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J.M. Energy Consultants, Inc.

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MONITORING REPORT NO. 3: CURRENT CALIFORNIA LEGISLATIVE AND REGULATORY ACTIVITY IMPACTING GEOTHERMAL HYDROTHERMAL COMMERCIALIZATION

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Geothermal Resource Management,
Assistant Secretary For Resource Applications,
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CHAPTER ONE: INTRODUCTION

The posture of the State of California towards hydrothermal geothermal commercialization continues to be a blatantly schizoid one. While the Energy Commission's Geothermal Office/Development Division continues to press for more direct state support for commercialization projects and the Department of Water Resources (D.W.R.) Energy Division presses forward with the development of a number of its own geothermal opportunities, the cabinet-level Resources Secretary pushes his non-energy, "renewable resources" proposals and bills[1/] that would have somewhat eased California's tight air quality restrictions and replaced them with existing Federal standards are killed in the Assembly.

In the midst of all this policy dichotomy, the grim reality of California's declining generating capacity is brought home by the cancellation of two large, coal-fired plants proposals. Both D.W.R. and Southern California Edison (SCE) have recently announced the denouement of their large (1000 megawatt-range) coal-fired facilities, each slated for the Riverside County-Imperial County area of the state's southeastern desert. Edison also scratched its proposed combined-cycle facility slated for a San Bernardino situs. Coming on the heels of Pacific Gas and Electric's "deferral" of its twin coal-fired units (Fossil 1 and 2) planned for the San Francisco Bay area, these actions mean that Governor Brown's much-ballyhoed "coal for nuclear" policy switch of several years

ago is, realistically, dead. As predicted by many observers, including the author, that policy stance was never based on real-world considerations (in view of then-existing Federal and California air quality regulation) and was also possibly insincere, a just-for-the-moment answer to critics who cited the need for the Brown-blocked Sundesert Nuclear Plant. At any rate, the lone remaining coal plants on the California capacity horizon are predictably, in Nevada (Allen-Warner) and Utah (Intermountain Power Project), and even these may run afoul of B.L.M., U.S. Fish & Wildlife and E.P.A. limitations.

With the Brown Administration's determined blockage of Sundesert and in the face of Kern County voters having rejected the City of Los Angeles D.W.P.'s Wasco nuclear project by referendum, the sole remaining nuclear capacity to come on line in the state will be on the coast at Diablo Canyon near San Luis Obispo (P.G. and E. - two units, 1950 MWe) and San Onofre in Orange County (S.C.E. (80%) and San Diego G & E (20%) - two units, 1950 MWe). These four large units are already built and awaiting licensing by the Nuclear Regulatory Commission (N.R.C.). As we noted in our June, 1980 report on "Transmission Line Access", their N.R.C. applications will provide an excellent opportunity to secure wheeling rights from both P.G. and E. (Diablo Canyon) and Edison (San Onofre), the two dominant transmission line owners in the state. But the other side of that coin is that determined environmentalist, anti-nuclear opposition to both facilities may

yet block their operation altogether.

Even if both of these already-constructed nuclear sites are approved for operation by N.R.C., and assuming that California utilities purchase a larger share of Arizona Public Service's (A.P.S.) Palo Verde Nuclear Plant on the east (or Arizona) side of the Colorado River,[2/] the nuclear power plant alternative in California is, for the long run, as dead, if not deader, than the coal-fired plant alternative. With Federal law effectively precluding any new oil or gas-based generating capacity,[3/] the only viable generating alternative for the state for the rest of this century is geothermal. This is already reflected in the siting applications before the Energy Commission. Within the next two years, a wave of geothermal plant construction will follow, if air quality and other permitting barriers can be cleared out of the way. This third in a series of ongoing "Monitoring Reports" on the commercialization-impacting activities of California's administrative and legislative branches focuses once again on the progress, or lack of same, being made towards that goal.

FOOTNOTES

CHAPTER ONE

1/ A.B. 2039 (Nielsen), e.g.. See Chap. Two, infra..

2/ A.P.S. is being forced to sell off part of Palo Verde by the Arizona Public Utilities Commission.

3/ Power plant and Industrial Fuel Use Act of 1978, P.L. 94-

CHAPTER TWO: CURRENT LEGISLATIVE ACTIVITY

(A) FEDERAL FUNDS: A.B. 1905

Since our last Monitoring Report,[1] at least one of the bills we have been following has been passed into law. As we have previously reported, A.B. 1905, introduced by Assemblyman Douglas Bosco, dealt with the internal split of California's 50% share of Federal B.L.M. geothermal revenues. As we therefore predicted[2] it passed the State Senate "with little difficulty"[3] on May 30, 1980,[4] and it mandates a 40/30/30 split of these geothermal-derived funds.

The forty percent goes to the "counties of origin" (Sonoma and Lake primarily, though Imperial will also get its share) with the second thirty percent slice to the Energy Commission to fund planning and other studies in counties "where development is imminent."[5]

Unfortunately however, the remaining thirty percent will go into Resource Secretary Huey Johnson's "Renewable Resources Investment Fund", a non-energy program designed to sustain the fish, wildlife, watershed and forestry resources of the state. Since these values do not generate any direct revenue of their own and since, by way of comparison, the state's own oil revenues go totally into non-energy coffers (for higher education), this outcome is not all that bad. One must take note, however of how graphically it portrays California's geothermal policy schizophrenia.

(B) STATE FINANCIAL INCENTIVES: S.B. 1205 (A.B. 1961)

With Assemblyman Terry Goggin's geothermal-specific state finance authority bill dead in committee early on, Senator David Roberti's omnibus State Alternative Energy Finance Authority bill became, by default, the prime vehicle for possible state financial incentives to geothermal development. Before its enabling bond issue (S.B. 1206) could be submitted to the state's voters, however, Republican Assemblymen Hayes and Kapiloff rushed their A.C.A. 46 through to legislative passage and a spot on the June primary ballot (as the "California Alternative Energy Sources Financing Authority"). There, as "Proposition 8", it was soundly defeated by the voters on June 3, 1980, along with a bond issue for Huey Johnson's "Renewable Resources Fund" (Proposition 1 on that ballot) and a dozen other fundraising efforts. The extremely negative posture of the state's citizenry concerning all proposed bond issues has created a pessimistic attitude towards possible passage of S.B. 1206's $500 million bond issue.

Worse, ensuing legislative wrangling has backed Roberti's thrust down from an all-alternatives measure to a strictly solar and energy conservation entity (named "Sunnymac"). Even if the bond issue passes, the money would be spent solely to back up these two types of energy financing.

Fortunately, the Department of Conservation has continued to pursue the matter of possible state geothermal financial incen-

tives despite the short half-life of last year's A.B. 1961 proposal. They are currently funding a study of the geothermal financial incentive possibilities by Hansen and Associates of San Francisco. The consultant report is due in October and, based upon conversations between the author and Peter Hansen, will focus on a geothermal-specific state funding arm to finance direct use geothermal projects for state agencies and local government entities only. This would obviate the state constitutionally-based need for voter approval.

Thus, despite negative voter/legislative actions on several occasions over the past year, the possibility of financial support for geothermal from the State of California is still alive.

(C) AIR QUALITY BILLS: A.B. 2788/S.B. 1828/S.B. 1707/S.B. 2039

Continuously frustrated by the Lake County Air Pollution Control District (Lake Co. A.P.C.D.) on both field and plant air quality permits, and with the California Energy Commission extremely reluctant to test its override authority in such a delicate area, the geothermal industry succeeded in getting bills introduced in both legislative houses to "study" the state hydrogen sulfide standards as they apply in the state's numerous K.G.R.A.s. Assemblyman Doug Bosco and Senator Barry Keene were the sponsors of A.B. 2788 and S.B. 1828, respectively. Unfortunately, Lake County's virulent opposition led to the voluntary, and tactical, "withdrawal" of both bills by their respective authors. Neither

has any plans to enter this thicket again, either.

Yet another bill[6/] - S.B. 2039 - which passed the State Senate rather easily but was not so slowly strangled in an Assembly Committee last month, would have accomplished the same result by simply substituting Federal air quality standards for California's much stricter limits. Since there is presently no Federal ambient standard for H_2S nor any E.P.A. rule applicable to geothermal power plants, this would have effectively "deregulated" California's geothermal power plants. But it is clearly dead for this session, having been killed in an Assembly Committee on June 24th.

Finally, a third bill,[7/] authored by State Senator Ralph Dills of Gardena, would subject rule-making by local air pollution control districts (A.P.C.D.) like Lake County's to tests of necessity, cost-effectiveness and technology availability when they regulate power plant emissions. This measure has also passed the State Senate but its fate in the Assembly Ways and Means Committee seems uncertain. Its proponents remain optimistic, however, since it is not as hard-edged or arbitrary as the bill mandating a "relaxation" of state air standards to the lower Federal level.

(D) TRANSMISSION LINE ACCESS: A.B. 1403/A.B. 3057

As our June, 1980 report on "Transmission Line Access" noted,[8/] California took fairly decisive action on the wheeling question in 1976,[9/] antedating the corresponding U.S. Congressional action by two years. Assemblymen Hayes and Levine, a Republican and a

Democrat, both from Los Angeles, have recently introduced draft bills that would build upon the foundation of the state's "Private Energy Producers Act."[10/]

Hayes' A.B. 1403 would mandate a Public Utilities Commission study and "review" of all charges paid for wheeling and standby generating, etc. facilities by "private energy producers".[11/] The mandatory posture of the bill is believed to be necessary to prod the P.U.C. into action in this area, utilizing the authority given to it by the Legislature four years ago.

Assemblyman Mel Levine's A.B. 3057 would close another loophole in the 1976 Act by specifically authorizing wheeling of electricity from one "private energy producer" to another, rather than simply carrying Federal hydro power from, e.g., a Bureau of Reclamation or Army Corps of Engineers dam to a municipal or industrial user. There are several lumber mills and other self-generating industrial plants which desire to sell their excess power to other industrial or municipal users at competitive rates, rather than to the transmission line owner (usually P.G. and E. or Edison) at a loss, for very low rates. The big utility then turns around and itself sells the power, making a middle-man's profit and discouraging self-generation. Since most geothermal resources are remotely cited, an industrial user choosing to locate near them as an electricity source would need to know he could sell off any excess power at a profit. Passage of both these bills and a brighter picture for the wheeling of that excess to a distant

user would act as a major incentive to geothermal commercialization in California.

(E) STATE ENERGY AGENCY REORGANIZATION: S.B. 778

Since its formation some six years ago,[12] the California Energy Commission (C.E.C.) has come in for a large share of criticism from the private energy development sector, the legislature, utilities, labor and business. Functioning totally under the Brown Administration[13] and led by his appointees, the C.E.C. has predictably taken on the pro-energy conservation, environmental and solar energy philosophy of its mentor. This has been done to the detriment of pressing available energy development strategies, including those benefitting geothermal resources. In addition, the structure of the Commission itself, with its focus on the approval of power plant sites and all five Commissioners involved in that process daily, skews the philosophic emphasis of the entire organization towards a regulatory, rather than a promotional, frame of reference. The C.E.C.'s adamant opposition to nuclear power, epitomized by the Sundesert case, and its refusal to use or even test the statutory override authority given it in the air quality area have also angered its many critics.

In late 1978, the Legislature conducted a joint, Senate/Assembly "study" of the Commission and therein requested recommendations for "improving" its functioning.[14] The ensuing report[15] suggested splintering the existing C.E.C. structure, placing the

promotional activities (including geothermal) in a newly created "Department of Energy". This state mini-D.O.E. would function as a line agency of the Resources Agency, along with Conservation, Forestry, Fish & Wildlife, Water Resources and Parks.

Now a pending bill,[16/] introduced by Geysers-area state Senator Barry Keene, would give formal Legislative sanction to such a re-ordering. The bill, as expected, has passed the Senate last year but become the center of a recent brouhaha in the Assembly Government Organization Committee's Energy Subcommittee. Chairman Terry Goggin was therefore forced to subpoena the states' electric utilities in order to get their testimony. Privately, many of these utility people felt that the more environmentally-oriented Assembly would kill the bill anyway. Thus there was nothing to be gained from their further antagonizing the California Energy Commission, at least until after the 1982 gubernatorial election (when, presumably, Jerry Brown will be abdicating to run for the U.S. Senate).

Their fears were well-founded. Goggins' Subcommittee voted the Keene bill down, 5-0, on July 9th.

(F) STATE ENERGY TAXES: A.B. 2796

Though the state's geothermal developers were never successful in getting a pre-production exemption from California's local "ad valorem" property tax system, the June 1978 passage of Proposition 13 lowered the tax level so drastically (to 1% of assessed value) that it ceased to be a serious problem.

Now, two years later, a drive is a foot to institute a statewide severance tax on the produced value of oil and gas. A bill[17/] incorporating such a tax has passed the Assembly and is expected to be passed into law during the current session. Although the "ceiling" tax rate set in the legislation is not imposing (3.12%), one must keep in mind that, once initiated, such a tax is virtually irresistable to all politicians. Montana, e.g., now has a severance tax of over 30 percent. This tax will also probably include geothermal in the future. In fact, many oil firms, tired with the constant haggling over reserves valuation with the state's county tax assessors, are pushing for adoption of the severance tax in order to get "fair and equal treatment."[18/] Whether the geothermal industry will do likewise is not clear at this time. California is currently the only major oil and gas producing state without a severance tax system. In addition to the advantages of statewide equity and less wrangling with local assessors, the severance system also postpones taxation until production. Thus the public sector's take or cash flow, if you will, begins only when the private developer's does.

FOOTNOTES

CHAPTER TWO

1/ J.M. Energy Consultants, Inc. Report No. 1020 (April 20, 1980).

2/ ibid., at p. 3.

3/ id..

4/ Stats. 1980, Ch. 139, passed as urgency measure on 5/30/80.

5/ ibid., at p.

6/ S.B. 2039 (Sen. Nielsen).

7/ S.B. 1707, introduced March 4, 1980, would add §41500.5 to the California Health & Safety Code.

8/ J.M. Energy Consultants, Inc. Rpt. No. 1022 (June 20, 1980), at p.

9/ Stats. 1976, Ch. 915, §1 , Cal. Pub. Util. Code §§2801-2816, amended Stats. 1978, Ch. 1271, §17.

10/ Cal. Pub. Util. Code §§2801-2816.

11/ As defined by Cal. Pub. Util. Code §2802.

12/ C.E.C. was created by the Warren-Alquist Act, Stats. 1974, Ch. 276, §2, operative Jan. 7, 1975.

13/ Edmund G. Brown, Jr. has been Governor since Jan. 1, 1975.

14/

15/

16/ S.B. 778 (Keene).

17/ A.B. 2796 (Assemblyman William Lockyear (D. Alameda)).

18/ "Little Opposition Faces California Oil Tax Change", Oil and Gas Journal, June 16, 1980, at p. 34.

CHAPTER THREE: CURRENT REGULATORY ACTIVITY

Our previous "Monitoring Reports" have focused on the crucial air quality issues confronting geothermal commercialization at The Geysers. Once again we shall devote our regulatory overview primarily to this key question. It is being played out in two main regulatory arenas: (A) The California Energy Commission's siting process for geothermal power plants; and (B) The Lake County Air Pollution Control District's (L.C.A.P.C.D.) permitting process for both those power plants and the steam fields that supply them.

(A) California Energy Commission (C.E.C.):

In our April, 1980 "Report No. 2"[1/] we noted that the D.O.E.-funded "upstream process", developed by E.I.C. Corporation of Newton, Massachusetts, may yet prove to be one of the "saviors" for all proposed Geysers-area geothermal power plants, particularly those in emission-laden Lake County. We then cited the D.W.R. "Bottle Rock" facility and P.G. and E. Unit 16 as cases in point.[2/]

After having to suspend their A.F.C. proceeding before the Commission in January due to its difficulty in satisfying L.C.A.P.C.D.'s New Source Review (N.S.R.), D.W.R. came back in with the unofficial approval of the Lake County A.P.C.D. two months later. They achieved this by agreeing to use the E.I.C. process, in addition to the surface condenser/Stretford and condensate treatment procedures on their proposed facility.

The reasons for D.W.R.'s regulatory reliance upon the upstream process are clear.

The steam they will use is heavily laden with H_2S. Some 580 lbs. per hour would be emitted without controls. By contrast, P.G. and E. Unit 16 is estimated to have 84-168 lbs. of H_2S to handle every hour. The tests of the surface condenser on recently-completed Unit 15 have been disappointing. The Energy Commission has said that "The partitioning efficiency so far achieved by Unit 15's surface condenser is about 67%."[3/] Unless the surface condenser's partitioning efficiency can be increased to at least the 80-85% range, the Stretford unit and condensate processes will never get to work on much of the H_2S. Even though a different condenser design is being planned for P.G. and E. Unit 16, now nearing the end of its A.F.C. phase, and will be field-tested soon on Units 13 and 14,[4/] the upstream process can boast of a 90% abatement rate, achieved in last year's field tests.[5/] Better still, it kills two regulatory birds at once. By its pre-turbine placement it can also handle so-called "steam stacking" episodes from the geothermal field as well. This non-plant source of H_2S emissions has been an understandable target for both the No. Sonoma and Lake County A.P.C.D.s in recent years. And in D.W.R.'s case, McCulloch was encountering difficulty due to its highly H_2S field.

The C.E.C. and its staff have also stated that the E.I.C. process has possible advantages in terms of reducing the need to

transport the large amounts "hazardous chemicals used in secondary H_2S abatement."[6/] It also produces more solid wastes than the other processes, but "these wastes may be less toxic . . . may be more valuable, . . . more environmentally benign . . . . . . [and] could also be reinjected into the steam reservoir", according to the C.E.C.[7/] In the Unit 16 E.I.R., in fact, the C.E.C. flatly states that: "Except for the upstream Absorption Scrubber (E.I.C.) System, other systems have proved ineffective, have been displaced by the Stretford and surface condenser/partitioning process, or are not sufficiently developed to be considered feasible alternatives."[8/]

It is also evident that the California Energy Commission is going to acquiesce in the local exercise of air quality regulatory authority without attempting to utilize its override authority. The ball is therefore squarely in Lake County A.P.C.D.'s and the utilities' (N.C.P.A., P.G. and E., etc.) court. The C.E.C.'s "Draft E.I.R." on Unit 16 makes it clear that the utility's present Unit 16 A.F.C. posture — reliance upon the surface condenser/Stretford process with possible condensate treatment — will only fly with the Commission if the L.C.A.P.C.D. also buys it. As the Draft E.I.R. states: "Compliance with L.C.A.P.C.D. air quality rules would render the impacts insignificant, but whether the project will do this is unresolved."[10/]

(B) Lake County Air Pollution Control District (L.C.A.P.C.D.):

For its part, the Lake County A.P.C.D. and its chief Air Pollution Control Officer, Bob Reynolds, seem cheered by D.W.R.'s attitude, and its switch to the upstream process, as well as by the commitment of the field operator - McCulloch Geothermal - to use the same system on its wells. In a March 26, 1980 letter to the "Lake County Record Bee", he stated that he "had felt professionally obligated to change my position as this process has matured."[11/] Although D.W.R.'s addition of the upstream process will allow it gain L.C.A.P.C.D., and therefore C.E.C., approval, the cost increment it incurs will apparently be a large one.

According to D.W.R. Energy Division Chief Ed Terhaar, the 55 MWe plant will now cost $45.98 million, as opposed to roughly $27.2 million without the various H_2S abatement systems. These systems alone will now cost some $23.5 million.[12/] P.G. and E.'s reticence to adopt the upstream system for Unit 16 is now more understandable. Once D.W.R.'s plant uses the system, however, costs of later units may well decline.

L.C.A.P.C.D., moreover, is not mandating use of the upstream process, or any other. D.W.R., it must be remembered, had relatively "dirty" steam — roughly 580 lbs. of H_2S hour would have been emitted if unabated. Thus for them to get down to the 5 lb./hr. required under New Source Review for an area already in violation of the state's H_2S standard demanded Herculean feats. Unit 16's steam is reportedly much "cleaner". As we have noted, the Draft

E.I.R. puts it in the range of 84-168 lbs./hr..[13/] Thus the surface condenser/Stretford process may be able to do the job by itself. The key for P.G. and E. is the results of ongoing tests on the steam field itself.

Unfortunately, as we have noted in earlier reports, the real shame is that the unabated emissions from the existing plants in Sonoma County are creating a "background" of H_2S violations that the new, Lake County plants must deal with in their L.C.A.P.C.D. and C.E.C. approval processes. And some of those existing units (7, 8 and 9, e.g.) may not be retrofitted until 1985. P.G. and E., D.W.R. and N.C.P.A. would all have a much easier regulatory road to hoe if more pressure were put on P.G. and E. to clamp down on these existing emissions. In that case, the air in Lake County would be improved and the H_2S emission limits set under New Source Review would not have to be as stringent as the 5-7 lbs. per hour that D.W.R. and P.G. and E. now have to meet. The might approach the 26.4 lbs. per hour (100 grams per gross megawatt hour for a 110 MWe plant) that was established by L.C.A.P.C.D. and No. Sonoma A.P.C.D. under the "Model Rule For H_2S Emissions" adopted by the State Air Resources Board nearly two years ago. This would be "doable" at a far smaller cost. But until those retrofits are forthcoming, commercial expansion of The Geysers field into Lake County will be a slow and much more painful process for all involved.

FOOTNOTES

CHAPTER THREE

1/ Current California Legislative And Regulatory Activity Impacting Geothermal Hydrothermal Commercialization: Monitoring Report No. 2., J.M. Energy Consultants Rpt. No. 1020 (April 20, 1980), at p. 8.

2/ ibid., at pp. 7-8.

3/ Draft E.I.R., P.G. and E. Unit 16, et. al., C.E.C. C.P.U.C. (May 1980), at p. I-79. Hereinafter cited as Unit 16 E.I.R..

4/ ibid., at p. I-80.

5/ ibid., at p. I-168.

6/ id..

7/ id..

8/ id..

9/ ibid., at p. I-80.

10/ ibid., at p. I-152.

11/ ibid., at p. I-85.

12/ Quoted in Geothermal Report, Vol. IX, No. 8 (April 15, 1980), at pg. 1.

13/ ibid., at p. 2.

14/ Draft E.I.R. at p. I-79.