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GEOTHERMAL RESOURCE REGULATION: AN IMPERIAL COUNTY PERSPECTIVE

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The purpose of this presentation is to clarify Imperial County's approach to the policy guidance and regulation of its geothermal resource development by means of an element of the County General Plan.

In the recent past, the states have required that individually enacted zoning and other ordinances must conform with a more inclusive policy or overall plan. This type of master policy plan has come to be known as a general plan. Most people would agree with a definition of general plan as being a comprehensive long-term outline that sets forth major policies concerning desirable future physical development for the locale.

All counties in California must create a general plan of their projected physical development that clarifies the relationships between physical development policies and social and economic goals. A general plan frequently addresses major activities and capital improvements that affect the physical character of a community.

A county general plan in California must have nine mandatory elements and is permitted to have further optional elements as necessary. The mandatory elements are land use, circulation, housing, conservation, open space, seismic safety, noise, scenic highways, and safety.

While the law mandating the development of general plans comes from the state, the intent of the enabling legislation was for the exercise of local control over local destiny. Subsequent state and federal legislation has reinforced this concept of stipulating that outside agencies - whether regional, state, or federal - take the local general plan into account before preempting that plan. The general plan is legitimately viewed as having the most valid mandate, since the people involved must live with the consequences of their decisions.

Two general rules apply to a general plan: first, any zoning must conform to the general plan, and second, the nine mandatory elements must be consistent. The first of these two rules explains why the County of Imperial determined to have a geothermal element to guide development of the resource: any zoning for geothermal resources would have to be consistent with the general plan. A coherent hierarchy of policies, zoning, and regulations is required to fulfill and implement the general plan concept. The geothermal element must also be consistent with the other elements of the County General Plan.

Perhaps the most important aspect of the general plan concept is that the citizens of a county have a unique knowledge of the various value relationships existing within the county, which would be missed by legislation imposed from, say, the state or federal level. While the general plan is obviously a planning instrument, it is--more importantly--a manifestation of responsible self-determination or democracy at the most sensitive and accountable level.

The foregoing is intended to clarify why and how a county uses an element of its general plan to provide a vehicle for decision making concerning the destiny of an area. The regulations that implement the general plan are a natural derivative of it. Both can be altered or amended by standard procedures.

In May 1971, the Imperial County Board of Supervisors adopted an interim set of regulations to guide geothermal development pending the creation of the geothermal general plan element. This interim regulation is called, "Terms, Conditions, Standards and Application Procedures for Initial Geothermal Development, Imperial County."

In 1973, the county sought funding to make a comprehensive study to develop a geothermal element of the County General Plan. The county was subsequently awarded a grant of \$365,000 by the National Science Foundation for that purpose. The county subcontracted to the University of California at Riverside and California Institute of Technology to perform research in seven disciplines: resource assessment, engineering, geography, environmental aspects, sociology, economics, and political science/law. The purpose of the research was to acquire sufficient background material to develop a comprehensive geothermal element.

The research commenced in November 1975 and was completed in February 1977. The geothermal element is nearing completion. We anticipate that it will be adopted during the summer of 1977.

The resource assessment research determined the size of the recoverable resource in each of the four economic anomalies: Salton Sea, Brawley, Heber, and East Mesa as well as the possibility of new areas being developed. Engineering research proved the feasibility of using the irrigation drainage water as a cooling medium; determined the amount of surface land use for plants and wells; addressed the problems of transmission pipeline burial, disposal of blowdown sludge, drilling in the Salton Sea; and determined the fact that cooling tower drift should not be a problem.

Geographical and environmental studies concluded that geothermal resource development should not significantly affect the county's agricultural resources. The major environmental considerations appear to be potential subsidence, possible seismicity, and long-range water availability. Sociologically, the county has been characterized as being almost unanimously in favor of development of geothermal resources, and having a growing population that will likely grow slightly faster because of geothermal resource development. Creation of a skills training center was recommended to provide an appropriate labor pool.

The economic research determined the capital costs of geothermal development, the fact that the county would gain some employment and tax revenues of approximately \$5,000.00 per installed megawatt, and the multiplier, or ripple effects, that would occur throughout the county's economy. The economic risks are still the major deterrent to geothermal resource development.

In the political science/law areas we have received an articulated set of policy recommendations relating to the regulation and administration of the resource development and relations with other agencies and groups.

Based on the research results and a multitude of meetings with various industry and government groups, we have developed preliminary policy recommendations in the areas of social and environmental concerns, industry and resource concerns, and county-oriented concerns.

Understandably, these policies will strive to maintain or preserve the values of the citizens of the county, such as a healthy economic climate, as well as make the regulations as equitable as possible.

We have some recommendations based on our geothermal element project:

- The more ministerial an accountability mechanism is, the better. That is, if performance standards can take the place of discretionary permitting processes, the industry is encouraged and the bureaucracy is minimized.
- Geothermal energy needs better public relations to educate the general public, as well as decision makers.
- Since water for cooling may be a critical constraint in the long run, its assured supply should be studied.
- To ensure avoiding problems deriving from secondary geological consequences, the existing monitoring systems (a vertical survey net for subsidence detection, and diverse seismographic stations) should be expanded and coordinated into a coherent system.
- The timing seems right for a study of effective economic incentives to accelerate the development of geothermal resources.