IDENTIFYING SECONDARY OR RESPONSIBLE AGENCIES

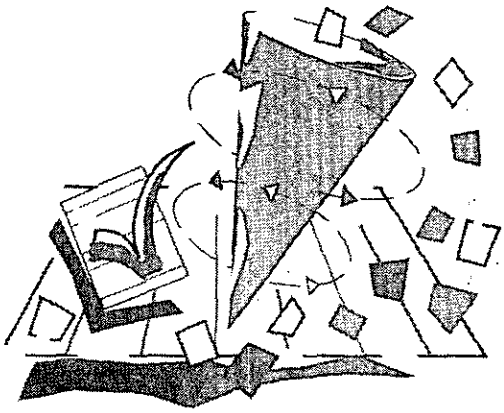
Secondary agencies are those that have some permitting or approval requirement over a project for which they are not the lead agency. CEQA defines these agencies to be "responsible" agencies, having responsibility for carrying out or approving a project in addition to those requirements of the lead agency. Over the years, the relationship between a "responsible agency" and the "lead" agency has been described in both statutes and case law. Important aspects of this relationship include:

- Lead agencies must consult with responsible agencies prior to the completion of an EIR.
- Responsible agencies will only comment on aspects of the project for which they have jurisdictional authority or expertise. The lead agency is required to respond to these comments prior to certifying the final EIR.
- A responsible agency is limited in the scope of environmental analysis it can prepare beyond that produced by the lead agency for a given project.

In cases of licensing programs which have been found to be functional equivalents to CEQA EIR processes, these principles hold true although the processes may vary slightly. The table on page 4.32, *Additional Agencies with Permit, Leasing or Review Requirements* identifies those agencies which may be considered secondary or responsible agencies for energy projects including power plants, transmission lines, storage facilities, natural gas or oil pipelines.

"Getting involved early in the process is key to providing greater influence and the efficient use of staff resources during the permitting process."

HOW TO INFLUENCE STATE, FEDERAL, AND MUNICIPAL UTILITY ENERGY PROJECT PERMITTING



- **Understand your local legal authority and limitations.** This knowledge allows the best use of local government resources by directing them where they can have the most influence. (See the previous section of this chapter, "Local Authority in Permitting Energy Projects" and Appendix C for other agency roles.)
- **Know local resources/constraints in advance.** Current, detailed information about local energy resources (e.g., natural gas, geothermal, hydro, etc.) and sensitive permitting issues (e.g., wetland habitats, endangered species, etc.) can provide early guidance to non-local lead agencies and improve the effectiveness of their processes. Having this information readily available will allow your staff to be more efficient when analyzing proposals, and avoiding the "false starts" of proposed developments in sensitive areas. (See Chapter 3.)
- **Know how to participate effectively in different lead agencies' permitting processes.** Appendix C and the permitting process flow charts starting on page 4.16 provide information on opportunities for local involvement in the permitting processes of individual agencies.
- **Actively participate in other agencies' formal scoping and data gathering workshops.** These opportunities are critical for effectively influencing lead agencies. Participation provides an opportunity for early input regarding local concerns, identified constraints, policies, and preferences. Scoping meetings and workshops are normally scheduled according to the amount of interest shown towards the proposed project. Therefore, your expressed interest at the beginning of the process will provide greater opportunities for input later. Early participation significantly increases your ability to influence other agencies and developers.
- **Exert your influence through lead and responsible agencies.** When not directly involved in the permitting of an energy facility, local governments can transmit their concerns to lead agencies and

responsible agencies. The role of responsible agencies is narrowly defined by CEQA and may require working with more than one to adequately address local concerns. This can be especially useful if the lead agency does not officially consult with local agencies during the permitting process. It is important to communicate adequate information, particularly information developed during local planning processes (i.e., identification of local constraints, policies, standards, and preferences).

- **Understand the potential permitting issues associated with particular types of energy facilities.** Familiarity with various types of energy projects will alert you to potential impacts associated with them and the actions you may want to take during project permitting. (See the section of this chapter, "Identifying Secondary or Responsible Agencies" on page 4.33, Appendix B, and Chapter 5.) These actions are important since local governments may have key roles to play during facility development, monitoring, and closure and will have to live with the consequences of a project.

- **Have in place easily accessible policies, ordinances, and standards regarding energy facilities.** As discussed in the previous section on local legal authority and in Chapter 3, local government general plan policies can be helpful even when a state agency, federal agency, or municipal utility is the lead under CEQA or NEPA. Policies identify resources of interest and community criteria for development. Having a policy or ordinance in place strengthens the position of the community to mitigate potential impacts. In some cases, local governments will be able to require permits whether or not they are the lead agency.

- **Keep your local elected officials informed of plans for energy facilities.** Elected officials who are knowledgeable about different types of energy facilities, their potential impacts and plans for their development, are more likely to make balanced decisions related to energy projects in their community. Being informed, they can also participate in other agencies' permitting processes more effectively, enhancing local influence.

- **Develop and maintain cooperative relationships with utilities and involved agencies.** Cooperative relationships promote interagency coordination, through which information about planned activities can be exchanged. This can reduce "surprises" for the involved parties, resulting in a more effective and efficient permitting process. Early knowledge of energy projects provides more time for public and local agency involvement. Interagency coordination also facilitates work with responsible agencies in permitting processes.

ENSURING PERMIT COMPLIANCE-MITIGATION PLANNING AND MONITORING

CEQA gives decision makers an opportunity to avoid or substantially reduce potentially adverse environmental effects by requiring impact mitigation measures. However, researchers have often found that mitigation measures were either not implemented, or inadequately implemented. In an attempt to correct this deficiency, the California Legislature enacted Public Resources Code section 21081.6 in 1988.

The statute states that the approving entity (whether the lead agency or a responsible agency) must adopt a "reporting or monitoring" program which is "designed to ensure compliance during project implementation." The law applies to mitigation measures which are the result of a certified EIR or a mitigated Negative Declaration. The statute allows for substantial local flexibility in devising an appropriate mitigation monitoring program .

As a result, local agencies have generally viewed the statute as requiring both programmatic and project-specific implementation procedures. Some agencies have first developed overall implementation programs by ordinance or resolution, and then applied those programs to individual projects on a case-by-case basis. The commonalities of these programs are shown in the box on page 4.36, *CEQA Monitoring Requirements.*

ELEMENTS OF A SUCCESSFUL MITIGATION MONITORING PROGRAM

The three basic elements of a successful mitigation monitoring program are:

1) Well-written conditions specifying the required mitigation, timing, and methods for the project developer or operator to report to the responsible monitoring agency

2) Environmental expertise to verify compliance reporting and

3) a computerized tracking system

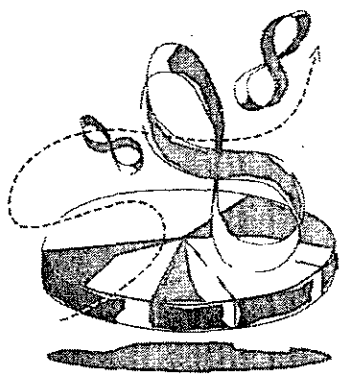
- **Well-written Conditions.** It is essential to develop well written conditions whose requirements are specific, measurable, agreed upon, realistic, time certain and enforceable. Without these elements and

a follow-up program, success cannot be determined or measured. Vaguely worded mitigation requirements result in poor implementation.

The project developer or operator must submit reports on the level of implementation and ultimate success of the mitigation measures. As a start, well-designed and written mitigation measures with specific time frames make it easier for both parties to comply with the requirements. Occasional site visits complement compliance report submittals. Responsible agency involvement (e.g., Department of Fish and Game, or the local air district) is important for this element.

- **Environmental Expertise.** Environmental expertise is desirable to ensure that the developer's implementation of the mitigation measures is adequate. This monitoring is done using periodic reports from the developer and onsite inspections. If the responsible monitoring agency staff does not possess the necessary environmental expertise to evaluate the submitted reports, the agency can hire consultants and include consultant charges in its fee structure.

- **Computerized Tracking.** A computerized tracking system can provide needed institutional memory. Traditionally, two of the difficulties associated with mitigation monitoring are:



1) Tracking the status of various requirements and

2) Tracking when reports are due

Input to a computerized system can be extensive and detailed including a project description, the elements of each condition, project contact persons, key event lists (groundbreaking, operation commencement, etc.), staff transmittals, delegated agencies, and project condition amendments, updates and revisions. Computer programs can be customized to provide the necessary reports such as transmittal activity, condition status, due dates of developer and staff submittals, outstanding conditions or overdue staff responses, critical condition status (when work must stop if not in compliance), and status of ongoing conditions.

GENERAL PLAN IDEAS

The following are ideas which can be incorporated into general plan language providing they are consistent with goals adopted in the general plan. As is true for any adopted general plan language, if the city or county does not actually implement the language, any action taken by the local government to authorize a project would be subject to challenge based on the lack of implementation of the general plan.

- To provide energy facility developers with guidance, the city/county can direct the planning, building and any other departments with energy facility permit or oversight authorities to develop preferences, codes, standards and siting criteria for potential future energy facility development.

- The city/county can compile all local energy facility legal and procedural requirements, including projected costs and time frames, into a public information manual for distribution to developers seeking local permits and interested public.

- The city/county can develop a one-stop permit center to consolidate local permit approval and information. Where possible, the center shall contain forms and information from other jurisdictions' agencies that share authority over energy facilities.

- The city/county can develop pre-application packages for energy facility development and encourage (or require) pre-application conferences with energy facility developers and all local, regional, state and federal agencies with permit approval or oversight authorities.

- To lessen the time involved in developing energy facility project Environmental Impact Reports, the city/county can encourage the development of Master Environmental Assessments or Program Level EIRs for locally-preferred energy facility technology types.

- The city/county can encourage staff to develop relationships with other local, regional, state and federal agencies with energy facility permit approval or oversight authority for the purpose of sharing energy facility development information and experiences.

- The city/county can encourage involvement of the public in the energy facility permitting and rulemaking processes.

- The city/county can require mitigation compliance monitoring for all energy facilities for which it issues permits.

- The city/county can direct the appropriate local agencies to develop mitigation compliance monitoring programs.

IMPLEMENTATION IDEAS

The following are suggested implementation ideas which can be applicable to energy facilities in general:

Developer Guidance

- Develop or update policies, codes, standards, ordinances and siting criteria for various types of energy facilities.

- Develop and maintain public information manuals which detail legal and procedural requirements, projected costs and time frames for energy facility permits, and which identify roles of other agencies and utilities.

Permit Streamlining

- Develop or update pre-application packages and hold preapplication conferences.

- Centralize and regularly update the provision of local permitting information into a one-stop permit center.

- Develop regulations that clearly specify requirements in a measureable, and time certain manner.

- Designate a single point-of-contact staff person.

- Train staff in the overall requirements of energy facility permitting so they better understand the entire process.

CEQA MONITORING REQUIREMENTS

Typical Implementing Ordinance Provisions of a Monitoring Program:

- State purpose of and need for the program.
- Designate a monitoring program manager.
- Assign responsibilities to various departments within the agency (e.g., planning, public works, etc.).
- Develop cooperative agreements with other agencies (APCD, RWQCB, Fish and Game, Energy Commission, etc.).
- Identify the project applicant's role.
- Establish an equitable fee structure to cover monitoring expenses.
- Establish enforcement procedures and penalties. Create conflict resolution and appeal provisions.
- Design reporting forms.
- Specify the review process for reporting monitoring results.
- Provide for quarterly and/or annual monitoring reports that summarize the results of the program and allow feedback to staff and decision makers.

Program Application on Specific Projects:

- Require greater specificity in mitigation measures, i.e., to include measurable performance standards.
- Prepare a master mitigation checklist for each project.
- Assign project-specific monitoring responsibilities to agency staff or other entity for each category of mitigation measure.
- Develop a project-specific monitoring schedule for each mitigation measure category.
- Establish specific reporting requirements, including both agency monitoring reports and applicant field verification reports.

- Develop and use a Master Environmental Assessment or program level EIR.

Interagency Coordination

- Develop contacts with other local jurisdictions, especially those with previous energy facility experience.

- Participate in joint review panels.

- Ensure consistent policy/standards among agencies with jurisdictional overlap.

- Eliminate duplicate permit approvals where feasible.

- Direct all departments to review all local policies and ordinances to check for consistency and to rewrite those that conflict, are confusing, or often result in the submittal of incomplete or incorrect permit applications.

- Pursue interagency agreements to clarify local lead agency designation.

- Review local policies and ordinances for consistency, making changes as appropriate.

- Establish parallel processing when possible.

Public Involvement

- Hold public workshops at the various stages of the permit process.
- Integrate technical advisory committees into the permitting process.
- Encourage public participation in the rulemaking process.
- Use computer simulations or design charrettes to communicate issues.
- Conduct an "Info Expo."
- Develop and implement a mitigation monitoring program based on CEQA monitoring requirements. The monitoring program should include well-written conditions with specific timing and method requirements.
- Ensure that appropriate environmental expertise is available to review mitigation monitoring efforts. If such expertise is not available with city/county personnel, the project developer/operator can pay for the costs of outside consultants.
- Develop a computerized mitigation monitoring tracking system.

CASE STUDIES

- **Air quality mitigation for the ACE Cogeneration Project.** The 100 MW Argus Cogeneration Expansion (ACE) project in Trona, northern San Bernardino county, uses a coal-fired fluidized bed boiler to cogenerate electricity and process steam. During the licensing process, all parties agreed that all ACE project criteria air pollutant emissions would be fully offset by in-kind emission reductions created by modifications to two existing process steam boilers located at the adjacent chemical plant. However, the two boilers were operating under an ongoing permit variance, often exceeding their existing permit levels by 50 percent.

"SMARTE" PRINCIPLES

The SMARTE principles are used by the Energy Commission for compliance condition writing and enforcement.

Specific – Provide clear direction so that all parties understand what, and in some cases how, mitigation or other required activities need to be done. Being specific can lead to inflexibility. If flexibility is required to avoid future amendments include terms such as "...or equivalent as approved by..."

Measurable – Provide an objective standard for measuring (determining) whether a condition has been met. Avoid setting up future subjective debates.

Agreed Upon – Strive for agreement with the project owner, other agencies, and interested parties on the condition requirements.

Realistic – Strive for the simplest, most direct, and least costly condition requirements that will achieve the required or desired goal. Is the required condition reasonable considering what is being required and the timeframe in which it is to be done?

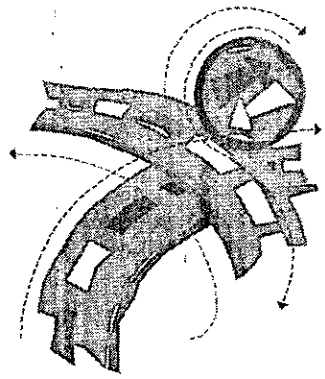
Time Framed – Provide clear, realistic time frames for compliance with each condition. Dates can be stated as a specific number of days before or after a key event for the construction or operation of the project. This principle is closely tied with ensuring that compliance conditions are measurable.

Enforceable – Provide a practical method for verifying that the required activities have been done in the specified time frames.

The Commission's permit only credited the project with those emissions reductions below permitted emissions levels, not the full amount between the permitted levels and the actual emissions levels under the variance. This mitigation strategy allowed the local air district to ensure that the two boilers operated in compliance with their permits, thereby reducing air pollution emissions, as well as to permit a new source without a net increase in emissions. The effectiveness of the mitigation is shown by the fact that the NOx emissions from the two process boilers prior to the ACE project were 800 lbs. per hour, and now net NOx emissions from the two boilers and the ACE project together are now less than 500 lbs. per hour.

Contact: Dale Edwards, California Energy Commission, Energy Facilities Siting and Environmental Protection Division, Siting Office, 1516 Ninth Street, Sacramento, CA 95814, (916) 654-5100.

- **Gas pipeline conditions of certification use experts for verification.** The 120 MW American I cogeneration project in Monterey County, which was under the Energy Commission's jurisdiction, required the construction of a 38 mile natural gas pipeline. The pipeline traverses areas of steep terrain which are highly susceptible to erosion. Conditions of certification for the pipeline included revegetation for erosion control along the length of the pipeline. Without revegetation there could have been significant erosion impacts resulting in reduced productivity of grass rangeland, degradation of stream water quality, excessive siltation of stream beds which could result in later flooding hazards, and habitat loss.



A staff biologist and soil specialist from the Energy Commission conducted periodic field visits for two years following completion of construction to verify that the revegetation was effective.

Contact: Dale Edwards, California Energy Commission, Energy Facilities Siting and Environmental Protection Division, Siting Office, 1516 Ninth Street, Sacramento, CA 95814, (916) 654-5100.

INFORMATION RESOURCES

The University of California, Davis Extension program conducts a variety of courses on CEQA, environmental regulation and land use issues. For example, it conducts a workshop entitled "Mitigation Measure Development and Monitoring". Jones & Stokes, a Sacramento-based environmental consulting firm, has developed the course materials. The course covers state and federal requirements for mitigation, including California Environmental Quality Act, National Environmental Policy Act, and Clean Water Act requirements. Information on mitigation measure monitoring and examples of programs in operation are included.
Contact: U.C. Davis Extension, 1-(800)-752-0881.

The Governor's Office of Planning and Research (OPR) has a CEQA Advisory Series booklet entitled *Tracking CEQA Mitigation Measures Under AB 3180* which provides an in-depth discussion of the mitigation monitoring/reporting requirements and methods of compliance. It is available from OPR for $9.00.
Contact: Governor's Office of Planning and Research, 1400 Tenth Street, Sacramento, CA 95814, (916) 322-7798.

The Office of Permit Assistance (OPA), in the California Trade and Commerce Agency, mediates between state and federal agencies when conflicts arise, coordinates all non-Cal-EPA state departments' permit requirements, and will help when there is a problem determining the lead agency on a project. The developer, city, county, state agency, legislator or governor, can request OPA's assistance. It is suggested that projects with multi-jurisdictional approvals involve OPA from the start. The Office has been successful in bringing together players to resolve conflicts. OPA has developed a booklet, *Local Government Permit Streamlining Strategies*, which contains case studies, information on CEQA streamlining, one-stop shops, expedited permit issuance and development review, developing a single permit coordinator, and computerized permit tracking. The Office also publishes the *California Permit Handbook*, a guide containing the most often required permits, plus guides to help launch a successful and environmentally sound project.
Contact: Office of Permit Assistance, 801 "K" Street, Suite 1700, Sacramento, CA 95814, (916) 322-4245.

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DEVELOPING ENERGY PROJECTS IN A GIVEN COMMUNITY

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

California has been a leader in developing a diversified mix of electric generation resources. As the California economy grows, it is important to maintain this diversity when adding or replacing power plants. This policy will lead to the development of large and small power plants using a variety of fuel sources and power generation technologies near many California communities.

When looking to site a power project in or near a given community, the project developer must rely on a vast array of information. Site selection must follow a thorough evaluation of preliminary information. Failure to obtain reliable information in the preliminary project stages can result in cost overruns or costly project failure. Conversely, success in obtaining this information early and accurately can lead to successful project siting.

Power plant siting is an activity where no one likes surprises. Local residents need to know what is being planned at the site selection stage. Developers need to know that the proposed project has reasonable community acceptance prior to making large investments of time and money.

> *"In summary, good communication and reliable information are the critical elements in successful power plant siting."*

For example, a few years ago, Unocal successfully located a geothermal plant in Imperial County. This success can be attributed to a variety of factors, most important of which was the cooperation and assistance we received from the local community and government leaders. The siting process went very smoothly for us, with no surprises, simply because we received good information "up front".

Also important to our success in siting the Imperial County powerplant were the advantages unique to geothermal development which make it attractive to local officials and community leaders. The project brought jobs and royalty income to the local area. The advantage common to all power plant development is that it brings jobs and employment stability, which is especially attractive to local communities given today's economic climate. In our experience, this factor was crucial in local officials' willingness to assist us with project development.

From the beginning of the process, when we first filed for our Conditional Use Permit and began work on the necessary environmental documents, local authorities were willing to provide the information we needed and to identify any opposition or other difficulties we might face. An especially critical first step was having someone available to walk us through the process at the local level, and introduce us to the policy leaders in the community.

This first contact can be accomplished in a variety of ways. For example, the applicant can contact the local Chamber of Commerce for assistance or attend meetings of local business organizations. Alternatively, the applicant can rely on assistance from governmental agencies whose job it is to attract business to locate in a community, such as the Community Redevelopment Agency. It is to the applicant's advantage if this local contact is also willing to act as a mediator.

The next critical step in the power plant siting process is for the applicant to hold community meetings. This needs to occur early on in the process, even before regulatory proceedings begin. These meetings should be relatively small in size, and specific to particular communities. In other words, one or two large meetings for the combined residents of several different localities are really too cumbersome to encourage questions and meaningful discussion. In a smaller forum, participants are frequently more relaxed and responsive, and willing to dive into the details of the proposal. In these meetings the applicant should identify any areas of disagreement. Local authorities can help facilitate these meetings by identifying the participants and what is or is not known about their perspectives.

From these initial community meetings, the local lead agency and the applicant should jointly sponsor advisory groups. These groups, comprised of local residents and public authorities, can assist the applicant in further identifying areas of controversy and ways to resolve outstanding issues. These groups improve communication between the applicant and the public, as an open dialogue with local residents builds credibility for the applicant.

Even though different energy technologies raise different issues, people react to industrial development in similar ways. Most critical for the applicant is to identify local concerns. Once these concerns are known, accommodations can often be made. It is important to remember that these concerns are often based on perceptions, which may or may not be accurate. It is therefore important for the applicant to be able to identify misperceptions, which then can be cleared up with further explanation. This is most successfully accomplished with the assistance of local leaders.

The following are some specific examples of an applicant's information needs that can be met by local authorities.

1) Community Attitude. Community acceptance of the proposed project is critical. Project developers should ask local officials for answers to the following questions:

- What are the attitudes of the entities who will be affected by the project, during both construction and operation?
- What are the land uses surrounding the project?
- What are the environmental conditions?
- Will the project be supported by community leaders?
- Will the project create controversy in the community?
- Is the local area in a "no growth" mode or is there a favorable development climate?
- Are there ways that the project can meet some of the community's needs?

A wise developer will get official and unofficial answers to such questions.

2) Community Resources. The availability of community resources is also critical. Project developers need to know the following:

- What is the availability of workers with construction and operation skills? (This information may be important in remote areas.)
- What are the prevailing wages for the skills needed? (This is also especially important in remote areas.)
- What is the cost of services and supplies?
- For fossil-fueled power projects, what is the availability and cost of water?
- If the project requires transportation of fuel to the site, then what are the available transportation modes, costs and reliability?
- If the local community is served by a municipal utility or irrigation district, do the affected agencies prefer some form of joint participation? (If so, the project developer should know this early in the site selection process.)
- Are there any tax incentives for locating in a particular area?
- Does the community sponsor any enterprise zones to stimulate industrial development?

3) Local Regulations. Early knowledge of local regulations is also critical. To gain this information, project developers should begin to consult with permitting and regulatory agencies prior to site selection. Local agencies can assist the project developer in the following ways:

- Obtaining public participation in the site selection process.
- Jointly sponsoring public meetings moderated by community leaders. This can greatly facilitate interaction and reduce false rumors about the project.
- Providing information such as area master plans or master environmental impact reports, and disclosing any changes to master plans or any local opposition to master plan elements.

In summary, good communication and reliable information are the critical elements in successful power plant siting. Of paramount importance to this success is the willingness of local authorities to work with the project developer to provide the necessary information and facilitate community participation in the planning process. Strong cooperation at the local level can make or break an applicant's project.

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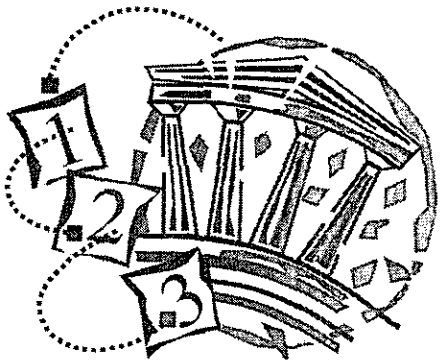
PARTICIPATING IN LICENSING: OPPORTUNITIES AND ADVANTAGES

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

In its 16 year history, the California Energy Commission has never been preempted or excluded from asserting its siting jurisdiction over any power plant it was interested in. That history includes battling with PG&E all the way up to the U.S. - Supreme Court to enforce the agency's authority over nuclear power in California. Its jurisdiction has been imposed even on projects sited at military bases.

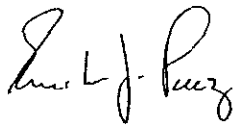
At first glance, given express statutory language indicating preemption of local and regional laws, ordinances, standards and regulations, it would be reasonable to assume that when this state agency comes to town, locals are out of business. However, the Energy Commission has only overridden local standards against the will of the local agencies once in 16 years.

By law and practice, the Energy Commission bends over backwards to integrate all relevant substantive local standards into its decision making process. Through public notices, workshops, and hearings, the Energy Commission attempts to fully include local participation. In addition, much of the Commission's process defers substantively to existing local and regional substantive standards. For example, if a local agency has a general plan element regarding land use that prescribes certain activities, the Energy Commission will not approve a project at that location without extensive consultation and consideration of a significant override procedure.



> *"The opportunity to participate in someone else's process can be refreshing and advantageous."*

Based on this record, and considering that the Energy Commission's jurisdictional mandate is as strong, if not stronger, than any other state agency (including the Public Utilities Commission, the State Water Resources Control Board, and the State Lands Commission), when faced with the question of whether one of these agencies totally preempts effective local government participation in its proceedings, the answer is probably not.



For example, investor-owned utility transmission lines may be the primary jurisdictional interest of the California Public Utilities Commission (CPUC). That does not mean that local government cannot directly participate in the CPUC's licensing process to address local concerns. Similarly, when the State Lands Commission issues a lease for commercial recreational activities on property within its charge, local government can participate.

The opportunity to participate in someone else's process can be refreshing and advantageous. Instead of carrying the administrative responsibilities of a lead or permitting agency, local government can participate in a state or federal proceeding as an "intervenor" or participant. That change in roles alone means greatly reduced administrative, professional and legal expense in making projects adopt desirable characteristics.

The second question, then, is why should local government participate in state agency proceedings.

Again the example of the Energy Commission is illuminating. State agencies generally lack substantive standards directly related to local impacts of projects over which they may have jurisdiction. In many ways, CEQA impacts become the starting point for the state agency's development of standards to protect public health and safety. Prepared local agencies presenting either already prepared local standards (from, for example, general plans, specific plans, ordinances, zoning, etc.), or participating in the state agency proceeding to advocate the imposition of such standards can be extremely successful.

Various counties and cities have participated with generally successful results in Energy Commission proceedings. Lake and Sonoma Counties, home to substantial geothermal resources, have succeeded in obtaining "socio-economic" mitigation measures to compensate them for impacts to their school districts, loss of taxes, coordination of construction and operation schedules to avoid school buses, etc. Colusa County, after fighting proposed transmission lines, developed a General Plan Transmission Line Element to identify preferred corridors for future development. In virtually all licensing cases, local standards have been integrated almost routinely into the state license; and in many cases, local government has benefited financially or environmentally from participating.

Local government can and should participate in all state and federal licensing proceedings to protect public health and safety. Apparently preemptive state and federal proceedings should be seen largely as procedural mechanisms for coordinating multi-jurisdictional processes.

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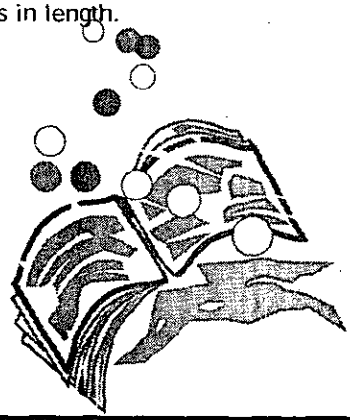
SITING POWERLINES & SUBSTATION FACILITIES
AN INVESTOR OWNED UTILITY'S APPROACH

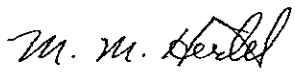
Opinions of the author do not necessarily reflect the views of the Energy Commission or its staff.

The siting of electric utility facilities is taking place in an increasingly uncertain regulatory and business environment. The passage of and pending revisions to the California Public Utilities Commission (CPUC) General Order (G.O.) 131D extended active CPUC regulation of investor owned utility projects to include 50 to 200 kV powerlines and substation facilities. Projects that will be operational in 1996 will require a Permit to Construct, if they do not meet a number of exemption criteria. Because of the wide range of project types and project sensitivities which are normally encountered in facilities covered by G.O. 131D, the siting process has to be very flexible.

Annually, Southern California Edison (Edison) expects to have at least 150 projects which are subject to G.O. 131D. While the vast majority are small exempt projects with minor sensitivities, the remaining projects may be larger with more significant sensitivities. For example, non-exempt projects can range from existing line relocations of greater than 2,000 feet to the construction of a new distribution substation and associated powerlines, which may be many miles in length.



In January 1994, Edison began to document existing siting practices and develop procedures to meet G.O. 131D requirements. The result was a flexible, integrated process adaptable to different project types and sensitivities. An overview of the "Integrated Facility Siting Process" is provided in the accompanying figure.



> *"The Integrated Facility Siting Process includes procedures to incorporate community values and concerns in the evaluation of alternative sites/routes."*

PROCESS DEVELOPMENT

Our approach to siting process development was to establish a core team which was responsible for identifying key Edison stakeholders and determining process goals and requirements. Based on the stakeholder interviews, we established an interdisciplinary team representing all Edison organizations with significant involvement in facility siting. The siting process was then developed based on process goals and requirements, key building blocks, and major steps identified by the team.

G.O. 131D provided the basic requirements for process development. It defined which project types would require an application for a Permit to Construct and which would be exempt. An early project screening/classification step was included for definition of project scope and efficient development of necessary project program plans.

The Integrated Facility Siting Process includes procedures to incorporate community values and concerns in the evaluation of alternative sites/routes. The resulting process is applicable to all types of facilities (not just the 50 to 200 kV powerlines and substation facilities covered by G.O. 131D). The emphasis on process rather than details ensures flexibility and applicability to a wide range of project types.

DIMENSIONS OF THE SITING ISSUE

Classification under G.O. 131D- To classify and track the projects, Edison developed a regulatory clearinghouse which has responsibility for final project classification, documentation, and CPUC interface. The regulatory clearinghouse will determine exemption status and public noticing requirements under G.O. 131D. Exempt projects do not require extensive and detailed environmental assessments. However, certain classes of exempt projects may still require public noticing and those with significant sensitivities will be treated as non-exempt.

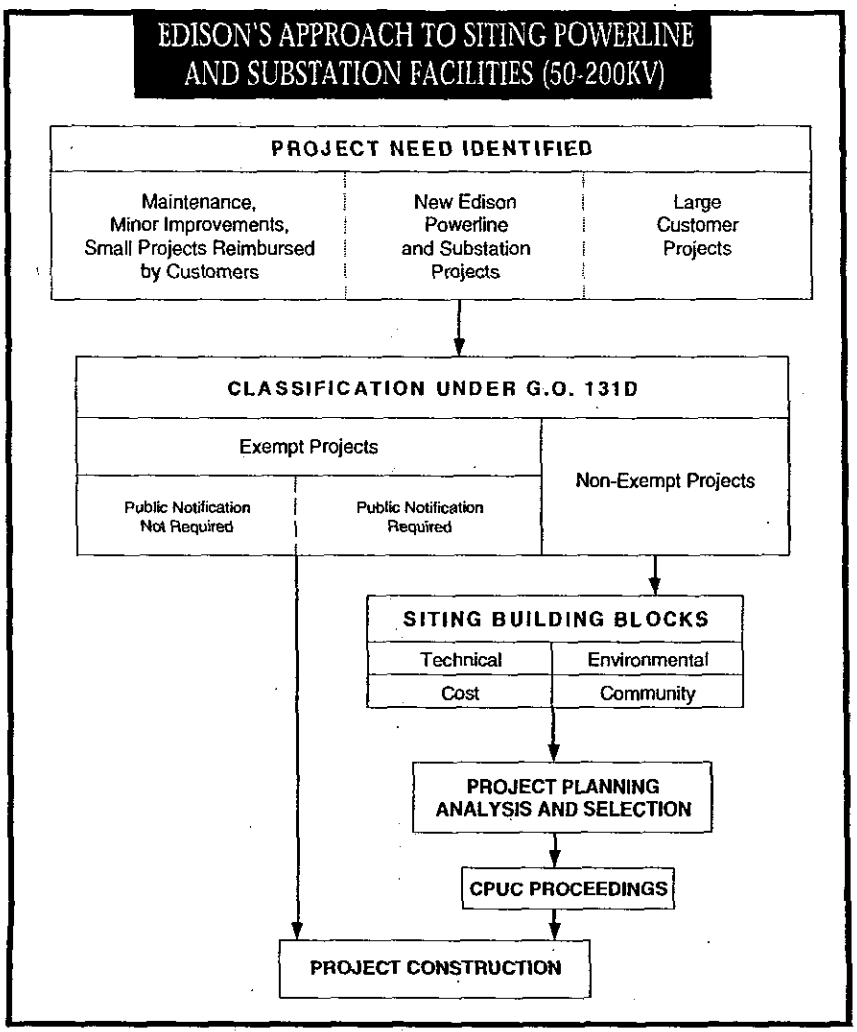
- **Project Types.** Edison has three distinct types of projects in the 50200 kV range.

  1) Edison maintenance and minor improvement projects, and small projects requested and paid for by customers, constitute the vast majority of 50-200 kV projects. The projects requested by customers typically involve relocation or extension of existing 50-200 kV powerline facilities. Most will be exempt under G.O. 131D.

  2) New Edison powerlines and substations to improve the reliability of the system and serve new load will typically require a Permit to Construct under G.O. 131D.

  3) Large customer requests for a new substation and subtransmission connections may either be exempt or require a permit, depending on the type of project, location, and sensitivities.

- **Process Building Blocks.** Four building blocks are central to the siting process developed by Edison: technical considerations, cost, environmental values and concerns, and community values and concerns. Technical and cost considerations are essential to the development of a reliable and efficient electrical system. Studies of alternative siting solutions that reflect environmental constraints and opportunities and the development of mitigation strategies are critical to the siting process. Integration of local communities into the siting process is accomplished by identifying all steps in which information is either needed from the public or should be provided to the public by Edison, determining how best to involve the public in this information exchange, and identifying where public values should be considered in the decision process.



PARTNERS IN CHANGE

The process of siting electrical facilities involves many partners—community leaders, the general public, interest groups, local governments, and regulatory and resource agencies, among others. All these organizations have a stake in the shape of the southern California community and landscape.. Change in communities and landscapes challenges the most rigorous siting process.

Regulations change to accommodate new contingencies. Technical solutions to electrical problems are in constant review. Costs are increasingly scrutinized. Environmental concerns are heightened by urban encroachment and new discoveries. And communities and their various constituencies are increasingly vocal about their concerns. Only through partnership can these four building blocks be integrated to produce better siting decisions.

Edison's siting process, completed in December 1994, will be revised as necessary to comply with revisions to G.O. 131D (originally adopted in June 1994) and inputs from our internal users and external partners.

GUEST AUTHOR: FRED E. SPRINGER

Director, Office of Hydropower Licensing
Federal Energy Regulatory Commission

AUTHORIZATION OF HYDROELECTRIC FACILITIES — GUIDELINES AND ISSUES

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

The Federal Energy Regulatory Commission (Commission) regulates the construction and operation of nonfederal hydropower projects. Our jurisdiction and authority comes from the Federal Power Act (FPA), as amended in 1986 by the Electric Consumers Protection Act (ECPA). We currently regulate 273 projects (10,058 megawatts) in California. There are also 19 applications for original licenses and relicenses pending at this time.

State and federal agencies, Indian tribes, local governments, and the public have several opportunities to participate in our hydropower licensing program. Active, timely, responsible, and cooperative participation by these entities is essential to the success of our program. With it, we can assure the efficient use of the nation's renewable hydropower resources while protecting the environment.

COMMISSION AUTHORIZATIONS

Under Section 23(b) of the FPA, the Commission regulates hydro projects that:

1) are on navigable waters;

2) are on non-navigable waters over which Congress has commerce clause jurisdiction, were constructed after 1935, and affect interstate or foreign commerce;

3) are on public lands or reservations of the U.S.; or

4) use surplus water or water power from a federal dam.

The Commission issues three forms of authorization: preliminary permits, licenses, and exemptions from licensing. The Commission has issued two handbooks, which give a detailed explanation of the licensing and relicensing procedures. They are available from the Commission upon request.

> *"...assure the efficient use of the nation's renewable hydropower resources while protecting the environment."*

A) Preliminary Permits

Preliminary permits are issued for up to 3 years. Their purpose is to maintain the permittee's priority of application for license while the permittee studies the site and prepares a license application. A permit doesn't authorize construction. It isn't a prerequisite to apply for or receive a license, and it doesn't obligate its holder to apply for a license.

B) Licenses

The Commission issues licenses for terms of up to 50 years. When a license expires, the federal government can take over the project (with equitable compensation) or the Commission can issue a new license, either to the existing licensee or to a new licensee.

The Commission issues licenses only for projects best adapted to a comprehensive plan for improving or developing a waterway for beneficial public purposes. This standard requires the Commission to explore all issues relevant to the public interest. Typical (and sometimes competing) uses for a waterway are power generation, irrigation, flood control, navigation, fish and wildlife, recreation, cultural resources, and aesthetics. ECPA requires the Commission to give "equal consideration" to developmental and non-developmental values and to consider to what extent a project is consistent with any federal or state comprehensive plans for a waterway affected by the project.

Section 404 of the CWA also requires a permit for the placement of dredged or fill material in navigable waters. A Section 404 permit (issued by the Corps of Engineers) may be required for various activities associated with the construction or operation of a project.

The Coastal Zone Management Act requires an applicant for a project affecting land or water in a coastal zone to certify that the proposed project is consistent with the state's approved coastal management program. A copy of the self-certification must be furnished to the state, which has six months to notify the Commission that it concurs or objects to the certification. If the state fails to act within six months, its concurrence is conclusively presumed.

The Commission's licensing process also includes analyses of the need for power, the design and safety of the project, the project's economic benefits and financial feasibility, and an environmental analysis.

- **Consultation.** The licensing process involves substantial participation by state and federal agencies, Indian tribes, local governments, and the public. Altogether, depending on the complexity of the case, from seven to nine specifically defined opportunities are provided for state and local agencies to submit comments and recommendations. This participation occurs both before and after an application has been filed.

Prefiling consultation with agencies, tribes, and the public usually leads to detailed economic, engineering, and environmental studies. Local governments are encouraged to be active at the prefiling stage.

Study Requests - Agencies, tribes, and the public help develop the record to evaluate the merits of a particular project. Traditionally, the Commission staff's participation at the prefiling stage was minimal, principally involving dispute resolution. However, in recent years we have begun to participate more actively. This considerably increases the opportunity for early resolution of study request issues and identification of issues and alternatives. When the application is filed, the Commission issues newspaper and Federal Register notices, and additional study requests.

"The Commission must strike a balance between developmental and non-developmental resources in determining the public interest."

Interventions - When the application is accepted for processing, the Commission publishes a second public notice in the Federal Register and a local newspaper soliciting further comments and interventions. Copies are also sent directly to the local governments, land owners, and federal and state agencies involved. All timely comments received become a part of the record on which a decision is made. Intervenors receive documents in the record and can participate in any hearings or meetings where Commission staff and outside parties discuss project merits. They also have the right to appeal any order issued on the application.

Scoping - We also have a public-scoping process in connection with the environmental analysis. This includes local meetings and site visits, to ensure that the environmental document is thorough, balanced, and considers all issues of concern.

- **Environmental review comments.** After staff gets all the information it needs to complete its analysis, the Commission issues a third public notice. This notice states that the application is ready for environmental analysis and gives federal, state, and local agencies, as well as tribes and the public, an opportunity to recommend specific environmental mitigation measures, and to explain their opposition to or support for the proposed project. Certain federal agencies may also submit mandatory conditions to protect the environment.

- **NEPA compliance document.** The staff then prepares a Draft Environmental Assessment or a Draft EIS according to NEPA guidelines. The agency, public, and tribal recommendations are discussed in the Draft EA or Draft EIS. The draft is followed by a comment period and, often, another public meeting. The environmental document, along with the Safety and Design Assessment, are part of the record supporting the Commission's decision.

The Commission must strike a balance between developmental and non-developmental resources in determining the public interest. This balancing uses both dollar values and nondollar values (qualitative and descriptive values) for the resources. This balancing is thoroughly discussed in the environmental document.

Section 10(j) of FPA - Fish and Wildlife Issue Resolution Process - If the staff finds any recommended terms and conditions of a fish and wildlife agency inconsistent with the FPA or other laws, it will attempt to resolve the inconsistency through negotiations.

C) Exemptions from licensing

Some small hydroelectric projects qualify for an exemption from licensing. The application process is simpler than for licenses. The Commission issues exemptions for two types of projects:

1) Small conduit hydroelectric projects (a Conduit Exemption)—installed capacity of 15 MW or less for non-municipal applicants and 40 MW or less for municipalities, and

2) Small hydroelectric projects of 5 MW or less.

Generally, applying for an exemption is the same as filing for a license, except that the recommendations of the fish and wildlife agencies are mandatory and the 10(j) dispute resolution process doesn't apply to exemptions. Prefiling consultation is required.

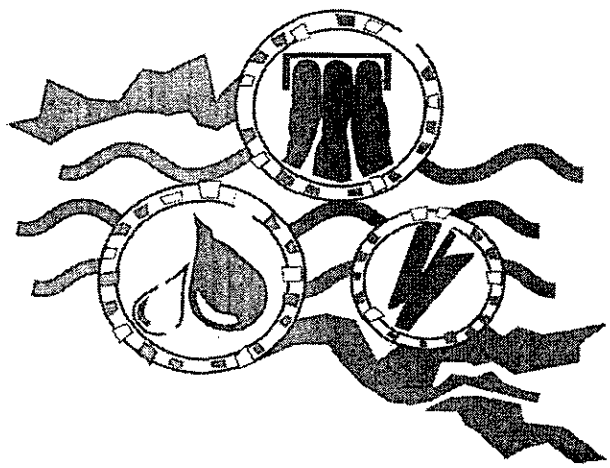
Summary and conclusions. The licensing process may appear complicated and lengthy on paper. Often it is in practice, as well. However, I am confident that in the end it fully and fairly balances the legitimate concerns of local agencies and all other interested parties - to ensure that hydropower development is beneficial for the nation.

Available Resources:

1) Hydroelectric Project Licensing Handbook (December 1991), and

2) *Hydroelectric Project Relicensing Handbook* (April 1990), Federal Energy Regulatory Commission.

For copies of the latter handbook, contact FERC's Public Reference Section, Room 3104, 941 North Capitol Street, NE, Washington, DC 20426; (202) 208-1371.



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EFFECTIVE LOCAL INVOLVMENT IN THE LICENSING OF HYDROELECTRIC PROJECTS

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

Most of the current activity related to hydroelectric development in California, and the nation as a whole, involves the evaluation of existing hydroelectric projects which must receive new licenses in order to continue operations beyond the term of their expiring licenses. Effective public involvement in the "relicensing" of these projects requires an understanding of the Federal Energy Regulatory Commission's (FERC) licensing process and how FERC is organized to process applications for new licenses. Non-federal hydroelectric projects located on navigable waterways and affecting interstate commerce generally are under the jurisdiction of FERC.

FERC's Division of Project Review (DPR) is responsible for coordinating and managing all aspects of hydropower application processing, including the evaluation of the project in the context of the technical, engineering and environmental requirements of the governing federal legislation. DPR analyzes alternatives to the proposed hydroelectric project. It examines the need for a potential project's power, the project's economic feasibility and environmental effects. Ultimately DPA must determine what project configuration is best adapted to the comprehensive development of the waterway. DPR is also responsible for providing guidance to prospective applicants, to interested federal and state agencies, and to members of the public with respect to the FERC regulatory process.

Of the existing projects in California with FERC licenses, many have licenses expiring between the years 2000 and 2015. Relicensing consultation (the initial steps in the licensing process) on some of these projects will be initiated within the next few years. It is possible that in unique instances, the relicensing process will determine that instead of issuing a new operating license, FERC should either issue a non-power license to the applicant or recommend to Congress that the federal government "take over" the project from the applicant. In cases of "takeover" the federal government compensates the licensee for the lost project value. The ultimate fate of the project could theoretically include decommissioning of the power generating facilities or partial/complete project removal.

Stephen D. Padula

> *"A license must be issued with conditions to ensure that the hydroelectric development is best adapted to a comprehensive plan for improving and developing the waterway for beneficial public uses."*

The official FERC licensing process is not particularly user friendly to local governments and the general public. The process is very complex, potentially intimidating, and the issues very technical. The formal opportunities for involvement and input to the decision-making process are few, and come relatively late in the formal consultation process. In evaluating public involvement in the so-called Class of '93, (approximately 160 relicensing applications for projects with license expiration dates at the end of 1993, that were filed with FERC in 1991) the track record was rather poor. Setting aside organized, special interest, nongovernmental organizations (NGO's), there was relatively little actual public involvement in relicensing consultation. Attendance was low at most public meetings, and very little use was made of the extensive

public information libraries that FERC required licensees to create.

Why the lack of public involvement? Was it an actual lack of interest or did the process appear to be inaccessible? While the causes are uncertain and subject to debate, there is no debate regarding the lack of actual opportunities for public involvement. During the typical three to five years of consultation and application preparation activities, FERC's regulations require only one formal opportunity for public involvement. This occurs when the licensee initiates the formal consultation process. Unfortunately, most of the formal participation opportunities come after license applications are filed with FERC, during FERC's adequacy review and environmental assessment processes. By this time most of the information on which the final decisions are made has been gathered and the positions of the various participants have been set.

This has not gone unrecognized by FERC which in the last several years has initiated an Outreach Program to assist members of the public in their participation in the relicensing process. Licensees starting relicensing today are also attempting to provide additional opportunities for public involvement earlier in the consultation process. These measures include voluntary meetings with the more traditional participants in the process along with local government officials and the general public to solicit input to their relicensing planning efforts. Licensees are also attempting to convey better information about their projects.

The goal is simple. A better informed public will more likely have a better understanding of the resource values; economics and trade-offs inherent in hydroelectric energy production; and in alternative sources of energy that would be required if existing hydroelectric generation capacity or flexibility is reduced in relicensing. Unfortunately however, the relicensing process remains very much the realm of federal and state resource agencies, Indian tribes, and NGO's. It is a daunting arena for local citizens.

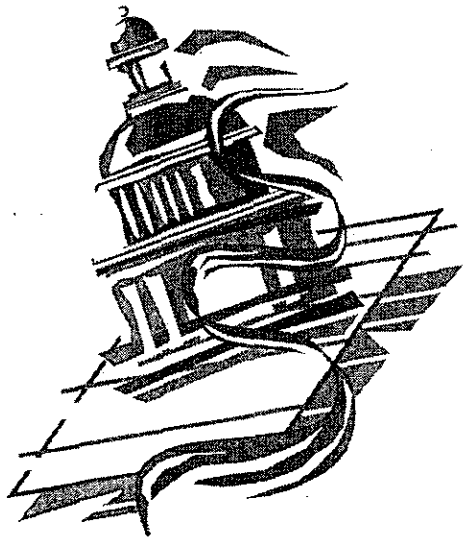
To be effective in the licensing process, local governments and members of the public at large must first of all not rely on other participants in the consultation process to represent their interests. Federal and state agencies are typically guided by their own directives and NGOs typically have their own narrow special interests which they will promote. Active participation in the process is the best way for local governments and the general public to see that their interests and values are given proper consideration during the decision making process.

Being informed of the licensing process and the potential issues that may surround a particular licensing action will enhance the effectiveness of local involvement. For projects in California, contact should be made with FERC Division of Project Review West Branch (DPR-WB) representatives to obtain information on projects with upcoming expiring licenses and FERC's plans for processing the relicense applications.

Local interests can also contact the owner of the hydroelectric project located in their community to obtain information on the license expiration date and the licensee's plans for initiating the consultation process required prior to filing an application with FERC for a new license.

Additionally, federal and state resource agencies with jurisdiction over land or resources potentially affected by the project can be contacted. Through these agencies, one can obtain copies of relevant resource management plans for the land or waters influenced by the project. Such plans may be periodically updated. Local officials and the public can request that they be notified so that they can participate in the revision of agency plans which will influence FERC as it makes its licensing decision.

In contacting FERC, other agencies or the project owner, local officials or members of the public should at the very least know the project name and FERC number. Be as specific as possible about the particular area of interest or concern you may have. Interested parties should request that they be placed on mailing lists for receiving information from resource agencies on management plan activities and from the owner on planned licensing activity.



Success by local government officials and local citizens in affecting the licensing outcome will depend most heavily on taking advantage of additional opportunities to provide input to licensees prior to the filing of the license application, and indeed, prior to the start of formal consultation. Many licensees are starting much earlier to prepare for formal consultation, including earlier evaluation of existing environmental conditions and of opportunities for upgrading existing generating capabilities. Some licensees are also providing information earlier to potentially interested parties in hopes that fewer surprises will occur for all participants once the formal process starts.

Given that the opportunities to officially participate in the licensing process are so limited, it is essential that none of the opportunities be wasted. In particular, involvement in the first official scoping meeting during the first stage of consultation is essential. At this meeting, local officials and the public can officially register their interests or concerns and request that they be kept informed of planned studies by the project owner. This should ensure that they get the opportunity to review and offer the "local" perspective on the owner's draft and final proposals. They will also be able to participate in FERC's NEPA activities after the application for a new license has been filed. Participation in person, where possible, is most effective. Providing formal comments in writing is also essential given the formal nature of the licensing process.

The licensing of hydroelectric facilities by FERC can be an intimidating process. However, with some early research and effort to engage the major participants in the process, local officials and members of the public should be able to effectively represent the important local interests as only they can. New licenses currently being issued by FERC will govern the operation of existing hydroelectric facilities in California for the next 30 to 50 years. Conditions in these licenses will affect such important issues as public access, recreational development and restrictions on development surrounding the project.

Regardless of which side of the particular issues local government officials and their constituents may find themselves, many of these issues have the potential for significant local effects. Local officials should do what they can to ensure that decisions on these issues are not made based solely on the agendas of resource agencies and NGOs, but also on the very important and unique perspective of those in the local community.

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BIOMASS & LOCAL GOVERNMENT: CHALLENGES & OPPORTUNITIES

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

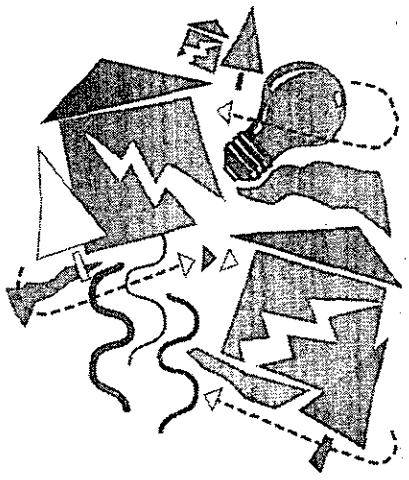
BIOMASS AND YOUR TOWN

Today, municipalities throughout California are being challenged by both problems associated with waste materials and opportunities to utilize biomass as a source of energy. Some are painfully aware, others seemingly ignorant. Over sixty facilities in California convert agricultural, forest and urban wood waste materials into fuel and then into electricity. Collectively they provide just under 2 percent of the state's electricity supply. Yet, few even know that these plants exist or that technologies are available for the utilization of biomass wastes. The challenges are how to preserve this important option and how to take advantage of similar situations and opportunities in other areas.

At stake are thousands of jobs in mostly rural areas, millions of dollars in taxes paid to local communities and, perhaps most importantly, the ability to dispose of waste materials in a manner that contributes to the improvement of the environment in the places where we live, work and play.

Biomass (the organic materials which are available in forest residues, agricultural crops and wastes, wood and wood wastes, animal wastes and municipal wastes) can be utilized for many purposes. These include production of electricity to heat, light and power our homes and businesses; production of ethanol as a transportation fuel or as a fuel additive to help reduce air emissions and clean the air we breathe; and feedstock for the production of chemicals that are an integral part of our lives.

> *"...biomass-to-energy applications hold the promise of bringing us one step closer to a more efficient utilization of all our resources..."*



The great part about biomass use is that while accomplishing the above we can solve some of our community headaches. Use of urban wood wastes recovered from municipal waste streams helps reduce input to landfills, prolongs their life and helps reduce waste disposal costs. The use of agricultural wastes utilizes materials that would have been open-field burned or landfilled and helps to clean our air. The use of forest and mill waste helps reduce the hazards of wild fires, and recovers and utilizes waste materials as a source of renewable fuel. Biomass is a fuel that doesn't spend our dollars overseas. It doesn't need to be shipped half way around the world and we don't have to send our sons and daughters to defend its source.

Biomass fuels are here now. Many of them are in waste streams, and we live with and pay for the problems they cause -air pollution, unnecessary landfilling and wasted resources, to name a few. Some will say (especially those in communities whose biomass facilities are facing serious economic challenges due to decreases in the

price of natural gas) that biomass power costs are not as cheap as power utilizing natural gas. That's true, at least in conventional accounting systems.

But what about the price we pay for those problems that plague our communities. Inadequate landfill space, air pollution from waste burning, the increasing threat of wild fires due to fuels not removed from our forests, and of course, the price we paid or may have yet to pay for Desert Storm or our next endeavor to protect foreign sources of fuel. These costs can, in part, be offset through use of biomass fuels and feedstocks.

Fuel is fuel. It's all used to create heat and to supply the sources of energy that support our economies. We have the technologies and ability to use biomass that is currently being wasted and in waste streams creating serious and expensive problems for cities and towns across the state. They're renewable and sustainable. Their successful application requires careful integration and efficient utilization. My mother used to say . . ."if you get a lemon make lemonade." It is my hope that my daughter will learn to say "if you get a lemon, use the skin for zest, the pulp for pie, plant the seed for new trees, and make lemonade."

We must make more efficient use of all our resources. We must examine both our existing problems and our future opportunities creatively, not just one problem at a time. We must work toward resolution of meeting the needs of our communities and solving the problems they face by integrating our efforts in resource utilization. Today, biomass-to-energy applications hold the promise of bringing us one step closer to a more efficient utilization of all our resources, and in a sustainable, environmentally acceptable manner.

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CRITICAL PERMITTING ISSUES

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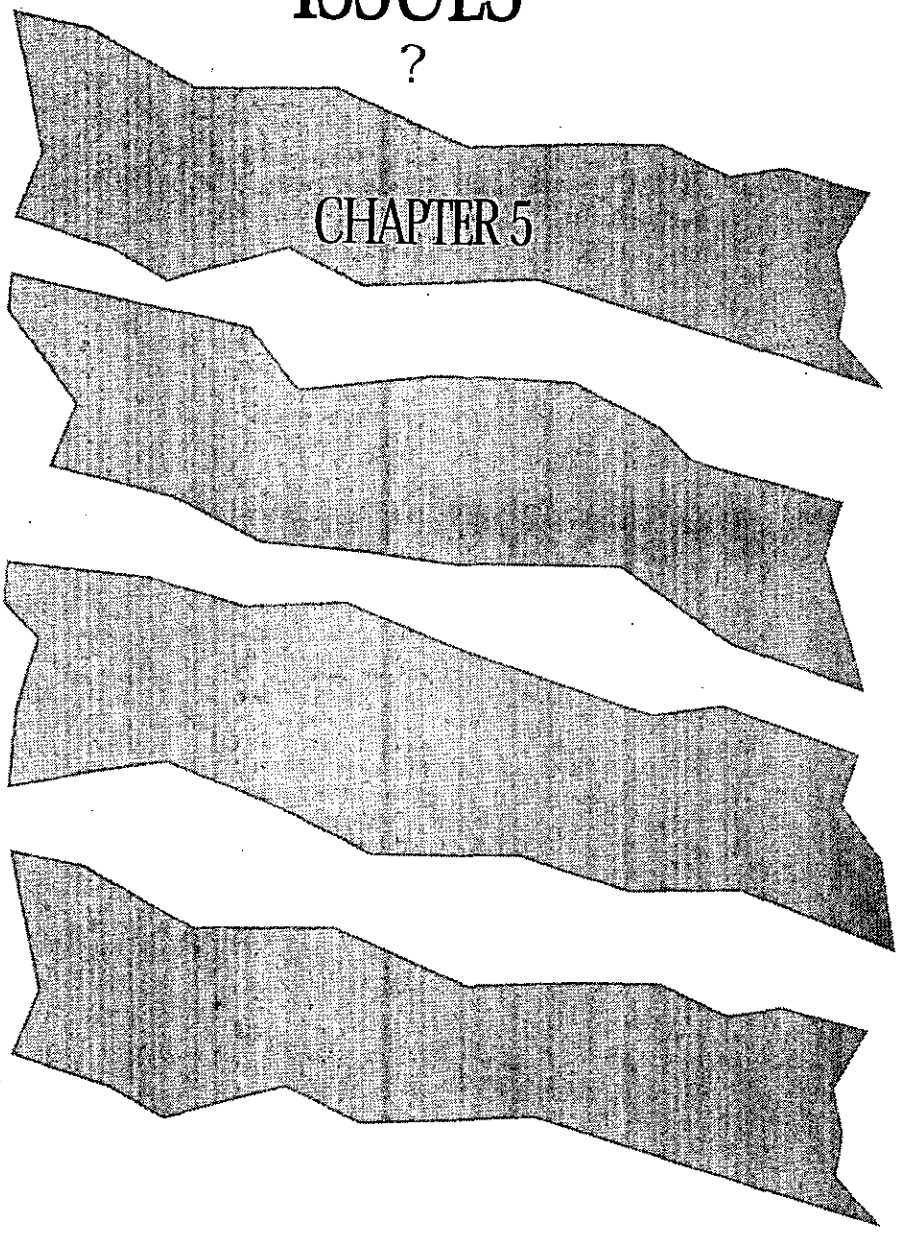
CHAPTER 5



ENERGY AWARE

PLANNING GUIDE: *ENERGY FACILITIES*

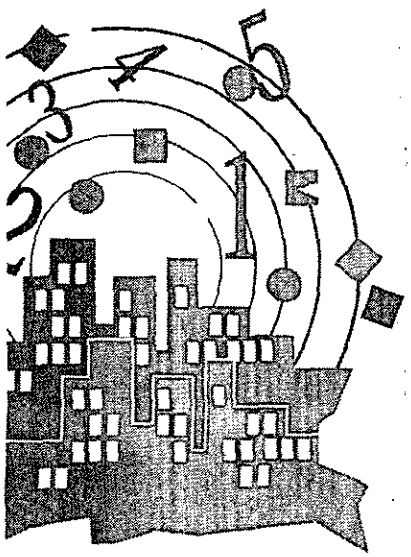
CHAPTER 5.0: CRITICAL PERMITTING ISSUES/AN OVERVIEW

INTRODUCTION

Most energy facilities have potentially significant permitting issues, as shown in Table B-ii of Appendix B. This Chapter addresses energy facility permitting issues which we feel exhibit most, if not all, of the following factors:

- **Unique** — to power plants and transmission lines
- **Show-stopper** — could seriously delay or stop projects
- **Controversial** — including public concerns and fears
- **Confusing** — difficult to work through all opinions

In addition, the permitting issues addressed are linked to some of California's broader growth-related concerns such as air quality, public health and rare/endangered species.



There are separate chapters for the following issues:

- 5.1 Air Quality
- 5.2 Biological Resources
- 5.3 Hazardous Materials Handling and Storage
- 5.4 Water Use and Quality
- 5.5 Visual and Noise Impacts
- 5.6 Public Concerns about Electric and Magnetic Fields
- 5.7 Energy Facility Closure/ Abandonment

These chapters provide background information; policy, implementation and mitigation ideas; and case studies to facilitate local government and developer resolution of energy project permitting issues. These chapters share how some jurisdictions have addressed these issues.

In addition, Energy Commission staff routinely evaluate potential energy development in the following, usually less critical issue areas: traffic and transportation, socio-economics, geological hazards, soil resources, energy facility waste management, and cultural and paleological resources.

Local governments will find that the permitting process will be most effective and efficient if all parties who may be affected by these issues be included early in the planning and permitting processes as discussed in more detail in Chapters 3 and 4, respectively.

An energy project permitting challenge many local governments face is balancing concerns for health and safety and other potential environmental impacts, while providing for California's increase in population and prosperity. This challenge is compounded by difficult budgetary constraints.

Since an adequate energy supply is important to the future of California, and increased energy efficiency will not meet all future needs, it is important to balance this need for energy production and distribution with a reduction of potential impacts as much as possible.

GUEST AUTHOR ARTICLE

The Guest Author article cited below is found at the end of this chapter. The article contains opinions of the author which do not necessarily reflect the views of the Energy Commission or its staff.

Siting Transmission Facilities: Environmental Issues and Routing Opportunities by John Keene, Supervising Environmental Consultant, Resource Management International, Inc.

THE ENERGY COMMISSION CAN ASSIST LOCAL GOVERNMENTS

This chapter includes information on how the staff of the Energy Commission evaluate power plant and transmission projects within its jurisdiction. Energy Commission staff is available to assist local governments and energy project

developers in addressing their concerns, whether they are issues covered in this Guide or other issues.

SEEKING 'WIN-WIN' SITUATIONS

We are seeking 'win-win' situations in which maintaining a healthy environment is accompanied by sound and sustainable economics. Areas of high "quality of life" attract people and business development. An important part of that quality of life includes the protection of air and water quality and the natural resources which can benefit people for the long-term. In addition, health and safety and freedom from public nuisances are important considerations. When the quality of life in an area declines, people and businesses are likely to relocate.

KEY LOCAL ACTIONS TO ADDRESS PERMITTING ISSUES

In general, key actions local governments can take to address specific permitting issues include:

- Conduct advance planning, e.g. up-to-date general plan elements, resource inventories and coordination with utilities (as addressed in Chapter 3)
- Develop energy facility guidelines or standards and mitigation measures
- Involve early the potential developer, all relevant agencies and utilities, and the public
- Seek information/assistance from other agencies
- Consider alternatives to the project or project location

COSTS TO LOCAL GOVERNMENTS

Local governments can incur high costs to review energy project applications, and for monitoring and enforcing regulations. There are options available to local governments to recoup at least some of the costs. First, the permit fees collected by a local agency can and should reflect the costs that are commonly associated with their review and approval, including the costs of outside consultants. Second, any ongoing monitoring costs can be part of the yearly permit fee structure.

"Local government agencies with an interest in the air quality impacts of energy facilities should work closely with their local districts to ensure that their input will be recognized ..."

REDUCING THE WORKLOAD

Designating adequate industrial land away from other sensitive land uses, such as schools and hospitals, will eliminate many potential future conflicts. However, not all energy facilities create significant impacts that require such separation. For example, small cogeneration facilities using natural gas-fired turbines or fuel cells have been successfully located in non-industrial areas of cities without adversely impacting the surrounding community.

Potential conflicts and hence workload can be reduced when there is advance planning and early involvement with local utilities, potential developers, relevant agencies, and the public. In addition, conflicts can be reduced when local permitting processes are developed in concert with general plans. In determining overall community goals with the land use plan, consideration should be given to what energy requirements will be created and how these might be met. This could significantly reduce conflicts between the community planning and specific facility permitting processes.

IMPLEMENTATION IDEAS

The following are suggestions for implementation ideas which can be applicable to energy facilities in general:

- Develop mitigation requirements that reflect accurate preconstruction estimates of impacts to enhance mitigation effectiveness.
- Establish cost recovery ordinances. Include the cost of application evaluation, as well as monitoring services as part of the permit fee structure.
- Participate in regional programs related to energy facility planning and permiffing. Develop relationships with neighboring jurisdictions to share information, policies and programs, and to seek input on projects that have impacts that may affect other jurisdictions.

Work with other jurisdictions to develop and implement uniform standards throughout the region. Coordinate with other jurisdictions to ensure a level playing field for all jurisdictions in the region. Develop procedures to notify all affected jurisdictions and agencies for input on projects that may affect them.

- **Schedule a pre-application meeting with the energy project proponent and all interested local, state and federal agencies.** The purpose of the meeting is to provide the developer with early feedback on the proposals, including the possible issues that may need to be addressed and mitigation measures that may be required. Providing developers with all local, state and federal permit requirements and local policies in advance of submittal of the project application will allow them to design-in the necessary measures from the start. Proper early design of handling and storage areas can facilitate permitting by eliminating costly and time-consuming design revisions.

- **Designate adequate industrial land in areas down-wind and well separated from sensitive uses.** Protect vacant industrial sites from encroachment by residential or other sensitive uses. Designating industrial land is a benefit to developers and the community alike by not locating incompatible uses adjacent to each other.

INFORMATION RESOURCES

The Energy Commission staff can provide information on siting procedures, significance criteria, data requirements, conditions of certification, and the applicable laws, ordinances, regulations and standards for determination of environmental issues, engineering requirements, determination of need, facility closure, and demonstration projects. Commission staff has experience working with project developers and developing consensus among all parties.

For energy facilities over which the Energy Commission has jurisdiction, power plant siting regulations are found in *Rules of Practice and Procedure and Power Plant Site Certification Regulations.*
Contact: Siting Office, California Energy Commission, 1516 Ninth Street, Sacramento, CA 95814, (916) 654-3928.

The Office of Planning and Research, has written *General Plan Guidelines* to help local governments write their General Plans, including all required and optional elements.
Contact: Governor's Office of Planning and Research, 1400 10th Street, Sacramento, CA 95814, (916) 445-4831.

The Association of Bay Area Governments (ABAG) has written *Small But Powerful — A Review Guide to Small Alternative Energy Projects for California's Local Decision Makers.* The guide includes a description of small, non-traditional energy facilities including wind, biomass and waste-to-energy, solar, hydroelectric, and cogeneration, and a discussion of critical issues and the permitting and regulatory review for each type of energy facility.
Contact: Association of Bay Area Governments, P.O. Box 2050, Oakland, CA 94604, (510) 464-7900.

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SITING TRANSMISSION FACILITIES: ENVIRONMENTAL ISSUES & ROUTING OPPORTUNITIES

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

John Keene

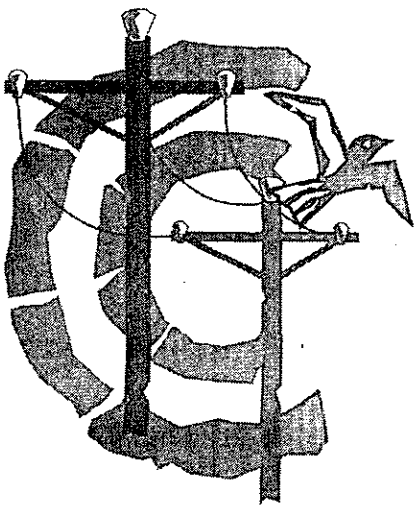
Today, more than ever, the success of new and upgraded electricity transmission projects begins with a thorough understanding of real and perceived environmental issues, including electromagnetic field (EMF) effects, avian collisions and electrocutions, aesthetics, and land use compatibility. Decision makers must strive for a balance between infrastructure needs and the sensitivities and constraints of the environment.

Public agencies and developers both are beginning to recognize the value of early identification of key environmental issues, routing opportunities and options, and early agency and public involvement. Understanding the issues and taking action early to address those issues are key to a successful process.

EMF EFFECTS

EMF has become a very frequently discussed concern, but the human health risks of EMF are still widely disputed and uncertain. However, there are actions that can be taken in transmission facility and switchyard location and design which can reduce potential electric and magnetic fields. Design considerations include changing the structure height, altering the conductor configuration and spacing, and reordering the phase sequence. Early communication and factual treatment of EMF issues can make new facilities more understandable to the public and compatible with existing land uses.

> *"Decision makers must strive for a balance between infrastructure needs and the sensitivities and constraints of the environment."*



AVIAN COLLISIONS AND ELECTROCUTIONS

Bird electrocutions on powerlines and collisions with transmission line structures are often a concern with resource agencies (e.g., California Department of Fish and Game and U.S. Fish and Wildlife Service), utilities, and the public. In the past, public concern was related to electrocution of birds, specifically raptors; however, advances in engineering design and modifications to powerlines and substations have significantly reduced these problems. Currently, the primary concern is direct avian mortality due to accidental collision with the transmission line structures, especially the static line (the static line is the non-conducting wire on a transmission line placed above conductors to minimize outages from lightning strikes). Static lines are thinner than the conductor and more difficult for birds to detect, especially during inclement weather. There are a number of methods for reducing bird collisions with transmission lines, including not installing the static lines, use of marking devices (e.g., orange aviation markers) to increase the visibility of the static line, and constructing the new line in existing corridors to increase visibility.

AESTHETICS

The public generally considers transmission lines in the landscape to be aesthetically adverse, especially when they are in close range view from private residences, public recreational facilities, or major roadways where similar features (transmission lines) are not already present. There are several siting opportunities and options which, when feasible, can significantly reduce visual impacts, including upgrading an existing line, paralleling an existing line, paralleling an existing linear feature (e.g., a gas pipeline, road, railroad, or canal), or constructing an underground line (technically feasible for lower voltage lines).

LAND USE COMPATIBILITY

The public is often concerned that a new transmission line will affect prime agricultural land by impairing agricultural production, and in residential land use areas, concerns tend to focus on the potential for acquisition/relocation of residences in the transmission line right-of-way.) There will likely be other land use concerns (e.g., traffic or noise) related to the construction of a new transmission line; however, as with the above issues, their early indemnification will assist in the evaluation of routing opportunities.

LOCAL AGENCY ACTIONS

What can an agency do to ensure a successful project? There are no guarantees to the success of a project, but there are steps which can reduce financial, environmental and regulatory risks, including:

- Environmental Assessments
- Early Agency Consultation
- Public Participation Plans

Environmental Assessments

Early reconnaissance-level environmental assessments are often used to evaluate alternative corridors for transmission lines. The assessment study provides a preliminary evaluation of potential environmental impacts, including potentially significant environmental impacts which could result in public opposition, project denial, withdrawal, or costly redesigns. Early assessments can take the form of initial studies, fatal flaw analyses, and environmental feasibility reviews.

Early Agency Consultation

Early consultation with permitting and regulatory agencies gives the lead agency and project applicant the opportunity to describe the proposed project and alternatives, identify the issues and concerns of the agencies, determine what permits/approvals are required, determine what information is needed to process the permits, establish time lines for submitting information, and identify the agencies' contact persons for the project. In addition, early consultation provides the agencies with an opportunity to suggest alternatives and mitigation measures early in the planning and siting process.

Public Participation Plan

An effective public participation program can build public understanding, help establish an organization's credibility, and identify issues that may have been overlooked in early project planning. To be effective the program should:

- Educate and clearly explain the need for the project
- Provide a vehicle for the public to express their concerns and share information
- Demonstrate that public input is being considered and addressed in the decision making process

In addition to meetings, public involvement programs can also include: citizen advisory and focus groups, media coordination, and newsletters, flyers, and brochures.

The key to an agency's success in siting a new transmission line includes understanding and addressing the key environmental issues, and identifying opportunities to mitigate these issues. Effective agency and public participation helps to accomplish these objectives and make the environmental regulatory process a success.

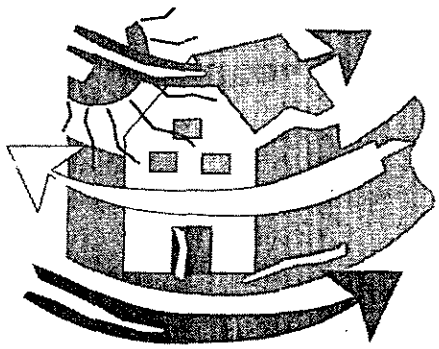
NOTES NOTES NOTES

CHAPTER 5.1: AIR QUALITY

INTRODUCTION

Air pollution problems from ozone formation or particulate matter buildup in the atmosphere are common throughout California. The majority of emissions which create these problems come from mobile sources, like trucks, cars, busses, trains and airplanes. Lesser amounts come from stationary sources, such as refineries, powerplants and industrial manufacturing; and area sources such as residential fireplaces, gas water and space heaters, dry cleaners and gas stations.

Power plant emissions represent less than 5 percent of state-wide air emissions. Nevertheless, due to their relatively large size, citizen concerns about the potential public health impacts of air pollutants emitted by individual energy facilities are often the greatest source of public opposition to construction and operation of such facilities. Recognizing these concerns, and identifying potential air quality impacts and mitigation measures early in the permitting process, will increase the efficiency and effectiveness of the process, thus reducing the costs and concerns of everyone.



Energy facilities produce air pollutant emissions during construction, and during the handling, storage, and combustion of fuels, and from the use of chemicals. Air pollutant emissions and the resulting level of public exposure may produce adverse health impacts, property damage, and damage to agriculture, or be a public nuisance. The federal and state governments have set ambient air quality standards to protect public health and welfare. California standards are often stricter than the national standards. Local air districts develop and enforce rules for attaining and maintaining these national and state standards, and are the primary agencies responsible for regulating air pollutant emissions from stationary sources, including energy facilities.

> *"Local government agencies with an interest in the air quality impacts of energy facilities should work closely with their local air districts ..."*

Local government agencies should work closely with their air district to ensure that their input will be recognized during the rulemaking and permit-approving activities of the district. While local agencies other than air districts do not regulate the emissions from energy facilities, they can take steps to avoid or minimize air quality impacts on surrounding uses. Cities and counties can influence, through their zoning laws, policy preferences, use permit processes, where energy facilities are located, and how they operate. (See Chapters 3 & 4 for more information.)

WHAT ENERGY FACILITY CHARACTERISTICS ARE ASSOCIATED WITH AIR EMISSIONS?

The types and quantities of air pollutants emitted from an energy facility are usually dependent upon the type of fuel used and the combustion process (see the insert *Typical Energy Facility Emissions).* Other emissions sources include cooling towers, pollution control equipment and chemicals, auxiliary power systems, and fugitive emissions sources such as leaking valves, graded construction areas, unpaved roads and parking areas, and storage piles.

Energy facility projects may also have transportation emissions which will need to be included in the analysis of project emissions.

Examples include emissions from frequent truck traffic or coal trains.

Some energy facilities, such as wind turbines, hydroelectric, solar photovoltaic, nuclear, fuel cells, and small scale solar thermal, produce few, if any, air pollutant emissions during operation.

Some electricity generating facilities are designed to run nearly constantly at full capacity to meet the base load demand for electricity. Some facilities operate only during peak demand periods, such as hot summer afternoons, when air conditioning is widely used. Other facilities function somewhere in between, operating at partial load for much of the time, but then increasing operation to meet electricity demand whenever necessary.

Start-ups, shutdowns and transitions from partial to full load operation can increase air emissions, since many emissions control systems are temperature or flow-dependent. Since most ambient air quality standards are short-term (from 1 to 24 hours), the daily operating profile of an energy facility is important when assessing the significance of its emissions. Due to their operating profiles, intermediate and peak load facilities may have an impact on short-term ambient air quality conditions more than do baseload facilities using the same technology. Understanding when intermediate and peak load facilities may be operating to meet demand on a daily, weekly, and seasonal basis, helps determine the significance of their air quality impacts.

TYPICAL† ENERGY FACILITY EMISSIONS

Facility Type	Typical Emissions
Natural gas-fired	NO_x, CO_2, CO, VOC, PM10, SO_2
Oil or coal-fired	NO_x, CO_2, CO, VOC, PM10, SO_2, and fuel trace elements
Geothermal	H_2S, SO_2, CO_2, ammonia, methane, mercury, radon, boron and trace metals.
Waste-to-energy	
Municipal solid waste	NO_x, CO, VOC, CO_2, PM10, and other chemicals (e.g., chlorides) present in the MSW
Biomass	NO_x, CO, VOC, CO_2, PM10, and possibly trace organics, pesticides, fungicides. Rice straw burning emits silicon-dioxide fibers similar to asbestos.
Landfill/sewage gas	NO_x, SO_2, CO, VOC, CO_2, PM10, and some ammonia chlorides.
Solar Thermal	NO_x, SO_2, CO, VOC, CO_2, PM10. Utility-scale solar usually has natural gas-fired assist/back-up, releasing additional emissions as listed above.
Solar central receiver, Photovoltaic array, or Wind turbine farms	PM10 from the disturbance of large tracts of land for large-scale facilities

† These emissions are typical for the fuel types, regardless of energy facility size. The relative significance of the emissions depends on project parameters, such as type of combustion technology, fuel composition, and local ambient concentrations of pollutants.

WHAT ARE THE AIR POLLUTANT & EMISSIONS ASSOCIATED WITH ENERGY FACILITIES?

Emissions from power plants and related facilities usually include nitrogen oxides (NO_x), sulfur compounds, volatile organic compounds (VOCs), particulate matter 10 microns or less in diameter (PM10), carbon monoxide (CO), carbon dioxide (CO_2) and heavy metals.

- Nitrogen oxides (NO_x) consist mostly of nitrous oxide (NO) and nitrogen dioxide (NO_2). These compounds are primarily formed during combustion processes as nitrogen is oxidized. The higher the combustion temperature, the greater the rate of NO_x creation. Gaseous NO_x can react with VOCs to form ozone and can form suspended particulate matter.

Efforts to minimize NO_x emissions with urea injection or ammonia injection and selective catalytic reduction can lead to ammonia

AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	National Standard	California Standard
Ozone (0_3)	1 Hour	0.12 ppm*	0.09 ppm
Carbon Monoxide (CO)	8 Hour 1 Hour	9 ppm 35 ppm	9 ppm 20 ppm
Nitrogen Dioxide (NO_2)	Annual Average 1 Hour	.053 ppm ---	--- .25 ppm
Sulfur Dioxide (SO_2)	Annual Average 24 Hour 3 Hour 1 Hour	.03 ppm .14 ppm .50 ppm ---	--- .04 ppm --- .25 ppm
Suspended Particulate (PM10)	Annual Geometric Mean 24 Hour Annual Arithmetic Mean	--- 150 µg/m^3 50 µg/m^3	30 µg/m^{3***} 50 µg/m^3 ---
Sulfates	24 Hour (SO_4)		25 µg/m^3
Lead	30 Day Average Calendar Quarter	--- 1.5 µg/m^3	1.5 µg/m^3 ---
Hydrogen Sulfide	1 Hour (H_2S)	---	.03 ppm
Vinyl Chloride	24 Hour	---	.01 ppm
Visibility Reducing Particulates	1 Observation	---	Sufficient amount to produce an extinction coefficient of .023 per kilometer due to particulates when the relative humidity is <70%

ppm = parts per million
* Secondary Standard
*** µg/m^3 = micro grams per cubic meter

emissions. Such gaseous ammonia (NH_3) can react to form suspended particulate matter. (Refer to Chapter 5.3 *Hazardous Materials Handling and Storage* for a discussion of anhydrous and aqueous ammonia used with selective catalytic reduction systems.)

- The **sulfur** concentration in the fuel directly relates to the potential sulfur dioxide (SO_2) emissions, as elemental sulfur is readily oxidized. Coal and oil generally have a higher percentage of sulfur, by weight, than natural gas. Hydrogen sulfide (H_2S) and organic sulfides are often present in sewage treatment gases, landfill gases, and geothermal steam and brine, and can be emitted if the energy facility uses any one of these as a fuel or as thermal energy sources. Gaseous sulfur compounds can react to form suspended particulate matter in the atmosphere.

- **Volatile organic compounds** (VOCs) can be emitted from the incomplete combustion of fuels, and during the processing, handling, drying and storage of organic fuels (e.g., coal, oil, natural gas, wood, agricultural wastes, landfill gas). The lower the combustion temperature, the higher the production rate of VOCs. Gaseous VOCs can react with NO_x to form ozone and some types of VOCs can form suspended particulate matter.

- **Particulate matter** emissions result from the incomplete combustion of fuel (e.g., soot and smoke), ash by-products, and fugitive dust. Fugitive dust from fuel handling, processing, drying, and storage can add to the particulate emissions from fuel combustion. Generally, the greatest concern is with particulate matter less than 10 microns in diameter (PM10), as these smaller particles are more likely to remain suspended in the atmosphere and cause visibility and respiratory problems.

(Federal regulators are considering adopting PM2.5 standards to augment and/or replace existing PM10 standards. These potential standards could change the attainment status and the plan for various air basins, and the air pollutant emission control strategies and technologies being proposed and used.)

"Even though an energy facility's contribution to overall air quality may be small in terms of the percentage of the total air quality picture, it should not be assumed that its contribution is always insignificant."

- The construction of an energy facility may cause significant short-term air quality impacts due primarily to **fugitive dust** if proper controls are not exercised. Fugitive dust is created from grading and other soil disturbances. The equipment involved (e.g., graders, cranes, trucks, and generators) also creates engine emissions including particulate emissions. These construction emissions are short-term unavoidable impacts that should be mitigated to the extent feasible.

- Fuels such as coal, oil, and natural gas also produce **carbon monoxide** (CO) and carbon dioxide (CO_2). CO is the result of incomplete combustion of carbon. The lower the combustion temperature, the higher the production rate of CO. CO_2 is an air quality concern because it is one of the pollutants which is believed to contribute to the greenhouse effect.

- **Heavy metal compounds** can be emitted from facilities burning oil and coal, depending on whether these elements are present in the fuel. They can also result from biomass, municipal solid waste, and geothermal facilities.

- The collection of landfill gas and sewage treatment gas may actually serve as a waste facility emissions control device and as a fuel source for electric generation and alternative fuel vehicles. (See the *Sonoma County Landfill Gas Project* box on page 5.1.8.) However, when the gas is collected and burned, air pollutants including heavy metals may be released. "Waste" gas fuels (gaseous or solid) also often contain **ammonia**, **chloride**, and **organic compounds** that can be emitted when burned. Precombustion treatment of the gases, careful sorting of wastes, hazardous materials extraction, and proper emissions control measures can reduce these emissions.

WHAT ARE CRITERIA POLLUTANTS?

Criteria air pollutants are those for which the United States Environmental Protection Agency (US-EPA) or the California Air Resources Board (CARB) has set standards based on public health, crop, and material damage criteria. These

THE REGULATORY ENVIRONMENT FOR AIR QUALITY

Federal	
• US-EPA sets national ambient air quality standards and hazardous air pollutant emission standards; identifies Best Available Control Technologies (BACTs) for criteria pollutants, Maximum Achievable Control Technologies (MACTs) for hazardous air emissions, Lowest Achievable Emissions Rates (LAERs), and oversees State programs (Clean Air Act)	Title 42, United States Code, section 7401 et seq.
State	
• CEQA guidelines for significant impacts: Violation of any ambient air quality standard, contributes substantially to an existing or projected air quality standard violation, or exposes sensitive receptors to substantial pollutant concentrations	Title 14, United States Code, of Regulations, section 15064 Appendix G (x)
• CARB sets ambient air quality standards	Health & Safety Code section 39606
• CARB (with Dept. of Health Services) sets safe exposure limits for toxic air pollutants and identifies Best Available Control Technologies for Toxics (TBACT)	Health & Safety Code sections 39650-74
• CA Energy Commission requires identification of offsets in permits	Public Resources Code section 25523 (d)(2)
• Local air district must issue Determination of Compliance for projects subject to CA Energy Commission siting process	Title 20, California Code of Regulations, section 1744.5
• Permits prohibited for facilities that prevent or interfere with attainment or maintenance of any applicable air quality standard	Health & Safety Code sections 42300 & 42301
• No net increase in non-attainment pollutants for districts with moderate, serious or severe air pollution, BACT trigger levels for each category	Health & Safety Code sections 40918, 40919 & 40920
• Reporting requirements for facilities emitting criteria pollutants or any toxic contaminant	Health & Safety Code section 44360 et seq.
• Requirements of health risk assessments	Health & Safety Code section 44360 et seq.
• Health risk assessment required for any project that burns municipal waste or refuse-derived fuel	Health & Safety Code section 42315
• Emission control requirement for upwind areas	Title 17, California Code of Regulations, section 70600
• Offsets from avoided open burning allowed	Health & Safety Code section 41605.5
• Rice Straw Burning Reduction Act, emissions reduction credits	Health & Safety Code section 41865
• Offsets for biomass facilities that use agricultural waste, forest and other organics	Health & Safety Code section 42314.5

THE REGULATORY ENVIRONMENT FOR AIR QUALITY (Cont.)

State and Local

General limitation on discharge from a source that causes nuisance to any considerable number of persons

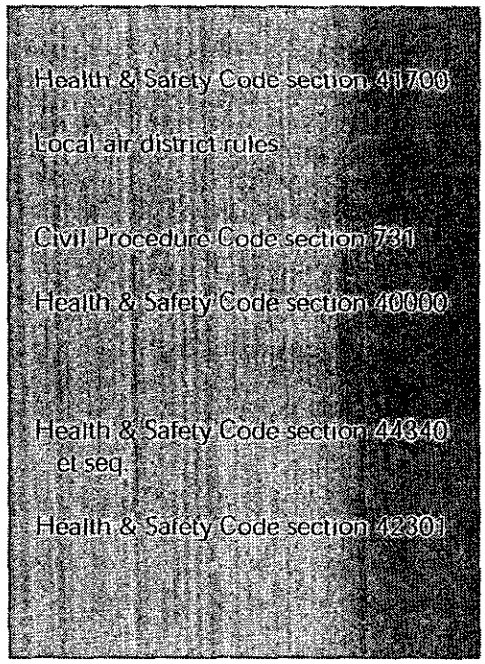
Local

Nuisance action to abate damages; public nuisance

Local air districts have the primary responsibility for control of air pollution from all sources other than emissions from motor vehicles

Full disclosure by facilities to local air district of hazardous emissions

Air Districts set:
- Emission limitation rules
- New source review rules
- Prevention of significant deterioration rules



"criteria" pollutants are shown in the insert *Ambient Air Quality Standards* on page 5.1.3.

The shorter duration standards (hours and days) were set to protect the most susceptible populations from acute health problems (e.g., asthma sufferers, the elderly and very young children) and to protect agricultural crops. The longer standards (annual) are designed to address chronic health effects and the corrosion and soiling of materials.

Most of the criteria pollutants are directly emitted from the combustion process. These primary pollutants can affect public health and damage crops and materials directly. They can also form secondary pollutants, which also affect public health and damage crops and materials. For instance, secondary PM10 may result from VOCs, SO_2, NH_3, and NO_x primary emissions. Ozone (O_3), is formed from NO_x and VOC emissions reacting in sunlight.

WHAT ARE NON-CRITERIA AIR POLLUTANTS AND THEIR POTENTIAL EFFECTS?

Non-criteria pollutants are those for which the US-EPA, the CARB, and local air districts have not set ambient standards. Examples of energy facility-related non-criteria emissions can include ammonia, arsenic, benzene, beryllium, cadmium, chromium, formaldehyde, nickel, and selenium. The primary source of non-criteria air pollutants is from trace amounts of elements and compounds associated with fossil fuels. These can result in trace emissions (non-criteria air pollutants) and combinations of trace emissions which can have a public health effect.

One effective way to control non-criteria air pollutant emissions is to limit a facility's number of operating hours per year using certain fuels. The restricted use of the fuel, and, therefore, its non-criteria pollutant emissions, is based on a designated safe level of the long-term, average annual exposure of the most sensitive persons over a seventy year period. Natural gas, which is being increasingly used as the fuel of choice in energy facilities (due to its current abundance and low price), contains minimal levels of non-criteria pollutants which can result in the emission of non-criteria pollutants. Some non-criteria pollutants have been identified as toxic air contaminants. Although no ambient air quality standards have been adopted for these pollutants, specific emission control requirements may exist. For a list of toxic air contaminants, contact CARB or the California or U.S. Environmental Protection Agency.

WHAT ARE SOURCES OF ODORS FROM ENERGY FACILITIES?

Energy facilities may also produce odorous emissions due to the handling, storage, and combustion of fuels, and the use of process and emissions control chemicals. Industrial facilities associated with cogeneration energy facilities may also produce odors that the public will attribute to the energy facility. These odorous emissions are usually not strong enough to result in public nuisance complaints during normal operations. Upset conditions can lead to nuisance odor exposures and public complaints. Nuisance odors from normal and upset operating conditions do not normally constitute public health concerns.

Odors convey information about their sources and produce a wide variety of emotional and physical responses. Odors are characterized by detectability (or threshold), intensity, character, and desirability (hedonic tone). While we can describe the color, texture, feel, and shape of an object, an object's odor can help us decide if we want to be near it or away from it. The perception of, and sensitivity to, odors is highly subjective and varies widely among individuals. Some individuals become readily desensitized (odor fatigue) while others become physically ill when exposed to the same odors.

The relationships between the intensity or duration of the exposure to odors and the magnitude of the symptoms have not been established. Although the relationship between odor and health risk is not clear; some believe that if it smells bad, it must be bad.

WHAT CRITERIA CAN BE USED TO DETERMINE IF IMPACTS ARE SIGNIFICANT UNDER CEQA?

For those projects which are subject to CEQA, a significant adverse effect on air quality would require preparation of an EIR.

Under the California Environmental Quality Act (CEQA), a lead agency may consider a project's impact on air quality to be significant if it:

- Creates a potential health hazard
- Violates any ambient air quality standard
- Contributes substantially to an existing or projected ambient air quality standard violation
- Exposes sensitive receptors to substantial pollution concentrations

Some air districts may allow project-specific emission increases of non-attainment pollutants or their precursors. However, the districts' attainment plans, which consider all sources of emissions, should ensure that such project-specific emission increases do not interfere with the attainment or maintenance of ambient air quality standards.

Notwithstanding project compliance with air district rules and regulations, if other information is presented suggesting that the emissions may cause a significant effect, the city or county, if it is the lead agency, will need to evaluate the effect and decide whether it may be significant. Even though an energy facility's contribution to overall ambient air pollution levels may be small in terms of the percentage of the total air quality picture, it should not be assumed that its contribution is always insignificant. Although no individual source usually contributes a large percentage to air pollution, the sum of all emissions can be very significant. The spatial and temporal nature of such emissions, as well as their magnitude, need to be considered along with the severity of the existing nonattainment problem, to determine the significance of such emissions impacts.

The direct, indirect and cumulative impacts of a proposed energy facility should be considered. Direct air quality impacts can result from air pollutant emissions during the construction and/or operation of a facility. Indirect air quality impacts result from ancillary activities, such as fuel delivery on trucks, trains, barges, etc., and fuel production, either on-site or off-site.

A facility's cumulative impacts can be evaluated in concert with other nearby projects with potential air quality impacts. Projects that should be included in the analysis are similar past projects, those that are under construction, in the permitting process, or reasonably expected to be approved in the near future. If the total emissions of these projects, added to the background air pollution levels, exceed any ambient air quality standard based on an air dispersion modeling analysis, mitigation may be required. For air emissions which can result in regional impacts, the entire air basin may need to be considered in determining the extent of cumulative impacts. (Kings County Farm Bureau v. City of Hanford [1990] 221 Cal.App.3d 692, 270 Cal.Rptr. 650) Future development that is likely to result as a consequence of the project should also be considered.

WHAT IS THE RELEVANT FEDERAL AND STATE LEGISLATION?

FEDERAL

The Federal Clean Air Act (1970, amended 1977, 1990) required the adoption of national ambient air quality standards for all areas of the United States. The US-EPA implements the Federal Clean Air Act. For non-attainment areas, i.e., areas for which the National Ambient Air Quality Standards are exceeded, a classification system is in place based on the degree of non-attainment. The classes are moderate, serious, and severe. The US-EPA requires that each state develop a State Implementation Plan (SIP) to attain, by a deadline, or maintain the ambient air quality standards of the federal act. If the SIP is deemed not adequate to meet federal standards by the deadline, the US-EPA may prepare and implement its own Federal Implementation Plan (FIP) to do so.

STATE

California has enacted its own, more restrictive, Clean Air Act (1988, amended 1992). In California, the US-EPA has delegated the authority to implement portions of the Federal Clean Air Act to the Air Resources Board, which has authorized local air districts to implement rules for attaining the national and state air quality standards.

WHAT IS THE AIR DISTRICT'S ROLE?

Air districts have been set up to control all non-mobile air pollution sources. They have responsibility for adopting and enforcing rules and regulations to ensure that they meet state and federal ambient air quality standards. Local air districts are free to enact stricter rules and regulations than the state or federal rules and regulations. In California, the air districts are required to write air quality management plans to reduce the ambient levels of non-attainment pollutants. The districts' plans together constitute California's State Implementation Plan. With the passage of the 1992 amendments to the California Clean Air Act, air districts are now also responsible for implementing transportation and area source control measures to improve air quality.

Local air districts implement and enforce emission limitation rules, and in most cases, New Source Review (NSR) rules and Prevention of Significant Deterioration (PSD) rules. Emission limitation rules apply to both new and existing emission sources and specify maximum emission levels for various emission source categories. NSR rules establish criteria for siting new sources of nonattainment pollutants. The basic NSR requirements include:

SONOMA COUNTY LANDFILL GAS PROJECT

Landfill operators are required to control landfill gas emissions. Sonoma county was flaring off landfill methane as a control measure. The County decided not to waste this resource but to capture it and create electricity from it. By doing so, the County found an efficient solution to meeting a regulatory mandate that is able to pay for itself.

Currently, the County generates 3 MW with excess gas flared off. Part of what is generated is used on-site to power a composting project, and the remainder, about enough to power one Sonoma County town, is sold to PG&E. With the current Standard Offer #1 contract with PG&E, the County expects a payback period of 8-9 years. Current landfill capacity is projected until 2003 with adjacent land available for another 12-15 years of landfill life. Methane projection is expected for 20 years past closure. AB 939 diversion requirements may affect the gas generating capacity of landfills, however the effect is not yet known.

One issue that has accompanied this landfill gas project is air quality control. The County's permit with the Bay Area Air Quality Management District allows for flaring of landfill gas as an abatement control device. Power generation at this site is considered a new source of emissions and as such is under stricter emission control requirements, requiring offsets for the NO_x that is generated in the process. The County is working to secure these offsets.

Contact: Ken Wells, Sonoma County Department of Public Works, 575 Administration Drive, Room 117, Santa Rosa, CA 95403; (707) 527-2231

A TYPICAL PROCESS TO DETERMINE AIR QUALITY IMPACTS and the EFFECTIVENESS OF MITIGATION MEASURES

• **Identify the potential air pollutant emissions from the energy facility.** Evaluate the type of fuel, its composition, the operating profiles, and emission data from facilities using similar fuels and processes. Identify worst case, average, and annual emissions based on whether the facility is baseload (operating continually), intermediate load (operating at partial capacity most of the time but increasing capacity to meet peak requirements), or peak load (operating only during peak need times, and therefore, involving many start-ups).

• **Define the existing and future ambient air quality.** In order to determine if the addition of emissions from the facility will cause an ambient air quality standard violation or increase the severity of an existing violation, existing and future ambient air quality should be evaluated. Information on spatial and temporal variations in ambient pollution concentrations is important for this purpose.

• **Analyze the pollutant dispersion into the air.** US-EPA, CARB and some local air districts have designated approved dispersion models for primary pollutants. The modeling can be done for regular operating and upset conditions using ambient air quality and meteorology data available from the local air district. Ozone and secondary PM10 are generally the result of many region-wide sources and are difficult to model. Therefore, evaluation of these indirect pollutant impacts generally requires consideration of the regional sources of the precursors of ozone and PM10, regional variations in ambient concentrations, and the facility's contribution to regional air quality.

• **Consider the magnitude of the emission increases from the facility.** All individual emissions in an air basin are small when compared with the total emission inventory, the sum of all emission sources. However, the degree to which a facility's emissions contribute to existing and future air quality problems in an air basin should be examined.

For non-criteria pollutants (those pollutants for which no standards have been set), it is often necessary to do the following to determine the significance of the impact, after the potential air pollutant emissions have been identified:

• **Identify the potential health hazards of each toxic pollutant.** Potential sensitive receptors can be located and the level of possible exposure from the facility emissions can be determined and compared to the acceptable exposure level. Potential human exposure can occur through inhalation and ingestion. Ingestion can occur, for example through eating crops, livestock, or fish, or by drinking milk, surface water, groundwater, or maternal milk.

Mitigation measures can then be developed to reduce or eliminate the adverse impacts of the project.

• **Mitigation measures can be developed to eliminate or reduce significant impacts.** Where feasible, mitigation measures can be matched spatially and temporally with the expected adverse air impacts. That is, an emission violating a standard or creating an adverse health impact in one location is best balanced by an emissions reduction in reasonable proximity to the violation, and short-term standard violations (hourly, daily) are best mitigated with emissions reductions of the same magnitude over the same time frame (hourly, daily).

- The use of offsets

- Compliance with the lowest achievable emission rate

- Certification by the proponent that other operations owned by them located in California currently comply with all air quality laws

In areas that already meet national ambient air quality standards, PSD rules establish criteria for new emission sources. Their purpose in part is to:

- Allow economic growth in a manner consistent with the preservation of existing clean air resources

- Protect public health and welfare

- Protect national parks and wilderness areas from visibility impacts

WHAT IS THE ROLE OF CITIES AND COUNTIES?

While air districts are responsible for controlling emissions from stationary sources, including power plants, other local government agencies, including cities and counties, can help to effectively mitigate project air pollutant emissions impacts under certain circumstances. They may do this by controlling the location, construction, and operation of the energy facilities themselves through general plan documents, specific area plans, zoning ordinances, special or conditional use permits, and any environmental impact reports required by the above processes. They can also influence the rulemaking and permit approval processes of their air districts through direct participation. (For more information on these topics, please refer to Chapters 3 and 4.)

The analyses performed for air district permits, when the district is not the lead agency, may not always address the broad range of issues required under the California Environmental Quality Act (CEQA). CEQA requires decision makers to document and consider the environmental implications of their actions, and ways to mitigate or otherwise lessen any resulting impacts. (See box on the previous page entitled *A Typical Process to Determine Air Quality Impacts and the Effectiveness of Mitigation Measures.*)

Local government agencies, in their issuance of other permits (e.g., special or conditional use permits) within their jurisdiction, may identify potential environmental air pollutant emission impacts from a project and mitigation measures, which may be in addition to those required by the air district permit.

WHAT IS THE CITY/COUNTY ROLE REGARDING ODOR IMPACTS?

Air districts in California adopt and enforce public nuisance rules to control odors from stationary sources. While air districts are responsible for controlling nuisance odors from stationary sources, city and county planning departments control the location and construction of some energy facilities themselves through general plan documents, specific area plans, zoning ordinances, and special or conditional use permits. These local government agencies, in their approvals of land use permits, may require stricter mitigation measures as a result of a CEQA analysis. Local governments also have the right to control nuisances, including odors.

If there are public complaints about odors or the perception by the public that an odor nuisance will result from the construction, operation or upset conditions associated with energy facilities, the local government permit authority may wish to pursue an odor impact determination and recommend mitigation. (See insert on the previous page entitled *A Typical Process to Determine Air Quality Impacts and the Effectiveness of Mitigation Measures.*) Odorous air emissions impacts can be determined by air dispersion modeling and compared to odor thresholds to estimate the potential for nuisance odors. Odor mitigation effectiveness can be evaluated similarly.

GENERAL PLAN IDEAS

The following are ideas which can be incorporated into general plan policy language providing they are consistent with goals adopted in the general plan. As is true for any adopted general plan language, if the city or county does not actually implement the language, any action taken by the local government to authorize a project would be subject to challenge based on the lack of implementation of the general plan.

- The city/county can locate air pollution sensitive land uses away from existing developed and undeveloped industrial sites. The city/county can require land developers, who propose projects that involve sensitive receptors (schools, hospitals, convalescent facilities), to provide buffer zones to separate them from industrial sites. The city/county can likewise require new energy facilities with adverse air quality impacts to be located an adequate distance from residential areas and sensitive receptors.

- The city/county can encourage energy facility developers to propose innovative measures to reduce air quality impacts. These can include new low-NO_x burners for reducing stack emissions and other new emissions control. The city/county can also encourage development of alternate energy technologies that improve air quality.

IMPLEMENTATION IDEAS

The following ideas can be used for the implementation of general plan policies. Any of the ideas used should, of course, be consistent with the entire general plan.

- Participate in the local air district's rule development process. The rules set by the air district include emission limitations, new source review, and prevention of significant deterioration rules.

- Participate in the public hearing process of federal, state and regional agencies on issues relevant to local air quality. Participate in the Energy Commission's licensing process for energy facility projects with potential air quality impacts within the boundaries of the city/county.

- Participate in developing procedures for performing air quality impact analyses. Support the development and use of air basin-wide air quality impact assessment guidelines. Participate in regional programs affecting air quality. Develop relationships with neighboring jurisdictions to share air quality information, policies, and programs, and to seek input on projects that have air quality impacts that affect other jurisdictions. Coordinate with other jurisdictions in the air basin to ensure a level playing field for all jurisdictions in the basin. Develop procedures to notify all affected jurisdictions and agencies for input on projects that may affect their air quality.

- Coordinate with other jurisdictions in the air basin to request comments from them and affected agencies during review of energy facility applications for facilities with the potential to impact air quality in their jurisdictions. Request notification of, and an opportunity to provide input for, energy facility development in neighboring jurisdictions that potentially will adversely impact local air quality.

- Consult with the local air district during CEQA review for all energy facility projects. Work with the local air district to ensure that all air quality impacts identified during CEQA review are consistently and adequately mitigated.

- Consult with the local air district to identify sources of toxic emissions and plot them on land use and zoning maps. Consult with project proponents during pre-application review to avoid inappropriate uses at affected sites.

- Designate adequate industrial land in areas downwind and well separated from sensitive uses. Protect vacant industrial sites from encroachment by residential or other sensitive uses. Designating industrial land benefits developers and the community alike by not locating incompatible uses adjacent to each other.

- Conduct a pre-application review with the project developer, local air district, and other affected agencies to identify air quality issues that may require redesign of the project and allow all interested parties to have their concerns addressed in the early stages of an energy facility's development. Review the air quality impact analysis provided by the applicant to ensure accuracy of the information.

- Consider requiring projects to prepare health risk screening assessments as part of an environmental review when the proposed industrial process or emissions are known. The health risk screening assessment will provide the permitting agency with the necessary information to determine if the project will have significant adverse health impacts, and to determine if a detailed health risk assessment is needed.

- Consider requiring mitigation to control fugitive dust, including site watering, speed limits, tire washing for vehicles that leave the site, parking area treatments, such as paving, and stabilizing temporary dirt piles.

- Develop monitoring procedures to ensure that mitigation measures are in force, and to evaluate their effectiveness.

- Provide incentives for energy facility project developers that propose innovative measures to reduce air quality impacts, or that use cleaner, alternate energy technologies. The incentives may include expedited permitting, and reduced permit or operating fees. Positive incentives encourage creative ideas that may provide better air quality improvements than would otherwise occur with standard mitigation measures.

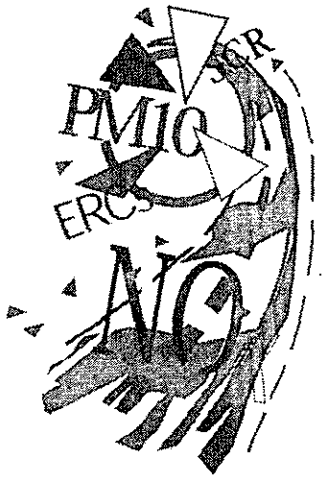
- Develop an Odor Complaint Resolution Plan to identify the source of a nuisance odor and to correct the problem. This can reduce or eliminate nuisance odors and the public's perception of odor problems. The odor complaint resolution plan can be a project-

specific plan to respond to and resolve odor complaints. Or the plan can be an educational program for the area near a proposed energy facility focusing on the scope and use of the local air district's nuisance rules, or the city/county nuisance abatement programs, if appropriate.

CASE STUDIES

The City of Pleasanton has adopted an air quality element as part of its general plan. The element includes policies and programs related to protecting and monitoring air quality, review of facility proposals, buffer zones between sensitive land uses and potential point sources of air pollution, and coordination with local, regional and state agencies, including the local air district and neighboring jurisdictions.
Contact: Planning Department, City of Pleasanton, P.O. Box 520, Pleasanton, CA 94566, (510) 484-8311.

The Lake County Geothermal Element requires that geothermal operations be planned and carried out using the best available air pollution control technology consistent with the requirements of the Lake County Air Quality Management District. Appropriate operating practices are required to reduce emissions and prevent nuisance odors.
Contact: Mark Dellinger, Energy and Resource Manager, Lake County Special Districts, 255 N. Forbes Street, Lakeport, CA 95453, (707) 263-2273.



INFORMATION RESOURCES

The California Air Resources Board (CARB) has developed the *CEQA Review Handbook for Local Air Pollution Control Agencies.* The handbook provides valuable information on the use and content of required CEQA documents and related time limits; on evaluating stationary sources, development projects, land use projects, and transportation plans; on determining cumulative impacts; and on how to incorporate CEQA into district rules. The handbook also includes an extensive list of sources for further information.
Contact: Stationary Source Division, California Air Resources Board, 2020 L Street, Sacramento, CA 95814, (916) 322-6020.

CARB has also developed the *California Emission Inventory Development and Reporting System* (CEIDARS) as a "living inventory" of emissions data for the state. Each January, the previous year's inventory is projected to represent emissions for the current year. As updates are made to this working database throughout the year, projections are replaced with actual data. The most recent data, as well as "snapshots" of specific time periods, are available via personal computer to local air districts. Each district has access to all of its own data, and to non-confidential data from other districts.
Contact: Dennis Goodenow, California Air Resources Board, 2020 L Street, Sacramento, CA 95814, (916) 445-4292.

CARB has also implemented a program that utilizes a Geographic Information System (GIS) to perform spatial analyses of emission inventory data. GIS will allow a pictorial representation of relationships among data that have traditionally been maintained only as tabular files. With GIS, the relationships can be presented as statistical reports, graphs, and maps. A study of Sacramento County has been completed. The process is currently being extended to the rest of the state.
Contact: Skip Campbell, California Air Resources Board, 2020 L Street, Sacramento, CA 95814, (916) 327-0301.

South Coast Air Quality Management District has developed the *CEQA Air Quality Handbook* to help local government agencies to develop CEQA documents. It includes chapters on air quality background information, the initial consultation, the initial study and determination of significance, document preparation, project review, and monitoring and reporting. The appendices include detailed guidance information, such as calculation procedures and quantification formulas.
Contact: South Coast Air Quality Management District, 21865 E. Copiey Drive, Diamond Bar, CA 91765, (909) 3963600.

The Association of Bay Area Governments (ABAG) and the Bay Area Air Quality Management District (BAAQMD) have prepared a guidebook for city and county governments called *Improving Air Quality Through Local Plans and*

Programs. The guidebook explains why local governments must be part of the air quality solution. It informs local policy makers and planners about air quality issues and opportunities relevant to local jurisdictions, and suggests key ideas for incorporating air quality beneficial policies and programs in local planning and decision-making. A set of appendices is also available to assist local planners in developing local air quality management strategies.
Contact: ABAG Publications, P.O. Box 2050, Oakland, CA 94604, (510) 4647900.

The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) has developed a guidebook called *Air Quality Guidelines for General Plans.* This guidance document was developed as a resource for the cities and counties in the San Joaquin Valley to use in implementing local air quality programs in their general plans. However, the ideas in it are relevant to other jurisdictions. The objective of the guidelines is to facilitate the successful implementation of local air quality programs that will reduce pollutant emissions in the Valley. The guidebook is available for $10.00. SJVUAPCD also has a rules and regulations manual, emissions inventory criteria and guidelines, and facility risk assessment guidelines. Contact the District for a complete list of materials and order form.
Contact: David Mitchell, San Joaquin Valley Unified Air Pollution Control District, 1999 Tuolumne Street, Suite 200, Fresno, CA 93721, (209) 497-1075, FAX: (209) 233-0140.

The Local Government Commission, under contract to the California Department of Toxic Substances Control, has written a guidebook called *Reducing Industrial and Commercial Toxic Air Emissions by Minimizing Waste: The Role of Air Districts.* This guidebook will help air districts implement programs to reduce toxic air emissions through educational, technical assistance, and regulatory programs. It includes a model resolution for cities, counties and air districts to establish a program to reduce hazardous air emissions by promoting waste minimization.
Contact: Local Government Commission, 1414 K Street, #250, Sacramento, CA 95814, (916) 448-1198.

The City of San Francisco, Department of Public Works, has created an Odor Project to respond to odor complaints from the public. While geared to resolve odor complaints originating from the transport and treatment of sewage, it is also intended to be a data base, or institutional memory, of information about causes of, and solutions to, odor complaints for any odor source. The database will be used to solve odor complaints quickly by avoiding redundant investigations into the source of an odor, and provide a ready solution to the complaints.
Contact: Sam Murray, Odor Project, Public Affairs, Department of Public Works, City of San Francisco, 1550 Evans Avenue, San Francisco, California 94124, (415) 431-9430, Ext. 267.

RELATED CHAPTERS/ISSUES

- Energy Facility Planning (Chapter 3)
- Energy Facility Permitting (Chapter 4)
- Hazardous Materials Handling and Storage (Chapter 5.3)
- Appendix F: Power Plant Generating Efficiency

NOTES NOTES NOTES

CHAPTER 5.2
BIOLOGICAL RESOURCES

INTRODUCTION

There is the potential for energy facilities and related facilities such as service roads, to impact biological resources during construction and/or operation. Construction activities may directly eliminate habitat or individuals of a species, or degrade important habitat as a result of additional noise, soil erosion, emissions and human activity. Facility operational impacts can include air emissions such as nitrous oxides, waste water discharges, and increased noise, lights, and human activity.

Local governments can be responsive and consistent when they provide energy project development guidance to prospective developers. Working with and providing advance guidance to developers will result in a more efficient, effective, and expeditious permitting process which will benefit both the local community and the developer/applicant.

WHAT ARE SENSITIVE SPECIES?

The term "sensitive species" as used in this document is intended to cover those species which have been provided various forms of legal protection under state and/or federal law (or are potentially eligible for such protection) and include:

- Species listed under the state and/or federal endangered species acts.
- Species considered as candidate species for listing under the state and/or federal endangered species acts.
- Species that meet the criteria of "rare" or "endangered" under the California Environmental Quality Act Guidelines.
- Species identified by legislative acts as requiring protection.
- Other species identified as being of special concern by state, federal, or local agencies that have the authority to so designate.
- Species of interest or concern to educational institutions, museums, biological societies, or other organizations that have specific knowledge of the biological resources in the project area.

WHAT ARE THE MAJOR POTENTIAL BIOLOGICAL RESOURCE IMPACTS FROM ENERGY FACILITIES?

Direct impacts on biological resources include habitat loss disturbances and disruptions, and direct kills. The most significant impact that energy facilities have on biological resources is **habitat loss**. The size of an energy facility will dictate how much habitat is lost directly, that is, a large energy facility will impact more acres than a small one. But there are other factors to consider as well. For example, construction during inactive times of the year for sensitive species, such as during hibernation, will have a smaller chance of disturbing the local population. (See the box on the next page on *Energy Facilities with Potential Biological Resource Issues.*)

Linear, as well as nonlinear facilities can cause habitat **disturbances and disruptions** to species.

- **Long, linear facilities** can disturb many acres of habitat. The actual space needed for pipeline installation may include two lanes for traffic (one in and one out for the machinery doing the digging), an area to store the excavated dirt until the trench is covered, as well as an area in which the backhoe or bulldozer maneuvers when refilling the trench. A pipeline only a few inches in diameter may disrupt an area 75 or more feet wide for the pipeline's entire length.

Public use can also disrupt biological resources where facility maintenance roads provide access.

• Nonlinear facilities, whether they are compact or large, can disturb sensitive biological areas, such as nesting or foraging areas, during construction or operation. Bright lights and loud noises can disrupt the habits of animals and interfere with mating and other essential activities. Facilities that emit air or water pollutants can affect biological resources either directly or by degrading habitat over an extended time period.

Facilities that discharge water into an adjacent water body can alter the temperature of the receiving waters and adversely affect associated wildlife and vegetation. Groundwater draw-down can lower the local or regional water table to a level where water supplies for animals and plants are eliminated. Such a draw-down may occur by direct facility pumping and/or from pumping by an off-site water provider. Energy facilities that use surface water for such things as cooling may draw in and destroy small fish and plankton.

"Cumulative impacts may be significant even when individual impacts are not."

Energy facilities that use holding or evaporation ponds containing chemicals that can adversely affect sensitive biological resources have resulted in wildlife deaths for individuals that came in contact with the toxic materials. Collisions of protected birds of prey, such as the golden eagle, with wind turbines are another example of direct species loss.

◪ Cumulative impacts refers to two or more individual effects or impacts which, when considered together, are considerable or which compound or increase other environmental impacts. The individual impacts may be changes resulting from a single project or a number of separate, closely related past, present, and reasonably foreseeable future projects. (Title 14, California Code of Regulations, section 15355). For example, noise, lights, and additional traffic in the vicinity of a facility or more than one facility can have a considerable cumulative impact of disturbance to sensitive species. Cumulative impacts may be significant even when individual project impacts are not.

◪ Indirect impacts may occur due to future development as a consequence of a project. For example, a project that provides economic incentives to further develop an area may cause the human population of the area to increase, requiring new houses, schools, and shopping facilities resulting in the loss of additional habitat.

The Swainson's hawk and the desert tortoise are examples of sensitive species affected by both cumulative and indirect impacts. The Swainson's hawk is a state listed threatened species in California. Five to ten acres of foraging habitat (grasslands and agricultural fields) may be lost to a typical power plant. It is hard to argue that the loss of these specific acres is a significant loss for the species, unless a breeding nest is involved. However, many projects together,

ENERGY FACILITIES WITH POTENTIAL BIOLOGICAL RESOURCE ISSUES

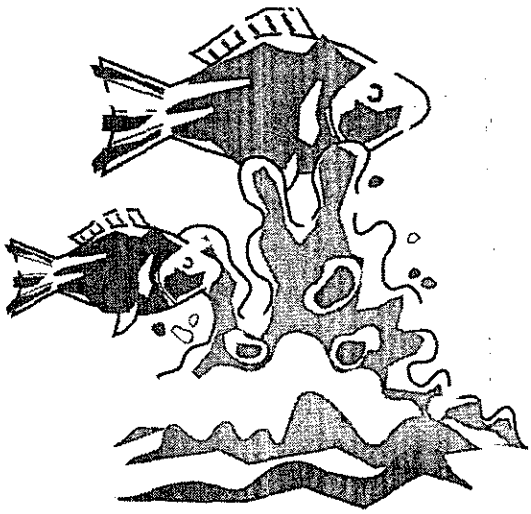
- Wind Turbine Farms - Bird collisions and death, noise and vibration disruption to species, loss of habitat
- Large Solar Facilities - Loss of habitat
- Electric Transmission Lines - Bird collisions and electrocution of large bird species, loss of habitat
- Oil & Gas Pipelines - Barrier to migration if above ground, possible spill contamination above or below ground
- Forest Waste Biomass Facilities - Traffic in forest, loss of habitat for some species, additional road kills on forest roads
- Hydroelectric Facilities - Habitat loss and barrier to migration for land and water species

not just energy facilities, can have a huge impact on the amount of foraging acreage lost to all development over an extended time period.

The same is true for the desert tortoise, a state and federally listed threatened species found in the Mojave Desert area of California. Deserts are also suitable for utility-scale solar facilities, and sometimes utility-scale wind facilities, both of which require large tracts of land. In this case it may again be difficult to prove that the specific acreage impacted by the energy facility will directly threaten the survival of the desert tortoise; however, when a number of developments occur in the desert as a result of the energy development, there may be significant indirect and cumulative impacts to the species.

HOW ARE POTENTIAL IMPACTS DETERMINED?

A biological resource analysis should be performed for energy facility projects when there is the potential to adversely impact biological resources. Small projects in urban areas may require only a brief discussion of biological impacts, unless sensitive species are known to exist there, since impacts to the resources may already have resulted from existing development. Projects on undeveloped habitat, however, will obviously require a much more detailed analysis.



> *"Protection of these species...is important to local governments and the public, especially if the species has commercial and recreational values upon which the local community depends."*

Under current law state or federally listed or sensitive species need not actually be seen within a proposed project area to conclude that there may be a direct impact on the species. If the appropriate habitat/natural community is present and the project falls within the species' range, the species could inhabit the area in the future if the project-related disturbance does not occur. The box on the following page on *Conducting a Biological Resources Analysis of Potential Impacts* provides a basic framework for determining impacts associated with the development of an energy facility.

CEQA GUIDELINES HELP DETERMINE THE SIGNIFICANCE OF IMPACTS

Any activity that threatens the survival of a state or federally listed species is considered significant. In addition, the California Environmental Quality Act (CEQA) guidelines consider a project to have potentially significant impacts to biological resources if it will cause any of the following to occur:

- A fish or wildlife population drops below a self-sustaining level.
- A plant or animal community is eliminated.
- The habitat for fish, wildlife or plants is substantially reduced.
- The number or range of rare, or endangered species is substantially affected, reduced or restricted.
- The movement of any resident or migratory fish or wildlife species is interfered with substantially.
- The diversity or number of species of plants or animals is changed.
- A new species of plant or animal or other barrier to the normal replenishment of existing species is introduced.
- An existing fish or wildlife habitat deteriorates.
- Materials that pose a hazard to plant or animal populations are used, produced or disposed of.

CONDUCTING A BIOLOGICAL RESOURCES ANALYSIS OF POTENTIAL IMPACTS

Consult information resources

California has several excellent information sources to help identify possible biological resource issues prior to field surveys at the facility site. (See Information Resources at the end of this chapter). This information, however, cannot replace field work. If these information resources do not indicate any listed or sensitive plants, animals, and/or rare natural communities for the proposed project area, it should not be concluded that these biological resources do not occur on the site. One can only conclude that there is a lack of information for that particular area.

Contact state/federal agencies

The California Department of Fish and Game (CDFG) and/or the United States Fish and Wildlife Service (USFWS) should be contacted, prior to beginning any field work, to ensure that acceptable survey methods are used.

Do field work for a biological resources analysis

A biological resources analysis includes:

- An inventory of plant and wildlife species and habitat types at the site, at associated facilities and in the surrounding vicinity.

  Biological resource inventories must be completed at the correct time of year to ascertain whether or not sensitive species are present on the project site or in the area. If sensitive species and/or their habitats are known to occur in the project area and depending upon the species/habitats involved, the inventory may need to be conducted over a period of not less than one year in order to include all seasonal variations, migratory species and life cycle activities. For areas that are already highly developed, less than one year may be adequate. Use of a biologist familiar with the species and habitats of the area will probably increase the accuracy of the inventory. Emphasis is placed on biologically sensitive species known to be in the region, or known to occur in habitats similar to those existing at the site, and on areas of critical environmental concern.

- A description of how an area will be altered, for how long, and its potential effects

  Impacts can include direct habitat loss; air emissions; water discharges; noise that disturbs sensitive, breeding or aggregating wildlife; non-native landscaping that is detrimental to native species; lighting that attracts, deters or confuses birds or other animals; tall structures with which birds may collide; hazardous chemical spills; road kills of sensitive species; and human activity that interferes with sensitive species. Direct habitat loss may be due to the facility site, transmission lines, pipelines, parking lots, access roads, temporary construction staging areas and/or other facilities.

Determine direct, indirect & cumulative impacts

The biological resource survey results, together with the environmental impact discussion, can be used to determine the direct, indirect and cumulative impacts to a project.

Suggest mitigation measures (Refer to box on *Potential Mitigation Measures* on page 5.2.6.)

THE REGULATORY ENVIRONMENT FOR BIOLOGICAL RESOURCES

The purpose of the Federal Endangered Species Act of 1973 is to protect biodiversity by providing a program for the conservation of endangered and threatened species and their habitat. California has its own Endangered Species Act that lists species in addition to those on the federal list. Impacts to biological resources are also addressed by CEQA. Local governments, through policies and ordinances, may also designate local biological resources of concern, if they meet the criteria for "rare", "threatened" or "endangered" under CEQA, even though they are not recognized as such on the state or federal lists. Species of local concern must then be addressed in the CEQA review for a project. Pertinent laws and regulations are listed below.

Federal

- U.S. Fish & Wildlife Service (USFWS) designates & provides protection for species and habitat (Endangered Species Act)

Title 50, Code of Federal Regulations, section 17.1

- Consultation with USFWS is required when listed species may be jeopardized (Fish & Wildlife Coordination Act)

Title 50, Code of Federal Regulations, section 17

California

- California's Endangered Species Act protects the state's rare, threatened and endangered species

Fish & Game Code sections 2050-2098

- Consultation and Memorandum of Understanding with Department of Fish & Game is required when rare, threatened or endangered species may be affected

Fish & Game Code sections 2081 & 2090

- Designation of protected plants (Native Plant Protection Act)

Fish & Game Code section 1900

- Designation of fully protected birds

Fish & Game Code section 3511

- Designation of fully protected mammals

Fish & Game Code section 4700

- Designation of fully protected reptiles & amphibians

Fish & Game Code section 5050

- Designation of fully protected fish

Fish & Game Code section 5515

- Siting energy facilities in state or local parks, estuaries or areas of critical environmental concern for biological resources is prohibited unless stringent criteria are met

Public Resources Code section 25527

Local

- Species that meet the CEQA Guideline definition of "rare" or "endangered," but are not listed as such by the state or federal government.

Title 14, California Code of Regulations, section 15380

WHAT ARE AREAS OF CRITICAL ENVIRONMENTAL CONCERN?

Areas of critical environmental concern include rare natural communities and areas of high biodiversity. If possible, these areas should be avoided when siting any development, including energy facilities. Some areas have been identified by legislative acts as requiring protection, such as riparian areas and wetlands.

Examples of areas of critical environmental concern include:

- Vernal pools, riparian areas, and coastal estuaries, which are particularly important because so much of these natural communities have already been lost and they often harbor state and federally listed species.

- Wildlife refuges, ecological reserves and unique or irreplaceable habitats of scientific or educational value.

POTENTIAL MITIGATION MEASURES

(See page 5.2.8 for other ideas.)

- **Avoidance.** Select an alternative site that lacks sensitive biological resources.

- **On-site habitat improvements.** Remove trash, remove and reseed unused roads and storage areas; reduce activity and noise levels near sensitive habitat areas; revegetate disturbed areas; allow construction only during certain times of the year to avoid disturbing sensitive species during critical life history stages.

- **On-site environmental awareness program.** Train personnel on the importance of avoiding disturbance to the sensitive species and their habitat.

- **On-site active enhancement and management of appropriate areas.** Improve the amount and quality of water, food, cover used by wildlife; increase and protect important areas by providing fencing, signing, and other measures to reduce disturbance and intrusion into breeding and rearing areas; and remove intrusive exotic weedy species competing with native plant species.

- **Off-site habitat compensation.** Acquisition and perpetual protection of suitable replacement habitat.

- **Off-site habitat compensation by account.** This requires compensation funds to be deposited for use in acquiring off-site mitigation habitat when such areas cannot be acquired prior to construction.

- **Off-site habitat compensation endowment fund** for the long-term maintenance and management of compensation acreage. The fund must be large enough to do some or all of the following depending on the situation:

  a) Develop habitat management plan(s)
  b) Implement habitat enhancement program(s)
  c) Develop species and ecosystem research programs to develop monitoring and management plans
  d) Develop species monitoring programs
  e) Perform analyses of population viability/sustainability to ensure protection of adequate area and species numbers has occurred
  f) Cover management/administrative personnel salaries
  g) Pay for office space rent and equipment purchases
  h) Coordinate and cooperate with other agencies and programs
  i) Pay for investment management of the endowment fund
  j) Provide detailed accountability for all funds
  k) Provide educational programs

HANDLING FACILITY DISCHARGES

National Pollutant Discharge Elimination System standards may not be adequate to protect all sensitive species. If the expected discharges from an energy facility may alter the quality of surface waters and adversely affect sensitive biological resources, the developer can be required to mitigate any impacts. Mitigation may include providing additional pre-treatment before release of discharges to surface waters or to a publicly owned treatment work (POTW). The developer may also provide funds to the POTW to upgrade its system to reduce the impacts of the facility's discharge to an acceptable level.

ECONOMIC CONSIDERATIONS

Protecting sensitive species and their habitat may increase the cost of an energy facility. Protection of these species, however, is important to local government and the public, especially if the species has commercial and recreational values upon which the local community depends. An example is the native salmon fishery. In extreme cases, the cost of on- and off-site mitigation, seasonal limits on construction and/or operation, or other mitigation measures (even if the sensitive species are of little commercial, tourist and/or recreational value) may be high enough to cause the energy developer to choose an alternate location.

Costs to the developer to implement mitigation measures will vary. Costs to local governments for participating in or conducting studies to understand the effects of energy facility development on sensitive biological resources can be included in the cost of operating permits.

GENERAL PLAN IDEAS

The following are ideas which can be incorporated into general plan policy language providing they are consistent with goals adopted in the general plan. As is true for any adopted general plan language, if the city or county does not actually implement the language, any action taken by the local government to authorize a project would be subject to challenge based on the lack of implementation of the general plan.

- The city/county can require developers of energy facilities to consult with the California Department of Fish and Game and/or the United States Fish and Wildlife Service to develop approved biological resources plans. The plans can address pre-construction surveys, monitoring and mitigation for biological resources in the areas that may be affected. The mitigation plan measures should reduce the impacts of the development to an acceptable level. A Memorandum of Understanding between the project proponent and the California Department of Fish and Game may be required if the proposed project has the potential to affect state-listed species.

- In order to protect significant local biological resources, the city/county can inventory existing habitat within its jurisdictional boundaries to determine what, if any, species should be designated to be of local concern.

- The city/county can work with the California Department of Fish and Game and/or the United States Fish and Wildlife Service to develop regional plans (e.g. a Habitat Conservation Plan) to identify a strategy for species recovery in the context of existing and planned development projects. As a result, land may be designated for protection from development as habitat for rare, threatened, or endangered species of local, state or national interest. Likewise, development areas may also be identified.

WIND TURBINES AND AVIAN MORTALITY

Wind farms are often located in windy mountain passes. Birds of prey, including golden eagles, may use these same areas. Collisions between these birds and wind turbines continue to happen in some areas, and although many studies have been done and more are in progress, developers cannot yet ensure that future collisions will be avoided. Mitigation measures being tested include paint schemes on turbine blades, redesign of turbine towers and shutting operation of specific turbines during high bird activity times. So far, the only foolproof mitigation is to avoid siting wind farms in the migration routes or hunting areas of birds.