ASSESSMENT AND TAXATION OF GEOTHERMAL RESOURCES

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LEGISLATIVE COMMISSION
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STATE OF NEVADA

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ASSESSMENT AND TAXATION OF GEOTHERMAL RESOURCES

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Assembly Concurrent Resolution No. 8—Assemblymen May, Craddock, Serpa and Horn

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ASSEMBLY CONCURRENT RESOLUTION—Directing the legislative commission to study methods of assessing and taxing geothermal resources, products and byproducts.

WHEREAS, On a national scale, Nevada is estimated to be second only to California in its potential for development of geothermal energy; and

WHEREAS, Thirty areas within Nevada have been identified by the U.S. Geological Survey as Known Geothermal Resource Areas, and approximately 20 percent of the state is believed to offer the possibility of geothermal development; and

WHEREAS, Geothermal resources may be harnessed for various practical uses, the most important being the generation of electricity; and

WHEREAS, Geothermal resources on private and federal lands have already been leased for development, and provision has been made in the Nevada Revised Statutes for the lease of geothermal resources in state lands; and

WHEREAS, There is no statutory provision for assessing and taxing geothermal resources, products and byproducts; now, therefore, be it

Resolved by the Assembly of the State of Nevada, the Senate concurring, That the legislative commission is hereby directed to study alternative methods of assessing and taxing geothermal resources, products and byproducts; and be it further

Resolved, That the legislative commission report the results of the study and any recommended legislation to the 60th session of the legislature.

1977

REPORT OF THE LEGISLATIVE COMMISSION

To the Members of the 60th Session of the Nevada Legislature:

This report is submitted in compliance with Assembly Concurrent Resolution No. 8 of the 59th session of the Nevada legislature, which directed the Legislative Commission to study the assessment and taxation of geothermal resources and byproducts. The Legislative Commission assigned the study to the Fiscal Analysis Division and an oversight committee chaired by Senator Mary Gojack and including Assemblyman Robert Craddock. The recommendations in this report have been made by the oversight committee.

Subsequent to the final oversight committee meeting and acceptance of the report by the Legislative Commission, the Legislative Counsel determined that the recommendation to tax geothermal resources as a mine might not pass constitutional tests in light of a recent Supreme Court interpretation of a mine. Legislative Counsel also points out, however, that Assembly Joint Resolution No. 7, which passed the 59th session of the legislature, would amend the constitution to permit such a taxation policy providing that it also passes the 60th legislative session and a vote of the people. Legislative Counsel therefore suggests that legislation to place producing geothermal projects under the net proceeds of mines tax statutes be submitted to the 61st legislative session in 1981.

The oversight committee wishes to acknowledge the special contributions of the Nevada Department of Taxation and the Nevada Bureau of Mines and Geology, and also the participation and testimony of the various members of the geothermal industry.

Respectfully submitted,

Legislative Commission
Legislative Counsel Bureau
State of Nevada

Carson City, Nevada

REPORT SUMMARY

The national energy crisis has led to significant efforts to develop alternative energy sources to reduce dependence on oil and gas resources. This effort and the Geothermal Steam Act of 1970 (P.L. 91-581) have renewed interest in geothermal resources as a useful energy source. Nevada has many geothermal areas and is estimated to be second only to California in its potential for geothermal energy. This potential has led to significant exploration which could lead to the beginning of a new industry within the state for which no taxing provisions have been considered. The 59th Session of the Legislature recognized this potential problem and approved ACR 8 which requires the study of the assessment and taxation of geothermal resources.

The Legislative Commission assigned the study to the Fiscal Analysis Division with an oversight committee. The oversight committee held three meetings, took public testimony and received substantial amounts of information, data and materials on geothermal resources. In order to obtain the broadest possible public participation in the study, a questionnaire survey was conducted of the geothermal industry.

From the various input sources to the study, the oversight committee was able to draw the following general conclusions:

1. That geothermal energy is a desirable, safe and environmentally acceptable alternative to conventional energy resources.

2. Nevada is a net importer of energy and places great reliance on other states for its energy needs.

3. The geothermal industry suffers from extreme financial risk due to large capital requirements, long time lags between discovery and production and uncertain markets which makes investment capital difficult to obtain.

4. Substantial institutional and technological barriers and disincentives to geothermal development exist which threaten the success of the industry.

The oversight committee concluded that the economic and social welfare of Nevadans may depend to a large degree on the state's ability to solve its energy problems. Geothermal development may be an important step towards accomplishing this goal. If geothermal is to be successfully developed in the shortest possible time, the state should institute a tax policy which encourages and supports such development. Such a tax policy should recognize the inherent risk in geothermal development and the potential benefits for the state if large energy resources are discovered. The recommendations of the oversight committee reflect this attitude.

SUMMARY OF RECOMMENDATIONS

The Legislative Commission's oversight committee on the assessment and taxation of geothermal resources and byproducts recommends for the consideration of the Nevada legislature:

1. That nonproductive geothermal leases of otherwise exempt lands be exempted from ad valorem property taxation under Nevada's possessory interest statute NRS 361.157 (Appendix H).

2. That productive geothermal resources be taxed as a mine under the net proceeds of mines laws. Subsequent to the final oversight committee meeting and acceptance of the report by the Legislative Commission, Legislative Counsel determined that the recommendation to tax geothermal resources as a mine might not pass constitutional tests in light of a recent Supreme Court interpretation of a mine. Assembly Joint Resolution No. 7 which passed the 59th session of the legislature would amend the constitution to permit such a tax policy providing it also passes the 60th session and a vote of the people. The oversight committee therefore recommends that legislation placing geothermal resources under the net proceeds of mines tax laws be submitted to the 61st session of the legislature in 1981.

3. That the sale of steam or associated geothermal energy be exempted from sales and use taxes. This exemption would be accomplished automatically by placing geothermal resources under the net proceeds of mines statutes and therefore could be submitted to the 61st legislative session.

4. That byproducts of geothermal development be taxed in the same manner as the geothermal resource. Again the oversight committee recommends submission of appropriate legislation to the 61st legislature.

REPORT OF THE LEGISLATIVE COMMISSION'S OVERSIGHT COMMITTEE FOR THE STUDY OF ASSESSMENT AND TAXATION OF GEOTHERMAL RESOURCES IN NEVADA

I. INTRODUCTION

The 59th Session of the Nevada Legislature, through Assembly Concurrent Resolution No. 8, directed the Legislative Commission to "* * *study alternative methods of assessing and taxing geothermal resources, products and byproducts." To pursue the study, the Legislative Commission appointed an oversight committee chaired by Senator Mary Gojack and including Assemblyman Robert G. Craddock to direct the staff work which was assigned to the fiscal division of the Legislative Counsel Bureau and to prepare any recommendations for the 60th legislative session.

In passing Assembly Concurrent Resolution No. 8, the legislature recognized the potential importance of Nevada's geothermal resources and what part they may play in helping to solve energy shortage problems for the state and the country. The legislature also recognized that increasing exploration and development activities may spawn a totally new industry within the state for which no specific taxation provisions have been considered. The objective of the legislature was to develop a tax policy for this infant industry at the outset, in order to eliminate future problems and to provide the framework necessary for rational business decisions.

The resolution made it clear that the legislative concern related only to taxation of geothermal resources and primarily property taxation as required under chapters 361 and 362 of Nevada Revised Statutes. Accordingly, the oversight committee focused its inquiry on the question of taxation of geothermal resources, products and byproducts. The oversight committee, however, did receive significant input on other concerns and problems affecting the geothermal industry in the state, and these are reported for informational purposes in Section VI, but no recommendations have been made.

With a budget of $1,000, the oversight committee held three public hearings--two in Carson City on October 11, 1977 and March 20, 1978, and in Reno on July 29, 1978. Public testimony was taken at each of the meetings from members of the geothermal industry, public utilities, state agencies and interested individuals. The meeting of July 29, 1978, was primarily devoted to a work session at which the oversight committee adopted its recommendations.

The oversight committee determined that expertise in the technical aspects of state and local taxes, assessment standards, geology and geothermal resources would be required for the study. This expertise was provided at the request of the committee by Mr. James C. Lien, deputy executive director of the Department of Taxation; Mr. James R. Anderson, chief of the Division of Assessment Standards of the Department of Taxation and Mr. John Schilling, director of the Nevada Bureau of Mines and Geology of the University of Nevada, Reno. The oversight committee also determined that information, data and opinions from a broad cross section of the geothermal industry in Nevada could best be obtained by surveying its members, firms and companies. The oversight committee, therefore, commissioned the staff to prepare and distribute a questionnaire to the various segments of the industry. The questionnaire was intended to develop more information than was otherwise available on the industry and the nature of the expected resources within Nevada.

In addition to the questionnaire survey, information was solicited from the counties; state agencies including the Department of Taxation, Department of Energy, Department of Conservation and Natural Resources and the University of Nevada System; and federal agencies including the United States Geological Survey and the Bureau of Land Management.

Information from all these sources was collected, collated and analyzed by the staff and presented to the oversight committee. The committee, with the information gained from public testimony and the staff work, arrived at the recommendations presented and directed the writing of this report.

During the course of this study, it became readily apparent that the timely development of geothermal resources is hindered by a general lack of familiarity and understanding on the part of the public. Before geothermal energy can become widely used it will have to be viewed by the public as an acceptable energy alternative to the traditional and more familiar energy sources. This report, in addition to making specific legislative recommendations, is intended to help inform those that read it of some of the facts about geothermal resources in Nevada and their uses, potential and development.

II. THE NATURE OF GEOTHERMAL RESOURCES

The earth is an immense reservoir of energy. Every part of the earth's outer layer rests on hot molten rock called magma. Heat from this magma continually rises to the surface of the earth where it becomes most evident as hot springs, volcanoes, geysers and fumaroles. Modern geological theory attributes this source of heat to nuclear processes. Radioactive elements throughout the earth's crust produce heat as they decay and since these elements are long-lived, this source of heat is predicted to last many thousands of years.

Most geothermal energy is at depths too great for any economical use with today's technology. There are, however, localized areas in many parts of the world where high-temperature, porous rock containing liquids or steam under high pressure are near enough to the earth's surface to make extraction feasible. These areas can be tapped by drilling wells at proper points. When the hot water in these reservoirs comes to the surface in a well, the high pressure is normally reduced and some of the water spontaneously boils, or flashes into steam. This type of resource is known as a "wet steam" system and is typical of the geothermal systems found in Nevada. There are serious technological problems to overcome if this type of geothermal resource is to become widely used, especially for the production of electricity.

There are a small number of geothermal heat concentrations that produce superheated steam with almost no water. This type of resource is known as a "dry steam" system which can easily be used to drive turbines to produce electricity. The only known "dry steam" field in the United States is at The Geysers Region in California where the steam is successfully being used to produce electricity.

Hot water systems, as found in Nevada, have circulating fluids which transfer most of the heat to the earth's surface. Most known hot water systems are characterized by hot springs and have subsurface temperature ranges from below 90° to 360° centigrade (680° fahrenheit). Those systems with temperatures above 150° centigrade are likely prospects for electrical generation; those with temperatures between 90° and 150° have potential uses in space heating, agriculture and industry; and those with temperatures less than 90° centigrade command very little commercial attention.[1] Geothermal development depends on finding

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1 White, D. E., 1975, Assessment of Geothermal Resources of the United States - 1975, U. S. Geological Survey Circ. 726, p. 7.

and exploring these heat reservoirs near the earth's surface. Many known and potential areas have been identified in the United States, especially the western states including Nevada.

It is not known precisely how much geothermal energy is available below the earth's surface nor how much of that energy can be converted to useful purposes. It has been estimated, however, that the geothermal energy potential in the United States is many times greater than current use and that there are adequate known sources to supply all new electricity requirements in those states containing geothermal resources for several decades. With technological advances in the use of wet steam resources and concentrated development, geothermal could supply 5-10 percent of the electrical energy in the United States by the year 2000.[2]

III. USES OF GEOTHERMAL ENERGY

Hot springs, where underground geothermal water flows naturally to the surface, have been known and used since ancient times. Romans used such springs for recreational and medical purposes around the Mediterranean Sea and spas in Japan and the Far East were also used for medical purposes.

In the 1930's, Iceland pioneered the use of geothermal resources for home and industrial purposes. Hot water from the Reykir Thermal Springs area provides heat for baths, swimming pools, agricultural hot houses, and the entire district's homes and buildings serving a population of approximately 30,000. Italy, New Zealand, Japan, Russia, Mexico and Hungary have all made considerable use of geothermal resources for purposes ranging from recreational swimming pools to production of electricity.

In the United States, geothermal resources are currently being used for recreation, heated mineral baths, space heating, agriculture, industrial uses and electric power generation (see Appendix A for a complete list of uses). At The Geysers in northern California, (the only commercially producing power field in the United States) hot, dry steam is currently producing nearly 500 megawatts of electricity which is adequate to supply a city of approximately one-half million. Current plans are to expand the total generating capacity to 1200 megawatts which will represent a significant contribution to the total power requirement of northern California.

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2 National Conference of State Legislatures, "State Policies for Geothermal Development, Uncovering a Major Resource," p. 1.

In Nevada, limited use has been made of geothermal resources for recreation, mineral baths, space heating, agriculture and industrial purposes. Modern drilling technology and equipment have made exploration and development of geothermal locations more feasible. Increased attention to energy alternatives and environmental considerations has created conditions which may spawn rapid exploration and development of geothermal resources in Nevada and other parts of the country. The State of Nevada offers great potential for this development.

IV. GEOTHERMAL RESOURCES IN NEVADA

The Geothermal Steam Act of 1970 (P.L. 91-581) established those conditions under which federal lands can be explored and leased for the development of geothermal resources. Congress recognized that the development of geothermal energy as an alternate energy source was in the public interest and that any vigorous development of this energy source required accessibility to federal lands. P.L. 91-581 provides the framework under which the Secretary of Interior and the Bureau of Land Management can make these lands available for exploration.

Under authority of regulations promulgated by the Secretary of Interior, the United States Geological Survey has developed guidelines to identify "Known Geothermal Resource Areas" (KGRA) within the various states. The United States Geological Survey has identified 30 such KGRA's in Nevada totaling some 635,855 acres in 11 different counties (see Appendix B). In addition, another 13,468,000 acres have been designated as "prospectively valuable" within Nevada.

Classification of an area as a geothermal resource by the United States Geological Survey in no way guarantees that a commercially valuable resource is present. Classification merely locates those areas most likely to contain quantities of geothermal energy that can be economically developed and that should be leased to the public under competitive arrangements.

Under P.L. 91-581 (Geothermal Steam Act of 1970) federal lands can be leased competitively or noncompetitively. All federal lands lying within a KGRA as classified by the United States Geological Survey have to be leased competitively. Prospective lessors file sealed bonus bids on specified parcels in order to obtain the leasing rights. The highest, qualified bonus bid earns the right to lease the subject parcel at $2.00 per acre per year. Land not within a KGRA can be leased on a noncompetitive basis at $1.00 per acre per year. The holder of a federal lease is entitled to explore for and develop any geothermal resource within regulations established by the Bureau of Land Management.

As of December 13, 1977, the Bureau of Land Management had held 15 competitive lease sales for lands within Nevada. These 15 sales totaled 152,582.86 acres of known geothermal resource land and drew some $2,632,307.94 in bonus bids. In addition, 674,869 acres of federal land outside the various KGRA's had been leased noncompetitively.

Federal lands within the KGRA's in Nevada have been leased for bonus bids ranging from $1.76 per acre at Leach Hot Springs in Pershing County to $203.77 per acre at Beowawe in Lander and Eureka Counties. The average, winning bonus bid for all competitive leases in Nevada is $17.24 per acre.

Exploration of geothermal resources in Nevada with wells began around 1954, and continued into the mid-1960's. Most of these wells were shallow and exploratory, and revealed only hot water systems and no dry steam systems. Since dry systems were more desirable technologically and economically and developers had problems leasing federal lands, development interest waned. Serious exploration in Nevada was not revived until 1974 when the Bureau of Land Management finally developed federal leasing regulations pursuant to the Geothermal Steam Act of 1970. The lengthy regulation development period of 4 years and certain aspects of the regulations themselves have been a major concern of the geothermal industry in this and other states.

The Nevada Legislature recently passed several bills that have or will affect the geothermal industry in Nevada and that collectively reveal a deep concern for the energy future of the state and the desire to reduce dependence on fossil fuels.

The 1975 Session of the Legislature passed Senate Bill 158 (chapter 416) which provided for regulation and control of geothermal resources by the state engineer. In addition, this act provided that "...any water and steam encountered during geothermal exploration is subject to the appropriation procedures of chapters 533 and 534 of NRS...." This provision effectively placed geothermal resource products under the same control and restrictions as all other underground waters within the state.

The 1975 Legislature also passed Assembly Bill 158 (chapter 366) which authorized the Division of State Lands to lease state-owned land for geothermal exploration and provided for rents and royalties on geothermal resources derived from such lands. Currently, there are no state-owned lands being leased, however, these provisions could become important for lands that come into state ownership in the future.

The 1977 legislative session produced legislation that clearly revealed the state's concern for adequate energy resources. The most important of these perhaps was Senate Bill 153 (chap-

ter 529) which reorganized the Department of Conservation and Natural Resources and created a separate Department of Energy. The Department of Energy is charged with many duties and responsibilities pertaining to developing information on energy within the state, forecasting energy trends, reducing waste and encouraging the development of alternate energy resources. The department is also required to review policies relating to the state's geothermal resources and make recommendations to appropriate bodies. In addition to the responsibilities of the department, Senate Bill 153 reorganized the State Energy Resources Advisory Board within the Department of Energy. This board is required to make recommendations on state energy policy and to recommend legislation and regulations on energy conservation and utilization.

In addition to establishing a Department of Energy, the 1977 Legislature approved Assembly Bill 277 (chapter 345) which attempts to promote the use of alternate energy sources including geothermal by providing for a program of property tax allowances to homeowners. Under this program, the homeowner is allowed a property tax credit of up to $2,000 on the taxes due on the value of the alternate energy system installed in the building. It is expected that the tax allowance will act to encourage individuals to install heating and cooling systems that are not dependent on conventional energy sources.

The 1977 Legislature also approved three resolutions affecting geothermal resources or other energy resources. Assembly Joint Resolution 5 memorialized Congress to enact legislation that would grant depletion allowances under the income tax codes as incentives to private firms engaged in the exploration and development of geothermal energy resources. Under existing federal code, depletion allowances are allowed as a deduction for the extraction of certain minerals including oil and gas. A.J.R. 5 requests Congress to grant similar deductions to the geothermal industry. Assembly Concurrent Resolution No. 8 directed the Legislative Commission to complete this study on the taxation of geothermal resources in Nevada. And finally, Assembly Joint Resolution No. 7 was approved which would amend Article X of the State Constitution to allow the legislature to exempt from property taxation the property used for the conservation of energy using nonfossil resources. This resolution must again pass the legislature and a vote of the people to become effective.

It is clear from the actions taken at the last two sessions of the legislature that the direction of state energy policy is one of encouragement and incentive for nonfossil resources and one of conservation and efficiency for fossil resources. The recommendations in this report follow that policy by addressing the question of geothermal taxation and what can be done to encourage development.

V. CURRENT TAX PRACTICES

Article X, Section 1, of the Nevada Constitution states in part:

> "The legislature shall provide by law for a uniform and equal rate of assessment and taxation, and shall prescribe such regulations as shall secure a just valuation for the taxation of all property, real, personal and possessory, except mines and mining claims, when not patented, the proceeds alone of which shall be assessed and taxed, and when patented, each patented mine shall be assessed at not less than five hundred dollars ($500), except when one hundred dollars ($100) in labor has been actually performed on such patented mine during the year, in addition to the tax upon the net proceeds;...."

The legislature, in disposing of this responsibility, has enacted various statutes which have been codified as chapters 361 and 362 of Nevada Revised Statutes. Chapter 361 deals with ad valorem or property taxation and chapter 362 deals with the net proceeds of mines taxes.

NRS 361.157 details those situations under which the possessory interest of otherwise exempt property shall be taxed. Under authority of this section, the Nevada Tax Commission (NTC) has promulgated regulations to effect the taxation of the possessory interest on public and private lands leased for the exploration and development of geothermal resources. The NTC first published taxing regulations in Bulletin 135 in 1975. Under these regulations, noncompetitive federal leases were to be assessed at $4.75 per acre. Competitive federal leases and private leases were to be assessed, if they occurred, on a 9 percent capitalization rate based on the annual rental and bonus bid, if any.

In 1976, the NTC revised its regulations to assess noncompetitive federal leases at $4.60 per acre and competitive federal leases at $6.80 per acre. The published rate of $6.80 for competitive leases was arrived at after the NTC recognized that bonus bids should not become a basis for valuation of land since these bids only represent the right to enter into a lease with the Federal Government and not a value of the land itself. During 1975 and 1976, substantial federal acreage was leased both competitively and noncompetitively. County assessments at rates established by the NTC led to many complaints and several protests were filed through the equalization process by holders of federal leases.

As a result of the controversy surrounding taxation of these leases and after taking extensive public testimony, the NTC lowered the assessed valuations to $1.45 per acre for noncompetitive federal leases and $2.90 per acre for competitive fed-

eral leases. In lowering these assessments, the NTC recognized the extreme risks inherent in the geothermal industry, and that assessment rates should recognize this risk. Appendix C depicts the estimated taxes per county under these regulations and Appendix D demonstrates what the assessments and taxes on some typical geothermal parcels might be under the possessory interest statutes.

The question of the validity of NRS 361.157, as it has been applied to leases on federal lands for the exploration of oil and gas, has been challenged in the state courts. In Standard Oil Company v. Tom Pastorino, Eureka County Assessor, Standard Oil Company, who holds federal leases for exploration of oil and gas, asked the district court to declare NRS 361.157 unconstitutional for several reasons including the fact that the statute did not treat all holders of federal land the same and, therefore, violated the "equal protection" clause of the United States Constitution, and that oil and gas leases were mines, and therefore exempt. The district court issued a summary judgment declaring the statute constitutional and Standard Oil Company appealed to the Nevada Supreme Court.

The Supreme Court upheld the constitutionality of NRS 361.157 and struck down all of Standard Oil Company's arguments (see Appendix E).

Two points in the Supreme Court decision are significant to the consideration of taxing geothermal leases. First, the court suggested that exempting only certain types of possession of federal lands from the tax does not violate the "equal protection" clause if there is a "rational basis" for doing so. The court went on to say that exempting grazing leases and not oil and gas leases had a "rational basis" since grazing rights are not obtained, paid for and used in the same manner as oil and gas leases and grazing does not deplete any natural resources.

The second point of significance in the court's decision deals with the question of at what point a lease becomes a mine. The court held that a lease does not constitute a mine, but rather a mine is created through actual exploration or extraction. Since geothermal leases and gas and oil leases are similar in nature and grant similar rights to the holder, it is anticipated that the decision of the court in the case of oil and gas will also hold for geothermal leases.

The oversight committee obtained an opinion from the Legislative Counsel on the impact of the Supreme Court decision and any changes that might be recommended for NRS 361.157 (Appendix F).

The NTC has not separately considered the question of taxation of a geothermal resource after commercial production started since that issue has never arisen. Under the ad valorem tax laws (NRS 361) of the state, the value of all improvements and any additional value accruing to the land by virtue of a productive geothermal resource would be considered in establishing the cash value of the property. There is, however, some speculation as to whether the NTC would direct the assessment and taxation of such a property under normal ad valorem laws or under the net proceeds of mines statutes.

VI. QUESTIONNAIRE SURVEY

In order for the oversight committee to fully understand the operation of a geothermal project and to obtain the greatest possible public participation, a questionnaire was prepared and distributed to members of the geothermal industry and others (see Appendix G). The goals of the questionnaire survey were:

1. To provide industry a device with which to submit their input and opinions for consideration in the study.

2. To determine if current taxing practices in Nevada have acted as a disincentive to exploration and development of geothermal resources.

3. To determine what areas of concern other than taxation may act as a disincentive to exploration and development of geothermal resources in Nevada.

4. To determine what industry perceives as the problem(s) with current taxing practices in Nevada.

5. To obtain industry's opinions as to what might be done to eliminate any tax disincentives.

The questions were geared toward each individual's experience in geothermal in Nevada. The questionnaire was designed both as an instrument in which members of the industry could express their opinions, as well as a device to gain factual information necessary to obtain a profile of the industry as it exists today in Nevada. Most questions and the questionnaire itself were open-ended as each respondent was invited to expand his answers or provide any additional information or material they felt appropriate.

Questionnaires were mailed to all competitive and noncompetitive lease holders in the state, as well as other individuals, firms and companies that had expressed an interest in geothermal resources in Nevada or the study. In total, 75 question-

naires were mailed, 5 were returned uncompleted, and 24 were returned completed for a response rate of 34 percent.

Of the 75 questionnaires, 43 (57 percent) were sent to companies, and 32 (43 percent) were sent to individuals. Of the 24 completed survey forms returned, 16 (67 percent) came from companies while only 8 (33 percent) were returned from individuals. In addition, 18 of the questionnaires were sent to holders of competitive federal leases in the state, of which 9 were completed for a return rate of 50 percent. A total of 52 questionnaires were sent to holders of noncompetitive leases of which 13 were completed for a return rate of 25 percent. It is obvious from these statistics that companies rather than individuals and competitive lease holders rather than noncompetitive lease holders had a greater propensity to participate in the survey. The reasons are unclear; however, competitive lease holders do have a greater cash investment to protect than noncompetitive lease holders and most companies included in the survey were of sufficient size to have tax departments or experts to advise them on the answers to the questions. Additionally, noncompetitive leases are frequently obtained for a period of time and then dropped, making that group of respondents less stable than the others. At any rate, the overall response rate of 34 percent was not too disappointing considering the lack of homogeneity of the survey population.

In reviewing the returned questionnaires and the various comments and statements provided, it is quite evident that certain points of view are widely held by the respondents and probably by the geothermal industry as a whole. This is particularly true concerning the general areas of expectations and potential, resources definition, current tax practices and preferred tax treatment.

Although there are many potential uses of geothermal energy in Nevada (see Appendix A for a list of geothermal uses), the majority of those responding to the survey are in the state to try and locate and develop resources sufficient to economically produce electricity. It is apparent from the responses that these explorers expect to solve the various technological and institutional problems in order to produce electricity. The major disagreement in this area seemed only to be the amount of time until electrical generation is accomplished, as many felt it would happen in 5 to 10 years; others were more optimistic; and some were more pessimistic. In order to accomplish this lofty goal, many problems must be overcome and substantial sums of money must be invested. There are no commercially successful, wet steam electrical generation systems in this country yet. Many engineering and technical questions need to be resolved, as well as locating resources capable of sustaining a generating facility over many years. The results

of the questionnaire survey would tend to indicate a general optimism by the industry of their ability to conquer these problems and create a viable geothermal industry within the state.

The majority of respondents to the questionnaire felt that geothermal resources should be defined in Nevada law as either a mineral or a separate resource. None of the respondents felt it should be defined as water. Some suggested that associating geothermal with water would act as a barrier to development in the state since any large geothermal development would bring vast amounts of hot brines and water to the earth's surface, and these waters may fall under the appropriation process of the state engineer. NRS 534A, which requires the state engineer to regulate geothermal well drilling, places waters encountered in exploration for geothermal to be subject to the same laws, rules and regulations as all other underground water in the state.

Approximately three-quarters of the respondents indicated that taxation of possessary interest (leaseholds) and taxation before production of a salable resource were disincentives to exploration and development of geothermal in Nevada. Many comments suggested that the tax only adds more cost to an already costly and risky business. Several respondents indicated a basic disagreement with the concept of taxation of possessary interest and particularly possessary interest on federal land. The constitutionality of this concept has been tested and upheld in the Standard Oil case. Although most respondents disagreed with taxation before production, most indicated that Nevada's tax laws had not acted as a disincentive in any of their projects. Several respondents qualified this answer by pointing out that the industry is just getting started and it is too soon to determine whether existing tax laws will tend to discourage development. Other responses to the questionnaire on ranking barriers to geothermal development indicate that Nevada tax law is viewed by most as a problem but not a problem as severe as several others, including federal leasing regulations, environmental controls, lack of risk capital, federal income tax laws and state water laws.

Responses to questions about industry preference in tax treatment indicated that most respondents prefer to be taxed only after production and then as minerals are taxed. Most indicated a preference for the net proceeds of mines tax. Comments suggested that the net proceeds' tax automatically allows for varying values of resources found, as well as varying costs to extract. Several of those surveyed suggested that geothermal resources should be taxed the same as other energy resources in order to provide similar tax treatment between competing resources.

Many respondents to the questionnaire took the opportunity to discuss the full range of problems and barriers that confront the geothermal industry in Nevada today. These problems are only reported here and no recommendations are made since they do not deal with alternative forms of taxation and, therefore, do not fall within the scope of A.C.R. 8. The following is a list of the more significant problems, barriers and suggestions received:

1. Defining geothermal within NRS as either a mineral or as a separate resource (sui generis): Being neither mineral nor water would require development of a separate body of laws which would provide the opportunity to free geothermal from the restrictions of current water and mineral laws.

2. Federal land leasing regulations: Current leasing regulations promulgated by the Bureau of Land Management make it difficult for geothermal exploration and development. Particularly troublesome, apparently, are leased acreage limitations and required federal approvals including drilling regulations and environmental controls.

3. Federal income tax laws: Federal tax laws do not grant the same advantages to geothermal development as most other mining or mineral operations, especially oil, gas and coal mining. The percentage depletion allowance and the immediate deduction of intangible drilling costs are allowed oil and gas operations, but not geothermal. The 1977 Legislature passed Assembly Joint Resolution No. 5, which memorialized Congress to grant a depletion allowance to the geothermal industry.

4. State water law: Many respondents fear eventual problems if geothermal resources have to be appropriated similar to other waters of the state under the control of the state engineer. Some advocate no controls unless interference with established water rights can be demonstrated. Others suggest that only consumptive use of water requires appropriation since most hot water extracted from a geothermal resource will not be consumed.

5. Lack of clear-cut state policy: Although past legislative actions would tend to favor geothermal development within the state, there is no official state policy. This may be remedied as the new Department of Energy is required to review policies concerning geo-

thermal development and make appropriate recommendations.

6. Tax incentives for users of geothermal energy: There were many suggestions that tax incentives for geothermal resources be extended to users of geothermal energy to encourage the marketability of the resource.

7. Create state geothermal agency or board: It was suggested that creation of a separate geothermal agency staffed by mining or oil and gas experts could better regulate this fledgling industry and would also remove the industry from control of the state engineer.

8. Project grants and technical research and assistance: Several respondents suggested that the state could create incentives for exploration and development by providing demonstration grants and technical advice.

Through responses to the questionnaire, comments and other materials submitted in the survey it is clear that geothermal exploration and development is in its very early stages of technology, very little is actually known about the resources available, and most explorers in Nevada have hopes of establishing resources capable of generating electricity. Several economic analyses have been completed projecting development costs which point up the vast investments that will be required. One analysis estimates that a 200-megawatt geothermal power plant might take 10 to 15 years to bring on line and cost well over $150 million to establish the resource and the generating facilities.[3] These numbers demonstrate the excessive financial risk involved in this type of geothermal development. This risk, coupled with the extremely long time period before income can be generated and uncertain markets, tends to discourage adequate capital formation.

It is quite apparent from the responses to the questionnaire survey and the inordinate time span from the inception of a geothermal project to a successful conclusion that two separate and distinct tax issues are raised. Taxation before successful energy production becomes extremely important, especially in the initial stages of this fledgling industry, and taxation after production becomes important in making long-range business decisions.

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3 National Conference of State Legislatures, "State Policies for Geothermal Development, Uncovering a Major Resource," pp. 21-34.

VII. RECOMMENDATIONS ON TAXATION BEFORE PRODUCTION

The country and the State of Nevada are embroiled in a crisis which threatens to endanger our way of life. This crisis, which has been brought about by rapidly increasing demands for energy while supplies especially oil and gas are diminishing, could cause significant changes in industries, businesses and personal lives in the years to come. It has been widely recognized that immediate steps must be taken in order to alleviate potential energy shortages and accompanying hardships and to rescue our economic and social welfare from threatened deterioration. In an effort to avoid this crisis or lessen its impact, a national effort to both reduce energy demand and develop alternate nonfossil energy resources is required. Geothermal energy is such an alternate energy resource. Significant development of geothermal resources can help satisfy future increases in energy usage as well as relieve some of the demands on oil and gas resources.

The oversight committee recognizes the importance of this effort to lessen dependence on oil and gas for energy needs. In response to this need, the oversight committee feels that the State of Nevada, through its policies and practices, should continue supporting the development of geothermal resources. In order to maximize success of a comprehensive energy policy, it is necessary for all members of the national community to do their part in meeting that plan's goals. In Nevada, the oversight committee feels that obligation can be partially met by farsighted state policies that encourage and promote rapid development of the state's geothermal resources.

The oversight committee found very little energy is actually produced in Nevada. Nearly all the energy that is consumed in Nevada is imported from other states. Although Nevada is a net exporter of electricity, much of the energy resources required to generate that electricity is imported, making the state dependent on others for its energy needs. In contrast, geothermal resources that may satisfy many energy needs are widely distributed in Nevada and offer more potential than those found in almost any other state.

Geothermal energy promises an additional benefit since it is unlike other energy resources that produce extensive water and air pollution or disturb vast areas of land. Geothermal resources can be produced, used and the wastes disposed of with minimal disturbance to the land and other natural resources. The oversight committee feels that the promotion of geothermal is a unique opportunity to gain an environmentally acceptable energy source for the state.

The oversight committee found that the application of ad valorem taxes on geothermal properties can create a burden within the industry that acts as a disincentive to development. Under the taxation of possessory interest statute (NRS 361.157), the lease of federal or otherwise exempt lands becomes taxable when the lease is consummated. Since long delays estimated at 5 to 15 years between discovery and production occur in geothermal projects, a substantial tax burden will exist long before income can be produced. Unlike an oil well that can generate income for the developer quickly, geothermal projects cannot be brought to success immediately. This difference in timing causes a competitive disadvantage for geothermal as lease payments and property taxes fall due every year.

The oversight committee also found that geothermal is a high risk industry that may have difficulty generating sufficient capital for development. To meet projected expectations, geothermal exploration and development must increase substantially. The infancy of the industry in relation to other energy industries and the lack of any successful wet steam projects in the United States, coupled with the long time lag to production and the enormous investment required, diminishes capital formation prospects. The taxation of leases throughout this period adds to the cost of development and takes dollars away from other project development needs. This added cost can only act to prolong ultimate success.

In order to achieve a state tax policy that provides for the encouragement and increased competitiveness of the geothermal industry and one that might hasten successful energy production in Nevada, the oversight committee recommends exempting leases for geothermal development from ad valorem property taxation under NRS 361.157 (Appendix H). Such an exemption would not only serve to remove an institutional barrier, but could also act as an incentive for increased exploration within the state.

The current tax loss from exempting geothermal from the possessory interest tax of NRS 361.157 would be approximately $45,000 per year statewide (see Appendix C). This tax loss is expected to grow yearly as additional leases are sought and successful projects are brought on line generating increased geothermal interest. The impact of this immediate tax loss could be lessened by future tax collections on successful geothermal resources. Tax income from a producing resource will, in all probability, far exceed the taxes lost on the geothermal leases. If exemption of the lease from tax helps hasten projects to success, the tax losses will be minimized. The state, in the meantime, would not be completely without income from these tax exempted lands. Under the Geothermal Steam Act of 1970, the state receives 50 percent of all rents and royalties collected by the Federal Government for geothermal leases. These moneys

are deposited in the distributive school fund for local education needs. It is estimated that these geothermal leases produced over $300,000 for the state in fiscal year 1978.

In considering the exemption from NRS 361.157, the oversight committee sought to confine its recommendations to geothermal development only. The recent Supreme Court decision on oil and gas leases cast some doubt on whether geothermal could be exempted without affecting the taxation of other possessory interests. The oversight committee obtained an opinion from Legislative Counsel (Appendix F) which concludes that the exemption may bring the oil and gas interests back to court; however, the recommendation should withstand the constitutionality test and that the courts could find a "rational basis" for preferential tax treatment for geothermal. In order to clearly delineate the oversight committee's intent in this matter, the suggested legislation (Appendix H) contains a section which sets out legislative findings which support exemption.

VIII. RECOMMENDATIONS ON TAXATION AFTER PRODUCTION

Geothermal energy is a natural resource that comes from beneath the earth's surface. It has variously been described as heat, a mineral, water and "a thing of its own." Both California courts and the federal courts have held that geothermal rights belong to the holder of mineral rights to the land, rather than the holder of the surface rights. In order to produce energy from geothermal energy, a developer must first obtain the right to potentially valuable lands, prospect to find a resource, prove the resource, extract the resource, transport the resource and find markets for the resource. Although there are some differences, these operations are similar to mining operations and the use of geothermal energy is similar to the usage of other energy resources which are all mined.

Under Article X of the Nevada Constitution and chapter 362 of Nevada Revised Statutes, coal, oil, gas, uranium and other potential energy resources are all considered minerals, the value of which is taxed as a mine under the net proceeds of mines laws, rather than the ad valorem property tax laws. Basically, the net proceeds tax laws allow for the deduction of the necessary expense to mine and refine the product from the gross proceeds in arriving at an assessment value to which is applied the appropriate local tax rate. This method of taxation automatically adjusts the assessed value of the mine dependent on the value of the resource and the cost to extract it. Since most known geothermal resources in Nevada are on federal lands for which no market data exists for assessment purposes and since no experience in determining the size and value of a discovered resource exists, ad valorem assessment and taxation may prove to be impractical.

For these reasons and in order for geothermal to be able to compete on an equitable basis with other energy resources, the oversight committee recommends placing taxation of producing geothermal developments under the net proceeds of mines tax.[4] Taxation under net proceeds is also consistent with the oversight committee's desire to develop a state tax policy that encourages geothermal development since the net proceeds system is generally viewed as a more favorable tax treatment than ad valorem taxation by the geothermal industry.

The cost in lost future tax revenues of putting productive geothermal resources under net proceeds cannot be accurately determined. The lack of geothermal development in the state from which data can be derived prohibits such a calculation. It may very well be, however, that increased interest in exploration and development due to favorable tax treatment in Nevada may cause tax revenues to increase rather than decrease. There would be no immediate tax revenue loss since no geothermal resources are currently being assessed on the value of the resource.

The oversight committee also recommends that geothermal energy be exempted from the sales and use taxes of the state.[4] The oversight committee noted that all resources taxed under net proceeds of mines are automatically exempt from sales and use tax and that specific commodities such as gas, electricity and domestic fuels are specifically exempt from the tax. In order to insure equitable treatment between competing energy resources, a similar exemption should be afforded geothermal.

The oversight committee also recommends that all byproducts of geothermal processes be treated for tax purposes in the same manner as the geothermal resource itself.[4] Most byproducts that would conceivably be derived from a geothermal system would be mineral in nature and would already be taxable under net proceeds laws.

The oversight committee also reviewed the oil and gas conservation tax assessed by the Division of Mineral Resources of the Department of Conservation. The tax, as currently constituted, is intended to defray the cost of administering state laws controlling oil and gas waste and the drilling of oil wells. The oversight committee makes no recommendation, but suggests this tax be examined at such time as the legislature might consider similar regulatory statutes for geothermal resources or the creation of a separate state agency to regulate the geothermal industry.

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4 Recommended legislation is not included. See Summary of Recommendations, page 4, recommendations 2, 3 and 4.

APPENDICES

Appendix A--Applications of Geothermal Energy in the United States.

Appendix B--Known Geothermal Resource Areas in Nevada.

Appendix C--Estimated Taxes Under NRS 361.157.

Appendix D--Examples of Current Tax Laws and Regulations.

Appendix E--Supreme Court Decision, Standard Oil Company v. Tom Pastorino, Eureka County Assessor.

Appendix F--Legislative Counsel Opinion on NRS 361.157 and Exemption of Geothermal Leases.

Appendix G--Questionnaire Survey and Results.

Appendix H--Suggested Legislation.

APPENDIX A

APPLICATIONS OF GEOTHERMAL ENERGY IN THE UNITED STATES

Applications Now in Effect:

ALASKA

1. Swimming pools and bathhouses
2. Greenhouses
3. Limited space heating

CALIFORNIA

1. Power generation
2. Space heating
3. Heating water for domestic use
4. Greenhouses
5. Spas and recreation
6. Lumber mill drying kilns

IDAHO

1. Space heating
2. Domestic hot water
3. Greenhouses
4. Swimming pools, resort use
5. Fish propagation (mainly catfish)
6. Irrigation
7. Animal husbandry (warm water watering during winter months)
8. Forest campgrounds

NEVADA

1. Source of water for domestic use
2. Space heating
3. Safe heat source for processing explosives
4. Spas and recreation
5. Greenhouses

OREGON

1. Space heating
2. Heating water for domestic use
3. Pasteurization
4. Industrial cleaning
5. Refrigeration
6. Coils under pavement to prevent accumulation of ice and snow
7. Greenhouses
8. Tree seedling nurseries

Possible Future Applications:

1. Sugar processing
2. Fermentation processes
3. Freeze drying of food
4. Production of heavy H_2O
5. Mineral extraction from brines
6. Production of alumina from bauxite
7. Gasification of coal and other carbonaceous
8. Textile processing
9. Products of fermentations: Ethyl alcohol, butanol acetone, citric acid, etc.

Source: United States Geological Survey

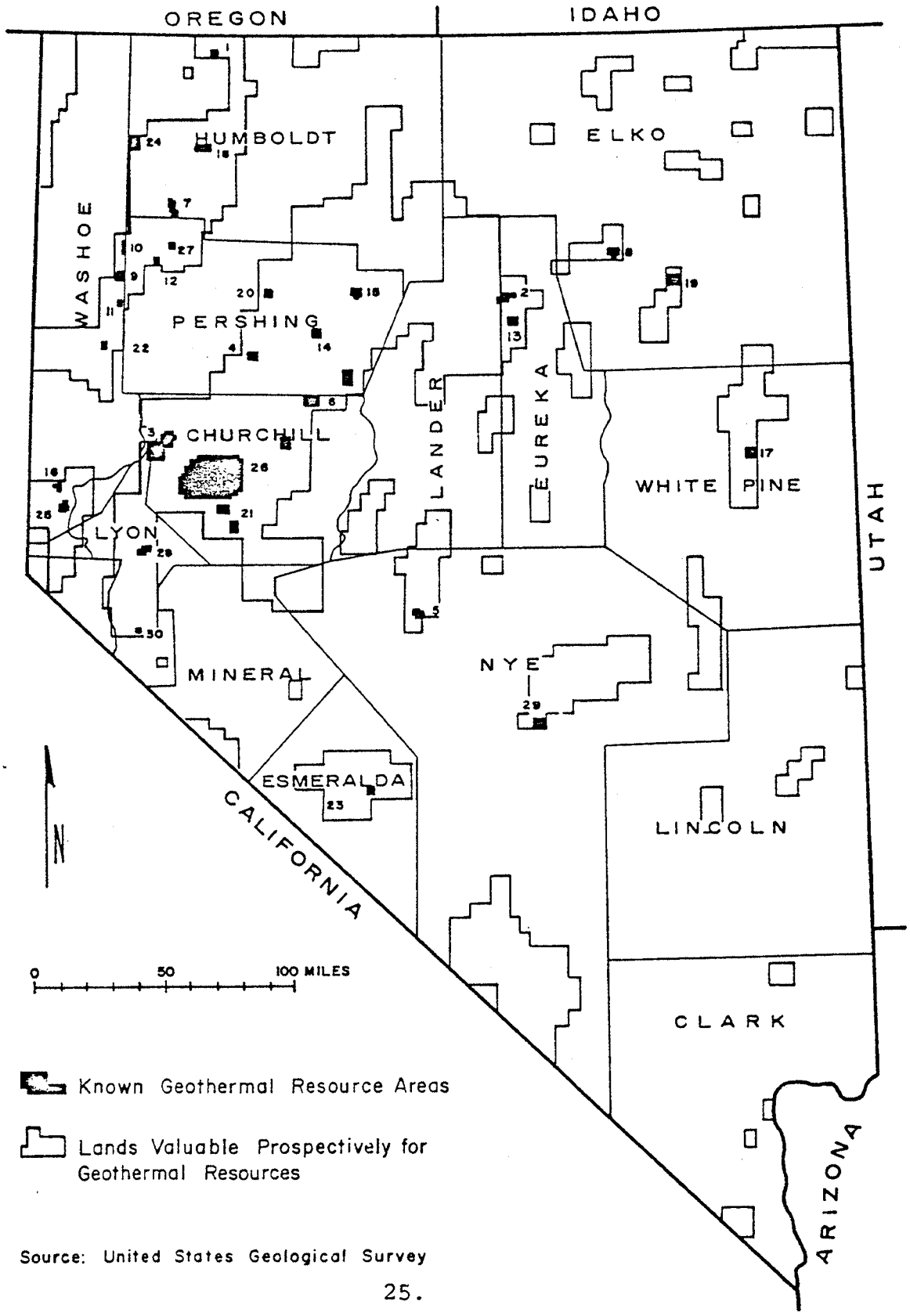
APPENDIX B

KNOWN GEOTHERMAL RESOURCE AREAS IN NEVADA
As Of December 31, 1977

No.	KGRA	Total Acres[1]	Leased Federal Acres	Location (County)
1	Baltazar	5,537.25	5,537.24	Humboldt
2	Beowawe	33,224.50	13,766.02	Lander, Eureka
3	Brady-Hazen	98,446.00	35,124.67	Churchill, Lyon
4	Colado	640.00	640.00	Pershing
5	Darrough Hot Springs	8,398.00		Nye
6	Dixie Valley	38,988.87	30,490.88	Churchill, Pershing
7	Double Hot Springs	29,326.16		Humboldt
8	Elko Hot Springs	8,960.00		Elko
9	Fly Ranch	20,662.38	8,751.45	Washoe, Pershing
10	Fly Ranch, N. E.	7,680.00		Washoe, Pershing
11	Gerlach	26,325.60	8,493.88	Washoe
12	Gerlach, N. E.	7,971.00		Washoe
13	Hot Springs Point	8,549.16	4,701.60	Eureka
14	Kyle Hot Springs	2,561.00	2,400.28	Pershing
15	Leach Hot Springs	12,797.00	12,246.21	Pershing
16	Moana Springs	5,120.00		Washoe
17	Monte Neva	10,302.00		White Pine
18	Pinto Hot Springs	8,065.00		Humboldt
19	Ruby Valley	5,742.81	2,418.92	Elko
20	Rye Patch	800.81	800.81	Pershing
21	Salt Wells Basin	19,232.38		Churchill
22	San Emidio Desert	7,678.00	1,612.00	Washoe
23	Silver Peak	5,117.08	2,546.57	Esmeralda
24	Soldier Meadows	5,966.00		Humboldt
25	Steamboat Springs	8,914.00	1,547.61	Washoe
26	Stillwater-Soda Lake	225,211.00	13,258.70	Churchill
27	Trego	7,013.00		Pershing
28	Wabuska	11,520.00	5,640.00	Lyon
29	Warm Springs	3,812.00	1,311.90	Nye
30	Wilson Hot Springs	1,294.12	1,294.12	Lyon
	Total	635,855.12	152,582.86	

1. Includes both public and private land.

KNOWN GEOTHERMAL RESOURCE AREAS (KGRA) AND VALUABLE GEOTHERMAL LANDS



Source: United States Geological Survey

APPENDIX C

GEOTHERMAL RESOURCES
ESTIMATED TAXES UNDER NRS 361.157
(POSSESSORY INTEREST)
As of June 5, 1978

County	Acres	Assessment Rate	Estimated Assessed Value	Tax Rate[1]	Estimated Taxes
Churchill:					
Competitive	56,669.25	2.90	$ 164,340	$3.80	$ 6,245
Noncompetitive	194,698.33	1.45	282,312	3.80	10,728
County	80.00	1.45	116	3.80	4
					$16,977
Douglas:					
Noncompetitive	2,191.47	1.45	3,177	3.01	96
					$ 96
Elko:					
Competitive	2,418.92	2.90	7,015	3.05	214
Noncompetitive	8,464.26	1.45	12,273	3.05	374
					$ 588
Esmeralda:					
Competitive	2,546.57	2.90	7,385	3.75	277
Noncompetitive	24,446.96	1.45	35,448	3.75	1,329
					$ 1,606
Eureka:					
Competitive	8,834.26	2.90	25,619	3.42	876
Noncompetitive	8,348.08	1.45	12,105	3.42	414
					$ 1,290
Humboldt:					
Competitive	5,537.24	2.90	16,058	3.23	519
Noncompetitive	97,001.55	1.45	140,652	3.23	4,543
					$ 5,062
Lander:					
Competitive	6,437.04	2.90	18,667	3.92	732
Noncompetitive	17,975.37	1.45	26,064	3.92	1,022
					$ 1,754
Lyon:					
Competitive	13,682.04	2.90	39,678	3.914	1,553
Noncompetitive	9,126.66	1.45	13,233	3.914	518
					$ 2,071

APPENDIX C
(Continued)

County	Acres	Assessment Rate	Estimated Assessed Value	Tax Rate[1]	Estimated Taxes
Mineral:					
Noncompetitive	12,373.26	1.45	17,941	5.00	897
					$ 897
Nye:					
Competitive	1,311.90	2.90	3,805	3.70	141
Noncompetitive	53,471.17	1.45	77,533	3.70	2,869
					$ 3,010
Pershing:					
Competitive	28,546.08	2.90	82,784	3.28	2,715
Noncompetitive	77,372.20	1.45	112,190	3.28	3,680
					$ 6,395
Storey:					
Noncompetitive	543.22	1.45	788	4.79	38
					$ 38
Washoe:					
Competitive	14,492.68	2.90	42,028	3.869	1,626
Noncompetitive	24,723.52	1.45	35,849	3.869	1,387
					$ 3,013
White Pine:					
Noncompetitive	39,079.60	1.45	56,665	3.60	2,040
					$ 2,040
	710,371.63[2]		$1,233,725		$44,837

1. Tax rates are those found in the preliminary draft of the Department of Taxation's Redbook for fiscal year 1978-79. Since most geothermal resources are not located in urban areas, the general rural tax rates were used. Such tax rates generally include the county rate plus the school district rate and also includes the $.25 state property tax assessment. The estimated distribution of these taxes would be $41,753 to local government units and $3,084 to the state general fund.

2. There are a total of 427 leases outstanding as of 6/5/78 for an average of 1,663.63 acres per lease.

APPENDIX D

EXAMPLES OF CURRENT TAX LAWS AND REGULATIONS

Most geothermal projects in Nevada are on federal leased lands. These lands are leased under authority of the "Geothermal Steam Act of 1970" either competitively or noncompetitively. Lands that are known to have some geothermal potential and meet certain standards are classified by the United States Geological Survey as "Known Geothermal Resource Areas" (KGRA) and must be leased competitively. All other eligible federal lands can be leased by the Bureau of Land Management on a noncompetitive basis. Under the "Geothermal Steam Act of 1970" a single person or company can not lease or control more than 20,480 acres in any one state for geothermal purposes. In addition, federal regulations limit a single leasing unit to 2,560 acres of land (most leased units in Nevada are less than 2,560).

The Nevada Tax Commission has described in Bulletin No. 139, July 1, 1977, the procedures county assessors are to follow in assessing geothermal leases. These regulations establish the current assessment rate at $1.45 per acre for noncompetitive leases and $2.90 per acre for competitive leases. The average county tax rate for tax year 1977-78 of $3.72 per $100 of assessed value was chosen for demonstration purposes since most potential geothermal sites within the state are located in rural areas of the various counties where only the county rate would be in effect (county rate as used includes school district rates).

Using the factors and limitations outlined above, the following examples demonstrate how the current assessment and tax laws and regulations are applied to possessory interests:

Noncompetitive Leases:

Per Acre:

	1	Acre
X	$ 1.45	Per Bulletin No. 139
	$ 1.45	Assessed Value
X	$ 3.72	Average Tax Rate
	$ .05	Estimated Tax

Per Lease Unit:

	2,560	Acres (maximum)
X	$ 1.45	Per Bulletin No. 139
	$ 3,712.00	Assessed Value
X	$ 3.72	Average Tax Rate
	$ 138.08	Estimated Tax

Noncompetitive Leases: (Continued)

Maximum Holding:

	20,480	Acres
X	$ 1.45	Per Bulletin No. 139
	$29,696.00	Assessed Value
X	$ 3.72	Average Tax Rate
	$ 1,104.69	Estimated Tax

Competitive Leases:

Per Acre:

	1	Acre
X	$ 2.90	Per Bulletin No. 139
	$ 2.90	Assessed Value
X	$ 3.72	Average Tax Rate
	$ .11	Estimated Tax

Per Lease Unit:

	2,560	Acres (maximum)
X	$ 2.90	Per Bulletin No. 139
	$ 7,424.00	Assessed Value
X	$ 3.72	Average Tax
	$ 276.17	Estimated Tax

Maximum Holding:

	20,480	Acres
X	$ 2.90	Per Bulletin No. 139
	$59,392.00	Assessed Value
X	$ 3.72	Average Tax
	$ 2,209.38	Estimated Tax

Private Property Leases:

Bulletin No. 139 specifies that assessment of geothermal leases on private land will be based upon the actual rent and term of the lease capitalized at 20%. The only such lease known at this time has resulted in the following assessment:

2,380	Acres
$24,238.00	Assessed Value
$ 10.18	Computed Assessment Per Acre
$ 901.65	Estimated Tax (Using Average Tax Rate of $3.72)

Private Property Leases: (Continued)

Under current laws the lessor on federal property will be assessed for his possessory interest for the life of the lease. Additional assessments would be made for all improvements and personal property as these are acquired or constructed. Assessments for these improvements would be based on 35% of their value just as all other privately owned property is assessed and taxed.

APPENDIX E

IN THE SUPREME COURT OF THE STATE OF NEVADA

STANDARD OIL COMPANY OF CALIFORNIA, A Delaware Corporation,

Appellant,

vs.

TOM PASTORINO, Eureka County Assessor, NEVADA TAX COMMISSION, and the STATE OF NEVADA,

Respondents.

No. 9202

FILED

JUN 7 1973

C. R. DAVENPORT
CLERK OF SUPREME COURT
BY Judith McCulloch
DEPUTY CLERK

Appeal from declaratory judgment, Third Judicial District Court, Eureka County; Stanley A. Smart, Judge.

Affirmed.

Vargas, Bartlett & Dixon, and Frederic R. Starich, Reno, for Appellant.

Robert List, Attorney General, James D. Salo, Deputy Attorney General, and Marsha Claman, Deputy Attorney General, Carson City, for Respondents.

O P I N I O N

By the Court, GUNDERSON, J.:

Standard Oil Company of California here appeals a judgment declaring NRS 361.157 constitutional under both the Nevada and federal constitutions, and permitting respondent assessor and tax commission to impose taxes pursuant to the statute. We affirm the district court's determinations.

Standard is lessee under oil and gas leases of real property owned by the Bureau of Land Management in Eureka County. From 1968 to 1973, the Nevada Tax Commission directed the Eureka County Assessor to collect taxes from Standard pursuant to NRS 361.157. The taxes were paid under

protest and placed in a suspension fund, pending judicial determination of the tax authorities' right to tax oil leases.

Standard then filed an action to declare NRS 361.157 unconstitutional, and to enjoin respondents from taxing its leases. The parties entered a stipulation of facts, and filed cross-motions for summary judgment. The district court granted the tax authorities' motion for summary judgment, declaring the statute constitutional. Standard here contests that determination, alleging four constitutional infirmities.

1. Standard first contends NRS 361.157(1) violates the supremacy clause of the federal constitution by taxing the real property of the federal government. See U.S. Const. art. VI, par. 2.

NRS 361.157(1) provides in relevant part:

> When any real estate which for any reason is exempt from taxation is leased, loaned or otherwise made available to and used by a . . . corporation in connection with a business conducted for profit, it is subject to taxation in the same amount and to the same extent as though the lessee or user were the owner of the real estate.

It is well settled that a state may not directly tax real property of the United States. Agricultural Bank v. Tax Comm'n, 392 U.S. 339 (1968); McCulloch v. Maryland, 17 U.S. 316 (1819). However, a state may tax a lessee of that same federal property so long as the tax does not discriminate against federal lessees in favor of state lessees. Compare Moses Lake Homes vs. Grant County, 365 U.S. 744 (1961), declaring unconstitutional a Washington statute which taxed federal lessees at full value and state lessees at 50% of fair market value, with United States vs. Detroit, 355 U.S. 466 (1957), holding permissible a tax on all lessees of government property based on full value of property. Standard contends NRS 361.157(1) imposes a direct tax on federal property, urging that the tax is

measured by the full value of the land, thereby taxing both the leasehold interest and the reversionary interest held by the government. This argument is neither supported by the evidence, nor by the law.

The record shows the assessor did not tax the full value of the land. He was required to tax only 35% of capitalized rental value on competitive leases, and $2.20 per acre on non-competitive leases. In any event, a state does not violate the supremacy clause by using the full, fair market value of the land as the basis for the assessment. See United States vs. Detroit, cited above at 470.

We also reject Standard's contention that the statute requires continued taxation once the land reverts from the lessee to the government at the expiration of the leasehold. We will not so broadly construe the statute to reach an unconstitutional result. In our view, NRS 361.157(1) provides for taxation only while the land is subject to a lessee's interest. The tax ceases once it reverts to the government.

2. Standard next claims NRS 361.157(3)(d) invidiously discriminates against certain users of federal lands in violation of the equal protection clause of the federal constitution. See U.S. Const. amend. XIV, §1. This claim is based on the differing treatment given to certain classes of lessees of federal land--i.e. oil lessees are taxed, while grazing lessees are exempted from taxation.

NRS 361.157 provides in relevant part:

> 1. [Leaseholds may be taxed] . . .
> 2. . . .
> 3. Subsection 1 does not apply to:
> (a) . . .
> (b) . . .
> (c) . . .
> (d) Property leased or otherwise made available to and used by a private individual, association, corporation, . . . or a political subdivision under the provisions of the Taylor Grazing Act or by the United States Forest Service or the Bureau of

> Reclamation or the United States Department of the Interior; . . .

When the statute was amended in 1967, an accompanying preamble specifically provided that the above exemption applied only to grazing lessees: "WHEREAS, The particular exceptions provided by paragraph (d) of subsection [3] were meant to apply only to lands made available for grazing by the named federal agencies . . . which might hold lands suitable for grazing; . . ." 1967 Nev. Stats. 154. Thus, all lessees from the federal government are subject to tax except grazing lessees, and Standard therefore claims this violates the equal protection clause of the federal constitution. We disagree.

While subsection 3(d) does discriminate by providing preferential treatment to grazers, such discrimination will not necessarily violate equal protection if there is a rational basis for the exemption. See Allied Stores of Ohio v. Bowers, 358 U.S. 522 (1959). A statute must be upheld "if any state of facts reasonably can be conceived [to] sustain it." Phillips Chemical Company v. Dumas School District, 361 U.S. 376, 383 (1960). "[T]he State's power to classify is, indeed, extremely broad, and its discretion is limited only by constitutional rights and by the doctrine that a classification may not be palpably arbitrary." Ibid. "That a statute may discriminate in favor of a certain class does not render it arbitrary if the discrimination is founded upon a reasonable distinction, or difference in state policy." U.S. v. Township of Muskegon, 355 U.S. 484, 528 (1958).

Here, the legislature clearly desired to protect grazing interests from onerous tax liability. See Preamble to 1967 Nev. Stats., cited above. Grazers do not pay for their "leases" by the acre, but instead must pay the Bureau of Land Management a separate fee for each head of cattle. (The current rate is $1.51 per head per month.) Oil lessees,

on the other hand, pay a flat nominal consideration per acre for their leases. All this indicates the legislature has consciously decided to give grazing interests a tax adjustment, consistent with such business considerations as the cost of obtaining leases from the federal government, and perhaps the fact that their activities do not permanently deplete natural resources. The statutory scheme would therefore appear to have a rational basis, and not to violate equal protection principles. Cf. Sproul vs. Gilbert, 359 P.2d 543 (Or.1960).

3. Appellant next contends oil wells and leases are unpatented "mines" or "mining claims" which are exempt from property taxation pursuant to article 10, §1 of the Nevada Constitution.

Article 10, §1 provides in pertinent part:

> The legislature shall provide by law for a uniform and equal rate of assessment and taxation, and shall prescribe such regulations as shall secure a just valuation for taxation of all property, real, personal and possessory, except mines and mining claims, when not patented, the proceeds alone of which shall be assessed and taxed, and when patented, each patented mine shall be assessed at not less than five hundred dollars ($500), except when one hundred dollars ($100) in labor has been actually performed on such patented mine during the year, in addition to the tax on net proceeds; . . .

Appellant insists oil wells and oil leases are "mines and mining claims" within the meaning of the constitution, and should therefore be exempt from property taxation.[1]

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[1] Authority on this point is clearly split. Some jurisdictions have held oil is a mineral, and oil wells are mines. See Burke v. Southern Pacific Railway Co., 234 U.S. 669 (1914), citing congressional statutory scheme as the primary basis for the above conclusion; Mid-Northern Oil Co. v. Walker, 211 P.353 (Mont.1922), citing Burke; Southland Royalty Co. v. American Petroleum Corp., 378 S.W. 2d 50 (Tex.1964). See also, Opinions of the Nevada Attorney General #405, 109 (1967) meaning of mine for determining the gross yield under the net proceeds of mine act.

On the other hand, other courts have held that an oil well is not a mine. Cf. J. M. Guffey Petroleum Co. v. Murrel, 53 So.705 (La.1910), oil well not a mine within the meaning of constitutional provision exempting taxation of property used in mining operations; Carter v. Phillips, 212 P.747 (Okl.1923), an oil well not a mine for income tax purposes; Hollingworth v. Berry, 192 P.763 (Kan.1920), an oil well not a mine under workmen's compensation coverage; Barton v. Wichita River Oil Co., 187 S.W.1043 (Tex.Civ.App.1916), an oil well not a mine for purposes of statutory lien.

Support for the latter view can also be found in common

We need not decide this issue as proffered, however, because the sole question before this court is whether oil leases should be exempt from property taxation. We note that in 1975 the legislature defined a "mine" as follows:

> "Mine" means:
> 1. An area of land:
> (a) Where exploration is conducted to discover or delineate minerals or mineral commodities in any deposit;
> (b) Where development is conducted to prepare or open any deposit of minerals or mineral commodities other than solid fuels for extraction; or
> (c) Where exploitation or extraction of minerals or mineral commodities other than solid fuels is conducted from any deposit; . . .
> 3. Structures, equipment, machinery, apparatus or other property, upon the surface or underground, used or to facilitate the work of exploring, developing or extracting minerals or mineral commodities other than solid fuels in or from any deposit; or
> 4. Beneficiation plants, mills, smelters, refineries or other property used or to facilitate the treatment or reduction of any minerals or mineral commodities, whether or not contiguous to an area where exploitation or extraction of minerals or mineral commodities is conducted from any deposit. (Emphasis added.) NRS 512.006.

This, we believe, articulated the fundamental understanding of the term "mine" previously existing. Thus, at least until "mines" are created through an actual exploration or extraction, the interests in question would be taxable as any other leasehold interest. Therefore, we conclude such totally undeveloped oil leases are not exempted from property taxation within the meaning of article 10, §1 of the Nevada Constitution.

4. Standard finally claims NRS 361.157 violates article 4, §17 of the Nevada Constitution which provides in

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understanding. Webster has defined "minerals" as "any chemical element or compound occurring naturally as a product of inorganic process . . . ;" and "mine" as "a pit or excavation in the earth from which ore, precious stones, coal, or other mineral substances are taken by digging or by any of various other mining methods . . ." Webster's New International Dictionary (2nd ed.1961). Because oil is an organic substance, it does not fall within the accepted definition of mineral. In examining the Nevada Constitutional Debates and Proceedings (1864), it also appears the framers only made reference to mines as they existed in 1864--i.e., silver, gold, and quartz mines. Ibid. 318-386.

In oral argument, appellant mistakenly stated our decision in State v. Ellison Ranching Co., 93 Nev. 575, 571 P.2d 394 (1977) clearly established that an oil well is a mine. That issue was not considered, and the opinion does not support appellant's claim.

pertinent part: "Each law enacted by the Legislature shall embrace but one subject, and matter, properly connected therewith, which subject shall be briefly expressed in the title; . . ." Curiously, appellant now contends the property tax levied under 361.157 is really a privilege and use tax. None of its authority stands for the stated proposition, and courts dealing with lessee taxation have regarded the assessment as an ad valorem property tax. Cf. United States vs. State ex rel. Beko, 88 Nev. 76, 493 P.2d 1324 (1972); Sproul, cited above. Therefore, NRS 361.157 does not violate the above constitutional mandate. It embraces but one subject--i.e., property taxation.

Gunderson, J.

We concur:

Batjer, C.J.

Mowbray, J.

Thompson, J.

Manoukian, J.

STATE OF NEVADA
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APPENDIX F

LEGISLATIVE COMMISSION (702) 885-5627
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July 25, 1978

Mr. Dan Miles, Deputy Fiscal Analyst
Fiscal Analysis Division
Legislative Counsel Bureau
Legislative Building, Capitol Complex
Carson City, Nevada 89710

Dear Dan:

You have asked our opinion on whether in view of the supreme court's decision in Standard Oil Co. of California v. Pastorino, 94 Nev. _____, _____P.2d_____ (1978), Advance Opinion No. 84, an amendment of NRS 361.157 to exempt the possessory interest in leases for the development of geothermal resources from property taxation:

1. Would afford Standard Oil or other leaseholders for oil and gas exploration an opportunity to again question the constitutionality of NRS 361.157; and

2. If so, is it more likely the courts would find in the lessors' favor?

You have also asked:

3. If the courts found NRS 361.157 unconstitutional, would they declare the statute invalid as applied to all types of possessory interest or only as applied to oil and gas leases?

4. What could be offered in such an amendment to satisfy the constitutional requirement for a "rational basis" for the preferential treatment which would be accorded to geothermal leases.

Question No. 1.

Under the doctrine of res judicata, parties are precluded from relitigating what is substantially the same cause of action. Clark v. Clark, 80 Nev. 52, 55 and 56, 389 P.2d 69 (1964).

If an oil and gas lessee who was not a party in the Pastorino case brings an action challenging the constitutionality of NRS 361.157 or if Standard Oil brings a claim based on taxes paid in a period different from that involved in Pastorino, the cause of action would be different and res judicata would not bar the action.

Under the doctrine of collateral estoppel, parties in a different cause of action are precluded from relitigating the same issues of fact. Clark v. Clark, supra. The consitutional questions raised in Pastorino are issues of law and whether the doctrine of collateral estoppel applies to those issues apparently has not yet been decided in Nevada. Even so, with respect to issues or questions of law, Nevada courts follow the rule of stare decisis: that a question once deliberately examined and decided should be considered as settled and the decision will be overruled only if clearly erroneous. Stocks v. Stocks, 64 Nev. 431, 438, 183 P.2d 617 (1947). The proposed amendment of NRS 361.157 to exempt the possessory interest in geothermal leases from the property tax would appear to have no bearing on three of the four constitutional challenges raised in Pastorino, namely: that subsection 1 of NRS 361.157 violates the supremacy clause of the federal constitution; that oil wells and leases are unpatented "mines" or "mining claims" exempt from taxation under Nev. Art. 4, §17 If these issues of law were again raised, the supreme court in all likelihood would follow the rule of stare decisis and hold that its decision in Pastorino controls over those questions.

The proposed amendment does, however, make a different question of Standard Oil's contention that NRS 361.157 invidiously discriminates against certain users of federal lands in violation of the equal protection clause of the 14th Amendment of the federal constitution. In Pastorino that claim was based on the differing treatment given to oil lessees and grazing lessees. Under the proposed amendment, the discrimination would appear between oil lessees and geothermal lessees. Because the amendment changes the basis of the claim, it does present another opportunity for the court to examine the constitutionality of NRS 361.157 with respect to the new claim.

Question No. 2.

The test for invidious discrimination under the equal protection clause of the 14th Amendment applied to tax legislation was reiterated by the court in Pastorino:

> While subsection 3 (d) [of NRS 361.157] does discriminate by providing preferential treatment to grazers, such discrimination will not necessarily violate equal protection if there is a rational basis for the exemption. [Citation omitted.] A statute must be upheld "if any state of facts reasonably can be conceived [to] sustain it." [Citation omitted.] "[T]he State's power to classify is, indeed, extremely broad, and its discretion is limited only by constitutional rights and by the doctrine that a classification may not be palpably arbitrary." [Citation omitted.] "That a statute may discriminate in favor of a certain class does not render it arbitrary if the discrimination is founded upon a reasonable distinction, or difference in state policy." [Citation omitted.]

We believe the court could find a rational basis for giving preferential tax treatment under NRS 361.157 to geothermal lessees over oil and gas lessees. We understand it can be shown that as compared with the oil and gas industry, the geothermal "industry" is in its infancy, there are considerable differences in the technology and capital available to it and in the time needed to develop markets for its products. In view of the current energy situation, it would not seem unreasonable for the state to adopt a policy of encouraging the development of new forms of energy through preferential tax treatment as contemplated in the proposed amendment.

Question No. 3.

The Nevada supreme court has declared that when it finds a statute to be partially invalid, it will determine whether or not the invalid portion is severable from the remainder of the statute. A two-prong test is applied: first, whether the remainder can stand independently of the invalid portion; and second, whether the legislature would intend that it should do so. County of Clark v. City of Las Vegas, 92 Nev. 323, 335, 550 P.2d 779 (1976). The intent of the legislature that an invalid provision of NRS or application of that provision should not affect those provisions or applications

which can be given effect without the invalid provision or application has been declared for every provision of NRS in NRS 0.-020. NRS 361.157 can certainly stand independently of the proposed amendment as it now does. If the court declared the proposed amendment invalid, it could find it severable from the remainder of NRS 361.157.

Question No. 4.

We would suggest that the bill making the proposed amendment contain legislative findings which set out the strongest possible reasons for giving preferential tax treatment to geothermal lessees.

Very truly yours,

FRANK W. DAYKIN
Legislative Counsel

By Gerald A. López
Gerald A. Lopez
Deputy Legislative Counsel

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APPENDIX G

TAXATION OF GEOTHERMAL RESOURCES IN NEVADA

QUESTIONNAIRE RESPONSE RECAP

1. Is your company now, or do you expect your company to be involved with geothermal resources in Nevada?

Yes	24
No	0
No Response	0

Five questionnaires were returned unanswered because the respondents no longer had an active interest in geothermal resources in Nevada. Since these respondents failed to answer any questions their questionnaires were deleted from the sample and therefore all respondents (100%) expressed an interest in Nevada's geothermal resources.

2. Which area(s) of the geothermal industry is your company involved with?

21 Exploration

16 Development

11 Production

Resource Utilization:

15 Electrical Energy

4 Agriculture

3 Heating

4 Industrial (Drying, etc.)

0 Other: (Specify)_____

0 Other: (Specify)_____

Respondents to the questionnaire are involved with virtually all phases of geothermal energy. Although some interest is apparent in agricultural and industrial uses of the resource, the industry is more keenly interested in the development of geothermal energy for the generation of electricity.

3. When considering property taxation in Nevada should geothermal resources be regarded as:

10 (41.7%) Mineral

0 (0 %) Water

11 (45.8%) Separate Resource (neither mineral nor water)

3 (12.5%) No Response

4. When considering water rights and water appropriation in Nevada should geothermal resources be regarded as:

8 (33.3%) Mineral

0 (0 %) Water

11 (45.8%) Separate Resource (neither mineral nor water)

5 (20.9%) No Response

One respondent commented that geothermal resource status is a highly complex matter which will ultimately be determined in the courts.

5. When considering ownership rights on private land in Nevada should geothermal resources be regarded as:

9 (37.5%) Mineral

0 (0 %) Water

11 (45.8%) Separate Resource (neither mineral nor water)

4 (16.7%) No Response

6. What unique (if any) problems occur in the exploration and development of geothermal resources in Nevada?

10 (41.2%) None

4 (16.7%) Large federal land holdings

4 (16.7%) Long distances from resources to consumer

7 (29.2%) No Response

Nearly 70% of the respondents indicated there were no geothermal problems unique to Nevada or failed to respond to the question. Those that did respond cited the large federal land holdings and sizable distances between resources and consumers in the state. These problems are perhaps more apparent in Nevada but are not necessarily unique to the state.

7. What impact do these unique problems have on exploration and development of geothermal resources in Nevada?

7 (29.2%) None

1 (4.2%) Federal lease limits exploration

1 (4.2%) Federal regulations make it more difficult to gain approvals

3 (12.5%) Increases exploration costs

2 (8.3%) Increases development time

9 (37.5%) No Response

Those respondents in question number 6 who cited federal lands and leasing as a problem unique to Nevada suggested the consequences include federal lease limitations on exploring and more difficulty in gaining required approvals which in turn would increase both costs and development time. Those indicating long distances as a problem saw increased development costs as a possible impact.

8. In your experience, how does the cost of drilling a production oil well compare with the cost of drilling a production geothermal well? Please explain (Provide average cost if available).

19 (79.2%) Geothermal more expensive

0 (0 %) Oil more expensive

5 (20.8%) No Response

Responses indicated that the cost of a geothermal well ranged from 1 1/2 to 4 times the cost of an oil well. Many respondents suggested costs for a geothermal well often run as high as $500,000 to $900,000. One cited a typical cost of $150 per foot (e.g.; 5,000 feet times $150 equals $750,000). Several responses indicated the primary reason for higher costs in geothermal is the harder material and rock through which the well must be drilled. This survey and most literature on the subject agree that geothermal well drilling is substantially more expensive than a comparable oil well.

9. Has exploration activity in Nevada been sufficient to predict actual geothermal resource potential?

3 (12.5%) Yes

19 (79.2%) No

2 (8.3%) No Response

The responses to this question point up the fact that the geothermal industry is in its infancy and that no one can predict

with any reliability its future. This fact compounds the problem of trying to determine if tax breaks or incentives are warranted and what their fiscal impacts might be.

10. To which use(s) do you expect Nevada's geothermal resources will be put:

22 (91.7%)	Electricity Generation
15 (62.5%)	Space Heating
16 (66.7%)	Other Heating Uses (Drying, etc.)
16 (66.7%)	Agriculture
1 (4.2%)	Aquaculture
1 (4.2%)	Space Conditioning
1 (4.2%)	Mineral Processing
2 (8.3%)	No Response

Overall the responses indicate optimism. This is not to be unexpected since the respondents are all members of or interested in the geothermal industry and in many cases have already invested substantial sums in exploration in Nevada. It would appear that most respondents are exploring for resources capable of generating electricity.

11. Do you expect that Nevada's geothermal resources can become competitive with other energy sources (gas, coal, etc.) for the generation of electricity?

17 (70.9%)	Yes
3 (12.5%)	No
2 (8.3%)	Possibly
2 (8.3%)	No Response

This question like numbers 10, 12 and 13 indicates that the industry is pursuing an exploration program geared toward electricity generation with some optimism. Several questionnaires qualified their affirmative answer by limiting it to only some areas of the state. These respondents apparently feel that not all known geothermal areas of the state will prove sufficient for competitive electrical generation.

12. Is the character of geothermal resources in Nevada capable of immediate development for:

	Yes	Maybe	No
Electricity Generation	13 (54.2%)	2 (8.3%)	7 (29.2%)
Space Heating	16 (66.7%)	1 (4.2%)	4 (16.7%)
Other Heating Uses (Drying, etc.)	15 (62.5%)	2 (8.3%)	5 (20.8%)
Agriculture	13 (54.2%)	1 (4.2%)	4 (16.7%)
Other (Specify)_____	- -	- -	- -

13. How long would you expect it to be (if at all) that we may see electrical generation from geothermal resources in Nevada?

9 (37.5%)	2 to 5 Years
11 (45.8%)	5 to 10 Years
3 (12.5%)	10 to 15 Years
- -	More than 15 Years
1 (4.2%)	No Response

None of the respondents indicated that they did not expect Nevada's resources to ever produce electricity. There is considerable disagreement, however, on how long it will take. Several respondents who indicated 2 to 5 years qualified their answer to depend on the amount of governmental (federal, state and local) regulation and interference yet forthcoming. They indicated that greater interference would no doubt prolong development goals.

14. Are any tax incentives or advantages needed for developers of geothermal resources in Nevada to maintain a competitive basis with alternate energy resources?

20 (83.3%)	Yes
3 (12.5%)	No
1 (4.2%)	No Response

Most comments received on this question suggested that because the geothermal industry is new, resources are unproven and substantial institutional barriers exist there is great risk and incentives are needed to stimulate exploration and capital formation. Suggested incentives or advantages ranged from forgiveness of taxes to direct state financial support of exploration and development, however, more common was the response that any incentive or advantage would be welcome. One respondent indicated it was more important to remove other barriers such as refusing to lease (federal) lands and environmental controls than to grant the incentives.

15. Have tax laws in Nevada acted as a disincentive in any of your projects to date? If yes, please explain.

6 (25.0%) Yes

13 (54.2%) No

5 (20.8%) No Response

In spite of responses to other questions on tax incentives, over 50 percent of the respondents indicate Nevada tax laws have not acted as a disincentive to any of their projects. All six of the yes answers cited the taxation of possessory interests on leaseholds prior to production as the disincentive, however, none of the six indicated whether or not they would be forced to give up their lease as a result of this taxation or to what extent the tax laws acted as a disincentive.

16. Does Nevada state tax policy affect obtaining risk capital? If yes, please explain.

8 (33.3%) Yes

4 (16.7%) No

12 (50.0%) No Response

Nearly half the respondents failed to answer this question. Several of these indicated it was either too early to tell or they had no experience yet in Nevada. Most respondents answering yes suggested that taxes are always a consideration in committing risk capital and that payment of taxes either diverts needed capital from exploration and development or simply increases the need for capital.

17. Has the taxation of possessory interest (leasehold interest) operated as a disincentive to geothermal exploration in Nevada? If yes, please explain.

17 (70.8%) Yes

1 (4.2%) No

6 (25.0%) No Response

Nearly three-quarters of the respondents were of the opinion that taxation of possessory interest could act as a disincentive. The most common comment was simply that this tax discouraged investors and adds more cost to an already risky venture. Several questionnaires also indicated that this was not the taxing practice of other states and therefore Nevada might be at a disadvantage. One response suggested that this tax was especially troublesome to small operators or individuals since they find it more difficult to raise the necessary

capital. Another respondent argued that the tax on possessory interest is a tax on something of unknown value and possibly of no value since only some leases will ever produce income. Only one respondent indicated they would make no further investments in Nevada because of the possessory interest tax (federal leases).

18. Has taxation before production or before the resource is proven operated as a disincentive to geothermal exploration in Nevada? If yes, please explain.

18 (75.0%)	Yes
2 (8.3%)	No
4 (16.7%)	No Response

Most respondents equated taxation before production to taxation of possessory interests since they are primarily exploring on leased federal land. The two are not always the same, however, since one could purchase land privately for exploration and pay property taxes long before production and not pay any taxes because of possessory interests. The most frequent remark on this question pointed out the basic difference between a geothermal development and an oil or gas development is the time between possession of the property and a revenue producing product. Oil and gas leases may become productive within a year while geothermal will probably take 7 to 10 years. Some predicted ranges of 7 to 15 years. This long period of investment and development before income can be realized makes the property tax on geothermal appear punitive when comparing it with other mineral pursuits.

19. At what point in the exploration and development of a geothermal resource should state property taxation begin? Please explain.

8 (33.3%)	After production is proven
13 (54.2%)	After first sale of the resource
1 (4.2%)	After risk capital is recovered
2 (8.3%)	No Response

All respondents felt that taxation should start sometime after possession of the land is taken. Most responded either after production or after the first sale. It would appear that most of the respondents used the terms "after production" and "after sale" synonymously and therefore intended the same response.

20. Assuming a productive leasehold, what type of taxation do you feel would prove most equitable to the geothermal industry and the state? Please explain.

2 (8.3%)	Severance Tax	2 (8.3%)	Ad Valorem
13 (54.2%)	Net Proceeds	5 (20.9%)	No Response
2 (8.3%)	Gross Proceeds	- -	Other (Specify)

One respondent suggested that a net proceeds tax is the only type of tax that recognizes that different geothermal resources will have differing values and differing costs to produce. For instance, hot dry steam has a greater potential value than hot water and it costs far less to develop a resource field at 1,000 foot depth than at a 10,000 foot depth. A net proceeds tax automatically accounts for these variances in its calculation. One respondent who favored a severance tax because it is easy to calculate and apply warned that something would have to be built into the severance tax to recognize these varying degrees of value.

21. In your experience do you feel that Nevada's current taxing practice of geothermal resources is ultimately more fair than other western states? Please explain.

2 (8.3%)	Yes
9 (37.5%)	No
13 (54.2%)	No Response

Apparently most respondents had no opinion as to the fairness of Nevada's current tax scheme in relation to other states. Eight of the nine who indicated that Nevada's tax was unfair cited the taxation of possessory interest on federal lands as the reason. None of the respondents compared actual tax dollar costs between states in their answers.

22. If you advocate tax changes for geothermal resources in Nevada when must they become effective to avoid discouraging exploration and development in Nevada? Please explain.

12 (50.0%)	As soon as possible
1 (4.2%)	Two Years
0 (0 %)	Five Years
1 (4.2%)	Retroactively
10 (41.6%)	No Response

As expected most respondents to this question wanted or suggested immediate change in order to eliminate discouraging exploration and development. It must be remembered, however, that any changes requiring legislation would take until mid-

1979 and any constitutional changes would take a minimum of 5 years.

23. Rank in order those barriers which currently act as a disincentive to exploration and development of geothermal resources in Nevada. (1 equals most obstructive)

(Number in parenthesis is number of 1's received)

4 (2)	Federal Income Tax
6 (1)	State Tax Policy (Nevada)
1 (6)	Federal Leasing Regulations
5	State Water Laws
9	Other State Regulations (Specify) Information Disclosure
7 (1)	Lack of Resource Markets
2 (2)	Environmental Controls
4 (2)	Technological Problems
8	Local Regulations (Specify) Not specified
3 (3)	Lack of Risk Capital
*	Other (Specify) Economics
(5)	No Response

*This response was only received on two questionnaires, however, it was ranked 1 and 2.

Federal leasing regulations was easily the winner as the most obstructive institutional barrier. From there different respondents listed different priorities. In general, smaller firms or individuals listed lack of risk capital very high as well as technological problems. Larger firms tended to be more concerned with environmental controls and state water laws and regulations. Most respondents felt that federal taxes were more obstructive than state taxes. State tax policy ranked sixth out of nine and was designated the number 1 problem on only one questionnaire.

24. Do any state law or regulation areas act as disincentives to geothermal exploration and development in Nevada, other than taxation? Please list and explain.

5 (20.8%) Yes: Water Laws

1 (4.2%) Yes: Environmental Controls

1 (4.2%) Yes: Disclosure Requirements (technical data)

1 (4.2%) Yes: Lack of clear cut policy

5 (20.8%) No:

12 (50.0%) No Response

Most of the comments offered suggested that geothermal does not properly belong under the water laws and well drilling regulations since these laws are largely antiquated and did not contemplate the nature of a geothermal resource. One respondent recommended transfering regulatory control of geothermal to a division of energy staffed by people with experience in energy and oil and gas regulation. Another suggested that the state should better define the resource and its regulations so that developers can be certain of all requirements before investing.

25. Are any tax incentives needed for users of geothermal resources in Nevada to maintain a competitive basis with alternate energy resources? Please explain.

16 (66.7%) Yes

1 (4.2%) No

7 (29.1%) No Response

Several respondents suggested incentives for users may be needed as well as for developers since the user also faces substantial risks such as premature reservoir depletion and technological problems such as scaling. Another suggests that it is important to encourage acceptance of geothermal as an energy source by users and the general public.

26. Do you feel that reciprocal tax agreements on energy may be necessary between importing and exporting states? Please explain.

3 (12.5%) Yes

8 (33.3%) No

13 (54.2%) No Response

Respondents offered very few comments on this question. One suggested this might be appropriate if Nevada were a net exporter of energy and another suggested this area would be better left to power companies.

27. What types of state tax incentives (if any) would stimulate geothermal development in Nevada?

12 (50.0%)	Postponement of taxes until sale
2 (8.3%)	Exemption from possessory tax
2 (8.3%)	Reduced tax for users
1 (4.2%)	None needed
1 (4.2%)	Anything
1 (4.2%)	Tax exempt grace period (e.g.; 3 years)
8 (33.3%)	No Response

28. What other incentives (if any) should the state provide to encourage geothermal exploration, development and use in Nevada?

2 (8.3%)	Expedite permit procedure
2 (8.3%)	Definitive state policy and regulations
3 (12.5%)	State financing (project grants)
1 (4.2%)	Guarantee 100% return on investment to utilities through rates
3 (12.5%)	Technical research and assistance
1 (4.2%)	Eliminate sales or use tax on steam
1 (4.2%)	Coordinate state and federal policy and regulations
1 (4.2%)	Create state geothermal agency or board
1 (4.2%)	Less bureaucracy - streamline regulations
1 (4.2%)	Lessen environmental controls on power plant sites
13 (54.2%)	No Response

29. Would you like to be notified as to the time and place of the next oversite committee meeting on this study? Yes 22 (91.7%) No 2 (8.3%).

APPENDIX H

SUGGESTED LEGISLATION

SUMMARY--Exempts geothermal development leases from property tax. (BDR 32-95)
Fiscal Note: Effect on Local Government: Yes.
Effect on the State or on Industrial Insurance: Yes.

AN ACT relating to property tax; providing for the exemption from property tax of leases for geothermal development; and providing other matters properly relating thereto.

THE PEOPLE OF THE STATE OF NEVADA, REPRESENTED IN SENATE AND ASSEMBLY, DO ENACT AS FOLLOWS:

Section 1. NRS 361.157 is hereby amended to read as follows:

361.157 1. When any real estate which for any reason is exempt from taxation is leased, loaned or otherwise made available to and used by a natural person, association, partnership or corporation in connection with a business conducted for profit, it is subject to taxation in the same amount and to the same extent as though the lessee or user were the owner of the real estate.

2. When any real estate which is exempt from taxation by reason of its public ownership is used for the generation of electric power, the value of any right to receive electric power directly from the exempt real estate by a natural person, association, partnership or corporation or by a political subdivision of any other state is taxable as though the holder of that right were the owner of the real estate in the same proportion which his right bears to the total of all rights to receive electric power generated through the use of that real estate.

3. Subsection 1 does not apply to:

(a) Property located upon or within the limits of a public airport, park, market, fairground or upon similar property which is available to the use of the general public;

(b) Federal property for which payments are made in lieu of taxes in amounts equivalent to taxes which might otherwise be lawfully assessed;

(c) Property of any state-supported educational institution;

(d) Property leased or otherwise made available to and used by a [private individual,] natural person, private association, private corporation, municipal corporation, quasi-municipal corporation or a political subdivision under the provisions of the Taylor Grazing Act or by the United States Forest Service or the Bureau of Reclamation of the United States Department of the Interior;

(e) Property of any Indian or of any Indian tribe, band or community which is held in trust by the United States or subject to a restriction against alienation by the United States; [or]

(f) Vending stand locations and facilities operated by blind persons under the auspices of the bureau of services to the blind of the rehabilitation division of the department of human resources, regardless of whether the property is owned by the federal, state or a local government [.] ; or

(g) Leases held by a natural person, corporation, association, municipal corporation, quasi-municipal corporation or political subdivision for development of geothermal resources, but only for resources which have not been put into commercial production.

4. Taxes shall be assessed to lessees or users of exempt real estate and collected in the same manner as taxes assessed to owners of other real estate, except that taxes due under this section do not become a lien against the property. When due, such taxes constitute a debt due from the lessee or user to the county for which the taxes were assessed and if unpaid are recoverable by the county in the proper court of the county.

Sec. 2. The legislature finds that geothermal energy is distinct from fuels found underground in that no large, well-organized effort has been made to locate and exploit it, and that while it may become an important source of energy, exploration for and exploitation of geothermal energy is an infant industry.