STUDY OF ELECTRIC AND GAS UTILITIES AND THE PUBLIC SERVICE COMMISSION OF NEVADA

Bulletin No. 77-2

LEGISLATIVE COMMISSION
OF THE
LEGISLATIVE COUNSEL BUREAU
STATE OF NEVADA

September 1976

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Assembly Concurrent Resolution No. 38—Assemblymen Demers, Robinson, Ashworth, Wagner and Getto

FILE NUMBER 180

ASSEMBLY CONCURRENT RESOLUTION—Directs the legislative commission to study electric utility companies, gas utility companies and the public service commission of Nevada.

WHEREAS, Public utilities affect the lives of Nevadans every day and are absolutely essential to the maintenance of a modern society; and

WHEREAS, Utilities are regulated by government because they enjoy the benefits of monopolies allowed by the government; and

WHEREAS, The effectiveness of the regulation of utilities is dependent upon the expertise, ability, policies and resources of regulatory agencies; and

WHEREAS, The public service commission of Nevada was created by the legislature and operates under the authority of the legislature but the legislature has never conducted a formal study of the important work of the public service commission of Nevada; and

WHEREAS, The energy crisis and increasing inflation has painfully alerted all Nevadans to the increased costs of public utility services and to the ways in which they are regulated; and

WHEREAS, Public utilities regulation is one of the most involved and complex of all operations of government, not readily understood by many and certainly not by the general public; now, therefore, be it

Resolved by the Assembly of the State of Nevada, the Senate concurring, That the legislative commission study the public service commission of Nevada and utility companies regulated by such public service commission; and be it further

Resolved, That the committee shall undertake an evaluation study of electric and gas utility companies under the regulatory authority of the public service commission of Nevada including:

1. The statutory provisions applicable to the utility companies;
2. The alternate sources of fuel and electric energy and the cost and availability of such energy purchased by the utility companies for resale within the state;
3. The relationship of fuel and electric energy purchased by the utility companies to the total cost of providing service to all customers within the state;
4. The frequency and the nature of applications by the utility companies to the public service commission of Nevada;
5. The financing requirements of the utility companies and the effect of such financing requirements on utility rates;
6. The statutory changes needed to make additional funds available for capital improvements at a lower cost to the utility companies;
7. The effect of environmental laws on the utility companies and the relationship of such laws to the rates charged by the utility companies; and
8. The ability of the utility companies to communicate to their customers reasons for rate increases; and be it further

Resolved, That the committee shall examine the composition and staffing policies of the public service commission of Nevada to determine:

1. The adequacy of salaries;
2. The availability of qualified personnel;
3. The availability of adequate funding; and
4. The ability of the public service commission of Nevada to effectively evaluate frequent utility company applications; and be it further

Resolved, That the committee may request technical assistance from the executive agencies of the state, the University of Nevada System and the legislative counsel bureau for the committee's conduct of the study and preparation of a report; and be it further

Resolved, That the legislative commission shall provide for contracts with independent expert consultants for assistance to the committee; and be it further

Resolved, That a report of the findings and recommendations be submitted to the 59th session of the legislature.

1975

REPORT OF THE LEGISLATIVE COMMISSION

To the Members of the 59th Session of the Nevada Legislature:

This report is submitted in compliance with Assembly Concurrent Resolution No. 38 of the 58th session which directed the legislative commission to make a study of electric utility companies, gas utility companies and the Public Service Commission of Nevada.

The legislative commission appointed a subcommittee to conduct the study and recommend appropriate legislation to the 59th session of the Nevada legislature. Assemblyman Daniel J. Demers was designated chairman, Assemblyman Keith Ashworth, vice chairman, and the following legislators were named members: Senators Warren L. Monroe and Lee E. Walker, Assemblymen Joseph E. Dini, Jr., Harley L. Harmon and Robert L. Weise.

The report of the subcommittee was accepted by the legislative commission on September 15, 1976.

Respectfully submitted,

Legislative Commission
Legislative Counsel Bureau
State of Nevada

Carson City, Nevada

SUMMARY OF RECOMMENDATIONS

1. The legislature should pass a resolution memorializing the Congress of the United States to grant tax depletion allowances to private firms engaged in geothermal well production.

2. Geothermal space heating should be encouraged in the Known Geothermal Resource Areas.

3. Legislation should be enacted authorizing the State Public Works Board, when it determines costs are feasible, to initiate plans for utilization of alternative sources of energy in future state and local government facilities, and make such information available to the public.

4. Legislation should be enacted to provide authority for the Consumer Affairs Division of the State Department of Commerce to review all solar energy devices offered for sale in Nevada, rate such devices and make such ratings available to the public.

5. The legislature should pass a resolution memorializing the Congress of the United States to expand hydroelectric power production at Hoover Dam.

6. A full-time experienced oil geologist or engineer should be added to the staff of the Nevada Bureau of Mines and Geology.

7. The utility companies and the Public Service Commission should study the concept of conservation oriented rate structures for all classes of consumers.

8. A thorough investigation should be made concerning the feasibility of implementing a lifeline rate structure, now considered in the form of an inverted rate structure, and should be considered separate from a general rate case proceeding.

9. Ambient air quality that is defined by the Federal Environmental Protection Agency (EPA), Class II increment plus background be taken as the criterion upon which to base emission regulations in the non-urban areas of Nevada.

10. The current emission regulations within Nevada should be replaced with the Federal New Source Performance Standards (NSPS), promulgated by the EPA, as the upper limit of emissions permitted from fossil-fueled powerplants. The actual emissions permitted in a given powerplant impact area would be determined on a case by case basis.

11. Continue, and to the extent possible expedite, the development of a Public Service Commission staff training program with emphasis on qualifying previously inexperienced people as part of an auditing team.

12. Continue the practice of having auditors sit in on the financial portions of rate cases to increase their understanding of their role and the value of their work.

13. Legislation should be enacted to establish the purpose and function of the Public Service Commission:

    (a) To assure efficient management of the companies under its jurisdiction so that operating costs and capital investment per unit of service are minimized.
    (b) To allow an adequate rate of return to protect the financial integrity of the companies and minimize capital costs.
    (c) To determine that rates are based on efficient and economical operations and financing so that total costs to all consumers are minimized.

14. Legislation be enacted:

    (a) To give the Public Service Commission authority to require management audits.

(b) To allow the utility company to select the firm subject to approval of the Public Service Commission.
(c) To include the cost of the management audit as an allowable expense of the utility company.

15. Commissioners' salaries should be established at the same level to eliminate the problem of salary compression, except the chairman should receive an additional flat differential for administrative duties in the sum of $500 to $1,000 per year.

16. The position of Executive Director in the Public Service Commission should be rearranged in the organizational structure and made reportable directly to the commissioners to eliminate another salary compression problem.

17. The Public Service Commission should encourage professional development in the field of public utility auditing to improve the career paths available to those people who choose to stay in government service.

18. Legislation should be enacted which would require the Public Service Commission to furnish information to the public concerning rates charged and how customers could benefit by conservation measures.

19. A governmental agency and the utility companies should continue communication with the general public through public meetings to provide an understanding of the energy crisis and attempt to develop and implement solutions.

20. The legislature should pass a resolution proposing an amendment to section 1 of article 10 of the constitution of the State of Nevada relating to taxation by permitting a property tax exemption to encourage the conservation of energy.

21. Legislation should be enacted which would require the Energy Management Division of the Public Service Commission to exercise the duties provided for in NRS 703.260.

REPORT TO THE LEGISLATIVE COMMISSION OF ITS SUBCOMMITTEE TO STUDY ELECTRIC AND GAS UTILITIES AND THE PUBLIC SERVICE COMMISSION OF NEVADA

I. INTRODUCTION

This report represents the most comprehensive investigation into the subject matter of electric and gas utilities and the Public Service Commission of Nevada (PSCN) ever undertaken by the State of Nevada. The subcommittee held extensive public hearings in Carson City, Reno and Las Vegas during the course of its deliberations. Two full-time staff members and one part-time have spent over 4,000 man-hours sorting and analyzing the vast amounts of data accumulated by the subcommittee. Uniquely, for a legislative subcommittee at any rate, all testimony has been transcribed verbatim from tape recordings. This information is filed in the library of the Legislative Counsel Bureau for future reference.

Experts from all parts of the country spoke before the subcommittee, with such international corporations as Westinghouse Electric Corporation and Blyth Eastman Dillon & Co., Inc. presenting management and scientific testimony. The subcommittee did engage four private consultants to ascertain problems in the more complex areas. They included Professor Roger Steele, Desert Research Institute (environmental study); Dr. Eugene P. Coyle, independent economic consultant, (rate study); Theodore Barry and Associates, management consultants, (staffing problems and rate application procedures of the PSCN); and Professor James L. Bicksler, Professor of Finance and Research Director, Rutgers University, (utility financing).

The subcommittee had the politically delicate task of weighing the needs of consumers, environmentalists, businesses, the utilities and the PSCN when, in fact, the needs of these various groups in most instances are in opposition to one another. For example, there is a conflict between conservationists and environmentalists concerning power transmission lines. The first group wants to eliminate some of the waste which accompanies transmission of power, while the latter group wants to eliminate the extra generating facilities to reduce the spread of pollution. Consumers are disturbed with

spiraling energy bills which over the past 3 years have tended to dig deeper and deeper into family budgets. Utilities have complained that they simply need more funds to operate in order to offset higher fuel costs and to continue construction programs which are needed to meet energy requirements of Nevada's phenomenal demographic growth. Environmentalists argue that high air pollution control standards must be maintained in spite of the cost to consumers. The PSCN is caught between all this with numerous rate hike applications from Nevada's utilities.

Certain salient facts must ultimately be accepted by every consumer and every public official. It is a fact that the energy crisis was originally caused by the Arab oil embargo, and subsequent dramatic price increases in foreign oil and natural gas have caused increases in the consumers' electric and gas rates. The simple truth is that there is an energy crisis for which no panacea exists. This energy crisis exists on the national and state level. In essence, the problem in Nevada respresents a rippling effect of the national crisis.

Traditional fossil fuels are becoming scarce; Arabian oil prices have tripled in the past 3 years, and American dependence on foreign oil supplies is increasing every year. Coal production, one fossil fuel that is abundant in America, is down 4 percent over 1974, due primarily to federally imposed strip mining and environmental laws.

Because the utility industry is the most capital intensive of all industries, it requires large amounts of borrowed money in order to grow. In the past years, the inability of the utility industry and regulatory agencies to keep up with the crisis' rapid pace has caused private investment markets to contract to a point where borrowing money is extremely difficult and costly. In areas such as the American southwest, where populations are increasing at annual rates of nearly 5 percent, the inability of utilities to grow successfully poses a unique and potentially grave dilemma.

Nationally, the Congress has enacted an Energy Independence Act and considered hundreds of legislative proposals, all designed to achieve a lessening of the nation's dependence on foreign oil and natural gas. Unfortunately for Nevada,

the bulk of these proposals have tended to lessen the research and development of solar and geothermal energy, two abundant resources in Nevada.

The emphasis on alternative energy sources has centered on nuclear power, primarily because of its advanced state of development and also because of the massive capital investments made by private corporations. Ironically, this nuclear emphasis comes at a time when great scientific debate rages over the safety of nuclear powerplants. In addition, the capital required to construct a nuclear powerplant is staggering, and no Nevada utility possesses a large enough rate base to issue bonds for the construction of a nuclear facility. While the per kilowatt cost of nuclear power is attractively low, the initial cost of construction cannot be financed by utilities in Nevada.

Goals established by environmentalists, both government and private, have been extensively considered by the subcommittee. Stringent regulations pertaining to utilities have caused them to install costly pollution control equipment, costs which ultimately have been passed on to the consumer. In addition to the cost and controversy of the standards, the utilization of electrical energy to operate pollution control equipment such as scrubbers, at a time when Nevada's own ability to produce future load requirements is in jeopardy, must be explored. Approximately 6 percent of power generated is used to operate facilities which have scrubbers installed, and this is a hidden cost to consumers.

Recommendations made to alleviate these problems, in whole or in part, were not arrived at easily, and it is expected that lively public debate will continue on this subject for some time to come. However, the subcommittee feels it has responsibly dealt with the issue of maintaining a justifiable balance between the desire for clean air and the cost of achieving such to the consumer who bears the real burden of financing exhorbitantly high-priced pollution control equipment.

The PSCN is required by statute to regulate Nevada's utilities. A public utility is required to furnish adequate, efficient and reasonable service to all members of the public within its service area, without discrimination, and is entitled to

adequate compensation or just and reasonable rates for its services. Some criticism has been leveled at the Public Service Commission wherein it has been suggested that that body has not acted responsibly as a quasi-judicial body, but instead has sat as an opponent to rate hike requests. Obviously, this is not the intent of a public utility commission, but a role which consumers or consumer advocates must play.

The ability of the PSCN to evaluate effectively applications by public utilities has been questioned by many. As a consequence of this apprehension, the subcommittee engaged a private management consultant to review the situation, and the recommendations of the subcommittee are based upon the consultant's findings.

As stated previously, there is no panacea for this problem. Even with the corrective measures suggested in this report, the situation is expected to continue to deteriorate. It is apparent that public utilities are experiencing difficulties in raising the capital needed to expand their facilities to meet the growing demand for power and natural gas. There is a very real likelihood that because of this inability to expand, and increasing inability to purchase wholesale electricity from neighboring states, a situation of economic stagnation could occur in Nevada. The consequences of such a situation with regard to the economy of this state are difficult to imagine. To reduce rates substantially would simply force this state's utilities into bankruptcy, and the consumer would suffer from the total or partial disruption of service caused by such an act. On the other hand, by giving the utilities all they claim to need would force consumers to pay as much as 25 percent of their monthly income for power bills. Obviously, neither would be justifiable or acceptable.

Again, the subcommittee was forced into a delicate balancing act wherein an equitable solution was sought. The subcommittee does recommend some modifications of rate structures which will give consumers the incentive to save if they wish to do so. However, it must be understood that any rate relief is superficial in that it merely shifts the burden of paying for power from one socioeconomic group to another.

Energy conservation is the last subject to be addressed in this report. Conservation, while commendable, is not the ultimate answer in Nevada. Because of our rapid population growth, it will be difficult ever to have a net saving of energy one year over the next. The subcommittee does recognize the importance of conservation as it will minimize the threat of economic stagnation by drawing out the existing energy supplies.

In the final analysis, the utility crisis in Nevada is not going to disappear in the near future. The situation is critical and, if not properly addressed by the 59th Session of the Nevada State Legislature, could lead to grave economic consequences for the state. The ultimate answer to the problem is obviously the rapid development and implementation of alternative energy sources. This development must come from the federal level for two reasons. First, the Federal Government has the financial resources to develop properly these sources along with federal lawmaking powers. Secondly, the cost of development of these alternative energy sources is going to be extremely high and the Federal Government can subsidize these research and development efforts to offer the net result, namely energy, at a reasonable cost to the consumers.

No report would be complete without acknowledging the many men and women who testified and cooperated with the subcommittee during its many hours of deliberations. (Refer to Appendix C for acknowledgements.)

The subcommittee would like to extend its thanks and appreciation to its staff--Mr. Gene Walkama, staff administrator; Mr. Larry Petty, legal counsel; and Mrs. Jane Dunne, secretary.

II. ALTERNATIVE SOURCES OF ENERGY

There are a number of alternative energy sources which could be utilized to offset the dependence on oil, coal and natural gas. The major problem in developing these alternative energy sources is primarily one of economics.

A variety of fuels must be considered to meet energy resource needs of the future. The choice of fuels in immediate years will be based upon availability, environmental constraints and economic factors. However, higher costs of energy in all forms should encourage development and production of energy sources that have heretofore been considered noneconomic.

There is a great diversity of energy resources available nationwide and in the State of Nevada. Tapping these energy sources has been proceeding at a relaxed pace, but the tempo has picked up in recent months.

The concept of energy independence for Nevada and for the nation is not available without delay or substantial cost and progress toward fulfilling this concept should include the following:

1. Acceleration of energy resource development by the:

    (a) Construction of more coal-fired electrical generating plants.
    (b) Construction of more nuclear electrical generating plants.
    (c) Installation of more peaking turbines on federal dams.
    (d) Continued exploration and recovery of domestic oil and natural gas reserves.

2. Acceleration of efforts toward resource conservation by:

    (a) Public education on improving efficiency of energy use.
    (b) Providing ratepayer incentives.
    (c) The utilization of heated effluents.
    (d) Requests for voluntary reductions when essential.
    (e) Providing for mandatory reductions when essential.

3. Encouraging research and development of potential new energy resources, including:

   (a) Coal gasification.
   (b) Recovery of oil from shale.
   (c) Breeder reactors.
   (d) Solar energy.
   (e) Fusion.
   (f) Geothermal energy.
   (g) Methanol.
   (h) Forest products.

Geothermal Resources

Testimony and publications concerning geothermal resources were received by the subcommittee. The testimony of Mr. John Arlidge of the Nevada Power Company, Reports 21 and 25 of the Nevada Bureau of Mines and Geology, and publications furnished by the Conservation Division of the United States Geological Survey were considered in the preparation of this section.

Geothermal energy is an infant industry by comparison to existing developed resources. Its potential for utilization in the near future and beyond is dramatic. However, for this potential to be realized, Congress or industry must act to encourage exploration, development and demonstration.

Geothermal energy, as a natural resource, is available for commercial development at the present time. While technological problems exist in the development of certain geothermal sites, they are insignificant by comparison to those confronting synthetic fuel development. The major stumbling block is the lack of adequate incentives for the investment of capital in geothermal resources for exploration, development and demonstration.

The acceleration of geothermal development will ultimately depend on the availability of federal lands, governmental cooperation and uniformity of laws and regulations at federal, state and local levels. A recent ruling of the Internal Revenue Service denying a tax depletion allowance to firms

doing exploratory drilling for geothermal deposits has seriously deterred exploration. Technical data indicate that over 6,000 geothermal exploratory wells must be drilled by the year 1985 to achieve the 20,000 megawatt goal established by the Energy Research and Development Administration. At a minimum cost of $500,000 per well, it is imperative that the United States Congress initiate tax incentives for geothermal exploration and development to encourage the $10 billion investment that will be required from private industry.

The only major U. S. geothermal energy development is The Geysers field located north of San Francisco in California's Sonoma County. The development began in 1960 with a 12.5 megawatt generating plant. In 1973 it became the largest geothermal development in the world, with a capacity of 400 megawatts. The installed generating capacity now exceeds 500 megawatts, sufficient to supply electrical requirements for a city of 500,000. By comparison, there are approximately 1,000 megawatts of electric power generated by geothermal energy in the world.

It has been estimated that the potential for development of Nevada's geothermal resources is great, but only a few areas have been tested in any detail. Hot springs and wells are scattered over the entire state.

The waters of many springs in the state, whether hot or not, have been appropriated for some beneficial use. The mines of the Comstock Lode at Virginia City were famous for the great quantities of hot water encountered in the mining operations. At Tonopah, 3 million gallons of hot water were pumped every day from the workings, and this flow from the Tonopah mines was used to operate greenhouses. In the 1800's and early 1900's resorts were built close to many of the hot springs.

Today many hot spring areas are used for swimming and other recreational activities. Swimming pools using the naturally heated water from hot springs are common in the less populated areas of the state. The hot water, either from springs or shallow wells, is often suitable for use in pools without any treatment.

Steamboat Hot Springs, 8 miles south of Reno, has been used for several commercial purposes, including bath resorts, processing asphalt emulsions and in the melting and casting of plastic explosives. The hot water from Moana Hot Springs in Reno has been used to melt winter ice and snow from the streets.

In the Stillwater area near Fallon, steam and hot water were encountered in the drilling of water wells in an area where there were no hot springs, and have been used to heat dwellings in this farming area. A number of homes in the southwestern part of Reno (along the Steamboat-Moana-Lawton's thermal anomaly) are heated by simple heat-exchange systems that utilize the heat from hot water encountered in wells. This source of home heating has considerable potential.

The Nevada Bureau of Mines and Geology has been doing research and making appraisals of Nevada's geothermal resources for a number of years. Home, greenhouse and other space heating could be as important a use of geothermal energy in Nevada as the generation of electricity, and possibly even more important. Further development of this resource for heating purposes is feasible in the Moana area as conditions are about ideal in that heated water is found at relatively shallow depths while surface discharge and associated odor or other esthetic problems are not present. Attempts at space heating with geothermal wells in the Steamboat Springs area have generally not been successful due to excessive mineral content of the water and resultant sealing and corrosion problems. This will remain the case until technological advances are made to negate these efforts.

Cost may be a major limitation on development of residential geothermal heating. The cost of initial construction and installation ranges from $5,000 to $8,000 at 1974 prices.

The feasibility of and problems associated with nonpower uses of geothermal steam or water should be intensively investigated as space heating for commercial and residential buildings is the use with most promise for increased application.

Although no electricity is generated in Nevada from geothermal steam, the utilization of geothermal energy for electric power generation is probably its highest potential dollar value use. Although technological problems remain, the state has several areas that may soon be the sites of geothermal generating facilities, possibly utilizing heat-exchange systems.

Geothermal energy is of special importance to Nevada. Electric power needs in the state are increasing at a rapid rate because of the expanding population, increased per capita consumption and the extension of transmission lines to many remote areas. Power consumption in Nevada is expected to double by 1980, rising to about 12 million megawatt-hours per year. Generating capacity in Nevada may well rise to an even higher level as generating facilities are constructed in Nevada to supply the needs of population centers in California as well as local users. Nevada's entire population of over half a million could be supplied by a single 1,000-megawatt nuclear plant, or by a geothermal field the size of The Geysers in northern California (when this field is fully developed). Obviously, the demand for electrical energy from outside the state will greatly influence both the development of electric generation facilities and the exploration for new energy sources, including geothermal power.

The major portion of Nevada's hot springs are found in the northern half of the state with the hottest subsurface temperatures existing at Beowawe, Brady's and Steamboat Hot Springs.

Nevada's geothermal exploration activity is second only to California, but only in the last decade have serious attempts been made to exploit Nevada's geothermal resources as a source of power. Exploratory drilling in several geothermal areas took place between 1959 and 1965. Although many of these wells were less than 1,000 feet in depth, temperatures of 300° to 400° Fahrenheit were encountered in several areas. Also, Nevada's geothermal resources appear to be mainly in hot water systems rather than dry steam, and interest in this type of field was low in the early part of the 1960's. Today, with the changes in energy supply and the investment attitudes, exploration for geothermal power is once again being carried on in Nevada.

The cessation of exploratory drilling in the mid-1960's was due in large part to the problems of leasing the federal land. Because most of Nevada is federal land, exploration companies have been reluctant to drill in areas where they cannot control a reasonable surrounding acreage. The leasing of privately owned land is increasing with the Stillwater-Soda Lake area having the most activity. Several major oil companies have been exploring in the area, and geothermal leases have been signed by a number of private landowners. Exploration has also been undertaken in the Brady-Hazen area, on the Walker River Indian Reservation, at Steamboat Springs south of Reno, in the Gerlach-Fly Ranch area of northwestern Nevada and Golconda near Winnemucca.

Nevada public state land consists of less than 1 percent of the 110,540 square miles (70,745,600 acres) of total land area. Nearly half of all state owned public land consists of state parks. Because there is essentially no state public land with geothermal potential on which leasing would be allowed, no state geothermal leasing regulations have been issued.

Approximately 87 percent of the land area of Nevada is under the jurisdiction of the Federal Government. Much of this land is public domain--public lands under federal management which have not been reserved for special uses, such as parks, national forests, recreation areas and military installations. Public domain lands in Nevada total approximately 47 million acres and are administered by the Bureau of Land Management of the U. S. Department of the Interior. The Secretary of the Interior is authorized by Public Law 91-581 (The Geothermal Steam Act of 1970) to issue leases for the development and utilization of geothermal steam and associated geothermal resources. Lands administered by the Forest Service, U. S. Department of Agriculture, are included in those lands available for geothermal leases.

Regulations governing leasing of national resource lands for geothermal energy became effective January 1, 1974. These regulations provide a framework for leasing, exploration, development and utilization of geothermal resources on public lands. In addition, various operational orders concerning geothermal resources have been issued by the Conservation

Division of the U. S. Department of the Interior. Since the leasing program became effective, the Bureau of Land Management has been active in leasing lands for geothermal exploration.

The Interior Department has defined 17 Known Geothermal Resource Areas (KGRA) in Nevada totaling more than 468,000 acres. The public portions of these lands will become available for lease from the Federal Government for geothermal steam and associated geothermal resources development by competitive and noncompetitive bidding under regulations formulated by the Secretary of the Interior. Nevada KGRA's have varying amounts of privately owned land within their borders, and leases for geothermal exploration on private land must be arranged with the individual owners. The office of the U. S. Bureau of Land Management in Reno has available for public inspection land plats and other maps which show land use, ownership, survey markers and other data.

Nineteen percent of the state, or 13,458,000 acres, is classified by the U. S. Geological Survey as "having prospective value" for geothermal exploration. Until further KGRA's are designated, the non-KGRA public lands will be open to lease by the first qualified person applying, on a noncompetitive bid basis.

Indian lands, comprising 1.6 percent of the state, may also be available for geothermal exploration through the U. S. Bureau of Indian Affairs or individual tribal councils.

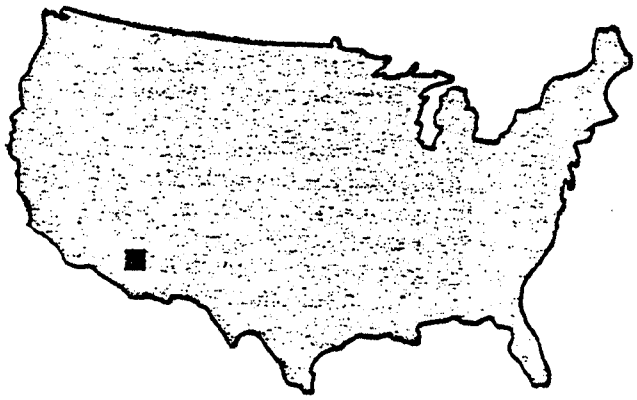
There have been no defined regulations for geothermal development of state lands. Senate Concurrent Resolution No. 28 of the 58th Session of the Nevada Legislature directs the State Engineer to study government regulatory procedures and to recommend legislation pertaining to geothermal resources in Nevada.

Finally, much attention must be given to legal, political and institutional problems for development of geothermal resources to meet Nevada and national needs. If geothermal energy is to be aggressively developed, it needs incentives for development, at least equal to those for oil, gas, coal and other energy sources.

Solar Energy

Dr. Piet B. Bos, Program Manager for Solar Energy, Electric Power Research Institute, testified on the availability and advantages of solar energy.

The sun provides the nation with a source of abundant, clean and safe energy in the form of radiation. Solar energy arriving as radiation in a 1- or 2-week period is equivalent to the energy contained in all of the known fossil fuel reserves. The black area shown on the map covers 1/500 of the area of the United States. Solar radiation impinging on this area would, if converted with only a 20 percent efficiency, satisfy all our present needs for electric power.

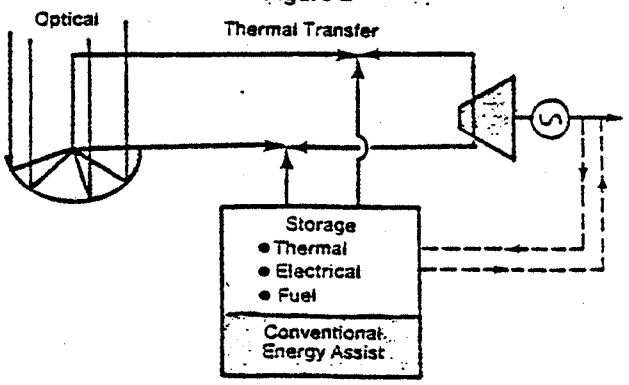


On the other hand, some characteristics of solar energy have to be taken into account when an efficient solar-thermal plant is to be built. Solar energy arrives at the earth's surface intermittently. No energy arrives at night, and it is strongly reduced on cloudy days. A means of storing energy has to be provided or a solar plant has to be combined with another powerplant.

Several means of collecting and concentrating the energy are available. A schematic of a solar system is illustrated

below. A parabolic mirror or an array of plane mirrors concentrates the solar radiation optically on the surface of a pipe or a vessel. The radiation is absorbed and converted to heat, which is picked up by a fluid and transported through pipes to a central location. It is then used for heating or industrial purposes, or it is converted by a thermal powerplant into electric energy.

Figure 2



Several technologies improve the chances of reducing the cost of solar power to the point where it is competitive with more conventional means. The major concern of solar thermal power is economics. Is it possible to build a system that is competitive with conventional and alternate new sources of power?

Depending on the amount of energy storage required, and whose cost estimates one uses, solar powerplants are expected to cost anywhere from $500 to something over $1,500 per kilowatt. A major cost factor of a solar thermal powerplant is storage. As little as 3 hours' storage requires about 20 percent of the powerplant capital investment. Storage of 1 or 2 days adds considerably to the powerplant costs.

With only approximately 3 hours' storage, a solar plant probably cannot stand alone and must be integrated with another

powerplant. Thus, it may be possible to use the solar powerplant as a load-following plant. This means the solar plant will generate power during the peakload periods of the day and year. There is a correlation between the weather conditions and a load on a utility, air-conditioning being the major draining factor. Peakload is considerably more expensive for a utility to supply than baseload power. Utilities often lose money supplying this peakload because it costs more to generate the power than regulations permit them to charge for it. Peaking is often done with gas- or oil-fired turbines which are expensive to operate.

In a RANN study completed by the Aerospace Corporation, it was found that solar thermal power has a higher probability of becoming cost competitive with conventional power in the peaking and intermediate application than in a baseload operation. In fact, it was found that by 1990 a solar plant would be competitive if the collector field costs could be held at $15 to $25 per square meter.

If solar systems are to be available for use in the near future several factors are required:

First, industry will have to develop an efficient, low cost solar heat collector. Cooling units specifically designed for efficient solar operation will also be needed. The development and improvement of complete integrated systems of heating, cooling, water heating and auxiliary energy supply must be accomplished.

Second, industry will need to undertake a major marketing effort to bring solar energy to the public. An important market segment will be in sales to commercial establishments where reduction in heating and cooling costs can be readily translated into economic benefits. Such establishments, many of which have large, flat roofs, are readily adaptable to this application.

Third, the introduction of solar energy technologies will require certain physical and institutional accommodations to problems of interfacing an innovative energy system with those systems and practices already established. State

government must address these impediments to solar energy use, especially those ambiguities or disincentives which are parts of existing governmental laws, regulations or tax levies. Removing these legislative obstacles would notify the public of the government's interest in solar energy development and would improve the economic feasibility of solar systems. State government can also assume an advocacy role by providing tax incentives, public information and demonstrations with state building projects during the difficult beginning years of solar implementation.

Fourth, marketing efforts will be needed to inform architects and builders of the advantage of including solar systems in their construction plans for new dwellings. There is also the need to convince financing organizations that solar systems are eligible for inclusion in mortgages. An additional market for solar systems will be in the retrofitting of existing buildings designed for fossil fuels. Both commercial and residential sectors are potential customers.

Finally, a major area for consideration is subsidies to encourage use of solar energy. If solar systems are to meet a substantial part of the country's growing fuel needs, they will have to appear soon and be of low cost at the outset. This suggests need for incentives to buyers or subsidies to manufacturers engaged in development and in the early stages of production.

Industry must become active in the manufacture and sale of solar systems, and incentives given to the producer and the purchaser. Then it will be possible for solar energy to reduce the rate of increase of fossil fuel demand.

There is an abundance of solar technology to tap. With the proper use of technology and resources, the cost of solar power could be reduced to a level where solar systems would be cost competitive with conventional power by 1990.

The March 1976 issue of National Geographic and many other publications promote energy saving ideas for heating and cooling homes. The articles generally explore the usage of solar energy in a residence and how such a unit could be

constructed so that it accommodates the owner of the residence in both the summer and winter months.

As solar heating systems are more widely used, there will be a potential problem in assuring that a solar collector will have unobstructed access to direct sunlight. Trees, buildings, or billboards all cast shadows, and the owner of a solar system must be concerned about the shadow patterns across his property during the year. Access to incident sunshine is determined by the height and setback characteristics of obstructions to the south of a solar collector's position. No definitive solutions have been promulgated concerning governmental regulation of land use based on rights to solar energy. Oregon and Colorado enacted laws which, respectively, permit local governments to enact zoning ordinances, and property owners to negotiate solar easements for the protection of access to sunshine. The subcommittee recognized that legislation which would specifically authorize easements to provide for exposure of a solar energy system was not necessary. Adjoining property owners may contract with each other to provide for such an easement.

Several states have enacted solar legislation providing for tax incentives, state financed projects, access to incident solar energy, building code amendments and life-cycle cost analysis. Similar legislation must be considered in Nevada by the 59th session of the legislature.

Nevada Solar Energy Projects

The Nevada Department of Highways, in November 1975, submitted a proposal for a commercial solar heating demonstration grant. The department requested $63 million from the Energy Research and Development Administration for partial funding (90 percent) of the cost of designing and constructing a solar hot water and space heating system. This system will be incorporated in construction of the new Highway Maintenance and Equipment Storage Building at Goldfield, Nevada.

The entire project is currently in the conceptional design stage. The building structure will be similar to the Big Smokey Station currently under construction and the proposed Ely Maintenance Station. All three buildings are designed to

include a solar heating system if the proposed project is successful. The project team estimates the system will produce a 75 percent savings in the use of fuel oil, and estimates the system's life at 25 years.

Home heating concepts have been demonstrated in Nevada, particularly in Douglas and Washoe counties. A model home constructed in Washoe County has an aluminum collector, painted black, incorporated into the south side roof. The heat is collected in the attic and transferred by ducts to 3 feet of rocks beneath the home. Stored heat in the rocks is then distributed by the ducts throughout the house. It is estimated that 60 to 70 percent of heating bills could be saved by this method of solar heat. Another solar heating project was completed in a private residence in Douglas County. A solar furnace was built in the yard adjacent to the home. The solar furnace will be backed up by an electric heating system. The heat is stored in rocks, then drawn by blowers which force the hot air into vents connected to the house. The manufacturer has installed three units in this geographical region, but has built and sold several hundred units to east coast users.

A hotel casino powered by solar energy is currently being considered by private enterprise in the Wendover area.

Solar Industries, Inc. of Las Vegas is specializing in the design, installation and servicing of solar heating and cooling systems. Solar pool heating equipment is one of the preliminary efforts of the company. A major long-term project of the firm is the design, planning and construction of a solar powered subdivision.

The 1975 legislature appropriated $370,000 to the State Public Works Board for the purpose of designing, constructing, inspecting, equipping and furnishing a solar energy research laboratory in Clark County as an additional facility of the Desert Research Institute, University of Nevada System, Las Vegas. The architectural bids were let in April 1976, and actual construction began in August 1976.

Assembly Bill No. 220 passed by the 1975 legislature authorized the Nevada Division of Forestry to construct a nursery

in Las Vegas. This bill charges the Nevada Division of Forestry with the responsibility of identifying plant material with low water requirements and producing these plants for conservation purposes throughout the state. In addition, this bill authorized the establishment of a plant materials center in southern Nevada to include an arboretum research unit on plant adaptability and a production nursery to grow and distribute plant materials for conservation purposes. Various production methods are available and one recently developed system shows great promise in reducing the time (and cost) needed while enhancing the survivability of the plant containerization. It has been shown in the areas of the United States that the time period necessary to produce a plant ready for out-planting can be as little as 90 days if the entire process were to be under controlled environmental conditions.

It is proposed that a controlled environment unit be constructed at the Las Vegas Tule Springs Nursery for the purpose of growing conservation plants. The use of a conventional unit would have a relatively low initial cost; however, the continual expenditures of funds for fossil fuels would, in time, become rather large. The Nevada Division of Forestry proposes to take advantage of preliminary design work and feasibility studies done by the United States Department of Agriculture, Forest Service and Industrial System Engineering, Incorporated, a private engineering firm pioneering in the application of solar energy, and construct a solar heated, semiautomatic, controlled environment production unit at that site. Such construction will reduce the dependence on fossil fuels.

The Division of Forestry is currently in the process of obtaining the necessary financing, in addition to a general fund appropriation, to construct the solar heated greenhouse.

Fuel savings are estimated from data used for a proposed facility in the Albuquerque, New Mexico, area having a similar climate. The number of Btu's to be saved would be approximately 200 million, enough to heat 1.6 average size homes with natural gas. Although this is not a large figure, the saving from a unit of 2,000 square feet of floor area can

accommodate 24,000 plants in 3-inch containers. Under ideal conditions, then, 96,000 plants for windbreaks, soil erosion control, watershed management and other conservation purposes can be produced in 1 year with savings in conventional fuel and water use.

The use of solar energy in heating greenhouses is not limited to state agencies. The entire greenhouse industry would benefit from the knowledge gained in the operation of a solar facility by the Nevada Division of Forestry. The large number of days without impairment of the sun would make the Nevada area attractive to commercial operations. There is an added benefit from studies performed by the University of Arizona that clearly show the feasibility of crop production with low water consumption in an entirely controlled environment.

There have been proposals to modify conventional greenhouses by placing heat collectors outside the greenhouse. The system proposed by I.S.E., Inc., however, approaches the problem by recognizing the heat collecting ability of the greenhouse itself. Their design proposal utilizes the greenhouse as the collector and storage in a rock bed which is incorporated into the structure. Because the entire unit is self-contained, other factors necessary in the establishment of a controlled environment are more easily incorporated into the structure.

Pilot demonstration projects are the most convincing way to initiate widespread use of this abundant and renewable resource. The United States Congress has passed legislation which provides for a Solar Energy Research Institute (SERI) and for the construction of a solar energy plant. Currently the United States Research and Development Administration is in the process of selecting sites for both projects.

For SERI itself, geographical location is not so important as intellectual atmosphere, technical suppliers and the availability of services for a substantial laboratory. To insure continuing effectiveness, there must be provision for continuing education and development of the technical and support personnel. The availability of suitable educational programs in local educational institutions would be of substantial value to SERI.

The University of Nevada System could certainly play an important role in the development and demonstration of pilot programs with the construction of the solar energy research laboratory at the Desert Research Institute in Las Vegas.

Pursuant to information received by the subcommittee, a recommendation was made to the Nevada Legislative Commission that the commission send a resolution to the Energy Research and Development Administration urging the location of both projects in the State of Nevada. The Legislative Commission concurred with the subcommittee and such resolutions were submitted. However, the criteria established by the Federal Energy Research and Development Administration preclude the University of Nevada, or any of Nevada's major industries, from operating the proposed SERI that have contracts with the federal agency. There is still a possibility that Nevada may be considered for a field station which would be utilized for solar and wind research.

Wind Energy

While windpower has its proponents in Nevada, scientific data presented to the subcommittee indicate the state has very low available windpower potential.

The utilization of windpower to produce electrical energy has created widespread optimism. In recent years the accelerated escalation of the cost of fossil fuels has stimulated a renewed interest in windpower.

Approximately 600 weather station records have been evaluated to determine annual windpower contours. The effects of wind variability, mean speed and height above ground occur in two areas in the western United States. The areas mentioned extend from the Pacific Northwest to Montana and south to the western high plains of northern Texas.

Wind energy has several advantages that make it worthy of reevaluation as a potential energy source:

1. The utilization of wind energy is technically feasible.
2. A sustained development effort may result in wind energy systems that are cost competitive with fossil fuel systems.

3. The short-term unreliability of wind as an energy source, because of its variability, can be reduced by storage systems.
4. Wind energy appears to have the potential to meet a significant amount of our energy needs.

The practical conversion of wind energy is a major part of the National Science Foundation (NSF) Solar Energy Program. The NASA-Lewis Research Center has also been working in the area of wind conversion for the last year and a half. At the request of the Puerto Rican government, Lewis has agreed to perform a conceptual design of a wind generator for Puerto Rico. Puerto Rico has favorable winds and a rapidly increasing demand for electric power. Possibly, windpower may prove to be a valuable source of energy for Puerto Rico. NASA will be participating in the overall NSF Wind Program, particularly in conversion systems totaling at least 100 kilowatts or a megawatt. From these systems tests, it will be possible to make a realistic assessment of wind energy conversion systems costs, operating characteristics and the potential for significant power production.

As its part of the program, NASA designed the 100-kilowatt system for test in 1975. This machine will be similar to German design. The design calls for a rotor of 125 feet in diameter mounted on a 125-foot tower. The machine is designed to provide its net output of 100 kilowatts in a wind velocity of 18 mph. The controls will be located in a remote control room at the base of the tower. The pitch of the rotor blades will be varied to maintain synchronous speed for the generator.

The 100-kilowatt system will provide baseline costs and needed operational experience. In 1976 additional 100-kilowatt field tests are planned in several locations of the country. In parallel with these projects, systems designs will begin this year for megawatt-size machines. The results of the 100-kilowatt tests will help directly in the megawatt systems design. If these results are satisfactory, testing of a megawatt system is planned for 1976-1977 with larger systems following.

Wind energy is one of the clean, nondepleting energy sources that should be seriously investigated as a source to help meet our nation's energy needs.

Hydropower

Mr. Donald L. Paff, Administrator, Nevada Division of Colorado River Resources, presented testimony regarding acquisition and sale of hydropower.

At the present time there are three hydroelectric powerplants in the State of Nevada. They are federally owned Hoover Dam, Parker-Davis Dam and the Colorado River Storage Project, all situated in southern Nevada. Hydroelectric power is extremely low cost, and the Federal Government is currently investigating the potential of expanding the power production output at Hoover Dam.

The growth of hydroelectric power has been steady until recent years. The large increase came in the period 1960-1970. Beyond 1980 the only significant growth will be from pumped storage projects and the addition of turbines to existing dams to improve their peaking capacities.

Because of Nevada's generally small water resources, the development of future hydroelectric powerplants which would generate large amounts of electrical energy is not encouraging.

Coal

There are no commercial deposits of coal in Nevada, although attempts have been made to mine low grade deposits associated with lake deposits of Tertiary age. Deposits of this type are found near Coaldale, Esmeralda County; south of Elko, Elko County; near Washington, Lyon County; in El Dorado Canyon, Carson City; and near Verdi, Washoe County. Deposits in rocks of Paleozoic age occur in Carlin Canyon, Elko County, and in the Pancake Range, White Pine County.

A report entitled Mineral and Water Resources of Nevada, Bulletin 65, was prepared by the United States Geological Survey in cooperation with the Nevada Bureau of Mines as a United States Senate document.

This report was requested by Senator Howard W. Cannon in 1963 and was issued in 1964. A portion of the report contains a summary of coal mining exploration in Nevada.

The Nevada Bureau of Mines and Geology is developing current data which should be completed on or about December 1976.

Elko County

Elko Deposit

Lignite occurs at several horizons in the Humboldt formation. The lignite is a light brown, loosely bonded material that usually can be crushed in the hands. It has the appearance of slightly compressed plant remains and is markedly laminated. The beds are seldom more than a few inches thick. Numerous cuts have been opened on these beds in the vicinity of Elko during the past 50 years without finding minable deposits.

Carlin Canyon Deposit

A little impure coal occurs west of Molien Canyon, 4 1/2 miles east of Carlin. This coal was first discovered in 1859, and by 1874 considerable prospecting work had been done. In 1875 the Humboldt Coal Company was formed to work the coalbeds, but made no production. The coal, containing 46 percent carbon, is reported to burn freely, leaving a white ash.

Esmeralda County

Coaldale Deposit

Coal was first discovered near Coaldale in 1893. Many attempts were made to mine the coal during the early 1900's, none being successful. Four to six zones of bituminous shale and coal, designated as beds A, B, C and D by Hance (1913), crop out near the base of a rhyolite escarpment and extend northeast-southwest with considerable regularity for about 2 miles. Beds of bentonite and shale were encountered in the drilling.

The thicknesses of the coal-bearing beds vary. Bed A is about 3 feet thick with a total coal thickness of 10 inches; bed B is 7 feet thick and contains 24 inches of coal; bed C is 9 feet thick with the proportion of coal to total thickness varying from 20 to 80 percent; bed D has a maximum thickness of 7 feet with coal seams constituting 45 percent of the total thickness.

Diamond drilling failed to disclose any additional coalbeds but did serve to emphasize the structural complexity of the area. Structural complexities, thin beds, low grade coal and inadequate reserves do not encourage commercial development of the Coaldale coal deposit.

Washoe County

Verdi (Crystal Peak) Deposit

Lignite was discovered northeast of Verdi in about 1864. Numerous shafts, adits and cuts were dug to exploit the deposit, but no production is known to have been made. The seams of lignite have been described as varying in thickness from a few inches to 2 1/2 feet, with considerable foreign matter mixed with the lignite. The Nevada Carbon Company examined the deposit in 1943 and analyses were made of the lignite at that time. A fresh sample contained 38.4 percent volatile matter, 25.2 percent fixed carbon, 23.6 percent ash and 12.8 percent moisture.

White Pine County

Pancake Summit Deposit

The Pancake coal deposit was discovered sometime prior to 1875. It is about 1 mile south of Pancake Summit on U. S. Highway 50. A shaft was sunk to a depth of at least 480 feet and some coal was mined and shipped to Eureka for use in the lead smelters. The seam mined is reported to have been 2 feet thick.

Conclusions: Without exception the coal deposits of Nevada are too small and too impure to support significant mining, although they might satisfy limited local requirements. The high ash content and low heating value makes local use questionable as mining costs probably would be greater than the cost of coal delivered from Utah.

Oil

The discovery of oil in the Eagle Springs area of Nye County in 1954 is significant according to expert testimony received

by the subcommittee. The field has produced approximately 3 million barrels of oil. Other areas which may warrant further oil exploration in Nevada are in Railroad Valley, Carson Sink, Dixie Valley and Elko County.

Natural Gas

There are no known deposits of natural gas in the State of Nevada.

Nuclear Fission Energy

The utilization of nuclear fission energy is an economic commercial reality today, according to the testimony of Dr. Claude G. Poncelet of Westinghouse Electric Company. Large capital outlays are required, however, to construct nuclear powerplants, and Nevada based electric utilities are financially unable to consider construction of nuclear powerplants. Technically, nuclear power is the most advanced alternate energy source available today.

Problems pertaining to the disposal of nuclear waste are currently the subject of national debate. The last session of the Nevada legislature enacted Assembly Bill 761 which designated the Health Division of the State Department of Human Resources as the state radiation control agency.

Thermonuclear Power

Dr. Claude G. Poncelet also furnished the subcommittee with information concerning thermonuclear power. Thermonuclear power, commonly referred to as "fusion," is generally regarded as the ultimate alternative energy source. Research on fusion has been in progress for 20 years, but commercialization is not expected for another 30 years. The Federal Government, through ERDA, is pursuing a vigorous research and development fusion program, with several hundred million dollars committed in the next few years.

Methanol

Methanol, which is also called methyl alcohol, wood alcohol or methylated spirits, is a colorless, odorless, water-soluble

liquid. It can be made from almost any other fuel--from natural gas, petroleum, coal, oil shale, wood, farm and municipal waste--so that a methanol economy would be flexible and could draw from many energy sources as conditions change.

Of most importance is the fact that up to 15 percent of methanol can be added to commercial gasoline in cars now in use without it being necessary to modify the engines. Such a mixture results in improved economy, lower exhaust temperature, lower emissions and improved performance. Methanol used as an additive or substitute for gasoline could immediately help to solve both energy and pollution problems.

Methanol can also be burned cleanly for most of our other fuel needs, and it is especially suited for use in fuel cells for generating electricity.

A number of studies have been conducted in the last 50 years to test the suitability as substitutes for gasoline. Existing engines can be converted by decreasing the ratio of air to fuel consumed from about 14 for gasoline to 6 for methanol, by recycling more heat from the exhaust to the carburetor. The conversion is estimated to cost about $100 per vehicle.

Although methanol is suggested principally as a fuel for automobiles, it could also be used in most other fuel applications if it becomes sufficiently plentiful. It is a safe, clean fuel for home heating and can be burned in powerplants to generate electricity without polluting the atmosphere.

Methanol is perhaps the most versatile synthetic fuel available and its use could stretch or eventually substitute for the disappearing reserves of petroleum resources.

Methanol offers a particularly attractive form of solar energy conservation, since agriculture and forest waste products can be used as the starting material. At 1 percent conversion efficiency, the forest lands could supply the entire present energy requirements of the United States. Some day we will run out of fossil fuels. By coupling the manufacture of methanol with the disposal of wastes, we could

supplement our fuel supply and thereby prolong the existence of fossil fuels and simultaneously clean up the landscape.

Forest Products

Wood-fired electrical generating plants could be technically feasible, environmentally sound, commercially competitive and economically practical in many areas of the nation, according to a federal study.

The study conducted by Battelle Laboratories of Columbus, Ohio, for the Federal Environmental Protection Agency (EPA), dealt specifically with a proposal by the Green Mountain Power Company of Vermont.

Despite the favorable feasibility study and an accompanying recommendation that a demonstration project be undertaken, the EPA denied the power companies' application for a federal grant.

The Battelle researchers concluded:

1. The use of wood surplus and waste wood is technically feasible.
2. Pollutant emissions are controllable.
3. Net energy balances are favorable.
4. The preliminary estimated cost is competitive.
5. With proper forest management, there is potentially a net benefit to the ecology.
6. Wood is a renewable resource.

Conclusion

A wide variety of alternative energy sources do exist and may ultimately be the answer to solving the current energy dilemma. There is much debate internationally as to how soon these alternative energy sources can be economically mass-produced. The scientific community tends to be skeptical about major breakthroughs and scientific predictions tend to be in terms of decades. Some economists, on the other hand, tend optimistically to predict that this nation will be glutted with an energy surplus by the year 2000.

Energy is everyone's problem, and even with mandatory allocations the citizens of the nation and of the western states will need to take part in an energy conservation program until a stable energy economy is achieved.

Action by individual states should be encouraged. Legislation should be proposed which will encourage development of the various alternative sources of energy.

III. UTILITY INDUSTRY FINANCING REQUIREMENTS

The president of Sierra Pacific Power Company, Mr. Joe L. Gremban, presented testimony to the subcommittee relative to public utility financing. Mr. Gremban discussed and explained the financial principles under which public utilities operate, and the financial impact on utilities resulting from rising fuel costs, high interest rates and increasing operating costs.

Professor James L. Bicksler, Professor of Finance and Director of Research, Rutgers University Graduate School of Business, presented additional testimony to the subcommittee on public utility financing.

Professor Bicksler's argument is that the current trend of stating that there is not enough capital available for investments is a myth. He felt that the regulation of public utilities is more effective if the particular utilities take their signals from the marketplace. Translated into the purpose of regulation, this means setting a rate of return similar to those other companies which are in the unregulated sector and then translating those earning requirements into rate structure.

Professor Bicksler felt that of the various elements involved in the financing of a utility's issues, the most important considerations are taxes and bankruptcy, and in the case of a utility the tax effect swamps the bankruptcy considerations.

Professor Bicksler also indicated that the book value compared to market value of a utility's stock is irrelevent with regard to whether or not a particular utility should finance a project. Utilities as well as other companies can go into the market and raise capital. The question is at what price. The price paid should be such as to compensate investors in proportion to their risk, and utilities are somewhat less risky than other industrials. He felt that it was better to look at the present day yields on a particular issue rather than look at book values or historical numbers which do not have a great deal of significance for use in deriving today's fair rate of return.

The following recommendations were presented by Professor Bicksler:

1. Implement rate structures consistent with marginal cost pricing.
2. Rates of return estimates should be made by the capital asset pricing model.
3. To the extent that it is feasible, and the capital asset pricing model does give a mechanism in which it is, estimates of the rate of return should be updated as of the time of the decision, or as closely to the time of the decision as possible.

Comments concerning utility financing were also presented to the subcommittee by Mr. Terrence E. Comerford, Senior Vice President in charge of Municipal Finance from the San Francisco headquarters, and Mr. H. Thomas Kilburn, Senior Vice President in charge of Utility Financing from the New York headquarters, of Blyth Eastman Dillon & Co., Incorporated.

The financial firm, at the request of the subcommittee, issued a report concerning state acquisition or state financing of investor owned utilities in Nevada. The firm stated that there is no current provision in the Nevada statutes for the issuance of tax exempt bonds for corporate debt other than for pollution control purposes and certain water facilities. Even if such a statute existed, the Internal Revenue Code would prohibit the tax exempt privilege on such bonds, thereby eliminating the advantage.

The firm further said the state could enact legislation allowing it to take over the utility companies. However, it would have to spend several hundred million dollars to purchase the stock of only one company.

Since it is very logical to assume a utility company would resist state acquisition, a condemnation value must be considered. In a condemnation action the court could order the state to pay the replacement cost less depreciation for a company, which is estimated at $1.2 billion for a particular company. Since no state has condemned a major power company, there is no precedent whereby one may judge the value a court may assign.

If the state were to acquire any one utility for the public benefit, it would also have to consider acquiring the state's other major utilities in order to be equitable. These acquisitions could certainly drive the total bonding costs into the billions of dollars.

In summary, it is not financially nor legally feasible for Nevada to purchase a utility company or refinance its existing long-term debt. The legal mechanism to provide such financing does not exist and is not anticipated.

The utility industry has entered into such a change the last several years that the viability of the industry has been brought into question. Rather than being uniformly well financed and always capable of meeting customer needs, there are a few utility companies on the verge of insolvency along with prospects that present customers will not have adequate supply and that prospective ones will have none. There is the possibility of surfeit in some areas and deficit in others. Thus, both for customers and investors the risk has intensified and it is indeed time for reassessment.

Fortune estimated in its March 1975 issue that for each $1 of revenue collected by a utility, there is at least $4 invested in plant. In contrast, the steel industry, also considered highly capital intensive, receives $1 of revenue with only about $1 of investment. With the advent of inflation, especially in capital construction and fuel costs, the utility industry has found itself hard pressed to obtain the needed financing for future construction. Estimates from business and financial sectors are that more than 3/4 of the nation's privately owned utilities are experiencing financial strain, and this strain can be seen in the cancellation or delay of planned expansion.

The utilities' financial crisis is the product of many different trends in the power industry. Costs of doing business have increased sharply while technological advances have slowed. Passage of the Environmental Protection Act required construction of nonrevenue producing property. The assumption of nuclear development in the mid-1960's was not realized. The need to finance higher cost plants came at the same time when money costs were rising.

Several years ago the investor owned utilities were able to finance most of their expansion internally, through depreciation, tax deferrals and retained earnings. Today, the utilities must place greater reliance on external financing because internal financial sources have failed to grow at a rate equal to the growth in the costs of providing services.

In recent years the utility companies' bond ratings have been subject to three agencies (Moody's Investors' Service, Inc., Standard and Poor's Corporation and Fitch Investors' Service, Inc.) adjusting the utilities ratings, resulting in increased interest costs to the issuing companies.

At the same time, the utilities continued to suffer from "regulatory lag"--a delay in obtaining the necessary rate relief to maintain the quality of earnings required to raise funds advantageously in the marketplace. The utilities' heavy dependence upon debt securities resulted in increased debt ratios even with the higher rates. The trend in bond rating revisions should continue downward unless revenue increases are obtained in substantial amounts, within a short period of time and at regular intervals.

Probably the most famous case on rate of return is Bluefield Water Works v. Public Service Commission, 262 U.S. 679 (1923). In that case, the United States Supreme Court said (pp. 692-93):

> A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise money necessary for the proper discharge of its public duties.

> A rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market and business conditions generally.

Later, in 1944, the Supreme Court readopted the comparable earnings test in FPC v. Hope Natural Gas Co., 320 U.S. 591 (1944), but modified the Bluefield decision by eliminating the geographical limitation and by establishing that the comparable return is not on the whole investment but on the common equity part of the investment.

Looking to the future, it does not appear that there will be any material decrease in the pressures on utility earnings even if inflation is brought under control because of the increasingly significant impact of capital expenditures needed for expansion.

The future financing needs of the utility industry are difficult to predict. Conservative forecasts estimate the demand for electricity will grow at a rate of 5.5 to 6.5 percent for the period 1974-85. The Federal Power Commission's forecast of 1974 indicates a rate of growth in electrical consumption of 7 to 8 percent. Assumptions supporting such forecasts are that electrical consumption does not respond strongly in the short run to price changes. Secondly, the consumer willingness to conserve energy will be shortlived. A third factor is the emphasis on Project Independence using coal and nuclear energy rather than oil and gas. The additional growth would have to be financed primarily from external sources.

The industry's external financial needs will be large, approaching crisis dimensions, if the higher forecasts prove to be accurate. Studies and discussions have offered a number of proposals for aiding utilities (as well as other industries) in meeting the financial requirements of sustained growth. These include:

1. Increasing the investment tax credit.
2. Increasing the allowance for depreciation.
3. Delaying pollution control requirements.
4. Lessening nuclear licensing delays.

5. Imposing standards on state regulatory commissions which would reduce regulatory lag and increase the cash flow to public utilities.
6. Providing for federal guarantee on any new utility bond issues.
7. Making preferred dividends tax exempt.
8. Making reinvested dividends tax exempt.
9. Decreasing the rate of inflation.

The Tax Reduction Act of 1975 increased the investment credit from 4 to 10 percent. The new rates apply to investment credit property acquired after January 21, 1975, and before January 1, 1977. For property placed in service after December 31, 1976, the rate for public utility property will again become 4 percent. Because many of the other proposals are in the formative stage and refer to federal action, they are cited to point out that meeting the capital needs of this industry is a matter of national concern, and federal action is necessary.

In addition to an adequate rate of return, other regulatory techniques can be effective in minimizing the requirement for outside capital normally obtained through the issuance of securities.

An additional technique would be the improvement of cash flow through the liberalization of depreciation policies to give more appropriate recognition to the economic life rather than the physical life of utility plants. It will be difficult enough to provide economic service to future customers without saddling these customers with the costs which should be recovered today. Higher depreciation rates would increase cash flow and give the company the opportunity to reinvest these added dollars in plant facilities to service existing and future customers and thereby reduce the amount of outside financing that would otherwise be required.

Tax policy also directly affects the utility companies' necessity--and ability--to raise the capital funds they require. If, for example, the investment tax credit or similar legislation remains in effect, and if utility companies are allowed to retain such credits as sources of capital, it is obviously unnecessary to go to the securities markets for such funds. Similarly, if utility companies are permitted to "normalize"

the tax effect of accelerated depreciation rather than "flowing through" the difference between tax and book depreciation, capital funds are provided which significantly reduce reliance by the utility industry on outside sources of capital funds.

Statements have been presented that the utility industry will require a tremendous amount of external financing if it is to meet the demands of its consumers. In order to attract this capital investment, the industry must pay investors a fair return on their money. The return to investors is the firm's cost of borrowed money which, like all other costs of a public utility or any other firm, must eventually be paid by the consumers. Borrowed money comes in many forms as a differentiated product, each with its own cost, and the optimal product mix would be the least cost mix.

There is little likelihood that public utilities can follow their customary financing practices and still raise the funds necessary to finance the volume of projected plant and equipment outlays. To maintain customary debt/equity ratios in the face of the projected rapid rise in capital outlays and much slower expansion of internal funds would require an enormous volume of external equity financing. If the outlays are to be made and financed directly by the utilities, then either the flow of internal funds has to be considerably greater than the present projections, or financing practices have to shift away from equity and toward debt--primarily toward short-term debt--and not for a year or 2, but for a much longer period.

The flow of internal funds could be improved by substantial further increases in average utility rates, liberalization of depreciation provisions, an increase in the investment tax credit, greater efficiency in operations or by a combination. But dividend payout ratios are generally so high in this industry that the flow of internal funds benefits little from measures which, like all of those mentioned, except faster depreciation, raise the level of profits. A rise in profits, and the accompanying increase in dividend payments it permits, is helpful primarily in facilitating external financing.

More conservative dividend policies, while they would improve the availability of internal funds, would threaten the companies' ability to raise even moderate amounts of external equity and thus could prove more harmful than helpful. Greatly increased reliance on short-term borrowing, with the distortion in balance sheet structure and the debt rollover burden which it brings, is not an appropriate way for utilities to finance their long-term outlays for any length of time--even if lenders were able and willing to provide the funds.

Alternatively, projected public utility outlays might be financed by some other sector. Logical candidates are the Federal Government and state authorities. The Federal Government might directly or indirectly subsidize utility construction. The arguments against this approach are well known and compelling. State authorities might finance the construction and lease the plants back to the utilities, if constitutionally permissible, but this might impair the ability of state and local governments to finance more traditional public sector activities.

There may appear to be no acceptable alternative except for utilities, following prudent financing methods, to take full responsibility for raising construction funds themselves. In this case either their financing capabilities will need to be enhanced by higher prices or the volume of utility plant and equipment outlays will be significantly lower than presently projected. The latter outcome would most likely take the form of a slower development of nuclear power and substitution of fossil fuel plant construction with its lower cost and shorter leadtime. But, unless conservation efforts or higher prices significantly reduce the demand for electric power at the same time, delayed expansion of nuclear power capacity would mean greater reliance on imported oil than is consistent with the goals of Project Independence or with our hopes of achieving and maintaining a more satisfactory balance in our international payments.

Thus, there seems to be no single appropriate solution to the dilemma posed by the present financial projections for public utilities. The solution may have to lie in the nation's acceptance of a combination of small steps in several undesirable directions.

Growth is the major problem confronted by Nevada's gas and electric utilities. Because of the dramatic demographic growth, not only in Nevada but throughout the west, gas and electric utilities have become increasingly hard pressed to build needed new powerplants and gas lines in order to carry out their statutory mandate to provide service to consumers within their service territory. This need to grow requires tremendous earnings and in turn large outlays of cash. Investment capital has become increasingly difficult to solicit because of federal money policies and risk factors involved with the private money markets and the uncertainties caused by the energy crisis. The gas and electric supply problem has deteriorated significantly in the past 2 years as a direct result of growth. In the southern area of the state, figures indicate power shortages (brownouts) between 1977 and 1980.

Assuming that supply capital is the problem, there are basically four alternatives. They are:

1. Allow the situation to continue to deteriorate with the hope that the private investment market will improve and interest rates will significantly decline. This alternative also assumes that the existing utilities of Nevada can continue to purchase large amounts of surplus energy from neighboring states in order to augment Nevada's deteriorating power production potential.

2. Increase rates to insure that utilities have sufficient funds and rate of return to attract money from the private investment market to construct more powerplants. Such increased rates could be accomplished by utilizing social ratemaking techniques such as "lifeline" wherein the impact of said increases would be minimized to residential customers and maximized to commercial and government customers.

3. Modification of growth. This could be accomplished by state imposed growth standards, i.e., limitations on the number of new residences and commercial enterprises which could be constructed in the state each year. This would permit utilities to play a catchup game; however, such a solution also poses serious implications to the overall economy of the state.

4. Provide a procedure whereby all new dwellings and commercial buildings would pay an initial hookup cost. A nonrefundable hookup charge would generate new interest free capital for the utilities and would, ironically, also tend to reduce rates. If these hookup fees were earmarked strictly for new construction, the results would be dramatic. The following is presented as a dramatization of the effect of hookup costs.

Clark County (Nevada Power Company Service Area)
Projected 1975-76 Building

Single Family Dwellings (4,750 x $200)	=	$ 950,000
Retail Businesses (600 x $500)	=	300,000
Apartment Units (3,500 x $400)	=	1,400,000
Major Highrises (5,000 x 6¢ sf)	=	300,000
Subtotal new construction		$2,950,000
New customers (previously hooked up residences and businesses) (30,000 x $125)		$3,750,000
Total generated first year		$6,700,000

If these funds are earmarked for new construction only, and if utilities could retain the current refundable deposit, the $6,700,000 generated as interest free money would amount to a $671,541 savings to Nevada Power Company ($6,700,000 multiplied by 10.023 percent) (percent is authorized rate of return) and would, theoretically, be passed on to the 110,000 residential customers. This is an average savings per customer of $6.10 the first year, or 51 cents per month ($671,541 divided by 110,000 residential customers). All customers who currently have refundable deposits would receive their refund with interest as the law now applies. However, after July 1, 1977, any new customer who hooks up would do so under the provisions of the new law.

This alternative has an escalating effect in that, all things remaining constant, the same savings would be generated every year and passed on to residential customers. In addition to reducing rates, the effect might possibly increase the earnings potential of the utility and thereby increase its bond ratings and make private investment funds available at a lesser interest rate.

There are a number of possible variations to this plan. For example, the per kilowatt consumption of new facilities could be the factor instead of the simple fee schedule. Basically, the plan boils down to dollars and cents, and whatever the desired sum total would dictate the per dwelling fee. However, it is interesting to note that this plan would do the following over a 5-year period.

Year	Hookup Fee Generates	Cumulative	Annual Gross Reduction	Per Resident* Rate Reduction Payment
1.	$6,700,000	$ 6,700,000	$ 671,541	$ 6.10
2.	6,700,000	13,400,000	1,343,082	8.67
3.	6,700,000	20,100,000	2,014,623	12.29
4.	6,700,000	26,800,000	2,686,164	17.33
5.	6,700,000	33,500,000	3,357,705	21.66

*A factor of 29 percent per year of new growth is figured into the reduction figure per year.

One factor which has not been taken into account is whether or not the federal income tax would apply. If it did, it would cost the power company 48 percent of the hookup fee generation, and the per resident rate reduction would have to be reduced accordingly.

The subcommittee suggests the concept of long-run incremental costs of new service hookups be studied in more depth by the Legislative Counsel Bureau staff and a report submitted to the 59th session of the legislature.

Other Alternative Solutions

Broad areas which warrant attention to encourage the flow of capital into the utility industry are: regulatory reform, federal tax adjustments, federal support of utility debt, reduction of regulatory barrier and delays to investment.

Regulatory Reform

The cost of supplying electricity has been rising steadily at about 6 percent per year. If rates are not adjusted promptly and continuously to cover the cost increases, the shortfall

comes out of common share earnings, and this has a deleterious effect upon the utility's ability to attract capital.

As part of rate review procedures, most state regulatory commissions have accepted the concept of interim rate increases; some permit projections of cost increases and automatic rate adjustments for fuel costs. These measures have provided some relief. However, the intent of most commissions has been to help utilities deal with crises, not the steadily increasing pressure of inflation. The accelerated rate of increase of all costs has still left the revenues permitted far behind the current costs of providing electricity. Fundamental reforms in ratemaking are required in order to increase revenues to a level adequate to induce investors to provide the capital needed for the utility industry.

According to the Edison Electric Institute, procedures already in effect in one or more regulatory jurisdictions would, if made universally effective, end the financial problems associated with regulatory lag. A recommended model state regulatory framework includes the following features:

1. Initiation of new rates or rate changes by filing of new or revised tariffs to become effective in not less than 30 days' notice unless a shorter period is ordered by the regulatory agency.

   The rates would be subject to suspension for a maximum of 5 months after the effective date if hearings are ordered. If no final determination is reached prior to the expiration of the suspension period, the rates as filed would become effective upon such expiration and would not be subject to refund.

2. Allowance of temporary rates at any time prior to completion of hearings to remain in effect until the determination of final reasonable rates. These should not be a requirement for an emergency before temporary rates are allowed. Temporary rates would not be subject to refund, but any excess above or deficiency below the rates found to be reasonable after full hearing would be taken into consideration in the determination of final rates.

3. An express authorization for adjustment clauses such as fuel costs, tax adjustments, environmental costs and research and development expense.

4. A declaration of principle that ratemaking is prospective in nature and that the regulatory agency should consider projections in determining the reasonableness of rates.

5. The case for forward looking test years is based on the fact that in recent years utility rates based only upon known historical facts have been found to be wholly inadequate in providing a fair return. In addition to the proposed declaration of principle that ratemaking is prospective in nature, it has been proposed that rates be based on cost of service projected for a test period corresponding to the first 12 months' period in which the proposed rates will be effective.

Proposals to deal with procedural delays in ratemaking are:

1. Prefiling of all supporting data, testimony and exhibits, concurrent with the rate filing, with access to be provided to interested parties at convenient locations.

2. Preliminary hearings to define the issues and initiate discovery and monitoring of discovery by hearing to minimize delay.

3. Filing of staff and intervenor testimony in advance of cross-examination of company witnesses.

4. Essentially continuous hearings (since with prevailing conditions of inflation, utilities must come in for rate increases every year).

5. Simultaneous exchange of main and reply briefs and strict enforcement of time limits.

6. Use of rulemaking procedures to resolve issues and avoid time-consuming relitigation of these issues at each proceeding.

Restructure the Rate Base

Utilities are regulated by state commissions, and the regulations reflect nearly as many viewpoints as there are regulating commissions. Some agencies value assets at "original cost," some at "fair value." Some commissions look at year end values, and some at average values. Treatment of expenses, including depreciation and investment tax credits, varies from state to state.

The accounting practices used for ratemaking purposes (for example, flow through versus normalization of accelerated depreciation), have a large effect on the cash flows available to electric power utilities. An increase in cash flows can reduce the need for external financing.

One way to raise a utility's cash flow and, hence, its ability to do more internal financing would be to include construction work in progress (CWIP) in the rate base. Adding CWIP to the rate base would mean that capitalized allowance for funds during construction (AFDC) would not be added to the rate base in later years, and the utilities would never be able to earn on that portion of the rate base. But so long as construction expenditures are increasing, CWIP should rise accordingly and utility finances would benefit. If construction expenditures stopped rising, utility cash flow would be lower than if the AFDC had not been capitalized. While this approach would improve utilities' coverage ratios and reduce their reliance on external financing, it would involve changing some longstanding accounting and regulatory practices.

Changing Rate Structures

A gradual, longrun flattening of rate structures has been proposed. The objective is to have rates that will more nearly approximate long-range incremental costs in order to make maximum use of the electricity pricing system to help balance the demand for capital with its available supply.

A number of proposals for small users have been made regarding offpeak pricing. It is important to distinguish between daily peaks and seasonal peaks; however, it is the seasonal peaks to which plant requirements are related. Unless rate

incentives are specifically designed to take the load off the daily peak during the seasonal peak demand, they would be of questionable value. Industrial and commercial users could easily be metered at relatively minor cost. Whether such customers could be induced to switch any substantial consumption from daily peak hours to offpeak hours remains to be seen.

Offpeak pricing advantages need to be balanced against the real costs of instrumentation, accounting and billing costs associated with the extension of demand metering to residential and small commercial accounts not now demand metered. At present, the level of equipment sophistication and availability is low and these added costs high.

The subcommittee hired Dr. Eugene P. Coyle, an independent economic consultant, to study various rate structures with emphasis on defining and exploring the advantages and disadvantages of rate reform proposals.

Dr. Coyle also comments on rate reform considered in other states, a brief analysis of present Nevada tariffs and rate reform suggestions for possible implementation in Nevada. The complete text of Dr. Coyle's report can be obtained by contacting the Legislative Counsel Bureau, Carson City, Nevada 89710.

Dr. Coyle discussed in some detail various rate reform proposals, e.g., lifeline rates, flat rates, inverted rates, peakload rates and time-of-day rates.

The most prominent rate change that is being discussed is the lifeline rate measure. This is being proposed in two forms. First, as a straight welfare measure for people who are unable to afford the basic necessities of utility service. It is typically talked about for the aged on fixed incomes and for the poor. Although this was very prominent and a much advocated response to the rising prices a couple of years ago, in Dr. Coyle's opinion very few people are considering it now on that basis.

Lifeline, on the other hand, is still being advocated and adopted around the country in another form, and that is as a part of a complete rate reform package based on inverted rates.

Inverted rates means the inversion of the familiar declining block rate structure which the utility industry has employed for the last 50 years. Under the declining block rate structure, the more you use the per unit cost decreases. Lifeline is being adopted under the concept of an inverted rate structure. The inversion is based on some reasonably sound economics, basically on the same economic theory that produced the declining block rate structure.

The declining block rate structure was based on the idea that if a utility could expand the larger units, the advanced technology led to lower prices, lower cost to the utility and lower prices for the customers. Inducing consumers to use more through lower prices in the terminal blocks was beneficial for the company and the consumers. As the new plants came on line with lower costs, all the rates could be brought down. That same economic theory lies behind the inverted rates today, and is a justification for lifeline rates as part of a whole rate reform package.

The inversion of rates is based on the notion of longrun incremental cost pricing, where it is projected ahead to determine what the cost of service will be, based on plants that are on the drawing board or under construction, and calculate what additional kilowatt hours are going to cost the company to supply. That price per unit is included in the terminal block and, because the future costs of power are higher than the cost of power from existing plants, the terminal block prices which were the lowest prices now become the highest prices. Therefore, the small user, or every user, in his initial block of use, is paying the lowest price per unit. This is the type of lifeline currently being adopted. Basically, that pricing scheme was adopted by the California Public Utilities Commission in the Pacific Gas and Electric case in 1975. The State of Michigan adopted the same pricing scheme for two of its utilities, Detroit Edison and Consumers' Power Company.

An alternative rate reform to longrun incremental cost pricing (inverted rates) is flat rates. The public and the utility commissions have recognized that conditions have changed, that justification for the declining block rate structure no longer exists. The reaction has been to increase

the tailblocks faster than other blocks in the rate schedules with the goal of developing flat rates. The unit price for kilowatt hours consumed will be the same.

Dr. Coyle believes that flat rates are justified as a way station enroute to inverted rates, or as a result of discarding the declining block rates. Flat rates are what the Nevada Public Service Commission has described as its goal. It is basically a strong step in the right direction. It is a political economic decision, and there is still a long way to go to get to flat rates.

Ultimately it may be desirable to go beyond flat rates to inverted rates for residential and small commercial customers. In the long term, if longrun incremental costs stay higher than average costs, inverted rates will protect the earning power of the utilities, and at the same time protect the consumer from frequent rate increases.

Peakload pricing, or time-of-day pricing, has been adopted in several states. It is being advocated by diverse groups. The Federal Government has become a very strong proponent of peakload pricing. Another strong proponent of peakload pricing has been the environmental groups. They base their notion on the same grounds of hoping to slow down growth in construction of new plants. The rationale for peakload pricing is that a utility builds plants to serve the peak so that those people using peak power are the ones causing construction of new expensive plants. Dr. Coyle believes that peakload pricing probably will not slow down growth as rapidly as either the FEA or the environmentalists hope. What it will do, if successful, is flatten out the use of the plant around the clock and lower the per unit cost because the fixed costs of the plant are being spread over more kilowatt hours being sold. It certainly is going to lead to more energy consumption as compared to the inverted rate alternative.

Dr. Coyle suggests that Nevada should explore the benefits, if any, from the time-of-day pricing method. Sierra Pacific Power Company has already begun an extensive research program of this particular pricing method, but the results will not be available for inclusion in this report.

Tax and Accounting Adjustments

Maintain and extend federal income tax provisions affecting plant investment to encourage modernization and expansion, specifically:

1. Maintain and normalize accelerated depreciation and use of investment tax credits for purposes of calculating income taxes. The accelerated depreciation provisions of the Internal Revenue Code, the tax regulations establishing "guideline lives," the regulations which provide for altering guideline lives, and the investment tax credit provisions of the code provide the industry with significant sources of cash flow where these tax benefits can be reflected in tax normalization charges against revenue.

   If the Federal Government is to intervene in this area, perhaps the most effective way would be by requiring regulatory commissions to normalize rather than to flow through all tax deferrals. One means of doing this would be to require that the regulated utility only be allowed to claim such depreciation for tax purposes as it reports on its normal books of account, including reports to regulatory agencies used for ratemaking.

2. Allow at least a 7 percent investment tax credit for electric utilities instead of 4 percent; remove the 50 percent limitation on the application of investment tax credits. The investment tax credit is temporarily 10 percent, but will revert to the previous rate of 4 percent after January 1, 1977. Regulated electric utility companies and certain other regulated public utilities are limited to a lesser credit. Gas pipelines, airlines, railroads and steam head suppliers are among the regulated industries not so limited. The factors of discrimination and financial need suggest the change.

3. Extend the fast writeoff provisions for pollution control. The Tax Reform Act of 1969 added section 169 to the Internal Revenue Code of 1954 to permit amortization of the cost of certain air and water pollution control facilities over a 60-month period. The expiration date for section 169 was December 31, 1974, but was extended

through December 31, 1975. Pollution control requirements are very stringent and the need for the fast writeoff continues.

Provide Restoration of Capital Dividends

Undertake a program to lower the cost and increase the availability of debt capital to the electric utility industry. Federal programs for credit support can generally be characterized as serving one or more of the following purposes:

1. To lower the cost of debt to the preferred borrower by interest subsidy, direct loans at less than market rates or insurance to reduce lenders' risks.

2. To direct capital into the preferred sector by regulation or direct federal intervention.

3. To create a broader, more homogeneous market for the debt of the preferred borrower group, by credit insurance or purchase and sale of debt by a federal agency.

The third purpose is probably not relevant to the utility industry where individual firms are generally of a size adequate to demand attention of financial investors.

If direct federal intervention in the capital markets appears necessary, two alternatives appear preferable:

1. Federal subsidy of utility interest cost. The Federal Government might undertake a program to subsidize the cost of utility debt as has been done in the case of low-income housing mortgages. Note this is a form of transferring part of the cost of electricity from the user to taxpayers at large via the general revenue.

2. Direct federal intervention through a program of taxation or borrowing and relending to use the power of the federal treasury to direct capital flows to the electric utility industry and away from other applications. One possible mechanism is an "energy tax," a federal sales tax on energy consumption to flow into an "energy fund" to be lent at market rates for energy investment. This device

has the joint effects of raising the price of energy to the user (and thus encouraging conservation) while drawing off funds from consumption and creating a pool for investment.

Elimination of Construction Approval Barriers

Establish procedures for more effective resolution of dispute to obtain approval at all levels of government of construction of needed utility facilities. Adequate procedures to safeguard environmental quality and human life are essential. However, procedures which allow for indefinite dispute without resolution add enormously to the cost of facilities and capital financing burdens in a period of rapidly rising facilities cost.

Conclusion

A financially sound utility must exhibit at least three characteristics: the ability to attract new external capital, a capital structure adequately protected against insolvency and a cash flow sufficient to cover working capital requirements and financial obligations, including dividend policy.

It must be recognized that utility companies will not only require significantly larger amounts of capital funds in the future, but will face increasing competition for those funds in the traditional capital markets. The major objectives of utility rate regulation are to assure just and reasonable rates to the utility's customers and to provide sufficient earnings to the utility so that it can attract the capital necessary to provide service at reasonable costs. In addition, a variety of techniques, such as those previously mentioned, must be utilized to minimize the dependence of utility companies on the traditional capital markets and to maximize their ability to finance their capital requirements from funds generated internally. The investor owned utilities must maintain overall credit worthiness. Once investor confidence in a utility's securities has been damaged, it is extremely difficult and costly to restore that confidence.

IV. STUDY OF ENVIRONMENTAL LAWS

A report was prepared by the Desert Research Institute (DRI), University of Nevada System, at the request of the subcommittee. The complete text of the report may be obtained by contacting the Legislative Counsel Bureau, Carson City, Nevada.

The purpose of the report is to examine the effect of environmental laws on the utility companies and the relationship of such laws to the rates charged by the utilities. In addressing this purpose, it is necessary to examine environmental laws or regulations in terms of their relationship to environmental costs and hence to utility rates in perspective.

The influence of fossil-fueled power generating stations upon ambient air quality has, and continues to be, a subject of intensive study. This is because, when taken as a group, powerplants are a major global source of such air pollutants as sulfur dioxide and particulates. When this major source is coupled with the influence of all the other air pollution sources, e.g., transportation, on a global scale we can easily become concerned about global air quality since there is some evidence of decline. This decline is evidenced by a long-term increase in the atmospheric concentrations of carbon dioxide and particulates. These increases are attributed to the worldwide burning of fossil fuels. There are several hypotheses about the global impacts of these increases. One of these indicates that the global climate will change as a result of the increased carbon dioxide concentrations. Another states that there will be little net impact since the influence of increased particulates will offset the effect of the carbon dioxide.

The foregoing paragraph hopefully adds some perspective to the problem at hand. This is to assess the impact of fossil-fueled powerplants upon ambient air quality in Nevada, as well as to recommend a means of controlling powerplant emissions that will maintain ambient air quality through considered use of environmental controls. In addressing this problem, one must narrow the air pollution problem to the regional or state level.

In this narrowing, we must constantly strive to keep this limited aspect of air quality in perspective with the larger aspects. Thus, if we are to view the local effects, we must attempt to evaluate this impact on a state or region. This is not a simple task since the transport of pollutants from one area to another is not well understood. Furthermore, the transport processes are complicated by the chemical and physical changes that occur during the process. In brief, this results in many uncertainties with respect to the fate of particulates and other pollutants in the atmosphere.

When the above is coupled with the myriad of unknowns with respect to the health, terrestrial and marine impacts of air pollution, we can reach the conclusion that most of the unknowns can be skirted by the establishment of conservative ambient air quality standards. If such a standard can be maintained on a nationwide basis, air pollution can then at least be held to within adequate limits for the protection of human health and welfare.

Concern over air quality standards dates back almost 200 years. In 1907 the Air Pollution Control Association was founded and, since that time, a number of the larger cities have attempted to control ambient air quality by emission regulations. Over a period of years, air pollution became a national problem and the Clean Air Act was enacted in 1970. A number of air quality regulations have resulted from this act which are discussed in the report text.

Before pursuing this, the rationale to be followed should be set forth. The standards will be discussed from the point of view of the impact of coal-fired generating stations in Nevada upon their impact areas. It is assumed that these stations will continue to be located in remote areas. It is further assumed that a station will not be permitted significantly to impact the air quality of the area in which it is located by using adequate environmental controls. The question then becomes: What is a significant effect and what constitutes adequate control? These questions are addressed in some detail in the report text.

Existing air quality and emission regulations are discussed in the report as they relate to fossil-fueled powerplants.

A discussion of the climatology and meteorology conditions of various parts of the state is presented. The question of the relationship between emission and ambient air quality regulations can then be addressed. Resolution of this relationship will direct attention to the environmental control cost benefit question. The report concludes with a suggested approach for regulation of fossil-fueled generating stations.

Environmental regulations pertaining to electrical energy production in the utility industry exist for the purpose of protecting the environment from the adverse impacts of this activity. These impacts, when not controlled, can be significant, particularly in the case of coal-fired powerplants. Therefore, the impact of the plant upon the land, water and air has to be assessed through careful investigation. The assessment begins at the fuel source and includes all the environmental impacts which may occur as the result of fuel transport and combustion at the powerplant. The impact of the electrical energy that is produced is also assessed, e.g., the effects of transmission line construction and operation. The environmental assessment task, when taken as a whole, is often referred to as an energy system assessment. Secondary environmental effects of such a system must also be addressed, which include the influences of construction and operation of the energy system upon involved communities. The basic criteria for this large task are the environmental laws or regulations that are set forth to protect the environment.

The entire body of regulations that affect the utility industry could be addressed. However, one of the major objectives of the report is to examine the effect of the regulations upon rates. Those regulations that pertain to land and water affect rates, but far less significantly than those pertaining to air. Therefore, the report addresses only those regulations that are relevant to the atmosphere and their associated costs to the utility and the ratepayer as these relate to the operation of fossil-fueled powerplants. Such regulations fall into two related categories--those which pertain to ambient air quality, and those which pertain to the emissions or the quantity of pollutants a powerplant can discharge into the atmosphere.

The emission regulations have the greatest impact upon utility rates, since the more stringent the regulation, the higher

the cost of emission control. The setting of realistic emission regulations that protect ambient air quality results in the lowest costs to the utility and to the ratepayer. The task of delineating realistic regulations is complex since the costs of meeting the regulations must be balanced against the benefits of protecting the atmosphere from excessive pollutants.

We must begin with ambient air quality and attempt to set forth an air quality that protects human health and welfare as well as Nevada's scenic and recreation areas. This air quality is influenced by the emissions of air pollutants and the climatological characteristics of the state. The tools that are available in relating emissions to air quality should also be discussed. With this accomplished, the costs associated with meeting given emission regulations can be discussed. These costs are balanced against the benefits. Finally, a means of setting emission regulations, taking all of the above factors into account, may be established.

The ambient air quality in Nevada is pristine or near background over most of the state. Exceptions are the Las Vegas, Reno and Ely areas. It is generally accepted that this high air quality is a Nevada resource that should be preserved. Existing federal regulations promulgated by EPA, as well as proposed amendments to these regulations, delineate how air quality is better than specified in the Federal Secondary Standards. This will be accomplished by allowing specified incremental changes in the concentration of sulfur dioxide and particulates above the existing or background air quality. There are three classes of permitted incremental change. Class I limits air quality degradation to the point that practically no growth can occur in an area so designated. Class II permits only moderate degradation, and so definitely limits growth, while Class III permits degradation of air quality to the equivalent of Federal Primary Standards. The moderate degradation permitted by Class II in most of Nevada will, in a practical sense, result in a high ambient air quality because the allowed incremental change is reckoned from the background air quality which is essentially pristine. It may also be assumed that there will be no public health or welfare impacts from Class II degradation since the Federal Primary Standards and Secondary Standards, which were promulgated to protect the public from these impacts, reflect a significantly poorer air quality.

The EPA nondegradation regulations are written in such a manner that most of the State of Nevada falls under the Class II designation, with provision for possible reclassification to Class I or III. However, it is recommended that an ambient air quality that is defined by the EPA, Class II increment plus background be taken as the criterion upon which to base emission regulations in the nonurban areas of the state.

The rationale of current emission regulations is addressed in Section 4.0 of the report. It is pointed out that Nevada and Clark County emission regulations are probably more stringent than necessary to meet the Class II plus background criterion cited above. It is also pointed out that the Federal New Source Performance Standards (NSPS), promulgated by the EPA, are probably sufficient to meet the Class II criteria in those areas where fossil-fueled generating stations are sited.

It is therefore recommended that the current emission regulation within the state be abandoned and replaced with the NSPS as the upper limit of emissions permitted from fossil-fueled powerplants. No other uniform regulation would exist. The actual emissions permitted in a given powerplant impact area would be determined on a case by case basis. In each case, the emissions would be limited to the extent necessary to maintain ambient air quality that is characterized by background plus the increment permitted by the EPA Class II standards.

The climatology of Nevada may be divided into three categories for the purpose of evaluating the influence of fossil-fueled powerplant emissions upon ambient air quality. These are the mid-latitude desert, mid-latitude steppe and low-latitude desert climates. The latter applies to the extreme south, while the other two apply to the remainder of the state.

These three climates exhibit similar characteristics in the late spring, summer and early fall. The impact of power generating stations upon air quality is minimal during this period due to the excellent dispersive characteristics of the atmosphere. Powerplant plumes (emissions) during this period remain well above the surface during the morning hours.

They are often visible for long distances and have an adverse esthetic impact. Ground level impact of these plumes may occur for short periods of time, i.e., normally less than 1 hour, at about midday. Plume dispersion after this time is normally excellent in that the plume disperses rapidly with no ground level impact.

The situation changes during the winter months for most of the state. Plume impacts remain minimal for the extreme south. In the rest of the state, there are periods where plume impacts may be severe. This occurs when inversions persist for several days, allowing pollutants to build up in a plume impact area. These persistent inversions are the result of the cold winters in the higher elevations and the presence of high pressure over the area.

The climatology of an area in which a powerplant is sited is influenced by both the regional climate and by the local topography. As discussed in Section 5.0 of the report, local topography controls the local climate for at least portions of each day most of the time. Thus, site specific climate, as well as regional climate, determine the dispersion characteristics of the area. It is, therefore, mandatory to include local climatology in plume impact assessment.

Plume impact assessment may be enhanced through modeling studies that incorporate site specific climatological data. Even so, models are generally unreliable when applied in the complex terrain of Nevada. They, therefore, should be verified by observation before much credence can be given to the plume impacts predicted by models.

The impact of power generating station plumes upon ambient air quality can also be assessed through worst-case meteorological conditions. This is accomplished through evaluation of the combination of weather conditions that produce long-term pollution incidents, and their frequency of occurrence. In the case of Nevada, it has been determined that worst-case effects in the south are much less severe than in the north. Worst-case in the former for powerplants occurs very rarely and usually for periods of less than 3 hours. In the north, worst-cases can occur for periods of days and with a much higher frequency.

The discussion of climatology, meteorology, modeling, stack height, siting and worst-case meteorological conditions illustrates the variables encountered in relating the effect of emissions of air pollutants from powerplants to ambient air quality. This is, therefore, a complex task that is fraught with uncertainties. These uncertainties then render it very difficult to select statewide or even countywide uniform emission regulations that are realistic in terms of environmental requirements.

The enforcement of stringent emission regulations results in large capital expenditures for environmental controls which have been evidenced by the environmental surcharges that have been added to the consumer's monthly electric bill. The environmental surcharges attributable to the Reid-Gardner Station of Nevada Power Company currently cost their consumers an additional 5 percent per month. If the controls mandated by Clark County regulations are installed at the Mohave Station, the consumer's monthly bill will rise an additional 5 to 6 percent, bringing the total increase to 11 percent. The total additional costs to all Nevada Power Company consumers will reach nearly $10 million per year. Future costs to consumers could be even higher depending upon the degree of control that will be required for new stations. The costs of meeting the federally required NSPS for coal-fired generating stations will account for about 9 percent of the consumer's bill. If new stations are controlled to 50 percent of NSPS, the monthly percentage increases to 12 percent. If 10 percent NSPS is required, which is essentially equivalent to the present Clark County regulations, the monthly percentage of the bill attributable to environmental controls will become 17 percent. The corresponding total added costs to all Nevada Power Company consumers will be over $7 million per year for environmental controls that meet NSPS. The costs approach $10 million per year for the 50 percent case and are near $14 million per year for the 10 percent NSPS case.

It is obvious that these substantial costs to the consumer need to be justified. The justification is based upon the risks associated with various degrees of environmental control that produce differing air qualities. The recommended ambient air quality criterion upon which to base allowed

emissions from generating stations, as cited previously, is EPA nondegradation, Class II increment plus background. It was also cited that this criterion definitely protects human health and welfare. It also preserves Nevada's air quality and thus protects scenic and recreation areas from appreciable pollution.

The Class II criterion dictates the degree of environmental control required and the cost to the consumer. The determination of the degree of control will be accomplished through the implementation of the case by case approach to emission regulations.

The DRI recommends that the most technically effective way of meeting the recommended EPA, Class II air quality criterion is through the regulation of emissions from new and existing power generating stations on a case by case basis. This is accomplished by considering all of the climatological and related factors influencing the dispersion of air pollutants from a given power station within a given siting area. The degree of environmental control required is determined on the basis of site requirements instead of uniform emission regulations which would have to be stringent enough to protect ambient air quality, even for those sites where climatologically the dispersion conditions are least favorable. The avoidance of unnecessarily stringent emission controls will yield lower environmental control costs because only the degree of control needed to maintain the Class II criteria will be specified.

The case by case approach has other advantages. It is compatible with changing technology. The nature of case by case is such that full disclosure of the air quality impacts of power stations will be required. This will eliminate the after the fact arguments that have occurred in the past.

The case by case approach to emission regulations is complex and time consuming when compared with the administration of existing emission regulations, particularly for new sources. However, it is believed that the advantages of case by case outweigh this disadvantage since, in the long term, it will result in savings to the consumer while assuring the preservation of Nevada's air quality.

V. STUDY OF THE PUBLIC SERVICE COMMISSION OF NEVADA

In March 1976, the Legislative Commission's Subcommittee to Study Electric and Gas Utilities and the Public Service Commission of Nevada selected Theodore Barry and Associates to study the Public Service Commission of Nevada (PSCN). The complete text of the report can be obtained by contacting the Legislative Counsel Bureau, Carson City, Nevada.

As specified in the proposal and contract, the scope of the study included an analysis of the frequency and nature of applications by utility companies to the PSCN and the impact of relevant statutory provisions. It also included an analysis of the composition and staffing policies of the PSCN to determine:

1. The adequacy of salaries;
2. The availability of qualified personnel;
3. The availability of adequate funding; and
4. The ability of the PSCN to evaluate effectively frequent utility company applications.

It should be noted that the study was limited to areas of direct legislative concern. It was not a comprehensive study of the PSCN's total operation.

Some of the problems, or potential problems, that were found during the course of the study go beyond just the PSCN's ability to "evaluate frequent utility rate applications." The consultant's findings and recommendations in these areas are included in the report.

Some of the consultant's recommendations require statutory changes. The consultant worked directly with subcommittee counsel to assure general appropriateness of functionally oriented recommendations. Other recommendations relate to unclassified salaries and are therefore a matter for legislative concern.

Some of the findings clearly call for recommendations but do not require statutory amendments. Only the recommendations adopted by the subcommittee are contained in the section entitled "Summary of Recommendations."

A variety of techniques were used to collect statistical data, information and opinion about the PSCN relevant to the key elements of the study. Interviews were conducted with the chairman and members of the Public Service Commission staff, the Nevada State Personnel Division, senior management of several major utilities under the jurisdiction of the PSCN and the personnel departments of nine other western states.

Data were collected from those interviewed, the subcommittee's public record, material developed by the subcommittee staff and prior Theodore Barry and Associates' management and operating effectiveness audits of public utilities.

Data were analyzed and preliminary conclusions and recommendations were developed. These were reviewed with subcommittee staff, the Nevada State Personnel Division and the PSCN to assure that all relevant material had been considered and that the recommendations offer realistic and relevant solutions.

The report contains seven sections. Section 2 presents a summary of findings and recommendations. Section 3 provides perspective on the PSCN and the problems it faces. Section 4 addresses the adequacy of salaries; section 5, the availability of qualified personnel; section 6, the adequacy of funding; and section 7 addresses the ability of the PSCN to evaluate effectively frequent utility company applications.

VI. ENERGY CONSERVATION

Conserving energy is everybody's concern, and should be a matter of priority at all levels of government and in the private sector. Energy conservation may aid in reducing the need to employ rapid energy development. Thus, the energy savings of today may allow us to make reasoned choices tomorrow.

The question is not whether public policy and action will influence individuals and their surroundings--that has always been and will continue to be the case--the question is how and for what purposes state action will affect the future.

The citizens of Nevada, like other citizens of the United States, are concerned with the development and effective implementation of a sound, workable energy management program.

A state agency with the capability of developing, adopting and implementing a rational energy policy is needed, and the goals of an energy policy in Nevada should:

1. Assure a reliable supply of energy.

2. Safeguard the quality of the environment.

3. Assure the state a fair share of energy during national energy shortages.

4. Fairly and equitably allocate energy resources within the state.

5. Insure consideration of Nevada's needs in the energy policymaking of other levels of government.

The functions of the agency in achieving these goals should be:

1. A systematic plan for energy supply and demand.

2. The coordination of energy related activities of other state agencies.

3. The management of state energy conservation programs.

4. The design and operation of an energy information system.

5. The administration of the allocation program within the state.

6. The representation of Nevada's interests in energy and conservation activities.

7. To conduct energy research and demonstration projects.

A committee, composed of legislators and state agency administrators, created pursuant to Senate Concurrent Resolution No. 8, is conducting a study of the problems resulting from the current organization of agencies involved with both renewable and nonrenewable natural resources in the various state departments. A major concern of the committee is the subject of energy management for the State of Nevada.

The committee, on July 12, 1976, agreed to recommend creation of a new department of energy management, thereby abolishing the Energy Management Division within the Public Service Commission. The utility study subcommittee opposes the S.C.R. 8 committee's recommendation for the following reasons:

1. Creation of a separate state agency would be more expensive.

2. The staff of the division within the PSCN has developed invaluable data and expertise.

3. A separate state agency would cause another layer of regulation.

4. Duplication of effort would be increased because several state agencies are already involved in energy related matters.

The subcommittee recommends that:

1. The Division of Energy Management remain in the Public Service Commission of Nevada.

2. NRS 703.260 be amended to provide mandatory powers and duties for the division.

3. The staff of the division should be increased by at least two professional personnel.

4. The legislature appropriate the necessary moneys to carry out the functions of the division.

Special Programs for the Poor/Elderly

The energy crisis and the rising cost of fuel have produced hardships for all consumers who must pay the increased cost of fuel and energy. Particularly hard hit by the increased costs are those least able to pay--the poor and the elderly. In response to the public demand for help, local, state and federal agencies have been and are developing programs to assist those with fixed or low incomes.

The Community Services Agency in Washoe County started a program which will provide weatherizing for homes of senior citizens. The program includes weatherization, trouble shooting, consumer information, use of insulation equipment, carpentry and repair skills. Senior citizens actively work in the project. A similar program was conducted in the Henderson area of Clark County.

The subcommittee considered programs which would provide assistance to low income and senior citizens. A program presented by the Department of Taxation would provide a payment based upon a person's utility bill and would be paid in conjunction with the Senior Citizens' Property Tax Relief Act. The department could allocate funds, in the form of utility relief, from the property tax rebate program to approximately 9,000 eligible senior citizens. The proposal could be accomplished with no additional administrative cost. Under this proposal, the total amount of utility relief granted would range from $350,000 to $450,000.

The subcommittee suggests that the Department of Taxation submit this proposal for consideration by the 59th session of the legislature.

The proposal submitted by the Nevada Welfare Division would establish a benefit based upon fuel stamps. This energy subsidy program would be designed to assist those households whose net income fell below the poverty level--those on limited fixed income and the employed poor. Information submitted to the subcommittee indicated the cost of such a program would be several million dollars, in addition to being extremely complicated and administratively complex.

Conservation Education Programs

In order to reduce consumption and thereby heighten conservation programs, Nevada must develop, adopt and implement a wide-ranging conservation education program. The public still remains substantially uninformed about the energy crisis. To overcome this condition, there is a critical need for a concentrated education program which would disseminate energy information to the public. Such an educational program should be initiated in schools at the elementary, high school and college levels. Similar programs should be initiated to educate state, local governmental agencies and utility companies. The Nevada State Energy Resources Advisory Board is considering a program entitled "Energy and Man's Environment" in conjunction with the State Department of Education for inclusion in the curriculum of the State School System.

Teachers are in a unique position to inform students of the energy crisis and to provide them with suggestions for conservation which can be applied at home. The University of Nevada System could play a leading role in conservation programs by offering education courses to teachers which are then utilized in the classrooms. The University System should research all areas of energy conservation and also study developments of all new sources of energy.

Federal, state and local governmental agencies should take an active vote in disseminating energy information. On the federal level, the Federal Energy Administration (FEA) furnishes information on energy conservation which is helpful to local civic groups and organizations interested in informing their communities of energy conservation measures.

Utility companies in northern and southern Nevada have developed programs which will educate consumers of the need

to reduce energy usage and how this can be accomplished if proper conservation practices are followed in the individual homes of the consumers.

Conservation Efforts in Other States

Arizona established the State Fuel and Energy Office (ASFEO), which is divided into three sections: fuel allocation, conservation and information and research. The ASFEO has overall responsibility for energy planning and management, including petroleum allocation, conservation and research. It is also responsible for coordinating energy, environment and economic growth planning. Arizona has molded energy, environmental and growth considerations into a unified planning process which allows for integration of these three areas. ASFEO was established by executive order and reports to the Office of the Governor.

California created the Energy Planning Council and the State Energy Resource Conservation and Development Commission (ERCDC). The commission advises the Governor on energy policies, legislation, programs and major projects. The council has prepared demand and supply projections, emergency allocation and marketing plans, conservation programs and econometric models and an information center. ERCDC was created by the legislature. It is responsible for fuel allocation, coordination of energy planning, suggesting legislation for the management of growth, research and development, an energy data bank, conservation and recommendations for regulation of the energy industry.

The Connecticut legislature established a cabinet-level Connecticut Energy Agency (CEA), charged with providing an objective analysis of the energy dilemma, both present and future, and doing those things necessary to minimize or eliminate the adverse impact of energy shortages. To date, the CEA has been involved with energy emergency planning, energy policy planning, a refinery economic study, energy conservation in large public facilities and in elderly public housing units and solar energy feasibility.

In addition to fuel allocation, conservation and energy data, the Minnesota Energy Agency is responsible for providing

information in rate cases, issuing certificates of need to justify construction of utility facilities, drafting conservation plans for state owned buildings and advising on conservation and energy matters.

The Lieutenant Governor chairs the Montana Energy Advisory Council whose role is primarily advising, identifying and clarifying policy issues; considering all matters related to energy for review by the Governor and the Legislature; and critiquing grants prior to their submission to the granting authority.

Conclusion

The need for an energy management plan is evident when one looks at the current situation of increasing energy rates and the shortages of fuels. The implementation of such a plan is not just for any one department of government, or all of the government, industry or any other sector alone. It is rather for the consideration and response of every citizen of Nevada. The shape of our land and the quality of our lives are the ultimate factors determining our energy future. The general welfare of Nevada's citizens requires that its limited energy be conserved, managed and utilized to achieve the highest practical environmental quality, economic and community development and individual fulfillment.

Information was presented to the subcommittee by organizations concerned with the amount of emphasis which has been placed on conservation of energy. These organizations are especially critical of the lack of conservation measures employed in this state.

It is conceded that conservation is not the panacea for all energy problems. Conservation is, however, a major emphasis which will enable the citizens of this state to take a positive step toward the solution of our energy problems. It cannot be stressed enough that the conservation message should be forcefully presented so that the conservation of energy resources begins immediately.

APPENDIX A

LEGISLATION PROPOSED BY THE SUBCOMMITTEE

SUMMARY--Memorializes Congress to enact legislation granting tax depletion allowances to private firms engaged in geothermal well production. (BDR 87)

JOINT RESOLUTION--Memorializing the Congress of the United States to enact legislation which would provide depletion allowances to private firms engaged in the development of geothermal well production.

WHEREAS, The United States requires an adequate, regular and continuous supply of energy to maintain its industrial growth, development and general standard of living; and

WHEREAS, The United States now depends upon fossil fuels for most of its fuel consumption, and the percentage of the world's crude oil reserves in the United States has decreased from 14 to 7 percent; and

WHEREAS, Supplies of foreign petroleum are sizable but have become increasingly costly and undependable under current economic, technological and international conditions; and

WHEREAS, Fossil fuel extraction, production and consumption are often damaging to the air, water and land of the United States; and

WHEREAS, Depletion allowances have proved to be strong incentives for the exploration and exploitation of oil resources in the United States; and

WHEREAS, In certain parts of our country, including Nevada, geothermal resources are available for the production of electrical power; and

WHEREAS, The use of geothermal resources for production of electrical power offers an alternative to fossil fuels and is not damaging to the air, water or land; now, therefore, be it,

RESOLVED BY THE AND THE OF THE STATE OF NEVADA, JOINTLY, That Congress is hereby memorialized to introduce, consider and enact legislation which would provide depletion allowances as incentives to private firms engaged in the exploration and exploitation of geothermal energy resources; and be it further

RESOLVED, That copies of this resolution be prepared and transmitted by the legislative counsel to the President of the United States, the Vice President as presiding officer of the Senate, the Speaker of the House of Representatives and each member of the Nevada congressional delegation.

SUMMARY--Encourages and regulates use of solar energy. (BDR 28-26)
Fiscal Note: Local Government Impact: No.
State or Industrial Insurance Impact: Yes.

AN ACT relating to solar energy; requiring the state public works board to install solar energy systems in public buildings and projects under certain circumstances; requiring the commissioner of consumer affairs to review and rate solar energy systems; 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. Chapter 341 of NRS is hereby amended by adding thereto a new section which shall read as follows:

The plans and specifications for a public building or project shall provide for the installation of a solar energy system if the board determines that the use of solar energy is feasible and any additional cost of installing a solar energy system is reasonable in comparison with the quantity of energy of another form conserved.

Sec. 2. Chapter 598 of NRS is hereby amended by adding thereto a new section which shall read as follows:

1. Every solar energy system which is designed or constructed to utilize solar energy in the heating or cooling of a building shall be reviewed and rated by the commissioner of consumer affairs before such system is distributed, sold or offered for sale in this state.

2. The commissioner shall adopt regulations:

(a) Establishing standards for rating a solar energy system.

(b) Providing the methods of reviewing and rating a solar energy system.

(c) Providing for the attachment of a label to a solar energy system which designates the rating issued by the commissioner.

SUMMARY--Urges Congress and Secretary of Interior to expedite study of feasibility of increasing Hoover Dam's capacity. (BDR 88)

RESOLUTION--Urging the Congress of the United States and the Secretary of the Interior to expedite the study of the feasibility of increasing the capacity of Hoover Dam.

WHEREAS, The United States Secretary of the Interior is authorized, pursuant to Public Law 94-156, to engage in feasibility studies of certain potential water resource developments, including the Boulder Canyon project modification located at Hoover Dam; and

WHEREAS, The investigation at Hoover Dam is scheduled to begin in October of 1977 and will be concerned primarily with the feasibility of increasing the capacity of the dam; and

WHEREAS, The need for such investigation is clearly indicated by the fact that the newest generator at Hoover Dam was installed 21 years ago; and

WHEREAS, Increased capacity at Hoover Dam might be accomplished by adding generating units to provide new generating capabilities, by using pump storage to capture water at off-peak periods for release and generation at peak periods, or by using new technology to renovate and upgrade existing generators; and

WHEREAS, Any increased capacity at Hoover Dam would be of direct or indirect benefit to all of the people of Nevada; now, therefore, be it

RESOLVED BY THE AND OF THE STATE OF NEVADA, JOINTLY, That the legislature of the State of Nevada hereby urges the Secretary of the Interior to expedite the study of the feasibility of increasing the capacity of Hoover Dam so that findings can be made at the earliest possible date and provided to all interested and affected parties in Nevada; and be it further

RESOLVED, That the legislature urges the Congress of the United States to continue funding the study at a level which will allow its early completion; and be it further

RESOLVED, That copies of this resolution be transmitted forthwith by the legislative counsel to the President of the United States, the Vice President as presiding officer of the Senate, the Speaker of the House of Representatives, the members of the Nevada congressional delegation, the Secretary of the Interior and the Commissioner of Reclamation of the Bureau of Reclamation.

SUMMARY--Provides criteria for management, rates and examination of public utilities. (BDR 58-25)
Fiscal Note: Local Government Impact: No.
State or Industrial Insurance Impact: Yes.

AN ACT relating to public utilities; declaring legislative policy; providing for the examination of the condition and management of a public utility; 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 703.290 is hereby amended to read as follows:

703.290 1. A division of consumer relations is hereby established within the commission.

2. Pursuant to regulations adopted by the commission, the division of consumer relations shall:

(a) Receive and investigate complaints made against any public utility;

(b) Conduct appropriate investigations of utility company service practices; and

(c) Perform such other functions as <u>are required by law or as</u> the commission deems appropriate <u>.</u> [and necessary.]

Sec. 2. Chapter 704 of NRS is hereby amended by adding thereto the provisions set forth as sections 3, 4 and 5 of this act.

Sec. 3. It is the policy of this state that the commission, in supervising and regulating the operation and maintenance of public utilities, is responsible for providing that each public utility:

1. Utilizes efficient management policies which minimize operating costs and capital investments.

2. Receives an adequate rate of return which allows the public utility to protect its financial integrity and minimize its capital costs.

3. Charges rates no higher than are necessary to cover the costs, investments and return so established.

Sec. 4. 1. The commission may order an examination of the condition and management of any public utility under its jurisdiction. The public utility shall select the person to conduct the examination, subject to the approval of the commission.

2. The commission shall establish procedures for the scheduling of examinations and the content and form of reports issued at the conclusion of an examination.

3. The costs of an examination, if approved by the commission before they are incurred, are allowable expenses of the public utility.

Sec. 5. The division of consumer relations shall prepare and publish pamphlets and other descriptive material which:

1. Inform the public of the rates charged by every utility company under the jurisdiction of the commission.

2. Encourage the conservation of energy.

Sec. 6. Chapter 706 of NRS is hereby amended by adding thereto a new section which shall read as follows:

1. The commission may order an examination of the condition and management of any common or contract motor carrier or broker under its jurisdiction. The carrier or broker shall select the person to conduct the audit, subject to the approval of the commission.

2. The commission shall establish procedures for the scheduling of examinations and the content and form of reports issued at the conclusion of an examination.

3. The costs of an examination, if approved by the commission before they are incurred, are allowable expenses of the public utility.

SUMMARY--Proposes constitutional amendment to permit property tax exemption for conservation of energy. (BDR C-78)

JOINT RESOLUTION--Proposing an amendment to section 1 of article 10 of the constitution of the State of Nevada, relating to taxation, by permitting a property tax exemption for the conservation of energy.

RESOLVED BY THE AND OF THE STATE OF NEVADA, JOINTLY, That section 1 of article 10 of the constitution of the State of Nevada be amended to read as follows:

Section 1. 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 upon the net proceeds; shares of stock (except shares of stock in banking corporations), bonds, mortgages, notes, bank deposits, book accounts and credits, and securities and choses in action of like character are deemed to represent interest in property already assessed and taxed, either in Nevada or elsewhere, and shall be exempt. [Notwithstanding the provisions of this section, the] <u>The</u> legislature may

constitute agricultural and open-space real property having a greater value for another use than that for which it is being used, as a separate class for taxation purposes and may provide a separate uniform plan for appraisal and valuation of such property for assessment purposes. If such plan is provided, the legislature shall also provide for retroactive assessment for a period of not less than 7 years when agricultural and open-space real property is converted to a higher use conforming to the use for which other nearby property is used. Personal property which is moving in interstate commerce through or over the territory of the State of Nevada, or which was consigned to a warehouse, public or private, within the State of Nevada from outside the State of Nevada for storage in transit to a final destination outside the State of Nevada, whether specified when transportation begins or afterward, shall be deemed to have acquired no situs in Nevada for purposes of taxation and shall be exempt from taxation. Such property shall not be deprived of such exemption because while in the warehouse the property is assembled, bound, joined, processed, disassembled, divided, cut, broken in bulk, relabeled or repackaged. The legislature may exempt motor vehicles from the provisions of the tax required by this section, and in lieu thereof, if such exemption is granted, shall provide for a uniform and equal rate of assessment and taxation of motor vehicles, which

rate shall not exceed five cents on one dollar of assessed valuation. No inheritance or estate tax shall ever be levied, and there shall also be excepted such property as may be exempted by law for municipal, educational, literary, scientific or other charitable purposes [.] , or to encourage the conservation of energy.

SUMMARY--Imposes duties on energy management division of public service commission of Nevada. (BDR 58-79)
Fiscal Note: Local Government Impact: No.
State or Industrial Insurance Impact: Yes.

AN ACT imposing duties on the energy management division of the public service commission of Nevada.

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

Section 1. NRS 703.260 is hereby amended to read as follows:

703.260 The chairman, acting through the division, [may:] shall:

1. Prepare, subject to the approval of the governor, petroleum allocation and rationing plans for possible energy contingencies. The plans shall be carried out only by executive order by the governor.

2. Cooperate, through the commission's member on the state energy resources advisory board, in coordinating energy programs and activities within the state.

3. Analyze and evaluate present and prospective energy demand and supply alternatives within the state.

4. Develop and carry out projects and programs to encourage maximum utilization of existing energy resources in the private and public sectors of this state.

5. Encourage development of existing and alternate energy resources that will benefit the state.

6. Carry out and administer any federal programs that authorize state participation in fuel allocation programs.

7. Coordinate the energy activities of appropriate state agencies.

8. Serve as a central depository for the state government to collect and store any data and information relating to energy and related subjects.

APPENDIX B

LEGISLATION PROPOSED BY THE UTILITY COMPANIES

During the course of this study each utility company was requested to submit proposed legislation for consideration by the subcommittee. Because of the time limitation, the subcommittee was unable to deliberate on each piece of proposed legislation. It was therefore agreed that all the utility companies would develop and submit one proposed legislative package which would be a part of the final report without any formal recommendations by the subcommittee.

The Public Service Commission of Nevada does not wish to comment on any proposed legislation at this time because (1) staff time is not available to make an indepth analysis and (2) it would not be in the public interest because of the potential conflict that may arise from forthcoming case decisions.

The subcommittee also solicited comments from consumer groups on legislation proposed by the utilities. A copy of the response of Citizens for Survival is included in this appendix.

SUGGESTED REVISIONS TO NEVADA REVISED STATUTES
CHAPTER 704 BY UTILITIES UNDER THE JURISDICTION
OF THE NEVADA PUBLIC SERVICE COMMISSION

[Explanatory paragraph] In the within material, the existing statutory language is shown in full. Suggested additions are shown by underlining. Suggested ~~deletions~~ are shown by overstriking the deleted words with dashes.

Dated this 13th day of August, 1976.

NRS 704.100 - Suggested Revisions

704.100 Notice prerequisite to change in rates; filing, posting of amended schedules; power of commission to dispense with hearing.

1. No changes shall be made in any schedule, including schedules of joint rates, or in the rules and regulations affecting any and all rates or charges, except upon 30 days' notice to the commission, and all such changes shall be plainly indicated, or by filing new schedules in lieu thereof 30 days prior to the time the same are to take effect. The commission, upon application of any public utility, may prescribe a less time within which a reduction may be made.

2. Copies of all new or amended schedules shall be filed and posted in the stations and offices of public utilities as in the case of original schedules.

~~3. Except as provided in subsection 4, the commission shall not consider an application by a public utility if the justification for the new schedule includes any items of expense or rate base which are set forth as justification in a pending application, are the subject of pending litigation, or have been considered and disallowed by the commission or a district court.~~

4. 3. A public utility may set forth as justification for a rate increase items of expense or rate base which have been considered and disallowed by the commission, only if those items are clearly identified in the application, and new facts or policy considerations for each item are advanced in the application to justify a reversal of the commission's prior decision.

~~5. If the commission receives an application that is within the prohibition of subsection 3, it shall, within 30 days, notify the public utility that the application is dismissed.~~

~~6. The commission shall determine whether a hearing shall be held when the proposed change in any schedule stating a new or revised individual or joint rate, fare or charge, or any new or revised individual or joint regulation or practice affecting any rate, fare, or charge will result in an increase in annual gross revenue as certified by the applicant of $2,500 or less.~~

~~7. In making such determination the commission shall first consider all timely written protests, any presentation the staff of the commission may desire to present, the application and any other matters deemed relevant by the commission.~~

NRS 704.100 - Explanation of Suggested Revisions

We recommend the elimination of paragraphs 3, 5, 6 and 7 of NRS 704.100 and the renumbering of the remaining paragraphs.

Paragraphs 3, 4 and 5 were added by the 1975 Legislature. The purpose of these new paragraphs was to simplify the Commission's job by preventing the utilities from filing repetitive applications for rate relief based upon the same circumstances as prior applications still pending or under consideration by the Commission. In a case involving Southwest Gas Corporation, the Nevada Supreme Court recently ruled that the Commission must hold a hearing before dismissing any application under paragraphs 3 and 5, limiting the scope of these two paragraphs to an undefined extent. Paragraph 4, the remaining paragraph added by the 1975 Legislature, is adequate to do the job that the Legislature wanted to do, which was to spare the Commission from the burden of reviewing repetitive rate applications concerning previously disallowed items of rate base or expense.

Under paragraph 4 the Commission would in any event be required to hear "new facts or policy considerations" which the utility thinks would justify for the future the allowance of rate base or expense items previously disallowed. If the Commission is still unconvinced, then obviously it would not be required to allow such rate base or expense items for rate making purposes in the future. The requirement that such items be separately identified flags them for the Commission for special consideration. No longer can such items simply be buried in the mass of data that the utility must routinely supply with a rate application.

NRS Sections 704.100 and 704.110 appear to be irreconcilably inconsistent. NRS 704.100(6) grants to the Commission authority to dispense with a hearing on a utility rate application if the increase in annual gross revenue, as certified by the applicant, would be $2,500 or less. NRS 704.110(1) appears to give the Commission unfettered discretion as to whether it will or will not hold a hearing, making no reference to the amount involved.

We believe that the Commission is competent to determine whether or not a hearing needs to be held on a rate application. The Commission routinely publicizes the filing of such applications and invites comment by anyone interested. If the Commission receives no comment and if it perceives no reason, by virtue of its own examination, to hold a hearing, then it should have the discretionary power to dispense with a hearing. We know of no constitutional requirement in Nevada that a legislative body must hold ahearing in a matter that has been noticed to the public and is unopposed. Accordingly, we recommend deletion of all of paragraphs 6 and 7 of NRS 704.100. If the last clause of paragraph 6 is removed, what remains of

paragraphs 6 and 7 is completely overlapped by NRS 704.110(1), so the most practicable action to take would be to simply delete all of paragraphs 6 and 7 of NRS 704.100.

NRS 704.110(1) Suggested Revision

704.110 Hearing on propriety of new rate, fare, charge or service, suspension of operation of new schedule; submission, consideration of utility operations data; clearance of deferred accounts; limitations on submission of applications; order of commission.

1. Whenever there is filed with the commission any schedule stating a new or revised individual or joint rate, fare or charge, or any new or revised individual or joint regulation or practice affecting any rate, fare or charge, or any schedule resulting in a discontinuance, modification or restriction of service, the commission may, either upon complaint or upon its own motion without complaint, at once, and if it so orders, without answer or formal pleading by the interested utility or utilities, enter upon an investigation or, upon reasonable notice, enter upon a hearing concerning the propriety of such rate, fare, charge, classification, regulation, discontinuance, modification, restriction or practice.

Explanation of Revision

The sole change proposed in paragraph 1 is the correction of the typographical error which appeared in the 1975 bill amending this section, wherein "propriety" erroneously appeared as "property".

NRS 704.100(2) Suggested Revision:

2. Pending such investigation or hearing and the decision thereon, the commission upon delivering to the utility or utilities affected thereby a statement in writing of its reasons for such suspension, may suspend the operation of such schedule and defer the use of such rate, fare, charge, classification, regulation, discontinuance, modification, restriction or practice, but except as specified in subsection 3, not for a ~~longer~~ period extending beyond ~~than~~ 180 days after the date of filing thereof. ~~150-days-beyond-the-time when-such-rate,-rate,-charge,-classification,-regulation, discontinuance,-modification,-restriction-or-practice-would otherwise-go-into-effect.~~

Explanation of Revision

The changes proposed in NRS 704.110(2) address problems that the utility industry has encountered. In addition to occasional unscheduled cost of gas increases, some utilities have experienced regular scheduled increases from their suppliers at 6-month intervals pursuant to FPC procedures. The utilities affected have known that there would be increases at each of such scheduled intervals, but they have not known 6 months in advance what the exact amounts of the increases would be. Accordingly, six months before the effective date of a new cost of gas increase, an affected utility would file an offset rate increase application specifying the maximum amount that it believed the increase would encompass, stating in its application that it would amend its application to specify a lower amount prior to the date on which it would have to commence paying the cost of gas increase to its supplier.

An application filed as specified in the preceding paragraph gives the commission, under the statutory suspension powers, the customary 150 days (in addition to the 30-day statutory notice period) in which to consider a utility's financial condition and whether a utility needs an offsetting rate increase to its customers. Under these circumstances the amount of the increase in the cost of gas is immaterial to a utility's need for offsetting relief; the commission can examine a utility's books during the suspension period and determine whether a utility should absorb any part of the increase in the cost of gas.

The commission on occasion has determined that the "effective" date of a new rate schedule is not 30 days after the date of filing, but the date on which a utility intended to first collect the new proposed rates. This occasional practice leaves a utility in a position where it might have to absorb increased gas costs for 150 days before the commission would be required to make a decision on whether a utility could increase its rates to offset the increased cost of gas. It also leaves a utility in a position of helplessness, unable to act constructively in anticipation of a known future occurrence - a cost of gas increase for example, unknown only as to the amount. With the magnitude of some of the experienced cost of gas increases in the past, a utility could go bankrupt in 150 days without offsetting rate relief. Over the past several years, for example, some utilities have had to absorb losses of $20,000 to $120,000 in cost of gas increases, in cases in which they did not receive timely commmission authorization to pass these increases on to their customers. Even though in these particular cases the commission ultimately found that the increases should have been granted, these lost revenues will never be recovered.

NRS 704.110(2) should be changed to remove any ambiguity in its interpretation and to restrict the suspension period to the stated statutory maximum of 150 days plus the 30-day notice period, rather than permit a suspension practice which can result in a suspension period of up to 330 days, including the original 30-day notice period. This is accomplished by tying the end of the suspension period to the date of filing a new schedule, and it eliminates any dispute as to when a schedule is intended to become "effective."

NRS 704.110(3) Suggested Revision

3. Every such schedule stating a new or revised individual or joint rate, fare or charge or any new or revised individual or joint regulation or practice affecting any rate, fare or charge shall be accompanied by an application which shall include the following:

(i) All increased revenues which will result from proposed interim rates, separately stated to reflect a rate of return on rate base as filed equal to the rate of return last granted by the commission to the applicant; and

(ii) all increased revenues which result from proposed permanent rates, separately stated to reflect a rate of return on rate base as filed in excess of that rate of return last granted by the commission to the applicant.

Pending such investigation or hearing and the decision thereon, the proposed interim rates, charges, classifications or service which will increase revenues to achieve a rate of return on rate base as filed equal to the commission's last authorized rate of return on rate base, shall go into effect at the end of the initial 30-day period, subject to refund in whole or in part together with interest. The commission shall by order require the applicant to keep accurate accounts in detail of all amounts received by reason of such increase, specifying for whom and in whose behalf such amounts are received. Upon completion of the hearing, the commission may by further order require the applicant to refund, with interest computed in accordance with NRS 704.671 to the persons from whom such amounts were received, such portion of such increased rates or charges as the commission shall find to be not justified.

~~3.~~ 4. Whenever there is filed with the commission any schedule stating a new or revised individual or joint rate, fare or charge, the public utility shall submit with its application a statement showing ~~the recorded results of revenues, expenses, investments and costs of capital for its most recent twelve month period.~~ for a recent recorded twelve months period the utility's operating income, end-of-period rate base and resulting rate of return. During any hearing ~~concerning such increased~~ determined by the commission to be necessary with respect to any new or revised rates, fares or charges ~~determined by the commission to be necessary~~ the commission shall consider, in addition to any other evidence which the utility may choose to present, evidence in support of the ~~increased~~ new or revised rates, fares or charges based upon actual ~~recorded~~ results of utility operations for the ~~most recent twelve consecutive months for which data are available at the time of filing, adjusted for any~~ recorded twelve-months period utilized, adjusted, if the utility shall elect to make any such adjustments, for appropriate changes. Such appropriate changes shall include, without limitation, increased investment in facilities with associated rate of return, annual depreciation, taxes and insurance, certain other expenses as approved by the commission, and costs of new securities which ~~are known and are measurable with reasonable accuracy at the time of filing and which will become effective within six months after the last month of the actual twelve month results of operations~~ become effective during the recorded twelve months period utilized or within six months thereafter; but no new rates, fares or charges based upon such adjustment may be placed into effect until such appropriate changes have been experienced and ~~certified~~ verified in writing as in the case of any other verified pleading, by the utility to the commission. Within 90 days after the filing with the commission of the ~~certification~~ verification required herein, or before the expiration of any suspension period ordered herein pursuant to subsection 2, whichever time is longer, the commission shall make such order in reference to such rates, fares or charges as may by required by this chapter. There shall be excepted from the foregoing estimating and certifying requirement all increases or decreases resulting from governmental action, not within the control of the utility. Such increases or decreases may be presented to the commission no fewer than 30 days before the end of the suspension period and will be considered by the commission in its determination of just and reasonable rates, fares or charges.

Explanation of Revisions to NRS 704.110(3)

The utilities recommend that NRS 704.110(3) be amended to provide much needed clarification and that the existing subsection (3) should be renumbered as subsection (4) because of the following reasons:

1. Most of the utilities serving the State of Nevada have been hindered in the ability to earn the rates of return allowed by the commission because of regulatory lag. This lag is the time period covering recognition of the need for the increases, filing the application, and the final decision by the commission. After a utility experiences a deficiency in earnings, it generally requires a minimum of two months to prepare and file a rate increase application, following which there is normally a six-month period prior to a commission decision. As a result, the utility is deficient for at least eight months before any relief can be expected. Also during the six-month waiting period following application for increases, the utility generally will continue to experience higher financing and operating costs for which there is no compensation. Accordingly, it is not possible for any utility to achieve the rate of return authorized by the commission. For example, one utility under the commission's jurisdiction presented evidence which showed that in the period 1972 through 1975 it failed to realize the rates of return authorized throughout the period, resulting in a calculated dollar deficiency in earnings of $4,200,000. Similarly, other utilities in each of their most recent rate cases presented similar evidence.

The result of all of the foregoing has been an impairment in earnings and cash flow which has affected the financial stability of these utilities.

2. The proposed revision to subsection (3), which is a modification of the Federal Power Commission procedures, would permit utilities to put into effect, subject to refund, that portion of the requested rate increase based on the rate of return last granted to the utility by the commission. The effect of this would be to permit the utility to partially achieve earnings stability during the suspension period and, more importantly, to provide needed cash flow for ongoing construction programs. Additionally, such statutory change would result in increased confidence among investment bankers in Nevada utilities being able to earn a fair rate of return and would reflect a more realistic approach to rate making than exists under the present laws and commission practices.

3. The addition of the words "in addition to any other evidence which the utility may choose to present" in the new subsection (4) of NRS 704.110 is intended to countermand a commission opinion that it is precluded from considering any evidence relating to periods more recent than the 12 months or recorded data other than that specifically identified. The proposed additional language would make it clear that the commission must consider all relevant evidence.

Suggested Revisions to Subsections (5), (6) and (7) of NRS 704.110

4. 5. After full investigation or hearing, whether completed before or after the date upon which the rate, fare, charge, classification, regulation, discontinuance, modification, restriction or practice is to go into effect, the commission may make such order in reference to such rate, fare, charge, classification, regulation, discontinuance, modification, restriction or practice as would be proper in a proceeding initiated after the rate, fare, charge, classification, regulation, discontinuance, modification, restriction or practice has become effective.

6. Except as provided in subsection 7, whenever an application for such rate, fare, charge, classification, regulation, discontinuance, modification, restriction or practice has been filed with the commission seeking authorization for a higher rate of return on property dedicated to public use, a public utility shall not submit another such application until all pending applications for rate increases seeking higher rates of return submitted by that public utility have been decided unless, after application and hearing, the commission determines that a substantial financial emergency would exist if such other application is not permitted to be submitted sooner.

7. A public utility may not file an application to recover the increased cost of purchased fuel, purchased power or natural gas purchased for resale more often than once every 30 days, but this subsection shall not preclude consideration of applications to provide new service based upon new sources of supply.

5. 8. Whenever an application is filed by a public utility for an increase in any rate, fare or charge based solely upon increased costs and related expenses in the purchase of fuel or power and the public utility has elected to use deferred accounting for costs of the purchase of fuel or power in accordance with commission regulations, the commission, by appropriate order after a public hearing, shall allow the public utility to clear the deferred account not more often than once every six months by refunding any credit balance or recovering any debit balance over a period not to exceed one year as determined by the commission. ~~The commission shall not allow a recovery of a debit balance, if the public utility's rate of return is in excess of the rate of return most recently granted the public utility.~~

Explanation of Revisions

The utilities recommend that the existing subsection (4) be renumbered as subsection (5) without change and that subsection (5) be renumbered as subsection (8) and the changes or additions are underlined as to subsections (5), (6), and (7). The reasons for the changes are as follows:

NRS 704.110(5), (6) and (7) were added by the 1975 Legislature, and had the purpose of attempting to restrict the number of general rate increase applications that a utility might file. A "general" rate increase application, in utility parlance, is an application in which the utility seeks authorization for a higher rate of return on its property dedicated to public use, as opposed to an "offset" rate increase application where a utility simply is seeking authority from the commission to offset specific higher costs, generally of purchased power and fuel, which it has experienced. The utilities think changes in these paragraphs are necessary to make it clear that no offset type rate increase application is prohibited by these sections.

The last clause in paragraph 7 was added in order to accommodate special increments of gas supply that become available from time to time, usually on a short term basis, to carry through a winter heating season. One utility, on some occasions when the gas will not be needed for residential and commercial customers, contracts to purchase this gas and prices it incrementally (usually it is expensive gas) to benefit industrial customers. It needs to be clear that applications covering this type of service, which so greatly benefits the hard-hit industrial customers, are not proscribed by this paragraph.

With deferral accounting for fuel costs coming into use, the utilities think it is important to take notice of the last sentence of paragraph 7. This sentence, even as revised, for all practical purposes makes it impossible for a utility to earn in excess of its allowed rate of return. The effect of this is that there is now an automatic ceiling requiring a utility to lower its rates when it reaches its allowed rate of return, without any statutory floor on how little a utility may earn or on how much money it can lose. This absolutely guarantees that year in, year out, the utilities in Nevada will not earn the rates of return the commission finds reasonable for them. No longer can a good year offset a bad one, with the utility averaging a reasonable rate of return over the longer period. The bad year will be bad, and as a year approaches being a good year, the rates will have to be reduced automatically. We think this raises serious constitutional questions, for which there are two possible solutions:

(1) Delete the last sentence of NRS 704.110(8), or

(2) Adopt the New Mexico Plan as suggested in the proposed NRS 704.125 which offsets a ceiling upon rate of return by placing a partial floor under it.

Suggested Adoption of 704.125, Election of Cost of Service Index Adjustment

1. Within 30 days after the commission shall issue any order fixing the rates, fares and charges and establishing a rate of return and return on common equity for any public utility, as defined in this chapter, such utility may elect to undertake quarterly adjustments of its rates, fares and charges pursuant to a cost of service index adjustment program administered by the commission.

2. No utility, having elected cost of service index adjustment, may rescind such election unless the commission shall be appropriate order authorize such recision.

3. Quarterly audits of the electing utility for the purpose of cost of service index adjustment shall be performed by a firm of independent certified public accountants acceptable to the commission and to the utility. The expense thereof shall be paid by the utility and recovered in its cost of service.

4. Not later than 45 days following the end of each calendar quarter, commencing with the next such date occurring at least 45 days after the date upon which a utility elects cost of service index adjustment, such utility shall file with the commission a cost of service index report form showing for the previous calendar quarter and for the 12 months period ending concurrently therewith, calculations, made in accordance with generally accepted accounting principles, disclosing the rate of return on common equity experienced by such utility during such previous calendar quarter and such previous 12 months period. If the rates of return on common equity for both of such periods disclosed by such calculations shall be lower or higher by more than one-half of one percentage point than the rate of return on common equity last authorized for such utility, the utility, subject to approval by the commission and at least 30 days prior to the end of the calendar quarter in which filed, shall file new schedules of rates and charges, to become effective on the later of the first day of the next succeeding calendar quarter or 30 days after date of filing with the commission, calculated to increase or decrease the utility's revenues by an amount sufficient to restore the utility's rate of return on common equity to the level last authorized for such utility. Any increases or

decreases in rates for gas or electric service made pursuant to any cost of service index adjustment shall be implemented, as uniform increases or decreases in the commodity rate per unit, on each unit thereof sold by such utility after the effective date of such new schedules of rates and charges.

5. The cost of service index report (and appropriate regulations) shall be in such form as the commission may from time to time prescribe by general orders and amendments thereto promulgated pursuant to law. The initial general order shall be promulgated not later than 90 days after the effective date of this section.

6 The election by a utility of cost of service index adjustment pursuant to this section shall not impair any right of any utility to petition the commission for other or different relief in any form, or any authority of the commission to investigate any rate, fare, charge or practice of any utility, either upon complaint or upon the commission's own motion.

Explanation of Suggested New Statute, NRS 704.125

This new section permits a utility to elect cost of service index adjustment - a regulatory method which has become known as the "New Mexico Plan", after the jurisdiction in which it was first promulgated. The "New Mexico Plan" was initiated in the state of New Mexico by order of the New Mexico Public Service Commission as the outcome of a rate proceeding involving Public Service Company of New Mexico. The plan was initiated by the commission with the full support of the company. The consumer groups which had intervened in the company's rate increase application and the investment banking community, which has become increasingly concerned about the viability of the nation's utility industry. The New Mexico experiment appears to be working to the satisfaction of all. As a successful innovation in utility rate regulation, it deserves attention, as does any innovation that might help solve the serious problem - chronic to all Nevada energy supplying utilities - of being unable to earn the rate of return authorized by the Nevada Public Service Commission.

NRS 704.540 Suggested Revisions

704.540 Action by party in interest in district court to vacate, set aside commission order; time for institution of action; answers of commission, other defendants; introduction of new evidence.

1. Any party in interest being dissatisfied with an order of the commission fixing any rate or rates, fares, charges, classifications, joint rate or rates, or any order

fixing any regulations, practices or services, may within 90 days commence an action in the district court ~~of the proper county~~ against the commission ~~and other interested parties as defendants~~ to vacate, ~~and~~ set aside, amend or modify any such order in whole or in part, as the case may be, on the ground that ~~the~~ any rate fixed in such order is unlawful or unreasonable, or that any ~~such~~ regulation, practice or service fixed in such order is unreasonable, or that any findings made by the commission are not supported by the evidence. Such action may be brought in any county in which the utility to which the commission's order is directed has been issued a certificate of public convenience pursuant to the provisions of Chapter 704.

2. The commission ~~and other parties defendant~~ shall file its ~~their~~ answers to the complaint within 30 days after the service thereof, whereupon such action shall be at issue and stand ready for trial upon 20 days' notice to either party.

3. All actions brought under this section shall have precedence over any civil cause of a different nature pending in such court, and the court shall always be deemed open for the trial thereof, and the same shall be tried and determined as other civil actions.

4. Any party to such action may introduce evidence in addition to the transcript of the evidence offered ~~t~~o the commission. [Part 33:109:1919; A 1955, 407]

Explanation of Revisions

The most important changes the utilities believe to be necessary apply to the portions of Chapter 704 having to do with judicial review. No parts of these sections were changed by the 1975 Legislature, and the utilities believe that certain changes should be made in these sections which would clarify and speed the appellate process.

Initially, the utilities believe that it would be proper to amplify NRS 704.540 to clarify what is a "proper county" in which to sue the commission. In several instances motions made by the attorney general to change venue of utility appeals to Carson City have been granted. The district court for the city and county of Carson City is a very busy court, and while trying all cases against the commission in Carson City may be a great convenience to the commission (and a corresponding inconvenience to Nevada utilities which are headquartered elsewhere), the effect of moving all cases against the commission to Carson City is to unduly crowd the docket in Carson City and delay disposition of the cases. There is no good reason why any district judge in the state can't properly handle a case against the commission.

NRS 704.550

1. No injunction shall issue suspending or staying any order of the commission relating to rates, fares, charges, classifications, joint rate or rates, or any order fixing any regulations, except upon application to the court or judge thereof, upon notice given the commission within 20 days of the rendition of the order of the commission complained of, and no such injunction shall issue except upon such notice being first given and a hearing of the petition therefor by the court or judge thereof shall commence within 20 days thereafter. In any event all rates, charges and regulations of the commission shall be deemed reasonable and just until set aside by the court or by the filing of a bond as provided in NRS 704.130, and in all actions for injunctions ~~or otherwise the burden of proof shall be upon the party attacking or resisting the order of the commission to show by clear and satisfactory evidence that the order is unlawful, or unreasonable, as the case may be,~~ petitioner shall be required to prove to the satisfaction of the court that there exists a serious question of law or fact regarding the order or any part thereof complained of; that the petitioner will suffer irreparable injuries unless the injunction is granted and that the petitioner can obtain to the satisfaction of the court a bond to be approved by the court to carry out the conditions imposed hereafter in the event the rates are later determined to be excessive.

2. If an injunction is granted by the court ~~and the order complained of is one which permanently suspends a schedule of rates and charges or a part thereof filed by any public utility pursuant to NRS 704.070 to 704.110, inclusive, or which otherwise prevents such schedule or part hereof from taking effect, the public utility complaining may keep in effect or cause to be put into effect, as the case may be, the suspended schedule or part thereof pending final determination by the court in such amount as the court may fix, conditioned upon the refund to persons, firms, companies or corporations entitled thereto of the amount of the excess if the rate or rates so suspended are finally determined by the court to be excessive.~~ as set forth above the court shall determine the amount of relief to which the petitioner is entitled pending a final determination of the matter and the court shall remand to the commission with instructions as to the specified amount to be obtained by the petitioner pending said final determination, and the commission shall within 5 days thereof approve rate schedules which will produce the revenues as specified by said court and during the time that said injunction is in force, the commission shall be restrained from interfering with the petitioner's right to collect revenues under said rate schedules as set forth herein.

NRS 704.550 Explanation of Suggested Revisions

NRS 704.550 purports to make it possible for a utility to obtain injunctive relief from an onerous commission order pending judicial review of that order. In fact, however, the injunctive relief available to a utility under NRS 704.550 is more illusory than real. The reason for this is to be found in the last three lines of NRS 704.550(1), wherein it is specified that "in all actions for injunction or otherwise, the burden of proof shall be upon the party attacking or resisting the order of the commission to show by clear and satisfactory evidence that the order is unlawful, or unreasonable, as the case may be."

It is important to remember that by the time a utility has gone to court to seek an injunction, there has been a hearing before the commission on these matters which in some cases will have lasted for several days and will have involved the presentation and explanation of many exhibits and the examination and cross-examination of numerous witnesses. It is too much to expect a single district court judge, after hearing a two-hour legal argument, to second-guess the commission on a decision as to which the commission had the benefit of days if not weeks of testimony. Under NRS 704.550(1) as it now stands, the utility would have to prove its entire case on appeal simply to obtain the requested injunctive relief, which is the same standard that it must meet when the same matters are heard on their merits by the same court. This places an impossible burden not only upon the utility, but upon the court; further, it creates redundancy because the same matters have to be proved to the court on two separate occasions - (1) at the hearing on the request for injunctive relief, and (2) at the full hearing on the merits of the appeal.

A further and equally serious problem under NRS 704.550 is the language which suggests that in order to obtain injunctive relief, the utility must show that every dollar of its rate request denied by the commission was wrongfully denied. This is a practical impossibility for many reasons (as one utility is presently experiencing), and the revisions proposed herein by the utilities recognize this problem by permitting injunctive relief if the utility can show that part, rather than all, of the relief denied by the commission was wrongfully denied.

The utilities recommendation is that NRS 704.550 should be changed to permit the utility to obtain a preliminary injunction against all or part of a commission order, pending a full appellate review. This will make the injunctive relief, which the utilities sometimes need, a real rather than an illusory remedy. Further, it will make the injunctive relief obtainable under NRS 704.550 co-extensive with the scope of the judicial review available under NRS 704.540.

Now, in order to make sure that the utilities are exceedingly circumspect about putting rates into effect under a preliminary injunction, we recommend changes in NRS 704.550(2) which would require the utility, in addition to posting a bond in such amount as the court might specify, to pay interest on any refunds it might ultimately have to make to its customers at the maximum allowable rate. The interest rate which utilities would have to pay on any such refunds certainly would discourage them from seeking any rates under these injunctive provisions that they weren't very confident they ultimately could justify.

The important and recurring problem is that a utility can never collect retroactively for revenues that it should have been entitled to collect, however, meritorious its claim. Suppose, for example, that a utility wins an appeal against a commission rate order, but that processing the appeal takes 18 months or two years (not an uncommon experience) during which, as it turns out, the utility should have been allowed to collect additional revenues totaling $1 million. The court finds the utility's claim justified and that the commission's order was wrong. It is the utility that ultimately suffers because it cannot collect the lost revenues to which it was lawfully entitled. This situation has been experienced in the past because the present procedure does not properly provide for the review of wrongful confiscation of utility property.

NRS 704.560

The utilities would request the right to submit appropriate comments and any revisions to this section at a later date because this will require additional review since it deals with crucial evidentiary procedures and there is no consensus of opinion as of this date.

NRS 704.580 Appeal to and review by supreme court.

1. ~~Either~~ Any party to the action, within 60 days after the service of a copy of the order or judgment of the court, may appeal or take the case up on error as in other civil actions.

2. Where an appeal is taken to the supreme court of Nevada, the cause shall, on the return of the papers to the higher court, be immediately placed on the calendar of the then pending term, and shall be assigned and brought to a hearing in the same manner as other causes on the calendar.

Explanation of Suggested Revisions

The suggested change of the first word in this section simply acknowledges the fact that in many actions involving the commission, there are more than two parties.

CITIZENS FOR SURVIVAL

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August 26, 1976

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Comments on Minutes of Meeting of the
Subcommittee to Study Gas and Electric Utilities

1. We are dissatisfied with the way consumer sessions were held. We feel that the Subcommittee could have alloted some time to the consumer interests at dates and times that it would have been easier for consumers to attend.

2. We feel that the Consumer Relations Division being put in the P.S.C. was a mistake. If a consumer has a complaint against a division of the P.S.C., he cannot get any satisfaction as the Consumer Relations Division being part of the P.S.C., cannot and does not properly represent the consumer. He properly represents the P.S.C. There should be someone to represent the consumers interest such as a Consumer Advocate or People counsel.

3. Indexing plans and automatic adjustment clauses should not be allowed. They are not in the best interests of the citizens of the State of Nevada. They are self-serving and favor only the utilities.

4. Future test years are not in the public's best interests and should not be allowed. To base rates on supposition and speculation would open up a whole new field of abuses by the utilties to the public. Several regulatory commissions have begun to calculate rates according to a utility's expected future expenses instead of from its actual expenses of the previous year. Thus, rates are set according to a utiltiy's speculation, and there can be no public scrutiny of the company's expenses and construction plans. Higheer rates will become self-fulfilling prophecies as the utility's incentive to minimize costs is eliminated. All rates should be set according to actual costs which can be verified.

5. The proposed changes of the Statutes by the Utilities are the utility's attempts to make slaves of the people and should not b e considered. The Utilities already have enough ways of ripping off the consumer such as collecting in rates, an expense requirement for 48% federal income tax which they do not pay. The inclusion in rate case proceeding of a 5% Utility Franchise Tax, when only 2% can be included in the cost of Service By Law. The other 3% is stated separately on the customers bill. We have to wonder how much of a windfall profit they are receiving by this method.

   These areas of utility rate making that lend themselves to collecting from the people for expenses they do not incur should be halted. The electtric utility industry has frequently received new tax loopholes in the past 20 years. Because of new provisions for acc elerated depreciation and investment tax credits, the power industry's federal income tax payments declined from about 13% of revenues in 1956 to 1.3% of revenues in 1974. Unfortunately, very little of this tax savings was passed on to sonsumers. Most regulatory commissions permit utilities to keep two sets of accounting books - one for the commission and one for the Internal Revenue Service. This practice, called "normalized accounting", permits a utility to pass on its tax savings to its stockholders instead of lowering rates. In 1974, power companies used "normalized accounting" to charge customers for almost $1 billion in federal income taxes which were not paid to the government. In fact, 52 utilities paid no federal income taxes in 1974, but instead received an estimated $217 million in refunds of back taxes. Further, these same utilites charged their customers for $269 million in federal income taxes last year. Commonwealth Edison heads the list of tax evaders, overcharging its customers $73 million for "phantom taxes". In addition, much of the $1 billion "tax" charge reaches stockholders through tax-free dividends. All regulatory commissions should prohibit "normalized accounting", thus forcing utilities to pass tax savings on to consumers.

   The administration has propoed yet another tax loophole for utilities--an increase in the investment tax credit from 10% to 12%. This plan could hardly help the financially pressed utilities that already pay no income taxes. Instead, it would help the wealthier utilities that can still find a place for new tax gimmicks.

6. Rate Structures. Virtually all of the nations electric utilities have rate structures which discriminate against small customers and promote the waste of energy by large users, especially industry. Promotional rate structures should be replaced by rates based on the actual costs of producing electricity. New rate structures would dictate that higher rates would be paid by the customers whose growing demands require construction of expensive new power plants. Efforts to reform industrial rates should be coordinated between the regulatory commissions of different states, in order

to prevent large industries from playing one state off against another. Improvements in rate structures would benefit both low-income consumers and the enviornment.

Peak-Load Rates. Rates should reflect the actual cost of providing electricity. Because peak users are primarily responsible for creating the demand requiring expensive new power plants, peak-load rates should be higher to discourage shifts of use from on-peak periods. Two methods of achieving these incentives are summer/winter differentials in rates and time-of-day metering for large customers.

Advertising and Energy Conservation. Electric utilities should be ordered to cease all advertising and other activities to promote the use of electricity. In addition, utility customers should not be required to pay the cost of the utilities.

Adjustment Clauses. Automatic adjustment clauses for fuel costs have been subject to widespread abuse and have permitted utilities to circumvent regulation. Fuel adjustment clauses eliminate most of a utility's incentive to reduce costs. These clauses have permitted the oil industry to triple its prices with virtually no resistance from power companies. Furthermore, some utilities have discovered accounting techniques which allow them to charge their customers for more than the increased fuel costs. Utilities which own coal mines charge themselves higher prices for coal and then pass the profits through the fuel adjustment clause to the coal operation. Both of these abuses could be prevented by careful scrutiny during a public hearing.

Adjustment clauses for other expenses such as labor, taxes and purchased power may allow a utility to charge its customers for mistakes and inefficient operations, such as nuclear plants that do not operate properly. If such increased costs are valid, they should be passed on to the customer only after proper examination, including public hearings.

Rate Base Padding. The rate base represents the amount of a utility's investment in plant and equipment required to produce electric service; it is used by regulatory commissions in determining the utility's allowable profits. Recently, many utilities have requested changes in the way their rate bases are computed. Already, several companies have been allowed to include unfinished power plants in their rate bases, even though these facilities are not yet producing power. Many regulatory commisions also permit utilities to compute rate bases according to the present value of equipment instead of the actual original cost of the equipment. All padding of rate bases and utility profits should be eliminated. Rate base calculations should be limited to the depreciated original cost of equipment which is actually in use by a utility.

Interim Rate Increases. Utilities are often allowed to inc rease their rates before public hearings are held on the company's rate increase application. In one case in Virginia, a utility was granted an interim rate increase within two hours of its application without any input from electricity consumers. Rarely has any commission reversed an interim rate increase decision. No rate increases should be permitted until public hearings have b een held and all costs have been verified.

Solar Energy. Some form of an incentive to promote the use of Solar Energy should be passed by the legislature, such as exempting the value of the devices from property tax esfor a period of years.

Financial problems of utilities. Many power companies are asking their regulatory commissions for special rate increases to ease their financial problems. They argue the need for higher profits to attract c apital for their construction programs. However, the industry's financial problems are due largely to rapid growth it has fostered for decades through advertising and promotional rates. To grant large rate increases is to reward the utilities for contributing to inflation; higher rates will perpetuate the growth incentives that have caused the industry's financial dilemma.

The utilities' financial problems should be alleviated by instituting energy conservation programs, rather than by granting rate hikes. Energy conservation could reduce the utilities' need for new capital, would help keep rates down, and would reduce the power industry's impact on the environment.

Life Line Rates. The use of life line rates in Southern Nevada are not feasible due to the large amount of air-conditioning present and needed in this area. Life Line Rates as proposed by Dr. Coyle could actually create more of a financial problem for the low and fixed income groups than existing rates. We do not recomend their adoption.

Frederic W. West
President

(This letter has not been revised or corrected.)

APPENDIX C

ACKNOWLEDGEMENTS

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Henry St. John
Daisy J. Talvitie
Fred West
Ann Zorn

Federal Government

Frank M. Covington, Director, Air and Hazardous Material Division, Environmental Protection Agency
Frank Princiotta, Director, Energy Processes Division, Environmental Protection Agency

Local Government

Donald Arkell, Director, Clark County Air Pollution Control Division
Pat Hardy Lewis, Reno City Councilwoman

Private Industry

Piet B. Bos, Program Manager, Electric Power Research Institute
Dennis G. Ciocca, Assistant Vice President, Blyth, Eastman Dillon & Company, Inc.

Terrence E. Comerford, Senior Vice President, Blyth, Eastman Dillon & Company, Inc.
H. Thomas Kilburn, Senior Vice President, Blyth, Eastman Dillon & Company, Inc.
Tom Ochs, Solar Industries, Inc.
Dr. Larry Papay, Director, Research and Development, Southern California Edison Company
Claude G. Poncelet, Scientific Advisor, Westinghouse Electric Company
Dr. Robert Reid, Consultant, Energy and Environmental Analysis, Inc.
Dr. Carl Shy, Director, Institute for Environmental Studies, University of North Carolina
Vernon B. Willis, First Vice President, Blyth, Eastman Dillon & Company, Inc.

State Agencies

Patti Belden, Member, Nevada Energy Resources Advisory Board
Kenneth S. Boyer, Executive Secretary, State Environmental Commission
Pete M. Brust, Jr., Chief Personnel Analyst, Personnel Division, Department of Administration
Dr. Thorne Butler, Member, State Environmental Commission
Noel A. Clark, Chairman, Public Service Commission
Judge Jon Collins, Chairman, Nevada Energy Resources Advisory Board
David L. Evans, Member, Nevada Oil and Gas Commission
Ernest G. Gregory, Chief, Environmental Protection Services, Division of Health, Department of Human Resources
Elliott Gritton, Mechanical Engineer, State Public Works Board
William E. Hancock, Secretary-Manager, State Public Works Board
Heber P. Hardy, Commissioner, Public Service Commission
Kelly L. Jackson, Director, Division of Consumer Relations, Public Service Commission
James C. Lien, Deputy Executive Director, Department of Taxation
Acel R. Martelle, Deputy Administrator, Assistance Payments, Welfare Division, Department of Human Resources
Robert McKee, Professor of Engineering, University of Nevada, Reno
George E. Miller, Administrator, Welfare Division, Department of Human Resources

William J. Newman, Secretary, Nevada Oil and Gas Commission
Donald L. Paff, Administrator, Division of Colorado River Resources, Department of Conservation and Natural Resources
Richard Serdoz, Air Quality Officer, State Environmental Protective Services
John G. Tryon, Professor of Engineering, University of Nevada, Las Vegas
James Wittenberg, Administrator, Personnel Division, Department of Administration
Roland D. Westergard, State Engineer, Division of Water Resources, Department of Conservation and Natural Resources
Dr. Richard Wyman, Chairman, Engineering Department, University of Nevada, Las Vegas

Utility Companies

California-Pacific Utilities Company

Ross Workman, President
Bradley Bunnin, Financial Vice President and General Counsel

Nevada Power Company

Arthur E. Pearson, President
John W. Arlidge, Assistant to the Vice President
John C. Gibbs, Executive Vice President Operations
Charles A. Lenzie, Vice President Finance
M. Gene Matteucci, Vice President and Legal Counsel
William McGarry, Public Relations Director
Jerry Middleton, Manager, Customer Technical Services
James H. Zornes, Vice President Production

Sierra Pacific Power Company

Joe L. Gremban, President
Richard G. Campbell, Vice President, Legal Division
Ralph P. Cromer, Vice President, Commercial Service
Robert J. Lewis, Director, Information Services
H. J. McKibben, Treasurer
T. W. Young, Coordinator of Public Affairs

Southwest Gas Corporation

William M. Laub, President
Clark J. Guild, Jr., Legal Counsel
Charles H. McCrea, Executive Vice President