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file

John S. Callon
President

March 19, 1979

President Jimmy Carter
The White House
Washington, D. C.

GL03769

**UNIVERSITY OF UTAH
RESEARCH INSTITUTE
EARTH SCIENCE LAB.**

Dear Mr. President:

In the event you have not already been informed of the March 1979 report issued by a National Research Council resource group on Geothermal Energy, may I offer the following summary of the report's conclusions and the critical chapter entitled "Prerequisites of Development".

The report, entitled "Geothermal Resources and Technology in the United States", has been four years in the making and "has been subjected to a thorough and expert peer review for accuracy, consistency, and clarity." (p. iii).

SUMMARY:

1. Extent of U. S. Geothermal Resources (Minimum Estimates)

<u>Potential Production</u>	<u>QUADS</u>
Hot Water (80 ^o -180 ^o C) Reservoirs	1,991
High-Temperature (180 ^o +C) Reservoirs	505
Geothermal Steam Reservoirs	45
Geopressured Reservoirs (180 ^o +C) (giving no account to dissolved natural gas content)	5,372
Normal-gradient heat (80 ^o +C)	3,060
Hot Dry Rock (180 ^o +C)	<u>222,000</u>
TOTAL :	233,023 Quads

NOTE: The total oil and natural gas resources of the United States are about 1000 Quads.

These estimates do not take into account new geothermal areas established by exploratory drilling since 1974.

2. Conclusions

The technology, economics, reliability, and environmental acceptability of geothermal energy "are well known and, in direct competition with conventional energy sources, have already been demonstrated commercially on a large scale... This is not true of any other alternative energy source."

"In potentially useful quality geothermal energy exists almost everywhere".

"Unlike solar energy, geothermal energy is continuously available and requires no auxiliary storage facilities."

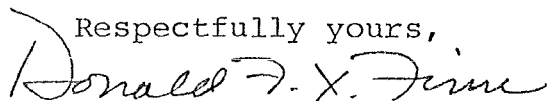
"Technological developments...require only straightforward engineering progress rather than revolutionary advances and major scientific discoveries".

"The growth of geothermal energy is greatly retarded by primarily institutional obstacles".

3. Prerequisites of Development

- A. "if rapid growth in geothermal energy is to occur, a means must be created to indemnify potential users against rapid decline or premature exhaustion of their energy supply. A loan-guarantee program does not accomplish that, since it is the user and not the lender that needs the insurance; thus a new type of federal guarantee program is urgently needed." p. 35.
- B. "Usually every..federal agency that has or thinks it has a statutory interest in geothermal development eventually becomes involved in approving, licensing, and regulating it, and the uncoordinated, overlapping, and sometimes contradictory requirements of these agencies can introduce delays and uncertainties that discourage investment... legislation is urgently needed to ... coordinate and streamline licensing, supervision, and regulation." p. 36.
- C. A federal tax policy for "the expensing of exploration costs, appears jsutified for geothermal energy and should be effective in encouraging investment in it." p. 36.
- D. "A rational and consistent legal framework appropriate to geothermal exploration, leasing, and development on public lands has yet to be created." p. 36.

Respectfully yours,



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COMPARISON OF TAX INCENTIVES IN CANADA
AND THE UNITED STATES DESIGNED TO ENCOURAGE
AND STIMULATE EXPLORATION AND PRODUCTION OF
DOMESTIC GEOTHERMAL ENERGY RESOURCES AND
DOMESTIC OIL AND GAS RESOURCES

<u>Deduction Available</u>	<u>CANADA</u>	<u>U.S.A.</u>
Geological Exploration Expenses	YES	NO
Geophysical Exploration Expenses	YES	NO
Geochemical Exploration Expenses	YES	NO
Stratigraphic, Temperature Gradient, and Geochemical Exploration Wells	YES	NO
Water disposal wells	YES	NO
50% Farmout Well Costs	YES	NO
Leveraged Intangible Drilling Expenses	YES	NO

Whether deliberate or otherwise, the conclusion must be that the United States' National Energy Policy is not designed to encourage domestic exploration.

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