energy use. The information in this Guide is intended to benefit local governments and their communities, as well as electric utilities or other providers and energy project developers, with permitting energy facilities.



ACKNOWLEDGEMENTS

The production of the *Energy-Aware Planning Guide: Energy Facilities* was partially funded by Petroleum Violation Escrow Account (PVEA) monies provided to the Energy Commission's Siting and Permit Assistance Program by the State Legislature.

We are particularly grateful for the time and effort spent by thirty-three representatives of local governments and thirty-three representatives of municipal and investor owned utilities from throughout California who attended six workshops to contribute their ideas for the contents of the *Guide*. Representatives from other state agencies also attended. (See Appendix A)

Numerous additional representatives of local governments took time to provide information by telephone about issues they have faced about energy facilities as well as their ideas for the *Guide*. We are especially pleased to have the agreement of many individuals and organizations to provide case study material and to be listed as contacts for the *Guide*.

The subject of energy facilities planning and permitting can be controversial for the communities where they are located and for all parties involved. We were fortunate that the Guest Authors listed below were enthusiastically interested in contributing thought-provoking articles for this *Guide*. *These articles are provided in the interest of sharing ideas which may need to be addressed in the planning and permitting of energy facilities. The articles may include controversial opinions of the authors and do not necessarily represent the views of the California Energy Commission or its staff.*

Donald W. Aitken, Senior Energy Analyst, Union of Concerned Scientists
Bill Center, former Supervisor, El Dorado County, District 4
Richard Ferguson, Communication Director, Center for Energy Efficiency & Renewable Technologies (CEERT)
Jerry Jordan, Executive Director, California Municipal Utilities Association
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Thomas Sparks, Manager of Government Relations and Utility Affairs, Geothermal Operations, UNOCAL
Fred E. Springer, Director, Office of Hydropower Licensing, Federal Energy Regulatory Commission
Emilio E. Varanini, III, Senior Partner, Marron, Reid & Sheehy, Sacramento and former Commissioner, California Energy Commission
Carl J. Weinberg, Weinberg Associates and former Executive Director of Research & Development, PG&E

There were many contributors to the writing of this *Guide*, both inside and outside the Energy Commission. Our main contractor, the Local Government Commission (LGC), organized and conducted five of the information-gathering workshops and Pat Stoner of LGC prepared important sections of Chapter 4 and lay the groundwork for Chapter 5 on the critical permitting issues of energy facilities. We are also grateful that Pat spent many hours editing the document. Criterion (Eliot Allen, principal), a subcontractor in Portland, was the primary author for Chapter 3. Carolyn Baker with the firm of Edson + Modisette prepared Appendix C.

Numerous Energy Commission staff contributed as authors for the *Guide*. From the Energy Facilities Siting and Environmental Protection Division (EFS&EPD) were: Robert Therkelsen, Robert Haussler, Judy Grau, Lorraine White, Matthew Layton, Rick Tyler, Rick York, Gary Walker, Joe O'Hagan, Obed Odoemelam, Steve Baker, Jackie Stroud, Linda Davis, Dave Maul, and Eileen Allen. Contributing authors from the Energy Technology Development Division (ETDD) included: Heather Raitt and Jonathan Teague. Authors from the Energy Forecasting and Resource Assessment Division (EFRAD) were: Dale Trenshel and Kat Calhoun.

Special thanks go to Douglas Anthony and the Santa Barbara County Planning and Development Department for their help with the *Energy Facility Closure/ Abandonment* chapter and for their ideas on other areas of the *Guide*.

The following utilities provided review and many useful comments for the *Guide*, particularly for the chapter on electric and magnetic fields: Los Angeles Department of Water and Power, Modesto Irrigation District, Pacific Gas and Electric Co., PacifiCorp, Sacramento Municipal Utility District (SMUD), San Diego Gas and Electric, Sierra Pacific Power Company, and Southern California Edison. We also acknowledge SMUD for its comments on Appendix B, as well as Keith Shorey's astute comments on the interface between the community planning and energy facility permitting processes incorporated into Chapter 3.

Reviewing and editing a document such as this is a major task. Energy Commission staff who assisted were: Gregory Newhouse, Robert Haussler, Norm Wilson, Robert Strand, Chuck Najarian, Lorri Gervais, Chris Tooker, Roger E. Johnson, Tony Rygg, Don Kondoleon, Linda Davis, Albert McCuen, Eric Knight, Nancy Hanson, Elaine Hebert, Bert Fegg, and Dale Edwards of the EFS&EPD; Ken Koyama, Art Soinski, Jairam Gopal, Dara Salour, Pramod Kulkarni, George Simons, Roger Peake, Valentino Tiangco, Michael Kramer, Jay Guettler, Jack Janes, and Nancy Jenkins of the ETDD; Gerry Bemis, Karen Griffin, and Calvin Wire of the EFRAD; and Arlene Ichien, Erik Saltmarsh, Caryn Hough, Dick Ratliff, David Mundstock, and Jeffrey Ogata from the Office of the Chief Counsel; and Claudia Chandler, Jackie Goodwin, and Mary Ann Costamagna of the Media and Public Communications Office.

The Energy Commission also wishes to thank the following agencies for their review and comments: **Federal Energy Regulatory Commission, U.S. Forest Service, Bureau of Land Management, California Public Utilities Commission, California Department of Health Services EMF Program, and the State Water Resources Control Board.** **Antero Rivasplata** at the Governor's Office of Planning and Research was especially helpful with his comments on Chapters 3 and 4.

Additional reviewers for Appendix B were **Abbas Ahkil** at Sandia National Laboratories, **David O'Kain** at the Oak Ridge National Laboratory, and **Don Bender** at the Lawrence Livermore National Laboratory.

Jacque Gilbreath, Cartographer/Graphic Artist in the Energy Facilities Siting and Environmental Protection Division, deserves many accolades for her graphics, layout, and many hours of providing numerous drafts and finalizing the document. She was assisted by **Abigail Ocampo**, and **Cathy Siebensohn**.

Jackie Stroud
Project Manager
Energy Facilities Siting and
Environmental Protection Division

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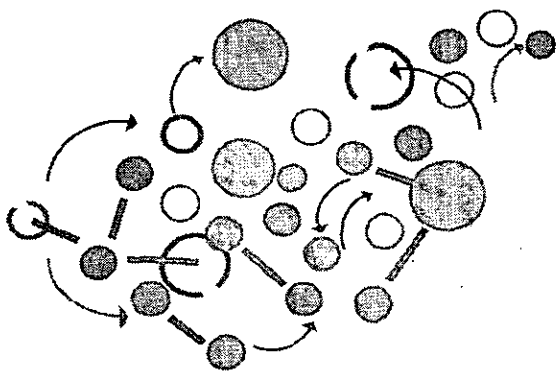

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USING THE GUIDE

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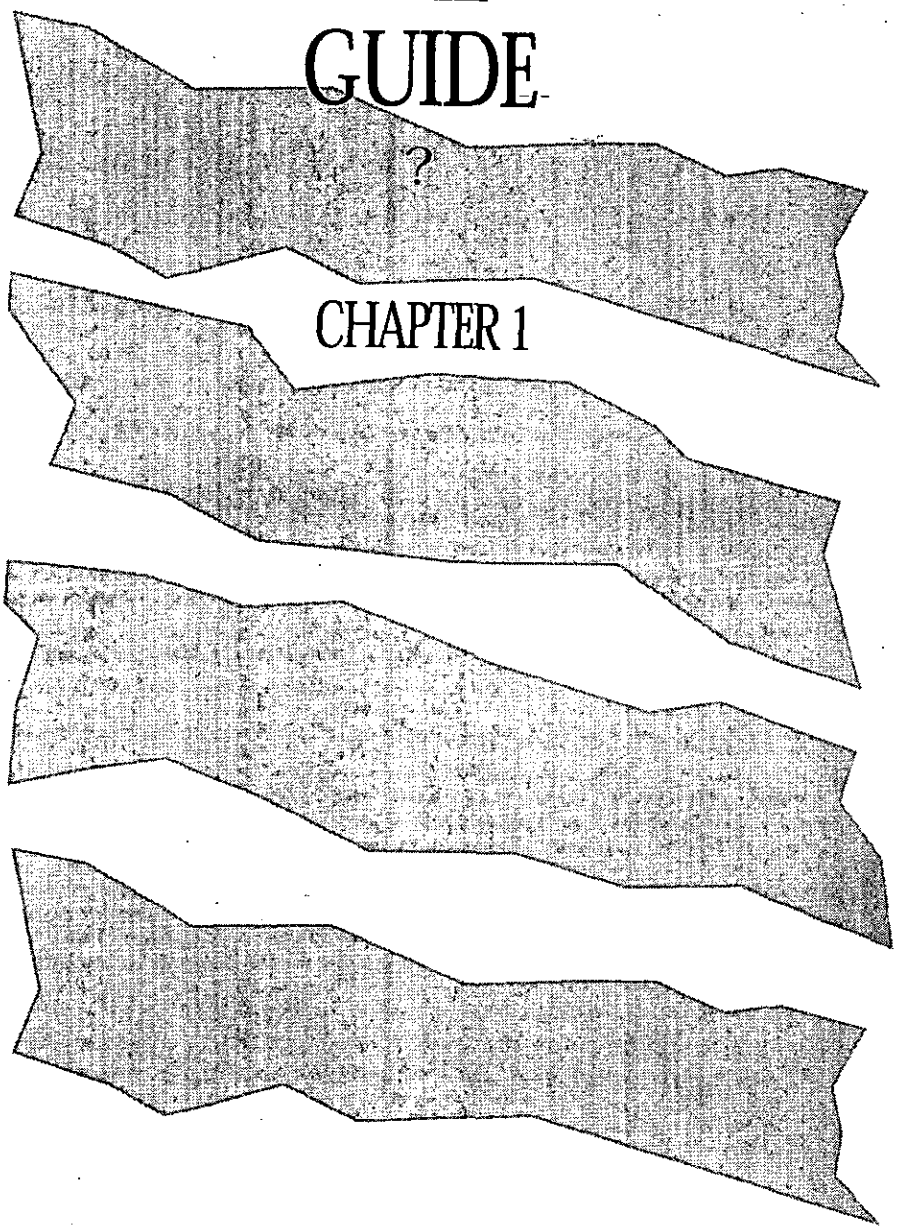
CHAPTER 1



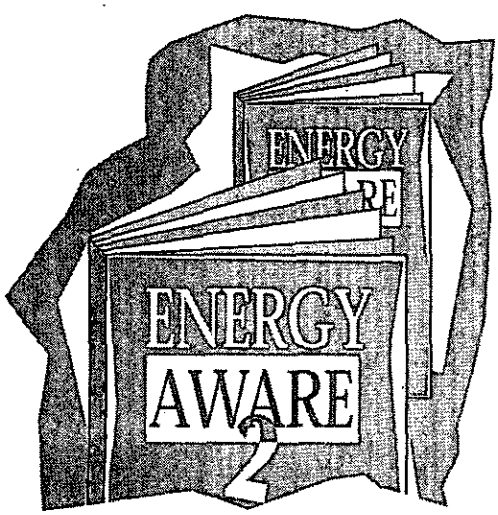
ENERGY AWARE
PLANNING GUIDE FOR ENERGY FACILITIES

CHAPTER 1: USING THE GUIDE

INTRODUCTION

This Guide is intended to benefit both local governments and developers of energy facilities. It provides local government decision makers and planners with ideas and information vital to achieving an effective, less costly, and expeditious energy facility permitting process. The Guide addresses health and safety, environmental, public involvement and economic considerations important to energy facility planning and permitting activities, as well as to overall community planning activities. It also presents ideas on how local governments can influence other agencies which permit energy facilities that impact their communities.

Energy project developers will benefit from the information presented in this Guide because it can help them work with local governments, resulting in more certainty and less cost in obtaining permits.



Energy facilities which produce or transmit electricity, heat, or fuel are an integral part of our everyday life. Several factors listed below are now converging which may dramatically change the nature of energy project development in California and the ability of local officials to respond effectively to proposed developments.

- Changes in federal and state laws to deregulate the electric utility industry and allow competitive forces to determine supplier, price and services are being implemented. Competition may result in different state regulatory oversight of power plant and electric transmission line selections and locations. Deregulation could increase the role of local government land use planning and permitting processes.

- While deregulation is taking place, the demand for electricity continues to grow. By the year 2005, the Energy Commission estimates that approximately 6,000 megawatts of new electrical capacity will be needed for California's electrical generation system (Electricity Report for 1994, Chapter 9). New power plants and transmission lines will be needed to satisfy this demand. Local governments may be required to permit many of these facilities, or will be requested by the Energy Commission to provide comments on facilities under the Commission's jurisdiction.

- Electrical generation technology is changing and may result in new and unfamiliar energy facilities. These facilities will have unique permitting issues. Local governments may be faced with processing permit applications for these emerging technologies.

- As population grows, there will probably be increasing conflicts between existing and future land uses which can affect the economy, environment and quality of life for Californians. The local government land use planning process will be a critical component in determining how energy can either contribute to, or reduce, these conflicts.

- While energy development is changing, local governments continue to lose funding needed to meet the demand for project planning and permitting.

This Guide is designed to help local governments make the transition to the future under difficult fiscal circumstances. It can facilitate tasks associated with the planning and permitting of energy facilities, thereby reducing overall costs.

If your jurisdiction will be:

- Permitting power plants or other energy facilities
- Working with utilities and agencies responsible for new and/or upgraded transmission lines
- Integrating energy generation with industrial or commercial development
- Looking for ways to increase the economic prosperity of your region
- Working to reduce the air pollution often associated with energy production and generation

- you will have energy facility permitting issues.

For the purpose of this Guide, "energy facilities" refers to projects used primarily for the production, generation, transmission, distribution, and storage of fuel, electricity, or heat. These five categories of energy facilities are defined on the following page (*Five Energy Facility Categories* chart) and in Appendix B. This Guide focuses primarily on, but is not limited to, **power plants and electric transmission lines.**

THIS GUIDE CAN BE USED TO:

☑ **Process energy facility permit applications and renew permits** (and influence other agencies' permitting processes when local agencies do not have jurisdiction).

See:

- Chapter 4 for general permitting assistance
- Chapter 5 for actions local governments can take to address specific energy facility permitting issues
- Appendix B for brief technology/facility descriptions and the permitting issues most commonly associated with each type of energy facility

☑ **Prepare for future energy development** by providing ideas for general plans and program development and encouraging coordination among all stakeholders.

See:

- Chapter 2 for energy facility trend information, and opportunities and challenges for local governments
- Chapter 3 for energy facility planning information which will facilitate the permitting process and relationship-building among stakeholders, and better communication and resolution of issues with developers.
- Chapter 5 for general plan and implementation ideas useful for siting energy facilities

START WITH ENERGY EFFICIENCY

Local planning roles and processes are particularly applicable to the reduction of local energy consumption. Such planning can in turn influence what power plants, transmission lines and natural gas or oil pipelines are needed by a community. The types and quantities of energy needed by communities are heavily influenced by plans for land use, transportation and infrastructure. Energy facility permitting, and its associated costs, staff time, and environmental impacts can be reduced, delayed or avoided. If communities conserve energy they can also keep money in the local economy. This information is addressed in the original, or first volume of the *Energy-Aware Planning Guide*.

Specifically, the first volume of the *Energy-Aware Planning Guide* addresses energy use associated with land use, transportation, buildings, water and waste management. It identifies significant local energy-use issues, and over forty strategies for reducing energy use for economic and environmental benefits. Examples of some of the urban design and management strategies include:

- Mixing residences and worksites
- Diverse and compact housing
- Pedestrian and transit-oriented development
- Telecommuting
- Energy efficient construction and landscaping principles

Persons desiring more information about the first volume of the *Energy-Aware Planning Guide* should contact Nancy Hanson, Energy Commission, (916) 654-3948.

To obtain a copy of the first volume of the *Energy-Aware Planning Guide* submit the order form in Appendix H or contact the Energy Commission's Publications Office at (916) 654-5200.

FIVE ENERGY FACILITY CATEGORIES

1) Energy Production Facilities

These facilities involve the extraction or processing of energy resources. Examples include oil, gas, geothermal wells/fields, refineries, biomass fuel production facilities, and landfill gas extraction sites.

2) Energy Generation Facilities

These facilities include electric generation facilities and heat generation facilities. (Some can produce both electricity and heat in a process called cogeneration). Electric generation facilities may be categorized as either thermal or non-thermal.

Thermal power facilities - rely on the conversion of fuel to heat to produce electricity.

Non-thermal power facilities - do not rely on the conversion of fuel to heat. Examples include hydroelectric, solar photovoltaic, wind and ocean wave power plants.

3) Energy Transmission Facilities

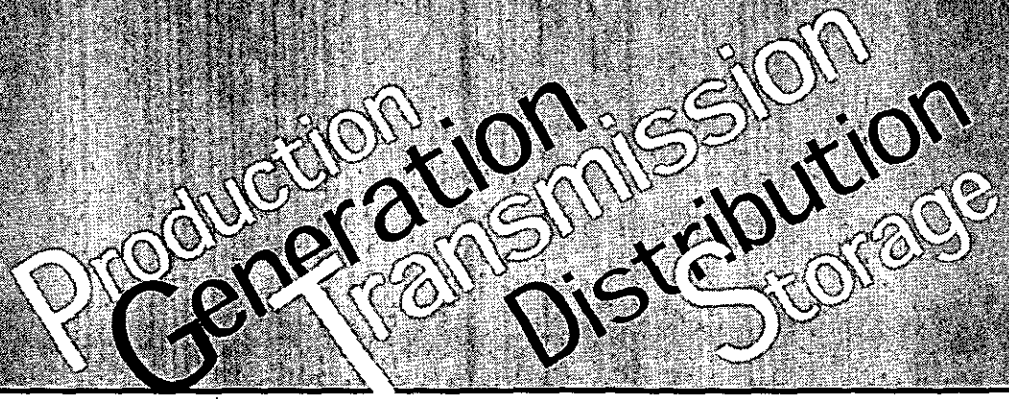
These are linear facilities which transport large quantities of electricity (transmission lines) or fuel (pipelines). Also included are electrical switchyards (which transform the voltage from the level at which it is generated to the level of transmission) and substations (which transform the voltage from the level of transmission to a lower distribution level).

4) Energy Distribution Facilities

Much smaller than transmission facilities, distribution facilities include the electrical distribution lines [typically about 50,000 Volts (50 kiloVolts) and less] and substations which carry electrical energy from the transmission substations, through several levels of voltage reduction, to the customer (at 120 Volts). Distribution facilities also include natural gas distribution pipelines and associated equipment which carry natural gas from higher-pressure transmission lines to the customer, through several levels of pressure reduction.

5) Energy Storage and Management Facilities

These facilities include those that store electrical energy, natural gas, liquefied petroleum gas, or alternative fuels such as compressed natural gas, methanol, or hydrogen. Examples include vehicle fueling/charging stations, hydroelectric pumped storage projects, compressed air energy storage, and utility-scale batteries.



- Appendix B for brief technology/ facility descriptions

◩ Address public concerns and improve public involvement.

See:

- Chapter 3 for fully integrating the public in energy facility planning activities
- Chapter 4 for fully integrating the public in energy facility permitting activities

◩ Understand the relationship between energy facilities and important community issues, such as land use, air quality, health and safety, and economics.

See:

- Chapter 3 for energy facility planning as it relates to the broader community context
- Chapter 5 for specific permitting issue information

INSIDE THE GUIDE

This Guide provides:

◩ Guest Author Articles. Distributed throughout the Guide, these provide the views of individuals and organizations on a variety of often controversial topics. A diversity of opinions can be valuable to the reader in sorting out how to proceed on these topics. These articles do not necessarily reflect the views of the Energy Commission or its staff.

◩ Chapter 2 - Energy Facilities Development In Perspective. A historical view of the California electricity industry and information about possible trends in facility development and the planning and permitting opportunities and challenges they create for local governments.

◩ Chapter 3 - Planning for Energy Facility Development. A description of the usefulness of Energy-Aware Planning for energy facilities, the local authority for such planning, and a collection of planning and program information ideas which emphasize working with all parties. Case studies are also provided to prepare local agencies for energy facility permitting and development.

◩ Chapter 4 - Permitting Energy Facilities. A collection of ideas for developing interagency cooperative efforts, addressing public concerns and expediting local government permitting where applicable. Information is included to aid in determining agency jurisdiction. Energy facility application review process flow charts help focus on potential opportunities for local government to influence state and federal agency and municipal utility permitting processes.

◩ Chapter 5 - Critical Permitting Issues. A collection of background information and ideas for local action on significant energy facility permitting issues including:

- Air quality
- Biological resources
- Hazardous materials handling and storage
- Water use and quality
- Visual and noise impacts
- Public concerns about electric and magnetic fields (EMF)
- Energy facility closure/ abandonment

LOCAL COMMENTS

"The use of the California Energy Commission's first *Energy Aware Planning Guide* was critical to the development of San Luis Obispo County's Energy Element, now adopted as an important element to our county's general plan. The guide was not only useful, but easy to follow because of the understandable format and relevant graphics. It provided us with practical examples, sound technical information, and a wealth of ideas for preparing the element."

The purpose of the San Luis Obispo County Energy Element is to: 1) increase energy efficiency, 2) provide energy information and policy guidance, 3) document the county's energy resources, 4) establish land use and environmental criteria for evaluating future energy projects and 5) provide alternatives which encourage projects that exceed the state's energy regulations. The Energy Element not only provides a common currency to help bridge the gap between environmental and economic concerns, but also recently won a California Chapter American Planning Association Outstanding Planning Award. Our thanks go to the Energy Commission for preparing the *Energy Aware Planning Guide*, without which we could not have prepared our award-winning general plan element.

Alex Hinds, Director
San Luis Obispo County Department of Planning and Building

Chapter 5 also provides regulatory information, general plan and implementation ideas, case studies, information resources, and contacts.

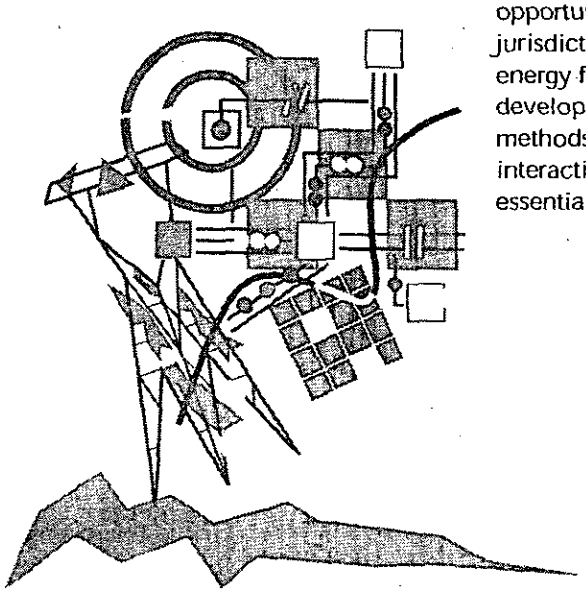
- Appendix A lists the participants in workshops held to gather ideas for the development of the Guide.

- Appendix B contains descriptions of various types of energy facilities, the permitting issues most commonly associated with them, and a matrix showing the significance of permitting issues related to these energy facilities.

- Appendix C contains descriptions of the roles and responsibilities of various state and federal agencies in terms of energy facility permitting.

- Appendix D lists the addresses and phone numbers of numerous state and federal offices which may be involved in energy facility permitting.

- Appendix E lists organizations, publications, helplines and electronic resources for further energy facility-related information.



- Appendix F provides in-depth background information on power plant generating efficiency. It addresses why generating efficiency is important and how it is measured. The characteristics which influence efficiency and the efficiencies achieved by different types of facilities are included. A procedure for performing a detailed efficiency analysis for proposed power plants and ideas for ensuring efficient electricity generation are also provided.

- Appendix G is a glossary of some of the terms used in the Guide.

- Appendix H contains an order form to acquire a copy of the first volume of the Energy-Aware Planning Guide which addresses how to use energy more efficiently through the land use planning process.

FUTURE UPDATES

In 1997 we plan to publish a new chapter on distributed generation. (See the Chapter 6 placeholder for more information.) We also plan to revise this Guide periodically to address rapidly evolving technologies, regulatory changes and local opportunities. Your particular jurisdiction's experience with energy facility permitting and development, as well as with new methods of local government interaction with developers, is essential to this process.

Please let us know about:

- Information you would like included in future updates

- Useful local energy facility planning and permitting strategies

- Illustrative case-study material

- Additional information resources

- Local agencies developing their own energy facilities

Send your ideas and requests for copies of this document to:

Siting and Permit Assistance Unit
California Energy Commission
1516 9th Street, MS-48
Sacramento, CA 95814
(916) 654-4079.

You can also use the internet or e-mail as follows:

Internet: http://www.energy.ca.gov

E-mail: siting@energy.ca.gov

NOTES NOTES NOTES

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ENERGY FACILITIES DEVELOPMENT IN PERSPECTIVE

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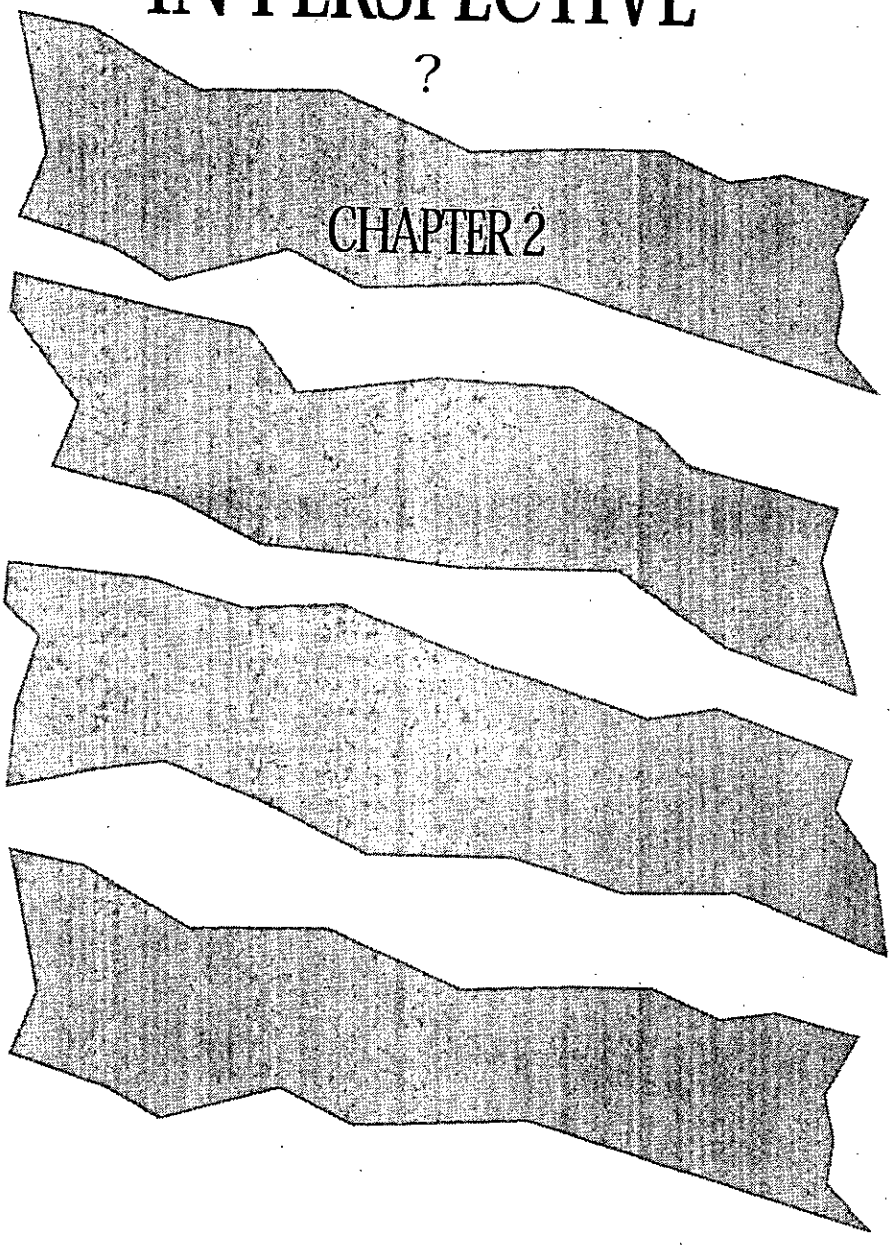
CHAPTER 2



ENERGY AWARE
PLANNING GUIDE: *ENERGY FACILITIES*

CHAPTER 2: ENERGY FACILITIES DEVELOPMENT IN PERSPECTIVE

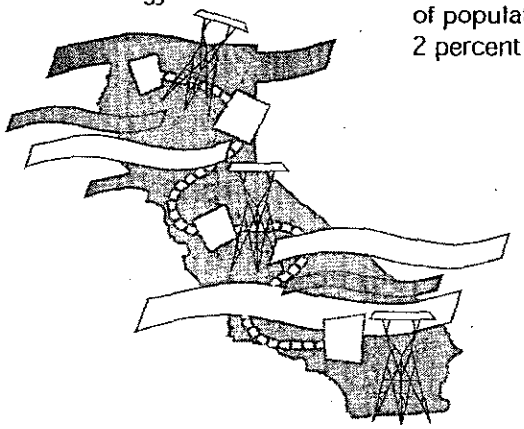
INTRODUCTION

This chapter discusses the recent history of California's energy system, focusing primarily on electricity generation and transmission. It also explores the major changes taking place in the regulation of energy development (or areas that ultimately affect energy development). Finally, the chapter introduces major opportunities for local agencies in planning for and permitting facilities needed in the future, including the provision of early guidance to energy project developers and working with all stakeholders during the planning and permitting processes.

GUEST AUTHOR ARTICLES

Guest Author articles are found at the end of this chapter. These articles contain opinions of the authors and do not necessarily reflect the views of the California Energy Commission or its staff.

The Rise of the Cardiff Giant: Electricity Market Restructuring & the Police Powers by Emilio E. Varanini, III, former Commissioner, California Energy Commission.



Municipalization Issues by Gerald Jordan, Executive Director, California Municipal Utilities Association.

CALIFORNIA'S ENERGY SYSTEM

California's energy system, particularly the electricity generation and transmission system, has evolved into one of the most diverse and reliable in the country. As California's population increases and demand for services grows, the need to expand and improve this energy system will also increase. What does this mean to you? Energy facilities such as power plants, transmission lines and pipelines will continue to be built in the state, and some of these new or expanded facilities may be located in your community.

Currently, about one-half of all energy consumed in California is used by the transportation sector to move people and goods. Energy needs are supplied by fossil fuels (including natural gas), renewable resources (i.e., biomass, solar and wind), nuclear and out-of-state sources. The Energy Commission anticipates that annual growth rates in energy use will follow that of population growth rates, roughly 2 percent annually.

ENERGY FACILITIES DEVELOPMENT IN CALIFORNIA: A HISTORICAL VIEW (LATE 1960s TO PRESENT)

In the late 1960s and early 1970s, multiple and often sequential federal, state and local permits were required before the construction of large energy facilities could begin. At a time when the demand for electricity was ever increasing, power plant permitting was lengthy and expensive, typically taking three years or more to complete. (See California Department of Water Resources, 1970, in Information Resources). Most power plants proposed at that time were very large (500 megawatts [MW] or greater) nuclear or fossil fuel-fired generation units owned and operated by investor-owned utilities (i.e., Pacific Gas and Electric, Southern California Edison and San Diego Gas and Electric).

By the end of 1972, the number of agencies concerned with the siting of large energy facilities (including power plants, refineries, and transmission lines) included nearly a dozen single-purpose federal agencies, 16 state agencies, air pollution control districts, plus many city and county agencies. With this regulatory structure, a needed energy facility project with state-wide significance could be stopped conceivably at the local level unless the site had specifically been condemned for public use by a higher agency. (See Rand Corporation, 1972, in Information Resources.)

Despite the amount of federal, state and local control over energy facilities development, many environmental and land use conflicts persisted. (See Rand Corporation, 1972, in Information Resources.) The regulatory system of the time encouraged utilities to take the lead role in planning for new power supplies without serious challenge to their choice of the quantity, type of generating resources or facility location by these regulatory agencies. (See California Legislature, 1979, in Information Resources.)

In addition, the public rarely participated in the planning or licensing decisions. The regulatory system itself limited public involvement until relatively late in the process, often too late to ensure consideration of alternatives or to make meaningful changes to the proposals. (Rand Corporation, 1972, in Information Resources.) Public concerns over environmental degradation from unchecked development such as that of the electricity industry eventually prompted the passage of the National Environmental Policy Act of 1969 and the California Environmental Quality Act of 1970.

Transmission line planning and permitting was even less open to public involvement or regulatory scrutiny than power plants or other energy facilities. Investor-owned utilities had (and continue to have) special privileges such as the power to condemn land for right-of-way. (Rand Corporation,1972, in Information Resources.)

In 1970, the California Public Utilities Commission (CPUC) approved General Order 131 which required that the utilities obtain a Certificate of Public Convenience and Necessity for transmission lines in excess of 200 kilovolts (kV). (Rand Corporation, 1972, in Information Resources.) However, utilities essentially were allowed to control transmission and distribution lines below this amount.

- **The Warren-Alquist Act.** By 1974, three conflicting forces converged, resulting in a change to the regulatory structure of power plant licensing:

  1) An apparently insatiable demand for more power, with CPUC projections for needed generation in excess of 80,000 MW from 1972 to 1991

  2) An overly complicated, sometimes conflicting regulatory permitting process

  3) An apparent public unwillingness to live with the environmental consequences of large industrial facilities such as power plants and transmission facilities

In response, the Legislature passed and the Governor signed into law the Warren-Alquist Act, creating the California Energy Resources Conservation and Development Commission, better known as the California Energy Commission. The Act vests the Energy Commission with sole authority for the licensing of thermal power plants 50 MW or greater in generating capacity and their related facilities.

One of the Energy Commission's primary missions is to ensure that needed power generation facilities are sited to provide reliable electric energy in an affordable and environmentally acceptable manner. The Energy Commission was designed to serve as a common forum for energy facility planning and power plant siting.

Since most of the electricity generation projects being considered in the mid 1970s were thermal power plants greater than 50 MW proposed by investor-owned utilities, local governments' role as lead agency in siting generation facilities diminished significantly.

- **The Public Utility Regulatory Policies Act.** During the late 1970s and early 1980s, changes took place that affected the types of power plants being developed. In 1978 Congress passed the Public Utility Regulatory Policies Act (PURPA) to encourage the development of non-utility and alternative power sources (i.e., renewable and cogeneration technologies). (16 U.S.C. section 2601 et. seq.) Under implementation regulations issued by the Federal Energy Regulatory Commission (FERC), PURPA specified criteria which, when fully met, enabled small power producers called "Qualifying Facilities" (QFs) to sell electricity to utilities at a price equal to the utility's "avoided costs" (i.e., the cost the utility would incur to generate the power itself or purchase it from another source). It was the intent of Congress to maintain the conventional power distribution systems while creating a market for small power producers. To this end, Congress sought to increase electric utility efficiencies and to expand the development of new energy technologies.

The CPUC aggressively pursued implementation of PURPA and, as a result, the majority of the state's biomass-fired plants, wind turbine farms, small hydroelectric and cogeneration facilities are owned and operated by independent energy producers. Essentially nonexistent before 1980, independently owned (i.e., QF and self-generator) energy projects were

being proposed and permitted in California. Since many of these QF projects were outside the state's jurisdiction, local agencies began to play a significant lead role in permitting power plants once again.

By opening the electricity generation industry to independent, "third party" developers and offering the avoided cost payment incentive, as well as favorable tax treatment, the development of non-traditional power sources was greatly expanded. The type, size and ownership of facilities developed in California changed from large conventional technology facilities burning fossil fuels and owned by utilities to smaller alternative technologies and more efficient fossil fuel-fired cogeneration facilities owned by independent power producers.

By 1985, the CPUC began actively to restrict the number of QFs entering the electricity industry because of concern over an excess in generating capacity. By the late 1980s, the number of QF-proposed projects began to taper off.

Many small to medium sized power plants have been developed in California due to the changes initiated by PURPA. One hundred and thirty-four independently-owned power plants (excluding four hydroelectric plants) with a generating capacity between 20-49.9 MW were operational as of March 1996. The combined generating capacity of these facilities in the state is greater than 4,500 MW and comprises roughly nine percent of the state's electricity system.

RECENT CHANGES AFFECTING ENERGY FACILITIES DEVELOPMENT IN CALIFORNIA

Past events are sparking additional changes in the regulation of energy development. These changes will affect energy facility planning activities, permitting processes and mitigation requirements. As with past changes, the type, size, ownership, location and cost of these facilities may also be affected.

FEDERAL ACTIONS

In 1992, Congress passed perhaps the most important and far-reaching federal energy legislation since the 1978 passage of PURPA. The National Energy Policy Act of 1992 (NEPAct) was aimed at providing a major dose of competition to the electric industry by creating a new class of wholesale-only electric generators, called "exempt wholesale generators," and expanding the access of these generators to the transmission system. These power producers do not have the technology, size, and fuel limitations imposed upon them as QFs do. Unlike QF power, utilities are not obligated to purchase exempt wholesale generator power.

A key feature of NEPAct is that it enhances the access of non-utility generators to the transmission grid by giving FERC the authority to order wholesale power wheeling.[1] NEPAct obligates transmission system owners to make a good-faith effort to expand facilities, if needed, to meet wheeling requests by electricity market participants. FERC Order 999, dated April 24, 1996, implements these provisions.

REGIONAL ACTIONS

As a result of recent federal actions (NEPAct and its implementation), the opportunities for coordinated regional transmission planning and access to western regional power markets are greatly enhanced. FERC is encouraging the formation of voluntary regional transmission groups to address issues associated with transmission planning and dispute resolution.[2]

Future state actions to promote direct access to generation providers for all retail customers could place further emphasis on the need to use the existing transmission system efficiently and to plan for coordinated future expansion. The siting of high-voltage transmission lines, however, is becoming increasingly difficult. Concerns about the possible health effects of electric and magnetic fields from high-voltage power lines, coupled with land use constraints, may make it more difficult to obtain new rights-of-way for transmission projects despite regional planning efforts. In such cases, another choice for utilities and communities to consider would be the use of distributed generation. (For additional comments on distributed energy systems, see page 2.6 and the Chapter 6 placeholder.)

STATE ACTIONS

- **Transmission line planning.** In 1988, the California Legislature and governor approved Senate Bill 2431 (Garamendi) which directed the Energy Commission to study the need for transmission lines in the future and to examine alternatives to creating new rights-of-way. The 1988 law also identified four principles to guide the use of the existing system and the development of new facilities, as follows:

• Encourage the use of the existing rights-of-way by upgrading existing transmission facilities where technically and economically justifiable.

• Encourage the expansion of existing rights-of-way, when technically and economically feasible, when construction of new transmission lines is required.

• Provide for the creation of new rights-of-way when justified by environmental, technical, or economic reasons, as determined by the appropriate licensing agency.

• Seek agreement among all interested utilities on the efficient use of new transmission capacity whenever there is a need to construct additional capacity.

In its 1992 report to the Legislature, *Transmission System and Right of Way Planning for the 1990s and Beyond*, the Energy Commission identified several significant study findings, including:

• Some utilities allow little or no opportunity for effective public involvement in transmission planning.

• Lack of access by some utilities or private power producers to existing lines may result in the building of new lines.

• It is not always appropriate or possible to build new or expand lines in an existing right-of-way.

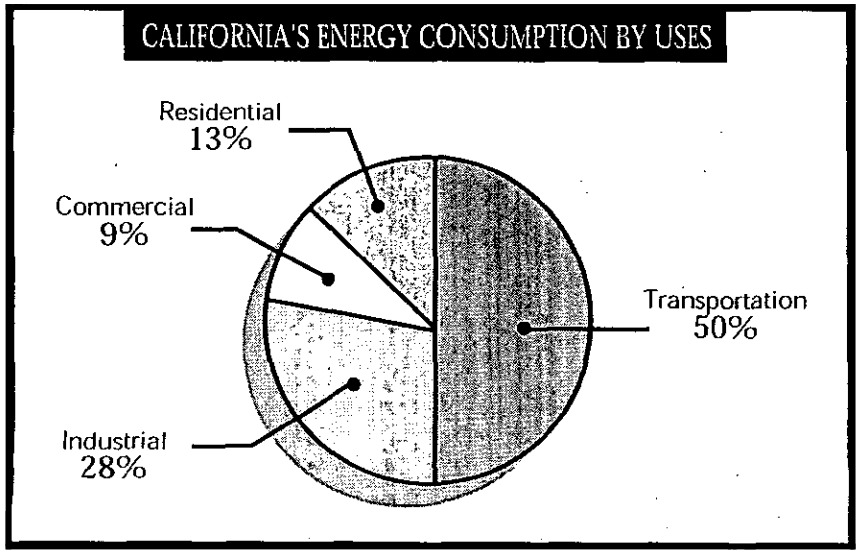
• The current transmission planning and licensing process is fragmented and lacks coordination.

Transmission line licensing. The CPUC in June of 1995 adopted General Order 131-D which clarifies its authority over Investor-Owned Utilities (IOU) electric power lines and substations. Under its predecessor, General Order 131C, only investor-owned transmission lines over 200 kV were regulated by the CPUC's Certificate of Public Convenience and Necessity process (substations were exempt from CPUC authority). With the issuance of General Order 131-D, investor-owned transmission lines between 50 and 200 kV and their related substations become subject o the CPUC's Permit-to-Construct process beginning January 1996.

The Permit-to-Construct process is intended to be simpler and less time-consuming than the Certificate of Public Convenience and Necessity process. It does not require a determination of need per se, but instead assumes that the project is required in order for the utility to carry out its obligation to serve. In addition, the CPUC's decision, of which General Order 131-D is a part, requires a Permit-to-Construct for substations also.

Several factors influenced the creation of General Order 131-D. In many cases there were increasing delays in siting transmission facilities as a result of jurisdictional confusion among local agencies and disagreements between utilities and local government entities. A need arose to ensure adequate environmental review and compliance with CEQA, as well as address uniformly the growing local public concerns over the potential health effects of electric and magnetic fields. The General Order 131-D Decision points out, however, that even with the CPUC's preemptive authority to site transmission lines and substations between 50 and 200 kV, utilities are not relieved of their obligation to work with local agencies and authorities during the permitting process.

Regulatory restructuring. In the mid-1980s, the natural gas industry began a process of deregulation. This has allowed competitive pressures to drive resource development and cost. After two years of intense scrutiny, on December 20,1995, the CPUC issued a decision to start a transition to a competitive electricity



Source: California Energy Commission's *The California Energy Policy, 1994.*

market. The new market will start on January 1, 1998, with all consumers participating by 2003. Consumers will be able to choose among electricity generators; power producers will have non-discriminatory access on the statewide transmission system to buy and sell power in a competitive market; and a new independent system operator will be created to control operation of and provide access to the transmission network and essential network services. In the future, new generation will be built by many competitors who are vying to provide power to a central market or to their own direct access customers. Public policy programs related to energy efficiency, renewables, research and development, and low-income individuals will continue, but with new funding and operational mechanisms.

The first major milestone of this transition occurred on April 29, 1996, when the investor-owned utilities filed a proposal with the Federal Energy Regulatory Commission to implement the independent system operator and power exchange. Significant portions of this structure have now been enacted by the legislature. (Chap. 854, Stats. of 1996.) There are an enormous number of restructuring steps to be taken over the next seven years. By then, we expect to have an electricity system which offers more varied and tailored services, is responsive to competitive pressures, and provides the reliable, environmentally-sensitive, and safe electricity service California expects. During this transition period, new generation construction will probably be less than would have happened in a business-as-usual world. There may be more sales, refurbishments, or retirements of existing generating facilities.

ENVIRONMENTAL REGULATORY ACTIONS

- **Air quality regulation.** In its 1990 amendments to the Clean Air Act, the federal government established national caps on allowable utility emissions of sulfur oxides (SO_X) and provided for tradeable allowance programs for these emissions. These caps, below currently-allowed emissions levels, apply to both new and existing facilities. The amendments also commit to a reduction in nitrogen oxide (NO_X) emissions to specified amounts below 1980 levels. In addition, the federal government is endeavoring to reduce carbon dioxide (CO_2) emissions but has not yet established standards. These measures to reduce SO_X, NO_X, and CO_2 emissions will go into effect over the next few years.

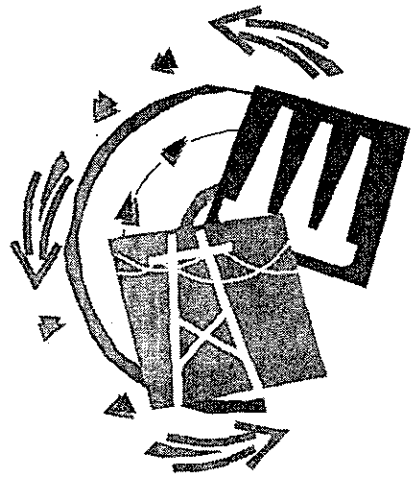
In 1991, the South Coast Air Quality Management District began work on the Regional Clean Air Incentives Market (RECLAIM) program. RECLAIM is an alternative market-based approach to regulating air quality. It is intended to reduce attainment costs and increase flexibility in meeting reduction requirements.

Under the market-based approach, all major stationary sources with NO_X and SO_X emissions (generally greater than four tons per year) will receive an initial annual emissions cap or allocation. The annual emissions allocation for each source will be reduced annually, based on a complex formula. It is believed that under this market approach, emission reductions will be achieved by applying emission controls, modernization or replacement of existing sources, processing improvements, activity cutbacks and shutdowns, or through emission trading with other sources which have excess emission allocations.

- **Biological resources regulations.** Since its enactment, the federal Endangered Species Act of 1973 (PL 93-205) has gone from a primary focus on species loss due to trapping and hunting-related activities to more indirect impacts of habitat destruction. Congressional hearings on the Act's reauthorization, among other things, have focused on its economic implications.

Changes to the Act may require greater consideration of the economic costs and private-property implications related to efforts to protect wildlife and conserve species through habitat designations and mitigation requirements. The debates over the Act's reauthorization continue and it is unclear what final form it will take. In the near term, however, it is still likely the Endangered Species Act will continue to influence resource options, particularly hydroelectric, over the next decade.

As with the federal Act, California's Endangered Species Act is also receiving close scrutiny and various changes have been proposed. Currently, no changes have



been made. The state Act will undoubtedly continue to impose requirements regarding the protection of California's endangered species.

Water quality regulation. The federal law regulating water quality, the Clean Water Act, was originally enacted in 1948, but was extensively amended, reorganized, and expanded in 1972 (PL 92-500). The law's primary objective is to control the release of pollutants into the nation's rivers, lakes and coastal waters. In Jefferson County PUD No.1 and the City of Tacoma v. Washington (1994) (114 S. Ct. 1900), the Supreme Court ruled that states may establish minimum streamflows for hydroelectric facilities under the Clean Water Act. Prior to this decision, FERC had relatively exclusive authority over hydroelectric projects under the Federal Power Act of 1920. This decision is expected to affect such things as the operation, mitigation and decommission requirements of hydroelectric projects facing licensing renewal.

SYSTEM CHANGES

Needed facilities. Additional energy can be provided by building new facilities, improving generation efficiency of existing facilities, or using energy more efficiently. California's demand for electricity will continue to grow due to population increases, future economic development, and in response to environmental needs (e.g., electric vehicles to reduce air pollution).

A growing number of oil- and natural gas-fired generation units are approaching the end of their projected lifespans. California utilities own 11,155 MW of generation placed in service in 1963 or earlier. Of that amount, 2,591 MW were placed in service in 1953 or earlier. Aging facilities are likely to be closed, upgraded or replaced within the next several years.

In addition, some of the non-utility generators face contract specified reductions in the payments they receive from the utilities for the power they produce. These contracts were originally drafted to allow for significant recovery of capital costs within the first 10 years of operation. It is possible that this reduction in payments may result in some of these projects no longer being economically viable and ultimately closing or having to be sold.

Demand-side management programs or "end-use efficiency" programs (e.g., air conditioner cycling, advanced building energy efficiency, and more efficient lighting and appliance technologies) will meet a portion of the state's future energy needs. Some older facilities will be retrofitted or repowered to operate more efficiently. Yet, new generation facilities will be needed despite these efforts.

Growing use of natural gas. The Energy Commission's forecasts suggest that natural gas will be plentiful and relatively inexpensive (when compared to oil and nuclear) for at least the foreseeable future. Current resource additions are dominated by natural gas-fired generation facilities. Several gas turbine manufacturers have been able to improve the efficiency with which energy from natural gas is converted to electricity while simultaneously reducing the air emissions from these turbines. As a result, there is increasing availability and cost-effectiveness of new gas turbines which produce less emissions, have lower water usage, are less expensive to build and operate, and use less natural gas per unit electricity generated than their predecessors.

Technology developments and distributed energy systems. Increased competition in the electricity industry is expected to influence future generation technology advancement and the role current technologies will play. Equipment manufacturers may upgrade their existing products and devote research dollars to promising technologies in efforts to gain more market share. As environmental challenges increase, the market may seek the development of cost-effective new technologies which produce fewer emissions, use less water, and pose fewer risks to the public. They also produce new jobs for Californians. Further development of renewable resources (i.e., solar, wind, and biomass) may also occur. The use of "distributed energy systems"[3] (also called "distributed resources") may be expanded to displace separate generation, transmission and distribution projects. (See the Guest Author articles in Chapter 3 by Donald Aitken and Carl Weinberg for viewpoints on these topics).

Electricity industry competition. Increased competition in the generation sector could also lead to an increase in the amount of electricity imported to California to meet this need. In this scenario, power producers with large out-of-state power plants may find it economical to build new transmission lines to get their power to California consumers. If greater competition in the electricity industry takes place, short-term costs and budgets may drive the industry's decisions.

ISSUES FACED BY LOCAL GOVERNMENTS

All energy facilities have potential social and environmental impacts. The extent to which they are significant impacts, and the extent to which they can be mitigated, depends on many factors including the technology type, the specific characteristics of the project and the site. Some of the major issues local governments and project developers may face are briefly discussed. Later chapters address these in greater detail.

- **Land use compatibility.** Conflicts may arise with new or existing land uses when identifying the most appropriate site for various new energy facilities. Even with the re-use of existing industrial sites, concerns may arise regarding the impacts of continued industrial activities on surrounding mixed uses.

- **Public concern.** Community residents may take issue with the impacts or perceived impacts (e.g., environmental justice, potential health effects, loss of biological resources and others discussed in Chapter 5) of various projects.

- **Efficient use of natural resources.** Requirements of power plants (e.g., substantial amounts of water for cooling for thermal facilities) and the future consequences of fuel choices (e.g., additional infrastructure for natural gas transmission and delivery) may have direct and indirect impacts on communities.

- **Management of potential energy supply sources.** Particularly as it pertains to some "renewable" resources (e.g., geothermal and biomass), the long-term sustainability of certain projects may be an issue.

- **Air quality.** The difficulty and expense associated with obtaining offsets which meet California's ambient air quality standards may increase as regulations become tighter in non-attainment areas of the state. Also, depending on local air quality conditions, offsets may or may not be available to fully mitigate the impacts associated with the facility.

This list is in no way complete, and the issues your community faces may be quite different. The Guide explores these and other issues in more detail in terms of the opportunities and challenges that may be created for you. Some of the major opportunities and challenges include: planning for energy facilities in your community; establishing policies that balance a variety of issues and needs; developing and implementing effective permitting and monitoring processes; dealing with specific permitting issues; and taking effective action to influence other agencies' permitting activities.

PLANNING CHALLENGES AND OPPORTUNITIES

- **Balancing the state's needs with local needs.** Local governments are charged with protecting their interests when energy projects with statewide significance (i.e., large generation facilities, pipelines and transmission lines) are proposed within their jurisdictions. Local governments have the opportunity to follow and, where possible, get involved in the energy resource planning processes of municipal and investor owned utilities, the Energy Commission and the CPUC. By doing so, the local agencies will be informed about many of the energy resource developments expected to occur in the future and their associated issues.

- **Staying current on major energy issues and technologies.** Local officials and decision makers are challenged with keeping current on major energy issues and new technology developments and determining the extent to which these changes affect their community. For example, changes in air quality regulation may affect existing facilities as well as future energy developments. New, small-scale distributed energy technologies could affect the number and types of generating facilities local governments will permit. Local officials and decision makers can determine the effects of these developments and various changes on their community through the use of geographic information systems (GIS) and other sophisticated computer systems. GIS systems can map resource and facility locations and overlay them with, for example, land use plans, community growth areas, and areas of environmental constraints.

REGIONAL CONSENSUS

"By building regional consensus prior to state-level deliberations, the region will be able to exert greater influence at the state level, and obtain quicker decisions that are ultimately more responsive to regional needs and preferences. More responsive state policy should arguably improve San Diego's economic prospects."

San Diego Regional Energy Plan, adopted December 1994

- **Ensuring that overall community goals and needs are addressed in local land use plans.** Successful community developments of all kinds require adequate infrastructure and services. The opportunity exists at the planning stage to consider the energy requirements (including associated infrastructure) created by various types of development whether industrial, commercial or residential. Working with utilities or other energy service providers at the planning stage to evaluate development-related energy needs and appropriate alternatives can work to minimize difficulties in providing the required services. Successful community planning is thus associated with informed energy planning, development, and resource management efforts. The efforts coordinated with other agencies such as air pollution control districts, regional water quality control boards and state regulatory agencies can avoid conflicting policies and regulations, local opposition, and can reduce subsequent permitting costs.

Communities can prepare for energy projects that will likely come to them by ensuring their planning documents and policies reflect their development objectives. These activities will also help energy facility developers to plan 'do-able' projects. One method to accomplish this is to identify suitable sites for such things as power plants, pipelines or transmission line corridors. Also, plans can prevent conflicts between new development and existing energy facilities that have the potential for expansion by ensuring that incompatible uses do not encroach on the existing use.

Energy facilities offer an opportunity to address multiple needs of a community which can be encouraged through local policies and planning efforts. For example, it is possible to use energy facilities for "win-win" situations which can be a part of a community's overall planning process. Facilities that use biomass can offer a viable alternative to landfill disposal. Also, policies can express a community's preferences for alternatives such as the application of distributed energy systems in remote or otherwise constrained areas.

- **Seeking public involvement and acceptance.** Getting the public involved in the local planning process early is an important tool for identifying and addressing potential conflicts that may arise when specific energy projects are proposed. By obtaining public input at the planning stage, local officials can identify the types and locations of energy projects they want to encourage and discourage in their community. Working with the utilities or energy facility developers, officials can educate the community on the merits of certain types of energy development to address the needs of the community. Issues and solutions identified in the planning stage can be incorporated into the permitting process to make it more effective and efficient.

PERMITTING PROCESS CHALLENGES AND OPPORTUNITIES

- **Developing effective permitting processes for future energy facility types.** Regulations that clearly specify what is expected of development under a local government's jurisdiction can help prevent delays and minimize costs for both communities and developers.

- **Tapping into the expertise of others.** To improve the consistency by which CEQA is applied from project to project, local officials have the opportunity of increasing coordination with other entities which may have more knowledge and experience with various types of energy projects.

For example, local governments can take advantage of assistance programs offered by federal and state agencies when developing and enforcing mitigation strategies throughout the permitting, construction, operation, and eventual decommissioning of energy facilities.

- **Working with project proponents early in the permitting process.** Local governments can inform project proponents of the community's preferences and concerns (i.e., fears of impacts on health or property) early. Local officials can become educated about the technology proposed, clarify their permitting process, and explain the community's economic situation. Developers will need expeditious permitting in order to meet market driven needs. Local governments can let project proponents know how previous developers have fared with projects of similar types in their jurisdiction, particularly with respect to environmental mitigation costs and measures.

- **Seeking early public involvement and understanding acceptance.** As in planning, early public involvement in the permitting process is very important. Early understanding of public concerns and recognition of their suggestions allows project developers the opportunity to make appropriate modifications to avoid impacts or conflicts.

- **Participating in municipal, state, and federal energy facility permitting processes.** Local authority over certain energy facilities is preempted by state and federal laws. Understanding the process of the permitting lead agency and getting involved as early as possible allows the best use of local resources by directing them where they can have the most influence. Local policies, ordinances and standards regarding energy facilities, which reflect a community's interests and needs, will strengthen the position of the local agency when participating in other agencies' permitting processes.

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California Energy Commission, staff report, Energy Development, June 1986.

News Data Corporation, Clear-up: Northwest Energy Markets, *Supreme Court Rules States May Use Clean Water Act to Set Flows,* June 6, 1994.

California Energy Commission, *Transmission System and Right of Way Planning for the 1990s and Beyond,* March 1992.

Endnotes:

[1] "Wholesale wheeling" is a procedure in which a transmission system owner provides transmission service to a third-party electricity generator for purposes of delivering power to a wholesale buyer. NEPAct did not give FERC the authority to mandate retail wheeling (a procedure in which a control area operator provides transmission and distribution services to allow electricity transactions to occur between a third-party supplier and one or more retail electricity users within that control area).

[2] The Western Regional Transmission Association representing utilities from throughout the western states received final certification as a regional transmission group from FERC on May 17, 1995.

[3] Distributed energy systems ("distributed resources") are small electric generation and storage, demand-side management techniques, located in the distribution system which serve local areas only. Such devices include photovoltaics, fuel cells, small gas-fired generation and cogeneration systems, small-scale wind turbine development, and small-scale batteries. They do not interconnect with the high-voltage transmission system, but rather are strategically targeted for areas of the distribution system where they can contribute to meeting local demand peaks, or parts of the system which might otherwise have to undergo upgrading due to increasing load. For further information, see Distributed Energy Systems in the Glossary (Appendix G) and the relevant technologies in Appendix B.

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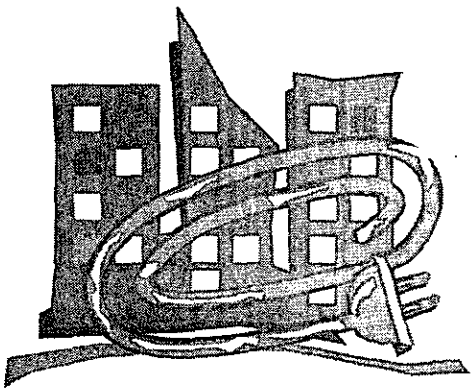
THE RISE OF THE CARDIFF GIANT: ELECTRICITY MARKET RESTRUCTURING & THE POLICE POWERS

Opinions of the author do not necessarily reflect the views of the Energy Commission or its staff.

For the last year and a half, considerable attention has been focused on "restructuring" or "deregulating" the electricity industry in California. One important impetus for deregulation has been the high rates paid for electricity by Californians, and the assumption that through greater market competition these rates would be lowered.

The debate over restructuring has turned on how it should be accomplished. Questions in this debate include: what to do about utility "stranded investment"; what to do about environmentally beneficial programs such as the promotion of conservation and renewable energy; what to do about potentially vulnerable residential customers, local governments, and others who may have less market power than large industrial users; what role a "power pool" would play and who would control the pool; how restructuring would be phased in, and so forth.

Less attention has been paid to the governance or police power implications of so-called "deregulation."



The assumption seems to have been that in "letting the market decide," government environmental as well as health and safety regulation will be simplified per se. Such an assumption, however, betrays a lack of appreciation of history.

> *"We need to ask if and how environmental, health and safety, and other public interest regulatory functions would be performed in a restructured industry."*

In the mid 1970s, when California's electricity landscape was dominated by large-scale oil and nuclear plants, with dozens of additional nuclear plants and large-scale coal plants on the utility drawing boards, California adopted the Warren-Alquist Act creating the California Energy Commission. The Commission was given the environmental and natural resources policy responsibilities to adopt independent forecasts of electricity demand and to determine the number and mix of

power plants which were needed to meet that demand. The immediate result was a scaling back of the demand levels that the utilities had forecast, and the replacement of utility-asserted "low cost" proposals for large-scale central power plants with a then revolutionary proposal for a diverse mix of conservation and alternative energy resources, principally cogeneration, geothermal and renewable energy sources.

The Energy Commission's adoption of a relatively environmentally benign independent forecast and "demand conformance" policy brought about an alternative energy future that was clearly preferable— from both environmental and economic perspectives— to the energy future California faced before their institution. We need to ask if and how environmental, health and safety, and other public interest regulatory functions would be performed in a restructured industry. If they are not performed, what consequences might we— and especially local government— expect? In particular, would the government ap-

proval requirements or power plants be simplified under restructuring, or would they in fact become more complex?

To answer these questions, it is important to note the California Environmental Quality Act (CEQA) requirements for siting power plants. The Energy Commission's siting procedures under its enabling legislation have been certified by the California Resources Agency Secretary as the equivalent of CEQA, so that a separate Environmental Impact Report (EIR) is not prepared and reviewed. Under the Energy Commission siting procedures, proposals receive thorough environmental scrutiny and individual power plants are also evaluated against the independent forecasts and need assessments representing far ranging programmatic EIR equivalents.

Thus, the Energy Commission's forward planning makes it possible to analyze the implications of the "no project" alternative, as well as nongeneration and technology alternatives in a way that would be quite difficult, if not impossible, absent the statewide and regional demand forecasts and need assessment determinations which the Energy Commission currently provides .

Assuming that "restructuring" would not abolish CEQA, and assuming that it truly is a market rather than a utility refinancing structure, would a city or county be the CEQA lead agency for power plant siting in a restructured electricity industry? If so, on what basis would the "no project" and other macro alternative analysis be performed? Would it be sufficient to deem all new power plants "needed" so long as some market player is willing to bear the financial risk of developing the facility? If so, would a potential proliferation of power plants reawaken environmental and public interest groups opposition such as that in the early 1970s? Would policy and ideological opponents of proposed power plants argue that "if everything is needed, nothing is needed"?

And if not enough power plants were built to meet the demand for electricity, how would the market attend to the need of all customers for reliable electric service at reasonable costs? These questions suggest that, to the extent forward planning is "politically incorrect," and eliminated or reduced by political fiat, more than likely conventional CEQA litigation in the exercise of the police power will expand proportionally.

[Note to reader: The California legislature recently passed a bill (AB1890) about electric industry restructuring. However, this legislation did not change or address CEQA implementation.]

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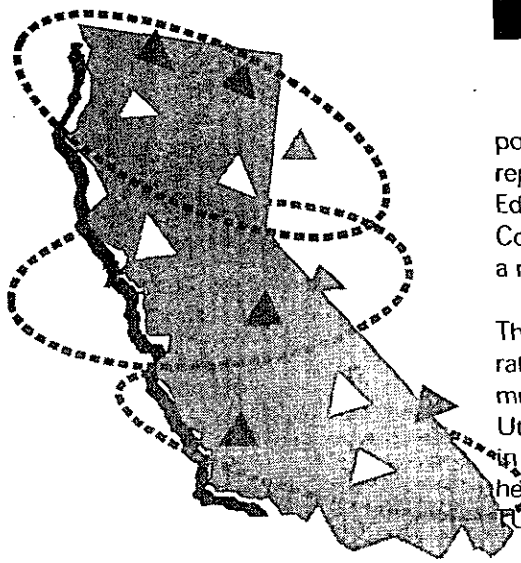
MUNICIPATLIZATION ISSUES

Opinions of the author do not necessarily reflect the views of the Energy Commission or its staff.

The future for public power in California looks generally bright because of its natural advantage of lower cost as a nonprofit institution. In an era of increasing competitiveness in the electric service industry, however, low cost alone will not be enough to assure the future. Communities have formed their own utilities for a variety of reasons including lower rates, local control and closeness to customers. A key to the future success of municipal utilities will be quality service; price alone won't be sufficient.

Since 1980, 56 municipal electric utilities have been sold and 31 have been formed in the U.S. Three of California's 30 consumer-owned electric utilities have been formed since 1980. None has been sold.



The quest for relief from the high rates of California's investor-owned utilities (IOUs) has spurred municipalization drives in several California cities from Palm Springs to San Francisco. An effort is under way to form a consortium of 15 cities in the Los Angeles Basin to buy power for their residents and replace Southern California Edison as the supplier. The proposed-joint powers agency led by Culver City represents about 9 percent of Edison's customers. And Calaveras County is exploring the creation of a municipal utility district.

> *"A key to the future success of municipal utilities will be quality service; price alone won't be sufficient."*

This drive to protect the residential rate-payer was behind the "community access" proposal of Toward Utility Rate Normalization (TURN) in the Public Utilities Commission's hearings on industry restructuring. TURN's proposal would authorize cities, counties or other local entities to establish consumer-owned utilities to distribute power purchased from other suppliers without taking over private utility distribution systems.

Potential low rates are the positive side of municipalization. But the cost of acquiring the distribution system needed to serve the municipal customers can be high. The value will almost always be disputed by the targeted IOU and the magnitude of dispute may be in the range of 3 to 1. The cost of severance, including reconfiguration of the system to continue to serve their remaining customers is a contentious issue and a potential major expense.

The cost ledger also must consider current interest rates, estimated legal costs, the time required between start and finish of the acquisition, and availability and cost of power resources. Municipalization entails initial financial risk associated with the cost of feasibility studies, legal costs and the possibility of higher than anticipated costs of acquisition and

operation. Most of the initial costs cannot be recovered if for any reason the acquisition does not move forward.

There is also a large political risk and cost. The process of municipalization is divisive. The owning utility rarely wants to sell its business and typically will put tremendous effort into stopping the process, including media campaigns, community and political action. IOUs can spend vast sums opposing the ballot proposition necessary for acquisition. Public agencies by law cannot spend funds supporting ballot propositions.

Finally, there is the issue of industry restructuring. The electric utility industry is currently experiencing an upheaval similar to the breakup of AT&T and the resulting proliferation of long distance phone companies.

Even if local governments enter only the distribution sector of the industry, they need to understand that the business will be more competitive. Customers will have better price information and will be able to pressure local officials to provide competitive distribution rates. Large customers are also pressuring state officials to allow them to switch back and forth between suppliers. If they are successful, such actions could impact the ratepayers.

The changing industry has not diminished the attractiveness of municipal utilities. Indeed, a recent study by the American Public Power Association reported residential rates of publicly owned utilities to be 33 per cent lower than investor-owned utilities nationally.

The road to municipalization is long and filled with peril. The most important consideration for any community pondering municipalization is political. Communities need the support of local politicians, community business groups, local media and most importantly, the local public. Next, a sound financial analysis needs to be done, taking local conditions into account. If those two elements are positive, then municipalization can be a viable tool for communities wishing to deal with the impending electric utility changes. Understanding the factors involved is the vital first step.

Municipalities will need to decide which business they want to be in. Restructuring is already resulting in the creation of a separate and competitive generation industry. This is likely to be the most risky of the restructured utility sectors and is likely to be unregulated. On the other hand, the distribution sector of the business probably will continue to be regulated either by local elected boards or an appointed state agency and thus less risky. Transmission access has been assured by enactment of the Energy Policy Act of 1992. Thus, municipals can buy power in the competitive generation market without taking ownership risks in generation.

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PLANNING FOR ENERGY FACILITY DEVELOPMENT

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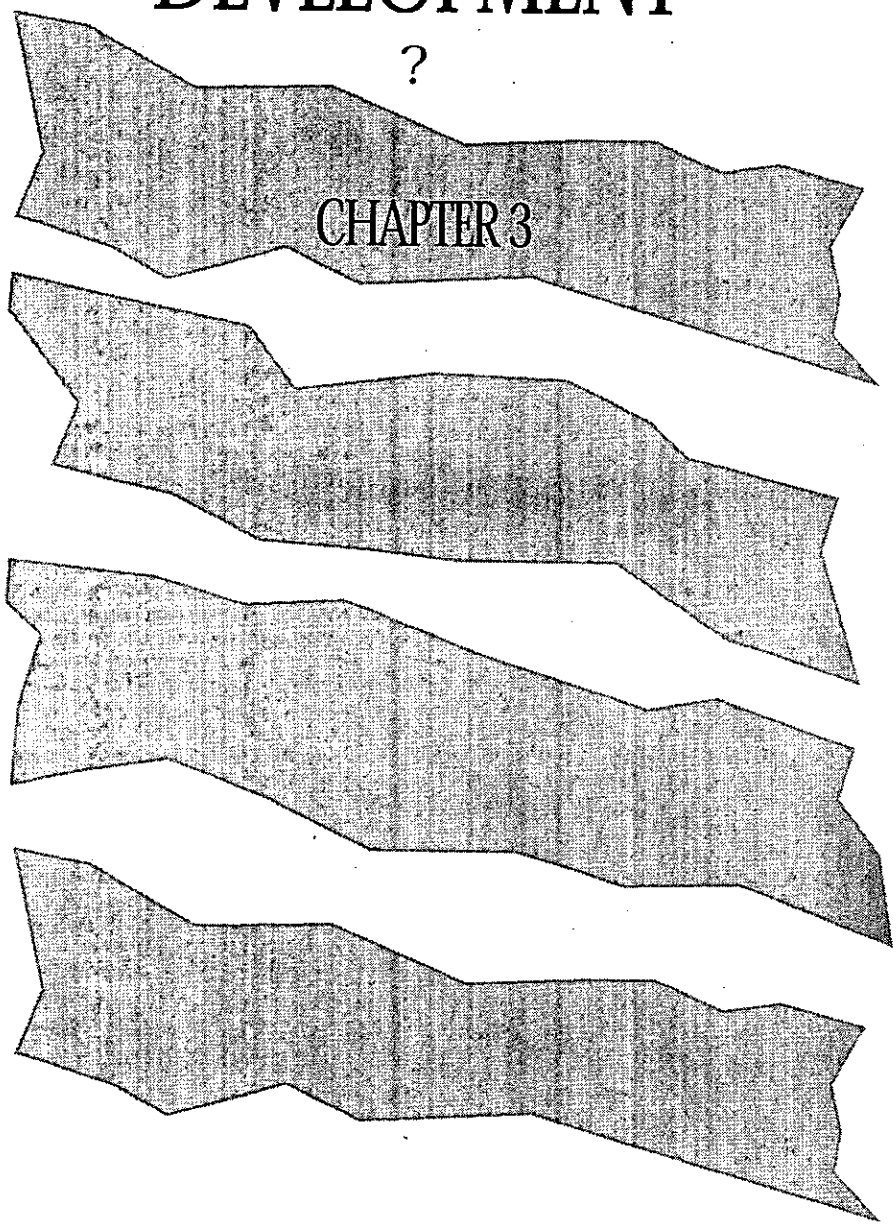


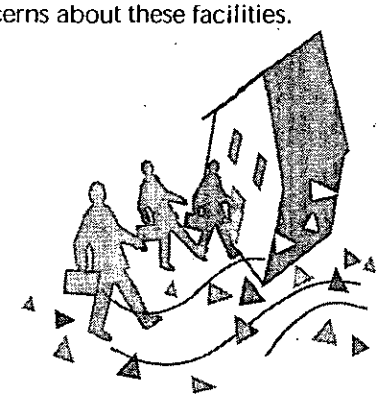
CHAPTER 3: PLANNING FOR ENERGY FACILITY DEVELOPMENT

INTRODUCTION

This chapter contains information and ideas for local planning related to energy facilities, as well as the legal authority for doing this planning. The role of local government in this type of planning is complex and not always easily discernible. The value of planning may be questioned in situations when the local government is not the permitting authority. This chapter and those which follow will show that local governments do have an important role and that this role may increase as the electricity industry proceeds through the ongoing restructuring process..

In the restructured environment the electric utilities will be less involved in generating power. In addition, an increasing use of small generation units located within urban areas will necessitate increased local agency planning and permitting activities in consultation with energy service providers.

Although there may be a growing awareness of the importance of electricity in our society, local decision makers and planners are often confronted with public concerns about these facilities.



Important community issues that may be related to energy facilities include public health and safety, air quality, water supplies and quality, aesthetics, sensitive species habitat, and local economic health. Energy facility planning is thus key to a community's future and presents both challenges and opportunities for local governments.

This chapter makes linkages between planning for energy facilities and important issues being addressed by communities and the permitting process. The benefits of such planning relate to all communities providing for growth and development.

Advance guidance to energy facility developers is an important benefit discussed, as well as relationship-building with the public, other agencies, and utilities. The energy facilities planning process is described, including ideas for the information base needed and for doing location suitability analyses. The chapter provides numerous examples of communities addressing their planning challenges in order to benefit them.

GUEST AUTHOR ARTICLES

Guest Author articles are located at the end of this chapter. These articles contain opinions of the authors and do not necessarily reflect the views of the California Energy Commission or its staff.

Energy Facility Siting and Recognizing Local Opportunities by Bill Center, former supervisor, El Dorado County.

Permitting Energy Facilities: Issues Related to Local Agencies by Donald W. Aitken, Senior Scientist, Union of Concerned Scientists.

Emerging Energy Technologies by Carl J. Weinberg, Weinberg Associates and former Executive Director for Research and Development, PG&E.

THE BENEFITS OF ENERGY-AWARE FACILITIES PLANNING

Energy facilities are indispensable pieces of a community's infrastructure. The energy they produce and distribute makes homes comfortable, moves people and goods, operates the machinery of industry, and powers other infrastructure that underpin communities. The growing importance of electricity in an increasingly technological society becomes especially apparent during power outages.

The availability, reliability, and price of energy in a locality often affect plans for local development, especially commercial and industrial development. Just as local planners and economists may include the price and availability of such infrastructure as water and roads, energy information is often utilized in projecting local growth.

It is also important for communities to consider in their plans the effect of local development on energy infrastructure and the price and availability of energy in their communities. This can best be done in consultation with the local utility or other energy providers.

An informed community that is aware of the interrelationships among land use, environmental sensitivities, and infrastructure needs is better prepared to discuss new community development and associated energy needs with the entities involved in these developments. (Please also refer to the Guest Author article by Thomas Sparks in Chapter 4.)

Also, energy choices that a community makes today will have significant effects on tomorrow's economy, environment, and quality of life. Therefore, communities that plan for energy facilities will be better equipped to obtain reliable, affordable, and environmentally-sound energy supplies needed to accommodate community growth and redevelopment.

In addition, energy facility planning can affect the permitting process in two ways:

- Improves local permitting processes and their relationship to key community issues

- Helps influence permit decisions made by non-local agencies and utilities by demonstrating strong local preferences

With energy facilities already integrated into community plans, subsequent permitting decisions will be better-informed, be processed more expediently, and have fewer costs and less controversy for all stakeholders. This is no different than planning commonly done for other key facilities such as schools, parks, water and wastewater systems.

- Provides advance guidance to energy facility developers on desirable and undesirable project types and locations

- Avoids or minimizes land use conflicts between energy facilities and what can be incompatible uses such as residences, schools, and parks

- Avoids or minimizes conflicts with environmental and economic resources such as wildlife habitat and scenic qualities that support tourism and recreation

- Creates jobs from local energy resource and facility development

- Increases public familiarity with energy facilities and their critical role in community livability and economic competitiveness

- Builds a relationship among stakeholders, including developers, utilities, government agencies, and local interest groups, that can facilitate future siting and permitting of energy facilities

These benefits led the San Diego Association of Governments to prepare the regional energy plan outlined in the insert on the next page entitled *SANDAG's Use of Regional Cooperation and Resource Flexibility*. The preferences for certain types of energy facilities and resources expressed in the San Diego plan are now helping communities and facility developers in that region plan more confidently and with less controversy for needed energy supplies. This plan also illustrates the practical integration of the demand and supply sides of energy planning.

PLANNING FOR LOCAL GOVERNMENT PERMITTING ACTIVITIES

Local governments are most likely to be the permitting authority for generators under 50 MW and for any non-thermal independent generators, except for facilities such as dams, which are under federal jurisdiction.

As the electricity industry enters a restructuring process, the electric utilities will likely be less involved in generating power. This role will likely be picked up by independent generators with units of varying sizes including the distributed scale (roughly 5 kW to 25 MW). The developers of the distributed generation units will be seeking local permits which underscores the need for local planning and policies for energy facilities. (See Carl Weinberg's and Donald Aitken's Guest Author articles about meeting generation needs close to the consumer.)

THE LEGAL AUTHORITY FOR LOCAL ENERGY FACILITIES PLANNING

In contrast to *permitting*, where local governments often have limited authority, local *planning* for energy facilities is fully authorized under California's land-use planning statutes. This can be planning that guides subsequent local permitting where a community has lead siting authority or planning in an advisory manner as input into municipal, state or federal permitting processes.

The legal authority to plan locally for energy facilities is found in California statutes relating to general plans, area and community plans and specific plans.

SANDAG's USE OF REGIONAL COOPERATION AND RESOURCE FLEXIBILITY

The scale of the energy industry often means that more than one community is affected by supplier decisions about new resources. The San Diego Association of Governments (SANDAG), composed of 18 municipalities and 1 county, took the opportunity in their Regional Energy Plan to articulate a common statement of preferred future resources for all communities in the region. As shown in the accompanying table, these local governments and other stakeholders prioritized a comprehensive set of supply preferences that provides voluntary guidance for public and private decision makers. The intent is to maintain a flexible and diverse "portfolio" of resource options that can be known as desirable for implementation (subject to standard project-specific detailed evaluation). San Diego local governments estimate that use of the portfolio's resources to the year 2010 will save the region nearly $1.5 billion in energy costs, eliminate over 300,000 tons of air pollutants, and create over 5,000 new jobs. A copy of the Regional Energy Plan is available from SANDAG's Public Information office, (619) 595-5347.

REGIONAL RESOURCE PORTFOLIO

End-Use Sector	Energy Resource Type Sector	Preferred Resources (in descending order of preference within ea. type)
Transportation	Fuels/Technologies	Electric (mini/special purpose) Natural gas Vehicle fuel efficiency improvements Methanol (M85) Hydrogen (R&D) Ethanol Propane
	Demand Management	Commute travel reduction Goods movement improvements College travel reduction Non-commute travel reduction
	Capacity Expansion	Bicycle facilities Pedestrian facilities Bus service Rail service Vanpooling Park/ride facilities High-occupancy vehicle lanes
	System Management	Improved traffic flow
	Land-Use Coordination	Mix/density intensification Locational efficiency Parking management Efficient site design
Residential, Commercial, Industrial, and Public Facilities	Demand-Side Management	Lighting Appliances/equipment/motors Water heating Pools/spas Space conditioning/ventilation Load management
	Direct Application Renewables	Solar Biomass Geothermal Ocean (R&D)
	Land-Use Coordination	Mix/density intensification Locational efficiency Efficient site design
	Electric Generation Fuels & Resources (regardless of location)	Wind Solar photovoltaic Geothermal Natural gas Biomass Hydroelectric Solar thermal Ocean (R&D)
	Electric System Efficiencies & Generation Configurations	Transmission & distrib. loss reduction Small in-region distributed plants Repower existing large in-region plants Large out-of-region purchases Large in-region central plants
	Direct Combustion Thermal Fuels	Natural gas Propane
	Transmission Capacities	Natural gas Electricity

- General Plans.
  - "The general plan shall include a land use element which designates the proposed general distribution and general location and extent of ... public and private uses of land." Government Code Section 65302(a).

  - "The general plan may include any ... elements or address any ... subjects which, in the judgement of the legislative body, relate to the physical development of the county or city." Government Code Section 65303.

  Additionally, Government Code Section 65300 requires that every jurisdiction adopt a "comprehensive general plan." A truly comprehensive general plan will cover all locally-relevant physical, social, and economic issues. The Governor's Office of Planning and Research guidelines for general plans advise that such issues include " ... the general locations, appropriate mixtures, timing, and extent of land-uses and *supporting infrastructure.*" (emphasis added)

At present, about 45 California cities and counties have used this authority to fashion general plan energy elements. The insert on the next page entitled *Cities & Counties with Energy Plans* lists these and other jurisdictions where local energy plans are in place; and on page 3.6, the insert entitled *General Plan Elements Affecting Energy Facilities* illustrates the range of general plan topics related to various types of energy facilities.

- Area and community plans. Area and community plans address a particular region or community within a planning jurisdiction. They are legally part of the general plan, and serve to refine general plan policies as they apply to a smaller area. Since they are legally part of the general plan, they can address energy facilities under the same statutory authority cited above.

- Specific plans. Specific plans, which are separate and legally distinct from general plans, provide criteria and standards for specific development projects or areas. In this instance, the enabling statute, Government Code Section 65451 (a), explicitly cites "energy facilities" as a required planning topic as follows:

"Public involvement, community preferences and agency coordination occur throughout the process. The energy facility planning process illustrates the importance of developing working relationships among all the stakeholders."

"A specific plan shall include a text and a diagram or diagrams which specify all of the following in detail:

1) The distribution, location, and extent of the uses of land, including open space, within the area covered by the plan.

2) The proposed distribution, location, and extent and intensity of major components of public and private transportation, sewage, water, drainage, solid waste disposal, *energy,* and other essential facilities proposed to be located within the area covered by the plan and needed to support the land uses described in the plan. [emphasis added]

3) Standards and criteria by which development will proceed, and standards for the conservation, development, and utilization of natural resources, where applicable.

4) A program of implementation measures including regulations, programs, public works projects, and financing measures necessary to carry out paragraphs (1), (2), and (3)."

THE ROLE OF LOCAL PLANS IN STATE AND FEDERAL PROCESSES

In addition to the legal authority for communities to conduct facility planning, the resulting local plans also have worthwhile roles in state and federal planning and permitting processes. State and federal agencies with energy facility responsibilities encourage local planning as a means of expressing local preferences, reducing jurisdictional conflicts, and expediting the timely and orderly development of energy facilities when they are ultimately needed.

Traditionally, California's investor-owned and municipal electric utilities (munis) have planned for new facilities in their service areas. It is therefore important that utilities and communities consult on planned facility developments so that the permitting process can be efficient and reflect local preferences as presented in local land

use plans and local ordinances as much as possible.

State law provides that munis provide their own permitting. The California Public Utilities Commission (CPUC) permits energy facilities of investor owned utilities. The Energy Commission permits thermal power plants of 50 MW or more. The federal government is involved for hydroelectric facilities and facilities on federal land. (More information on the determination of lead agencies is in Chapter 4.)

In the above cases local government has had an advisory role regarding local policies and preferences for the location and type of facilities. Although advisory, local policies can be informative and helpful. The Energy Commission considers them important, with the staff carefully assessing each proposal for a new facility for compliance with local laws, ordinances, regulations and standards. Regulations require that this information be reported and considered at Commission hearings on the facility application.

When planning for or considering proposals for linear facilities such as transmission lines, it is extremely helpful to have some written policies discussing the nature and location of the resources such as wetland habitat areas that the city or county considers valuable. Another example is that many counties have local ordinances requiring that linear facilities such as pipelines and transmission lines share common corridors through farmlands. As a result, when the Energy Commission or the CPUC

CITIES AND COUNTIES WITH ENERGY PLANS

California

- Alameda County
- Buena Park
- Chula Vista
- Costa Mesa
- Colusa County
- Emeryville
- Fairfield
- Gilroy
- Glenn County
- Grass Valley
- Imperial County
- Irvine
- Kern County
- Lake County
- Lassen County
- Livermore
- Los Angeles
- Los Angeles County
- Los Gatos
- Modoc County
- Mono County
- Novato
- Pasadena
- Poway
- Ridgecrest
- Roseville
- San Bernardino
- San Clemente
- San Diego
- San Diego County
- San Francisco City & County
- San Luis Obispo County
- Sacramento County
- Santa Barbara County
- Santa Maria
- Shasta
- Siskiyou County
- Solano
- Sonoma County
- Sunnyvale
- Trinity
- Turlock
- Yolo County

Energy plans are optional for California cities and counties. Current plans cover a broad range of conservation, renewable resource, and facility planning issues.

Oregon

Mandatory for all 264 cities and counties statewide since 1974. Required scope includes conservation, renewable resource protection, facility planning, and energy consequences of land use conflicts.

Washington

Mandatory for all cities and counties in high growth areas since 1993. Emphasis placed on energy facility planning and utility infrastructure coordination.

Arizona

Optional for cities and counties. Phoenix, Tucson, and other communities have national model plans that stress renewable energy facility planning.

British Columbia

Optional for municipalities and regional districts. Vancouver recently added energy facilities to its comprehensive plan determinants. In November 1994, the B.C. Utilities Commission directed the provincial electric utility, BC Hydro, to include community land use and urban design as determinants in electric planning.

certifies a project in those counties, the ordinance may be incorporated in the design of the facilities.

The U.S. Forest Service and Bureau of Land Management both require that their land management plans consider local land-use policies. For the U.S.F.S., refer to Title 36, Code of Federal Regulations, section 219.7. There are identical provisions applicable to the BLM. Consideration of local land-use plans is also a requirement during CEQA (Public Resources Code section 21104 and CEQA Guidelines section 15125) and NEPA reviews of energy facilities being permitted by state and federal agencies. (See Chapter 4 and Appendix C for further information.)

THE LOCAL ENERGY FACILITY PLANNING PROCESS

This section describes the process of energy facility planning, particularly from the viewpoint of local governments. Planning related to energy facilities requires little new information for local planners, but requires a new application of information typically used by local jurisdictions. Public and developer involvement, community preferences and agency coordination occur throughout the process. The energy facility planning process illustrates the importance of developing working relationships among all the stakeholders. (Please refer to the box on the next page, *PLACE^{3}S: A Coordination Tool for Communities and Energy Utilities.*)

Planning topics are illustrated in the inserts on pages 3.8 and 3.9 entitled *General Planning Process for Energy Facilities* and *Framework for a Local Energy Facility Plan.* The information base needed during the process is discussed in the next section of this chapter.

The process of local energy facility planning can be broken down into the following major steps:

1) Identify and create a stakeholder advisory group. This will be an important mechanism for information gathering, issue analysis, and local policy formulation. Its members can include local electric and natural gas utilities, independent power producers, environmental interest

GENERAL PLAN ELEMENTS AFFECTING ENERGY FACILITIES

General Plan Elements	Affected Energy Resources and Facilities				
	Indigenous Resources	Power Plants	Electric Lines	Pipelines	
Mandatory					
Land Use	✓	✓	✓	✓	✓
Circulation	✓	✓	✓	✓	✓
Conservation	✓	✓	✓	✓	
Open Space	✓	✓	✓	✓	
Noise	✓	✓			✓
Safety	✓	✓	✓	✓	✓
Optional (examples)					
Air Quality	✓	✓			✓
Historic Preservation	✓	✓	✓	✓	✓
Infrastructure		✓	✓	✓	✓
Economic Development	✓	✓			
Parks and Recreation	✓	✓	✓	✓	
Community Design	✓	✓	✓		✓
Energy	✓	✓	✓	✓	✓

groups, local business interests, state and federal agencies with energy responsibilities, and representatives of the public at large.

2) Inventory current energy usage. An examination of current energy usage will be helpful in determining future energy needs for all sectors of the community including: residential, commercial, institutional, industrial, agriculture, transportation, and infrastructure. It will also be helpful to examine the environmental and economic impacts of local energy usage.

3) Determine future demands for energy supplies. The trends of energy usage and the amounts of electricity, natural gas, transportation fuels, and other supplies needed in the future will largely dictate energy facility needs. Consider influences such as population growth impacts, economic and environmental impacts and constraints, and community plans and preferences for addressing growth.

4) Determine the potential for meeting future energy demand. This determination includes the following interrelated steps:

• Assess how well existing energy facilities can meet future energy requirements; and then what new or modified facilities can be used or will be needed. For example, a community's existing electric system may be able to accommodate community growth for the next 10-15 years, but after that it may require new generation, transmission, and distribution capacity. In the transportation sector, communities' existing networks of gasoline stations will have to be supplemented by new alternative fueling stations to serve the emerging fleet of low and zero emission vehicles required by California air quality standards.

PLACE^{3}S: A COORDINATION TOOL FOR COMMUNITIES AND ENERGY UTILITIES

In the past, energy facility planning has been constrained because of uncertainties about future geographic location and nature of consumer demands in a jurisdiction. In many cases, energy utilities have had difficulties planning confidently for future facilities because of unknowns in community growth patterns and future land use designations. Since these growth patterns and land uses translate directly into consumer loads that must be met by energy facilities, creating linkages between these elements can help all stakeholders obtain more efficient and economical energy services.

PLACE^{3}S (Planning for Community Energy, Environmental, and Economic Sustainability) is a tool developed for the Energy Commission to accomplish such a linkage. Using computerized geographic information system (GIS) technology, PLACE^{3}S enables a local government to convert its growth management and land-use plans into geographic expressions of future energy demand. This is accomplished by:

1) Estimating energy requirements for a given use, including electricity, natural gas, and transportation fuels;

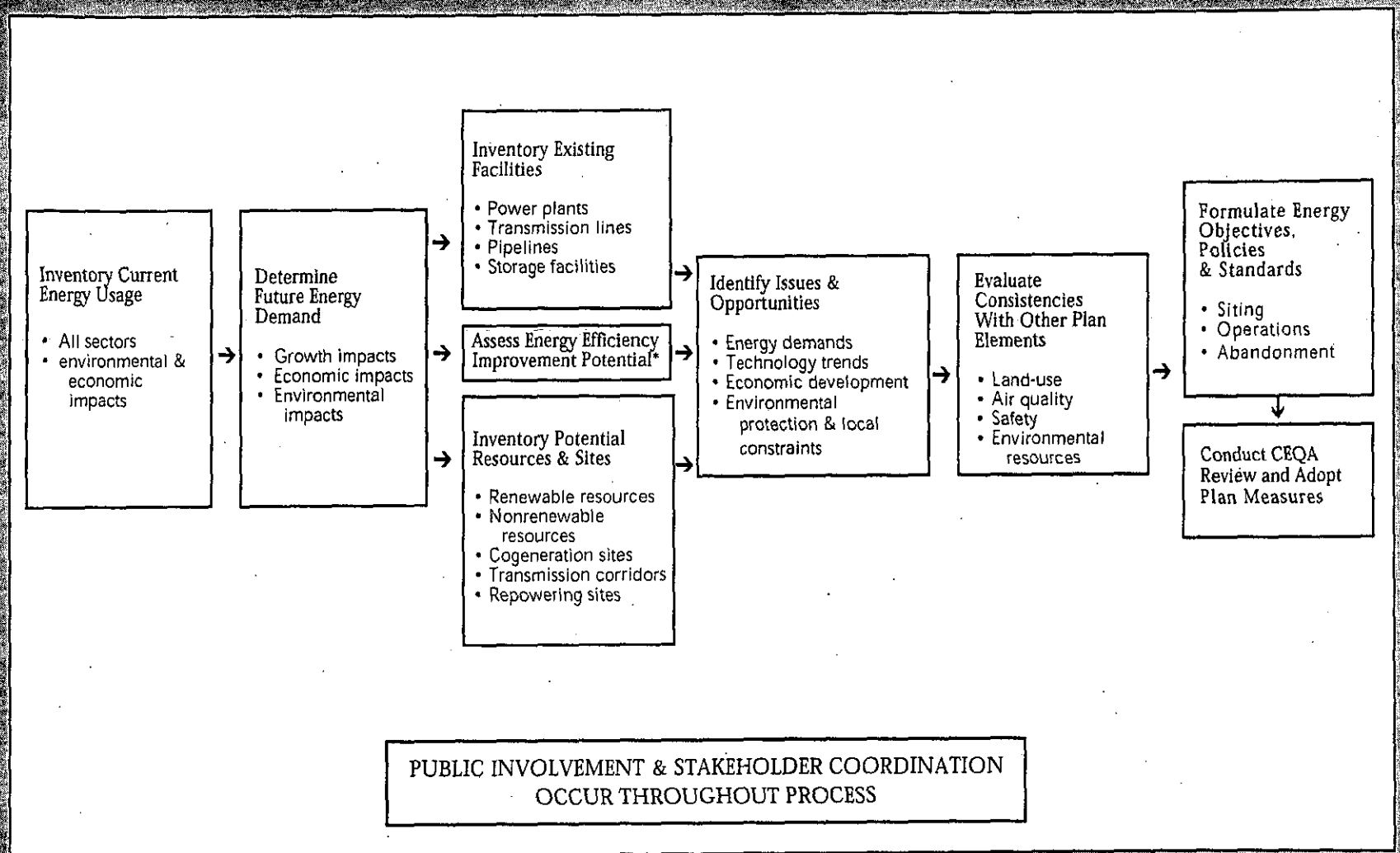
2) Linking these energy demand coefficients to the land uses contained in local plans; and

3) Using GIS to geographically display resulting demands.

This mapping can then be evaluated by energy utilities to determine if their facilities are properly located and sized to meet the displayed needs. In turn, utilities can respond to local governments with recommendations for modifying community plans in ways that may avoid or reduce the need for new energy facilities. For example, a community may be considering new growth in an area that does not have sufficient electrical infrastructure to accommodate projected land uses. By evaluating alternative land use arrangements with PLACE^{3}S, it may be possible for that growth to be wholly or partially redirected into an area with surplus electrical capacity, thereby avoiding or delaying the construction of new substations and distribution lines.

Additional information on PLACE^{3}S and its energy facility applications is available from: Nancy Hanson, California Energy Commission, (916) 654-3948.

GENERAL PLANNING PROCESS FOR ENERGY FACILITIES



*Refer to the first Energy-Aware Planning Guide. See Appendix H for order form.

FRAMEWORK FOR A LOCAL ENERGY FACILITY PLAN

Key Issue Questions	Stakeholders/Information Sources	Policy & Implementation Choices
What is the forecasted increase in energy demands from population growth, and have demand-side efficiency improvements in land use, transportation, and infrastructure already been accounted for?	Electric and natural gas utilities, Energy Commission, CPUC	See *Energy-Aware Planning Guide* (first volume) options such as mixed worksites and residences, compact and diverse housing, integrated street networks, and transit-oriented development.
What facilities currently deliver energy supplies into the community from the surrounding region? How diverse and reliable are they?	Utilities, independent power producers (IPP), Energy Commission, CPUC	Coordination mechanisms with other communities sharing the same regional supply networks, participation and advocacy in regional planning processes.
What energy facilities presently exist in the jurisdiction, and what are their capacities and condition? Any being abandoned or repowered?	Utilities, IPPs, Energy Commission, CPUC	Trade-offs between abandonment, repowering, and new facilities.
What new energy facilities will be required in the future to accommodate local growth? What are preferable fuels and technologies?	Local interest groups, utilities, IPPs, Energy Commission, CPUC	Advocacy of preferred fuels and technologies used by others, self-development of preferred facilities by local governments.
What locations in the jurisdiction are especially suitable or unsuitable for energy facilities? What are major siting issues?	Natural resources agencies, local interest groups, utilities, IPPs, Energy Commission, CPUC	Site-banking and protection of significant long-term energy production areas, designation of unsuitable energy facilities areas.
What local natural resources are attractive to energy developers, and how acceptable is their utilization?	Natural resources agencies including the State Lands Commission, local interest groups, utilities, IPPs, Energy Commission, CPUC	Sustainable resource management practices at sites deemed suitable for facilities.
How many local jobs are currently supported by energy facilities, and how many new jobs are possible in the future with new facilities?	Utilities, IPPs, economic development agencies	Incentives for facilities with positive local employment effects.
What legal authorities and regulations apply to energy facility development?	Energy Commission, CPUC, FERC, natural resource agencies	Coordination and mechanisms for efficient intergovernmental action.

• Assess efficiency improvement potentials. Community efficiency improvements can be considered as a means of meeting community energy needs and as an alternative under CEQA to needing new facilities. (Please see the box *Los Angeles County's Civic Center Cogeneration Plant, below*, and the box on page 1.2, *Start with Energy Efficiency*).

• Assess potential energy resources and sites. The local jurisdiction may want to consider in its general plan the development of local renewable and/or nonrenewable energy resources. Many California jurisdictions could develop, for example, potential for solar energy, use of landfill gas, and opportunities for cogeneration. Communities may want to consider possible sites for additional transmission corridors.

5) Determine community environmental and economic preferences for meeting future needs, considering the feasible facility options. For example, if new electric supplies are needed, a community can consider its preferences for repowering existing plants; developing renewable resources; cogeneration opportunities; building new, large central plants; or building new, smaller plants distributed closer to consumers, thereby avoiding or delaying electric power line expansions. Each of these options has different environmental and economic implications that need to be weighed by the locality in collaboration with utilities and other stakeholders.

6) Formulate and adopt policies and standards for siting, operating, and abandoning energy facilities expected in the jurisdiction. This can include clear designation of geographic areas suitable and unsuitable for energy facilities; and design and performance standards that compatibly integrate facilities with their surroundings. Geographic suitability surveys should be focused in particular on appropriate locations and zoning for electric power plants and transmission lines since these are often the most intrusive types of facilities to be developed in a community. The insert on the next page entitled *Colusa County Transmission Line Element* describes one county's approach to transmission line siting in its general plan.

Completing the energy facility planning process effectively requires a solid information base, thorough stakeholder involvement, and effective interagency coordination. Each of these is discussed below and in accompanying inserts, including other examples of local projects and sources of assistance.

THE INFORMATION BASE NEEDED FOR ENERGY FACILITIES PLANNING

To effectively conduct energy facility planning, communities must compile and maintain up-to-date information on relevant energy issues and trends affecting energy facility development. A solid information base is particularly important because of changing technology, market, and regulatory conditions in the energy industry; and local economic and environmental constraints. A thorough and well-organized information base, particularly if computerized, can help stretch limited staff resources, and facilitate planning and permitting coordination with all stakeholders.

To undertake energy facility planning, local jurisdictions should assemble the following types of descriptive and analytical information:

LOS ANGELES COUNTY'S CIVIC CENTER COGENERATION PLANT

The heating and cooling load of Los Angeles County's six million square feet of Civic Center buildings is supplied by a Civic Center Cogeneration plant. In 1982, faced with replacing aging boiler equipment, the County seized the opportunity to upgrade the energy efficiency of the plant by installing a 28 MW cogeneration system. The system was sized to meet current thermal requirements while being expandable to accommodate future facilities.

Most of the power generated is exported into the power transmission system of the Los Angeles City Department of Water and Power (DWP), a large municipal utility. A wheeling agreement with DWP is the vehicle by which the power is allocated to 106 electric meters in County facilities within the DWP service area. The County received offsetting electric credits based on DWP tariffs and transmission costs for these meters.

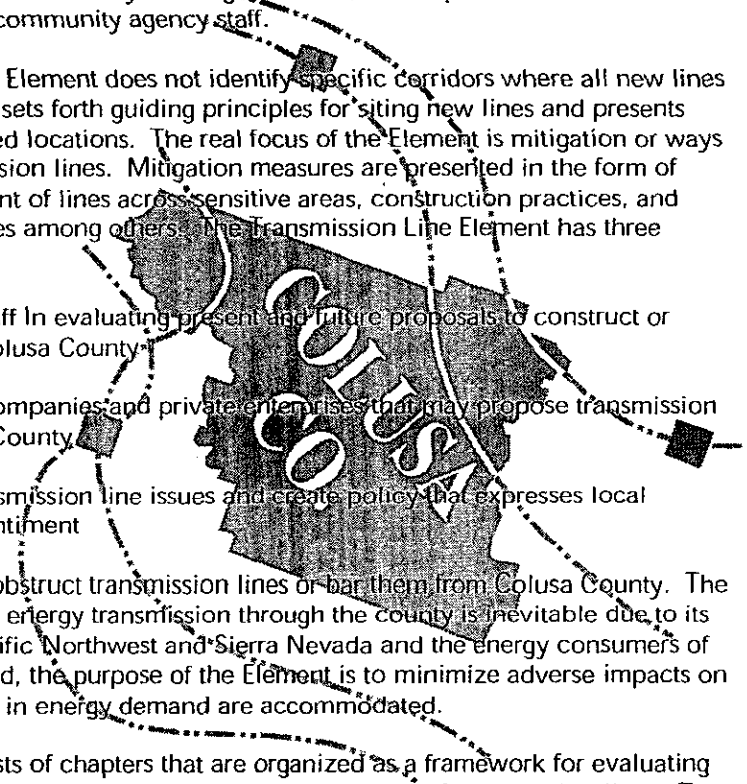
Contact: John Kallok, Los Angeles County, Energy Management Division, 550 S. Vermont Avenue, 11th Floor, Los Angeles, CA 90020, (213) 738-2179.

COLUSA COUNTY TRANSMISSION LINE ELEMENT

Colusa County is a northern California agricultural area facing significant land use changes, including growth that leads to new electric transmission lines. Some of these new lines are local, and others are occurring as a result of statewide growth and the consequent need for larger intrastate transmission capacity. Thus, energy facility planning is a tool for Colusa County to deal with both internal and external influences affecting its environment.

Long-range energy planning of this sort provides benefits to both local government and utilities. It can reduce political controversy when a specific transmission line is eventually proposed; improve land use and resource compatibility; avoid redundancy in siting new lines; and improve coordination between the public, the utilities, and community agency staff.

The Colusa County Transmission Line Element does not identify specific corridors where all new lines must be located. Instead the Element sets forth guiding principles for siting new lines and presents sensitivity maps which signify preferred locations. The real focus of the Element is mitigation or ways to reduce adverse impacts of transmission lines. Mitigation measures are presented in the form of policies for tower design, the alignment of lines across sensitive areas, construction practices, and maintenance and operating procedures among others. The Transmission Line Element has three guiding objectives:



- To assist public officials and staff In evaluating present and future proposals to construct or expand transmission lines in Colusa County.
- To provide direction to utility companies and private enterprises that may propose transmission line alignments within Colusa County.
- To inform the public about transmission line issues and create policy that expresses local priorities and reflects public sentiment

The purpose of the Element is not to obstruct transmission lines or bar them from Colusa County. The Element acknowledges that increased energy transmission through the county is inevitable due to its location between the energy-rich Pacific Northwest and Sierra Nevada and the energy consumers of coastal and Central California. Instead, the purpose of the Element is to minimize adverse impacts on Colusa County as statewide increases in energy demand are accommodated.

The Transmission Line Element consists of chapters that are organized as a framework for evaluating local siting issues. The first of these describes the operational components of transmission lines. The second describes the existing transmission line system in the county and evaluates the potential for new lines based on known proposals, energy forecasts, and local resources. Finally, environmental issues associated with transmission lines and the implications of these issues for Colusa County are discussed. Issues receiving emphasis are agriculture, aesthetics, health and safety, and fiscal and economic issues. Ultimately, the Transmission Line Element reduces these issues into goals, objectives, and policies for dealing with them in a coordinated manner within the county's overall general plan.

The Element provides a good example of obtaining public input regarding attitudes and issues of transmission line planning in rural areas. Land owners, as well as the General Plan Committee members, were queried to rate landscape suitability for new transmission lines. The property owners affected by existing transmission lines in the county were either surveyed by questionnaire or interviewed. The importance of specific agricultural as well as other issues regarding the siting of new lines was determined.

For additional information on Colusa County's energy facility planning, contact the Colusa County Department of Planning and Building, (916) 458-8877.

◪ **Population growth trends and basic demographic information.** Population growth and trends will be important in determining potential future energy facility-related needs including powerline corridors. Particularly for some jurisdictions, basic demographic data will be useful to prevent a disproportionate share of overall environmental impacts to any particular area or neighborhood. (Please see insert *Environmental Justice* on page 3.19.)

◪ **Regional energy supply system characteristics.** Communities are supplied with energy largely from regional systems that produce and distribute electricity, natural gas, and transportation fuels. The map on the next page of California's energy facilities illustrates the regional systems that serve localities. A first step in local planning is learning what these systems are, who owns them, and how they operate. Systems of interest will include:

1) Electric power plants with output that serves the region

2) Large electric transmission lines that move electricity from power plants to communities

3) Petroleum refineries that refine crude oil into petroleum products

4) Large pipelines that convey natural gas and petroleum products from production sites to communities

Because of the influence these systems have over local facilities, it is important to know if regional systems are operating satisfactorily; if there are plans to expand them and where; and the types of impacts that future regional changes may have in the local jurisdiction.

◪ **Existing energy facilities in your jurisdiction.** In addition to regional facilities, it is also important to know what types of facilities are present locally. The same type of data should be inventoried, particularly facilities that may be expanded, or in the case of some older power plants, repowered. Any pending proposals for new energy facility development should also be included. These data will indicate where the jurisdiction's energy services are adequate or constrained.

This information is particularly relevant to growth management coordination where a jurisdiction's land use planning could be designating growth in areas presently underserved by energy facilities, versus growth that could be targeted toward areas possessing sufficient energy infrastructure, such as electric distribution lines. The insert on page 3.7 entitled *PLACE^{3}S: A Coordination Tool for Communities and Energy Utilities* describes one method for geographically linking local growth management with energy facility planning.

◪ **Industry trends affecting new energy facility development.** An understanding of industry trends provides insight into the types of new energy facilities likely to be built in the future. Current examples include the popularity of natural gas as an electric generation fuel, which is triggering natural gas pipeline expansions; and increasing competition among various power producers; which, in some cases, may continue a shift from the use of large, central power plants toward smaller, dispersed plants.

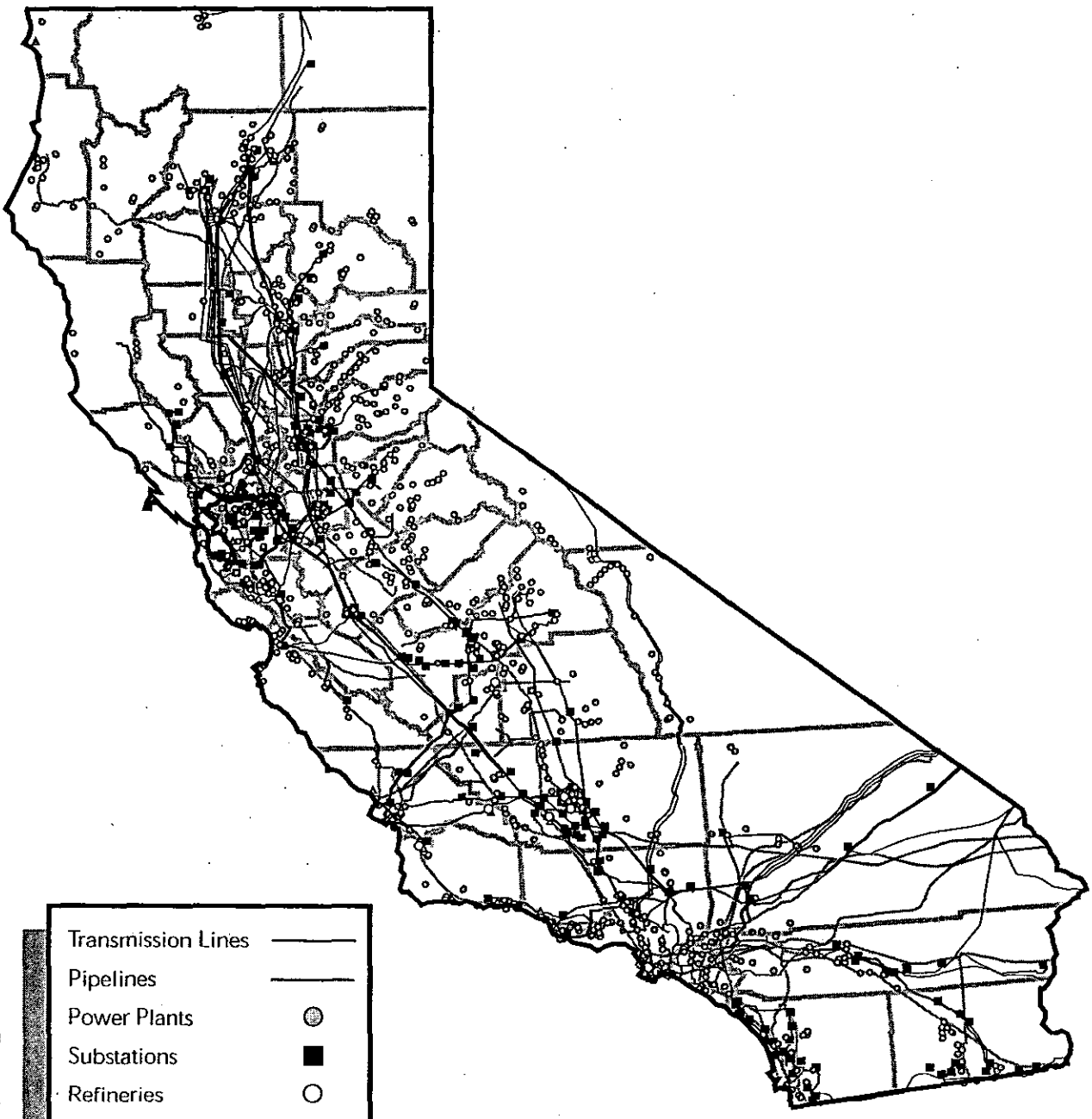
Industrial cogeneration also remains popular, where factories use their waste heat in electric turbines to generate power (or, conversely, electric generation facilities make their waste heat available to industrial or commercial processes). This suggests that communities would be wise to survey their industrial zones for cogeneration site potentials and acceptabilities. The box on page 3.10 entitled *Los Angeles County's Civic Center Cogeneration Plant* provides an example of replacing aging equipment by installing a more efficient cogeneration system and selling most of the generated power. (Please see the Guest Author articles at the end of this chapter regarding industry trends.)

◪ **Technologies likely to be used in new energy facilities.** An understanding of the technologies used in energy facilities is necessary to assess their probable operating characteristics and environmental impacts; and, in turn, the types of policies and standards that should be applied to them. Some facilities will operate very passively, such as buried natural gas pipelines, and therefore may require relatively limited attention. In contrast, an industrial cogeneration plant could include a variety of fuel-handling and pollutant control technologies that warrant consideration when formulating local siting standards.

◪ **Indigenous natural energy resources that may be developed for use by energy facilities.** Energy facilities are often developed in conjunction with local indigenous resources used to fuel the facilities. Renewables such as wind and solar resources are "fuels" that must be considered along with the electricity generation facilities that utilize them. Use of these resources may involve large land areas, raising

MAJOR ENERGY FACILITIES

WHICH TYPES ARE LOCATED IN YOUR COMMUNITY?



significant planning issues about compatible land uses and environmental impacts. The same is true for oil and natural gas fields that require collection and storage facilities. Examples of major energy resources in California that warrant consideration are shown in the map *Major Energy Resources,* on the next page.

If a jurisdiction has significant indigenous energy resources, advance planning allows communities to determine which sites should be protected for future energy production or reserved for a more important competing use. This type of planning can protect significant energy sites from conflicting uses and insure long-term energy availability and output. The insert on page 3.16 entitled *Resource Site Banking* describes the approach used in Oregon by cities and counties for their local energy resources.

- **Environmental conditions and constraints.** Energy facilities can have significant requirements for land area, water supplies, pollution control technologies, and hazardous materials handling. They can also have significant impacts on local aesthetics, noise levels, wildlife habitat, and other sensitive environmental resources. A thorough environmental database is essential for correctly gauging these potential impacts and formulating plans accordingly.

Chapter 5 reviews important issues bearing on energy facility permitting and development, and presents ideas for addressing them. Appendix B notes some of the permitting issues associated with specific types of energy facilities.

- **Economic development opportunities.** In addition to providing needed supplies, energy facilities also provide jobs and other economic benefits. (See the insert *Los Angeles County's Civic Center Cogeneration Plant* on page 3.10.) When establishing local policies and standards, it is important to recognize the job creation, goods and service purchases, and tax revenues that can result from energy facility development. For example, a jurisdiction whose goal is energy supply diversification could give preference to local renewable resource development for both its diversity benefits and the local employment created by renewable energy production. This employment can include resources production, such as geothermal steam supply jobs; power production, such as turbine operators at a wind farm; and maintenance jobs needed for supporting such facilities and operations. All of this energy facility employment, in turn, creates "multiplier" jobs that are spin-offs from direct energy jobs. (The Guest Author articles at the end of this chapter provide opinions on this topic.)

- **Non-local regulatory authorities and standards.** An understanding of permits and regulations that will be applied to facilities by regional, state, and federal agencies is important when determining appropriate local policies and standards. For example, hydroelectric power plants are already subject to extensive state and federal rules, whereas wind power facilities are not. Local planning should be structured consistent with other governmental authorities to avoid duplication or conflict, and should focus on topics of local concern not addressed by other agencies. Chapter 4 details the various permitting powers of state and federal agencies.

THE IMPORTANCE OF PLANNING GUIDANCE FOR FACILITY DEVELOPERS

One of the most important benefits of local planning is the guidance it provides to energy facility developers in advance of their specific project preparations. Local plans that contain policies and standards for evaluating and siting facilities help developers better understand community preferences and expectations. Facilities can be sited and designed to address guidelines from the outset, thereby avoiding or minimizing disputes and delays in providing needed energy supplies. Project-related costs are also reduced for all participants.

To be effective, local energy facility policies and standards should have the following characteristics:

1) Clearness and objectivity

2) Satisfactory protection of the environment

3) Practicality and cost-effectiveness for participants

4) Legally defensible and politically feasible and

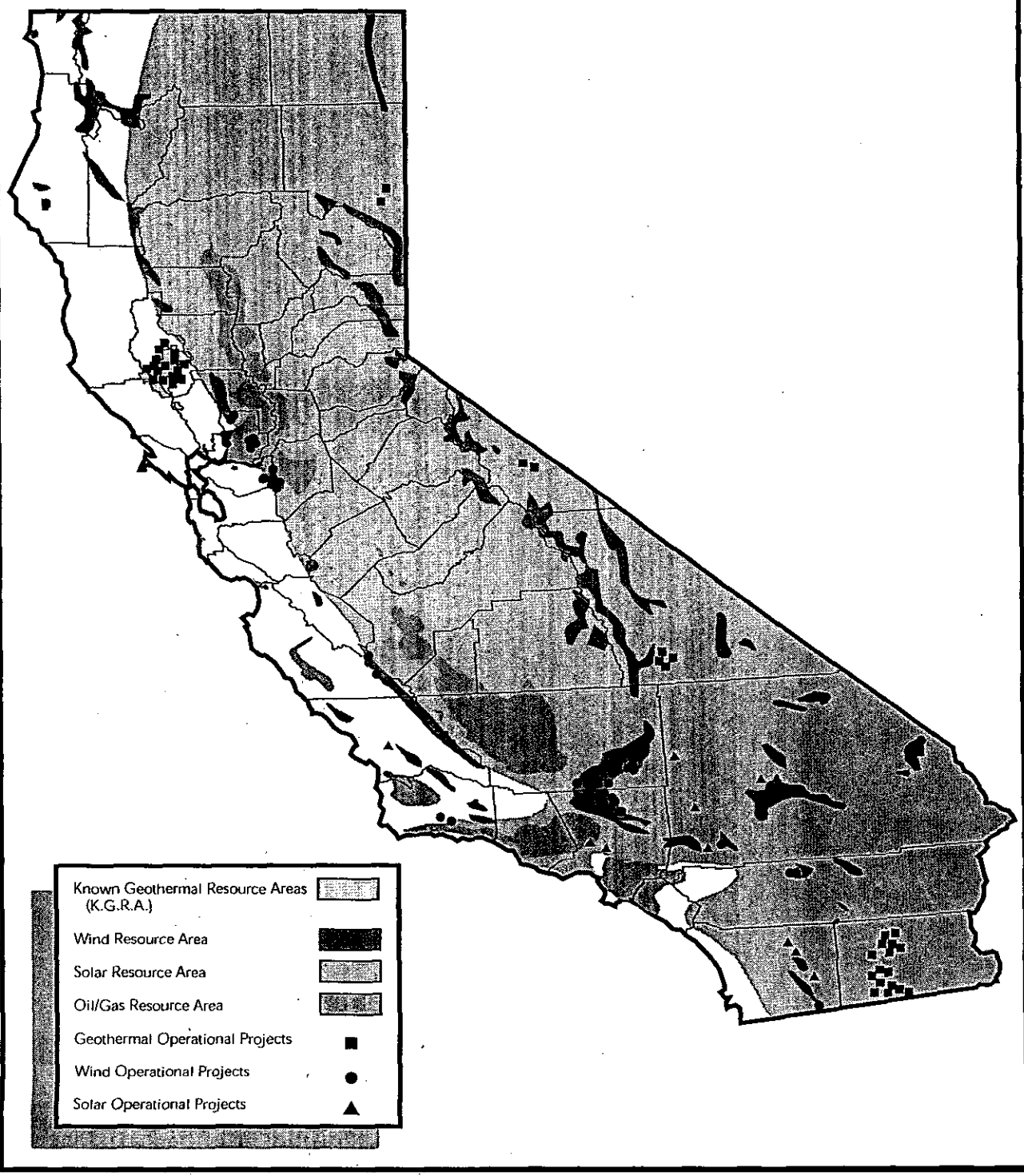
5) Implementable in a predictable and timely manner. (Please refer to Thomas Sparks' Guest Author article in Chapter 4.)

HOW TO DO LOCATION SUITABILITY ANALYSES

- Suitability surveys and geographic information systems. A valuable method for guiding facility development is using geographic surveys of a jurisdiction that designate suitable and unsuitable facility locations. Such surveys can alert developers to areas that have significant environmental constraints or conflicting land uses,

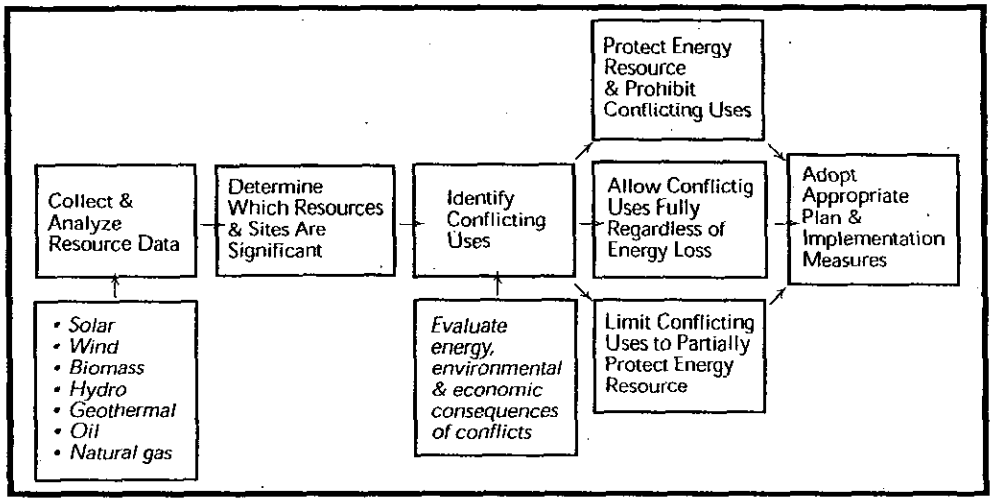
MAJOR ENERGY RESOURCES

WHICH ONES WARRANT PROTECTION IN YOUR COMMUNITY?



RESOURCE SITE BANKING

One of the most important benefits of local energy planning is the opportunity to identify and protect major energy resource sites, both renewable and nonrenewable. Under a 1974 state law, cities and counties in Oregon must address these indigenous energy resources in their comprehensive plans as shown in the diagram below. The objective is to identify important sites and to protect them as much as possible from incompatible uses that could reduce their energy value in the future.



The inventory process for energy resources begins with the collection of available data from as many sources as possible including experts in the field, local citizens and landowners. The local government then analyzes and refines the data and determines whether there is sufficient information on the location, quality, and quantity of each resource site to properly complete the process. Based on analysis of those data, the local government then determines which resource sites are significant and includes those sites on the final plan inventory.

The local government then identifies conflicts with inventoried energy resources. This is done primarily by examining the uses allowed in the zoning districts established by the jurisdiction. A conflicting use is one which, if allowed, could negatively affect a resource site. If there are no conflicting uses for an identified resource site, the jurisdiction must adopt policies and ordinance provisions, as appropriate, which ensure preservation of the energy resource. If conflicting uses are identified, the economic, social, environmental, and energy consequences of the conflicts must be determined. Both the impacts on the resource site and on the conflicting use must be considered in analyzing the consequences.

Based on the economic, social, environmental, and energy consequences of the conflict, a jurisdiction must develop a program to mitigate the conflict. A jurisdiction is expected to resolve conflicts with specific sites in any of the following three ways:

1) A jurisdiction may determine that the energy resources site is of such importance, relative to the conflicting uses and the consequences of the conflicts, that the energy resource should be protected and all conflicting uses prohibited.

2) A jurisdiction may determine that the conflicting use should be allowed fully, notwithstanding possible negative impacts on the energy resource.

3) A jurisdiction may determine that both the resource site and the conflicting use are important relative to each other, and that the consequences should be balanced so as to allow the conflicting use in a limited way that still protects the energy resource to some desired extent. To implement this decision, the jurisdiction must designate with certainty what uses and activities are allowed fully, what are not allowed at all and which uses are allowed conditionally.

Additional information on Oregon's statewide land use planning program is available from the Department of Land Conservation and Development, (503) 373-0050.

versus locations that are relatively compatible with energy facilities and their operations. This approach can apply to indigenous natural resource areas, transmission corridors, and power plant sites. The Colusa County Transmission Line Element (see box on page 3.11) provides a good example of the use of landowner questionnaires to determine suitable locations for transmission lines.

A powerful tool for conducting suitability surveys is a computerized geographic information system (GIS) that allows efficient comparison of numerous suitability criteria over large geographic areas. An example of a successful energy facility planning project using GIS is described for Siskiyou County in the insert entitled *Energy Facility Planning with a GIS* on the next page.

◩ **Master Environmental Assessment (MEA).** A Master Environmental Assessment is another tool that can be used by a jurisdiction to identify and organize environmental characteristics and constraints of an area. It can be used to influence the design and location of individual energy facility projects. It can provide information that can be used in initial studies to decide whether certain environmental effects are likely to occur and whether they will be significant. It can also provide a central source of current information for use in preparing individual Environmental Impact Reports (EIRs) and Negative Declarations. A MEA can assist in identifying long-range, area-wide, and cumulative impacts of individual projects.

◩ **Program EIRs and Master EIRs** Other approaches to generalized suitability analysis include the preparation of program-level EIRs (PEIRs) or Master EIRs (MEIRs). These approaches are recognized under the California Environmental Quality Act (CEQA) as appropriate for evaluating the cumulative, growth-inducing, and irreversible significant effects of future energy facility development in a jurisdiction. Either of these approaches can be used to assess a series of smaller individual projects or acts that are to be carried out in phases. Neither PEIRS nor MEIRS will have much application to larger generation projects, with the exception of possible Known Geothermal Resource Area (KGRA) developments. They may have greater application to wind farm projects, small hydro, or certain kinds of transmission projects within the same local government jurisdiction.

PEIRS are applicable to "actions which can be characterized as one large project" that are either (1) geographically related, (2) logical parts of a chain of contemplated actions, or (3) similar actions subject to the same permitting authority with similar environmental effects and subject to the same kinds of mitigation. (Guidelines, section 15168 (a).) PEIRS require no subsequent environmental document if the agency finds that no new impacts will occur and no new mitigation is necessary for the subsequent activity.

In 1993, the California Legislature added the MEIR as a tool for implementing CEQA. MEIRs may be prepared for general plan energy elements; specific plans that include energy facilities; or a large energy project consisting of smaller individual facilities being phased in over time. A MEIR must present information about expected subsequent projects and their impacts, including general sizes, locations, intensities, and scheduling.

The lead agency and responsible agencies identified in the MEIR may use the MEIR to limit review of subsequent projects. In contrast to PEIRs, MEIRs always require an Initial Study to determine whether the subsequent project and any significant environmental effects were included in the MEIR. If the agency, however, finds the subsequent project will have no additional significant environmental effect and that no new mitigation measures or alternatives are required, it does not have to prepare a new environmental document.

In lieu of such a finding, the lead agency must prepare either a mitigated negative declaration or a "Focused EIR" for the subsequent project. A Focused EIR is another streamlining option that allows jurisdictions to analyze only those additional project-specific environmental effects, mitigations, or alternatives that were not addressed in a MEIR.

This approach was recently used by San Luis Obispo County when it prepared a Program EIR for its general plan Energy Element. As explained in the insert on page 3.20 entitled *Programming the Environmental Process,* San Luis Obispo County hopes to streamline future energy facility permitting by having already analyzed major county-wide environmental concerns. Any developer contemplating energy facility development in the county can look to the Program EIR and readily determine which parts of the county, and what environmental resources, are problematic for facility development.