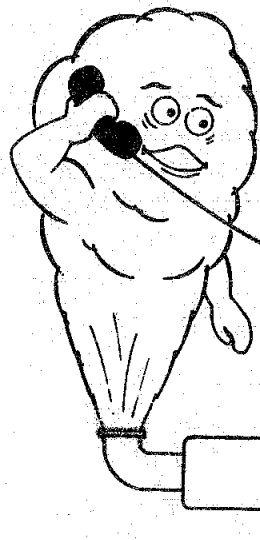
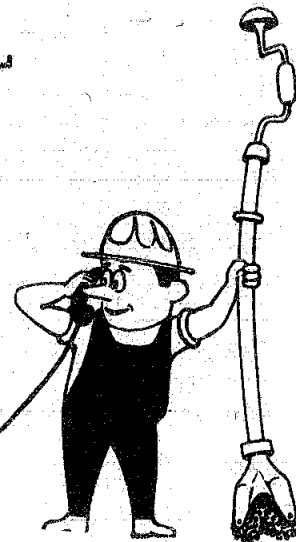


# GEO THERMAL



## Hot Line



*A publication of the State of California - Division of Oil and Gas*

Volume 7, Number 2

May 1977

### SPECIAL REPORT

"Caution is always needed to adequately respect the inherent wisdom of nature."

Richard L. Crowther, AIA

#### GEO THERMAL TASK FORCE

UPDATE: Hearings (Hotline April, 1977)

The first three geothermal task force hearings have been held, one in Sacramento on April 14 and 15, and one in San Diego on April 28 and 29. The first hearing dealt with the status of geothermal resource development and current technology, while the second dealt with the status of development of geothermal resources in Imperial Valley, the state of current technology, economic and business concerns, regulatory issues, and environmental problems and considerations. The witnesses giving testimony were as follows:

#### Hearing - April 14

##### Witness - Affiliation

Carel Otte - Union Oil Co. of Calif.  
Jim Bresse - ERDA  
Ben Holt - Ben Holt Company  
Carl Weinberg - PG&E  
Larry Krumland - PG&E  
Bob Greider - Chevron USA, Inc.  
William D'Olier - Thermal Power Co.

#### Hearing - April 15

##### Witness - Affiliation

Harry Falk - Magma Power Co.  
G. Ramachandram - Stanford Research Inst.  
Bob Greider - Chevron USA, Inc.  
C. F. Possell and Robert L. Small - General Ener-Tech. Corp.  
Martin Goldsmith - Jet Propulsion Lab.  
H. I. Rogers - Rogers Engineering  
David Elliott - Jet Propulsion Lab.  
Konrad Semrau - Stanford Research Inst.  
Carthrae Laffoon - Republic Geothermal, Inc.

Hearing - April 28

Witness - Affiliation

Tony Chasteen - Union Oil Co. of Calif.  
Gilbert L. Lombard - San Diego Gas and  
Electric Company  
Robert Christiansen - U.S. Geologic Survey  
A. B. Querk - Q. B. Resources  
David Pierson - Imperial County  
Arthur Swajian - WQCB  
Jim Woodburn - City of Burbank  
Richard Miller - United Calif. Bank  
Stephen Vehrs - Salton Sea Wildlife  
Robert Rex - Republic Geothermal, Inc.

The third hearing, the one in Sacramento, was just concluded on May 19 and 20 and covered testimony on financing and business concerns, regulatory problems, and environmental problems and considerations.

Hearing - May 19

Witness - Affiliation

Vane Suter - Union Oil Co.  
Larry Spencer - Water Resources Control  
Board  
Joe Litton - Dean Witter and Co., Inc.  
Robert Paschall - State Board of  
Equalization  
Dini Green - PG&E  
David Snetsinger - Calif. Water Quality  
Control Board (North Coast)  
Bob Sandy - Mono County  
Mark Totton - Lassen County  
Fred Nantker - Shell Oil Co.  
John Emig - Calif. Dept. Fish and Game  
Clyde Kuhn - Archeologist  
Muriel Jordan - Geothermal Association  
Fayne Tucker - Lake County

The San Francisco hearing will be held in the Public Utilities Commission Hearing Room 1158 at 350 McAlister Street, San Francisco, California, on May 26 and 27. It will cover the role of the Federal Government and other subjects pertinent to geothermal operations.

The list of geothermal task force representatives given in the April issue should have included Assemblyman Lawrence Kapiloff, 78th district; Assemblywoman Marilyn Ryan, 51st district; Senator Omar Rains, 18th district; and Senator John Stull, 38th district. Recently, public members were appointed to the geothermal task force by Governor Brown and are: Mary D. Jadiker, Director of the Lake County Energy Council; Paul Kruger, professor of civil engineering at Stanford University; and Jack McNamara, Chief Counsel, geothermal energy and law program, University of Southern California Law Center. In addition, an amendment to the original task force bill, AB 985, is now being heard and will ask for an appropriation of \$10,000 for expenses incurred by the task force. Also, the bill adds representatives of the State Air Resources Board, the Division of Mines and Geology, and the State Solid Waste Management Board, and extends the existence of the task force from July 1, 1977 to December 31, 1977. They are: George Taylor, Forrest Bacon, and Peter Huff, respectively.

Hearing - April

Witness - Affiliation

Bob Greider - Chevron USA, Inc.  
Tom Henrich - Magma Power Company  
Gary Stacey - Calif. Dept. of Fish and Game  
Ray Thompson - Univ. of Calif. at Riverside  
Will Peak - Calif. Dept. of Water Resources  
Arthur Wilber - ERDA  
Jack Howard - LBL (ERDA)  
Roy Austin - LBL (ERDA)  
Ron Loose - ERDA  
Paul Phelps - LLL (ERDA)  
Mark Silverman - ERDA  
Ronald May - Consultant Archeologist

Hearing - May 20

Witness - Affiliation

Norm Ingraham - North. Calif. Power Agency  
Darrell Gertsch - Idaho National Engineering  
Lab.  
Stan Meyer - Sierra Mono Indian Museum  
David Frederickson - Sonoma State College  
Peter Windrum - Lake County  
Don Karr - Oregon Institute of Technology  
Marilyn Good - Sonoma County Tomorrow  
Hamilton Hess - Sierra Club  
Don Johnson - Lake County  
Dr. Dowell Martz - Napa County  
Will Johnson - Sonoma County  
Bob Jones - Lake County  
Jerry Heath - Mendocino County  
Tom Cordill - Sonoma County  
Arthur Wilbur - ERDA  
David Hill - State Energy Commission

## FEDERAL

On March 1, President Carter sent proposed legislation to Congress that would reorganize the Federal Government's energy agencies and programs. The bill, now in the hearing process before both the Senate and the House, would establish a Cabinet-level Department of Energy (DOE).

The proposal calls for a department with a staff of 20,000 and a \$10.6 billion budget to take over functions now scattered through more than 50 federal agencies. It would consolidate all functions of the Federal Energy Administration (FEA), the Federal Power Commission (FPC), and the Energy Research and Development Administration (ERDA).

In addition, the energy functions of certain agencies will be transferred to the department and are as follows:

1. The Department of Defense - the jurisdiction over and administration of the three Naval Petroleum Reserves in California and Wyoming, and three Naval oil shale reserves in Colorado and Utah;
2. The Department of the Interior - policy control over the rate of the exploration program in the Alaskan Naval Petroleum Reserve, power marketing functions of the Bonneville, Southeastern, Southwestern, and the Alaskan Power Administration; power marketing functions of the Bureau of Reclamation; the fuels data program, research and development programs related to improvements in coal mining extraction technology development for surface mining of the Bureau of Mines; control over broad economic and energy supply goals of the public lands leasing process;
3. The Department of Commerce - programs to promote voluntary industrial energy conservation;
4. The Department of Housing and Urban Development (HUD) - statutory authorities for the development of thermal efficiency standards for commercial and residential buildings (implementation of these standards would continue in HUD);
5. The Securities and Exchange Commission - authorities vested through the Public Utility Holding Company Act of 1935 to regulate mergers in the Electric utility industry;
6. The Interstate Commerce Commission - authority to regulate oil pipelines, including rate making;
7. DOE will have a right to concurrence on approval of the Rural Electrification Administration's loans and loan guarantees for generation and transmission facilities to ensure their coordination with the national energy policy;
8. DOE will have a role in recommending goals in the automobile standards program to the Secretary of Transportation who will continue to have primary responsibility for the program. DOE will also participate in the energy activities of other federal departments.

The new department's Energy Information Administration would centralize many of the major energy information programs. The Economic Regulatory Administration would carry out informal rule making and issuance of policy statements covering the economic regulatory areas within the department. At the present time, this principally includes coverage of FEA regulatory activities and a national wellhead pricing of natural gas by FPC.

The Hearings and Appeals Board would be comprised of three Presidential appointees, subject to Senate advice and consent, serving four-year terms and removable only for specified causes. These provisions insulate the appointees from control of the DOE secretary. Initially, their functions would extend to all matters pertaining to interstate wholesale electricity sales, natural gas transportation charges, and hydroelectric facilities licensing. The board may hear these cases initially, or may give

them initially to administer five law judges whose decisions could then be appealed to the appeals board. The actions of the board would be a final departmental action, subject to review only by the courts.

#### UPDATE - ERDA Guarantees First Geothermal Loan (See Hotline, April, 1977)

ERDA's first loan guarantee for geothermal development guarantees a \$9 million loan made by Bank of America to Republic Geothermal, Inc. The loan is for a 50 MW electrical power plant in the Imperial Valley, 14 miles east of El Centro in the East Mesa geothermal area. The project is scheduled for completion in 1980 and the electricity will be sold to the Imperial Irrigation District.

ERDA expects to be guaranteeing a total of \$200 million in loans by October of this year.

#### LEGISLATION (CALIFORNIA)

AB 566 (Thomas), as amended, changes the bonding law of oil, gas, and geothermal wells.

(1) Existing law requires every person engaged in the drilling, redrilling, or deepening of oil or gas wells, or in any operation permanently altering in any manner the casing of any well, to file with the State Oil and Gas Supervisor an individual indemnity bond for a single well in the amount of \$25,000, or a blanket indemnity bond in the amount of \$250,000 for operations involving one or more wells at any time. Such bond may be terminated and canceled when the well or wells covered by such bond have been properly abandoned or another valid bond has been substituted therefor.

(2) Existing law requires every person engaged in the drilling, redrilling, deepening, maintaining, or abandoning of geothermal wells and any person who acquires the ownership or operation of geothermal wells to file with the supervisor an individual indemnity bond in the amount of \$25,000, or a blanket indemnity bond in the amount of \$250,000 for any number of wells.

This bill would reduce the amount of a blanket indemnity bond to \$100,000, and would permit the filing in the case of a low-temperature geothermal well, of an individual indemnity bond in the sum of \$10,000 for each well less than 5,000 feet deep or \$15,000 for each well at least 5,000 feet but less than 10,000 feet deep.

(3) Existing law also authorizes the Supervisor to order specified work to be carried out in connection with any oil or gas well which he determines to be a hazardous well. Existing law defines a hazardous well as a well that has been determined by the Supervisor to pose specified hazards and with respect to which the last person that had an economic interest in, or received any benefit from, the well is deceased, defunct, or no longer in business in California, or any other person that has or had an economic interest in, or received benefit from, the well derives or derived only insubstantial benefit or little or no financial gain and would suffer severe economic hardship if regulatory abatement were imposed.

This bill would redefine a hazardous well, for such purposes, as a well that has been determined by the Supervisor to pose such hazards and with respect to which the last operator that had an economic interest in, or received any benefit from, the well is deceased, defunct, or no longer in business in California, and the present surface owner and mineral estate owners derive no substantial financial gain and would suffer financial hardship if regulatory abatement were imposed.

(4) Under existing law, the Department of Conservation is required, by March 1 of each year, to make an estimate of the amount of money necessary to carry out the duties of the department relative to the regulation of the production of oil and gas in the succeeding fiscal year for the purpose of determining the charge to be levied on the production of oil and gas.

This would change the date to June 15 of each year and provide for the adjustment of the estimate of such amount of money by the current fiscal year's savings or increased expenditures.

The bill would take effect immediately as an urgency statute.

(REFERRED TO COMMITTEE ON RESOURCES, LAND USE, AND ENERGY)

AB 780 (Craven), as introduced. Environmental quality: public agencies: power plant participation.

The Environmental Quality Act of 1970, in part, requires the preparation of environmental impact reports by public agencies on any project they propose to carry out which may have a significant effect on the environment.

This bill would specify the decision by a public agency to participate financially in a power plant development would not be subject to the requirements of the Environmental Quality Act of 1970 if the power plant is subject to certification by the State Energy Resources Conservation and Development Commission and the public agency may terminate its participation prior to such certification. Introduced March 7, 1977.

(REFERRED TO COMMITTEE ON RESOURCES, LAND USE, AND ENERGY)

AB 791 (Kapiloff), as introduced. Geothermal leases: public agencies.

Existing law authorizes the issuance of prospecting permits and leases for geothermal resources on state lands to individuals or corporations meeting specified requirements.

This bill would specify that such permits and leases may be issued to the United States government or any agency thereof, and to state and local agencies. The bill would also specify that state and local agencies are authorized to secure such permits and licenses. Introduced March 7, 1977.

SB 1027 (Roberti), as introduced. Geothermal resources: state lands.

Existing law, the Geothermal Resources Act of 1967, establishes a procedure for obtaining prospecting permits and leases from the State Lands Commission for the extraction and removal of geothermal resources, as defined, from state lands for the production of geothermal energy in commercially valuable quantities and other byproducts incidental thereto.

This bill would change the name of the act to the "Geothermal Resources Act", declare legislative intent concerning development of geothermal resources beneath state lands, revise the procedure and terms for issuance of prospecting permits, authorize the commission to grant nonexclusive geological or geophysical exploration permits for geothermal resources, revise the procedure and terms for the leasing of lands, authorize the commission in leasing lands to prescribe a development program, revise the amounts of rentals and royalties which may be required under prospecting permits and leases, and authorize the commission to take geothermal resources in kind in lieu of payment. The bill would also authorize the commission to enter into agreements, as specified, with the owners of private wells which are draining geothermal resources from state lands, authorize the commission to determine consideration to be received from a permittee or

lessee for specified activities for the purpose of reinjecting geothermal resources or the residue thereof, and revise the terms under which a permit or lease may be assigned, transferred, or sublet.

The bill would also provide that, where the surface of state-owned lands used for development of geothermal resources is under the jurisdiction of an agency other than the commission, 50% of the revenue received by the state each fiscal year pursuant to such leases shall be available for appropriation by the Legislature for support of such agency. Introduced April 14, 1977.

(REFERRED TO COMMITTEE ON RESOURCES, LAND USE, AND ENERGY)

AB 1035 (Coggin), as introduced. Power plants.

Under the existing provisions of the Warren-Alquist State Energy Resources Conservation and Development Act, the State Energy Resources Conservation and Development Commission, among other things, has the exclusive power to certify, as prescribed, all sites and related facilities in the state. Under the present law, facility is defined to be any thermal power plant, as defined, or any electric power line carrying electric power from a thermal power plant located within the state to a point of junction with any interconnected transmission system. This bill would, in addition, include any well or pipeline to be used in the operation of a thermal power plant utilizing geothermal energy within the definition of "facility", which would specifically include any such well or pipeline within the exclusive jurisdiction of the commission under the Warren-Alquist State Energy Resources Conservation and Development Act. Introduced March 21, 1977.

(REFERRED TO COMMITTEE ON RESOURCES, LAND USE, AND ENERGY)

AB 1466 (Gualco) as introduced. Power plant certification.

Under the Environmental Quality Act of 1970, there is a requirement for an environmental impact report on a proposed power plant. The power plant is also certified by the State Energy Resources Conservation and Development Commission.

This bill would provide that where a notice of intention to file an application for the certification of a power plant site and a related facility has been accepted by the commission, the party filing the notice may prepare detailed design drawings and purchase equipment for the facility whether or not there has been compliance with the Environmental Quality Act of 1970.

This bill would take effect immediately as an urgency statute. Introduced April 8, 1977.

(REFERRED TO COMMITTEE ON RESOURCES, LAND USE, AND ENERGY)

#### CONFERENCES

July 14-16, 1977 - 23rd Annual Rocky Mountain Mineral Law Institute, North Shore of Lake Tahoe, Nevada; headquarters - Hyatt Lake Tahoe. Information: The Rocky Mountain Mineral Law Foundation, Fleming Law Building, Room 44, University of Colorado, Boulder, Colorado 80309. Telephone: (303) 492-6545.

## Ninth International Post-Graduate Course in Geothermics

The International Institute for Geothermal Research of Pisa is organizing a Post-Graduate Course in Geothermics for February 15 - July 15, 1978, under the auspices of the National Research Council of Italy, the Ministry of Foreign Affairs, and of UNESCO. The purpose of the course is the preparation of specialists in geology, geophysics, and engineering applied to research and exploitation of geothermal fields. For more information write:

Instituto Internazionale per le Ricerche Geotermiche  
International Post-Graduate Course in Geothermics

Lungarno A. Pacinotti, 55  
56100 PISA - Italy

Cable address: Geotermico - Pisa - Italy

## PUBLICATIONS

### Geothermal Environmental Seminar 1976

Proceedings from the seminar held last October at the KONOCTI Harbor Inn, Lake County, California, are now available for \$12.00. For more information write: Geothermal Seminar, 390 North Forbes Street, Lakeport, California 95453.

### An Assessment of Geothermal Development in Puna, Hawaii

Written by Robert M. Kamins, assisted by Karla J. Tinning. Hawaii Geothermal Project, University of Hawaii, Holmes Hall 240, 2540 Dole Street, Honolulu, Hawaii 96822. January 1977, pp 103.

### Geothermal Energy as a Source of Electrical Power: Thermodynamic and Economic Design Criteria

Written by Stanley L. Milora and Jefferson W. Tester. The technological aspects of producing electricity from geothermal sources are examined. It is intended for engineers and other quantitatively oriented researchers.

### Geologic Data Map No. 1

Fault map of California, with locations of volcanoes, thermal springs, and thermal wells, compiled by Charles W. Jennings; 1975 (scale 1:750,000) \$5.00. Available from the California Division of Mines and Geology offices in San Francisco, Los Angeles, and Sacramento, or by writing P. O. Box 2980, Sacramento, CA 95812.

### Engineering Aspects of Geothermal Development in the Imperial Valley

By Martin Goldsmith. Environmental Quality Laboratory, California Institute of Technology, Pasadena, CA 91125.

STATE OF CALIFORNIA  
DIVISION OF OIL AND GAS  
1416 NINTH STREET, ROOM 1316-35  
SACRAMENTO, CALIFORNIA 95814

---

**GEO THERMAL HOT LINE**

*A periodic publication of the  
California Division of Oil and Gas*

Priscilla C. Grew, Director  
Department of Conservation

M. G. Mefferd, Acting Chief  
Division of Oil and Gas

Doug Stockton, Editor  
Don Lande, Asst. Editor  
Jack Miller, Asst. Editor  
Linda Ferguson, Asst. Editor  
Bill Guerard, Asst. Editor  
Irene Martin, Typist  
Karan Pohutsky, Typist  
1416 Ninth Street, Room 1316-35  
Sacramento, CA 95814  
(916) 445-9686