

1144

SRES

HB

779

HB

7779

HB 779
Jens - Brent
Petree -
water resources
Dave Denig -

Chakroff

279-5577


DNR

Contact also
for 779

Frank
Rue/
Contact -
in DNR

David Dennig - Shakroff
in Anchorage @ 279-6577

Essentially wrote the bill -
It a DNR bill came from
recommendations of NCSL
Nat Conference of State
Legislatures



Per
Gerald
Rogers
Brent
Pattie

NATIONAL CONFERENCE OF STATE LEGISLATURES

ENERGY PROGRAM -- GEOTHERMAL PROJECT
PROPOSED TECHNICAL ASSISTANCE PROGRAM FOR ALASKA

Study Areas

- A. Resource Characterization
- B. Resource Access
- C. Resource Allocation
- D. Permitting
- E. Finance
- F. District Heating
- G. Public Utility Commission

Staff Responsibilities

NCSL Energy staff, in conjunction with legislative staff, will identify issues, conduct research, analyze policy concerns, investigate administrative responses and prepare legislative proposals, as needed.

<u>Task</u>	<u>Staff</u>	<u>Status</u>
Project Introduction	NCSL	completed
Issue Identification	Joint	completed
Research & Analysis	NCSL	in progress
Supplemental Field Research	Joint	in progress
Project Milestones		
- Policy Profile	NCSL	completed
- Options & Recommendations	NCSL	11/1/79
- Discussion Bill Drafts	Optional	12/79
- Draft Legislation	Optional	1/80
Review of Proposed Legislation		

ACKNOWLEDGEMENT

NCSL would like to acknowledge the contribution to this report made by: David Denig-Chakroff (Div. of Research and Development/DNR); Robert Sanders (Div. of Minerals and Energy Management/DNR); Brian Petrie (Office of Water Management/DNR); and Don Markle (Div. of Power and Energy Development/DNR). NCSL expresses its appreciation for their assistance.

TABLE OF CONTENTS

INTRODUCTION 1
PROPOSED GEOTHERMAL RESOURCES ACT 2
ADDENDUM 11
FINANCIAL PACKAGE 13
DISTRICT HEATING 15
ISCELLANEOUS 16
APPENDICES 18

INTRODUCTION

The NCSL Geothermal Project is assisting the Alaska Legislature in a review of geothermal policies. To date project staff have conducted field research on two occasions, as well as participating in a public workshop (9/13/79) co-sponsored by the Joint Special Committee on Renewable Energy Policy. As a result of these activities NCSL proposed a State Technical Assistance Program (see Appendix A) which was ratified by the committee leadership (9/14/79).

This document has been prepared pursuant to the state workplan as background material for a committee meeting (11/8/79) intended to consider the policy recommendations herein. The study areas identified in the state workplan are treated as follows:

I. Proposed Comprehensive Geothermal Resources Act

- includes resource characterization (definition), resource access (leasing), water law, permitting and well regulation, and resource allocation.

II. Financial Package

- includes a review of various tax and other incentives for geothermal producers and users, as well as suggestions regarding a state geothermal fund (this section should be considered in conjunction with the NCSL Small-Scale Hydro Policy Report which contains additional material regarding state financing of energy development).

III. District Heating

- includes a proposal to authorize publicly-owned heating districts, as well as a review of utility regulatory issues.

IV. Miscellaneous

- includes funding for administrative agencies, life-cycle costing, building codes and zoning, amendments to the Water Use Act and environmental procedures.

I. PROPOSED GEOTHERMAL RESOURCES ACT

Synopsis

It is recommended that the existing geothermal statute (38.05.181) be repealed and re-enacted in a simplified form. The NCSL draft geothermal statute is proposed for discussion purposes.

The proposed act would:

- (1) redefine geothermal resources via a temperature threshold (120°C/248°F)
- (2) provide for mineral leasing of geothermal resources on state lands
- (3) establish statewide regulatory authority in the Division of Minerals and Energy Management over geothermal drilling activity
- (4) indicate the applicability of the Water Use Act (46.15) to geothermal development
- (5) provide for simplified access to state lands for low-temperature development
- (6) establish regulatory authority over low-temperature development in the Division of Forest, Land and Water Management

The overall design of the proposed act is to distinguish between the development of high-grade thermal resources by major projects (e.g., electrical generation, industrial process heat) and the development of "hot groundwater" for small-scale direct uses (e.g., space heating, greenhouses, aquaculture). The proposed act would also establish the relationship of geothermal development to existing water uses. Certainty, simplification of procedures and stimulation of development are the objectives.

DISCUSSION DRAFT

TITLE 38. PUBLIC LANDS

Chapter ____ . Geothermal Resources Act

Article

1. Declaration of Policy and Definitions
2. Geothermal Leasing and Regulation
3. Low-Temperature Development

ARTICLE 1. DECLARATION OF POLICY AND DEFINITIONS

Sec. 1

A. It is declared to be in the public interest to foster and promote the discovery, development, production, utilization and disposal of geothermal resources in the state of Alaska in such a manner as will prevent waste, provide for maximum economic recovery, protect correlative rights, and safeguard the natural environment and the public welfare.

B. It is declared to be in the public interest to foster and promote, under existing law, the utilization of the thermal energy contained in the groundwaters of the state of Alaska in an efficient and environmentally sound fashion.

Sec. 2

This act shall apply to all lands in the state of Alaska, including federal and Alaskan Native lands to the extent allowed by law. When any of these lands are committed to a unit agreement involving lands subject to federal jurisdiction, the operation of this act or any part of this act may be suspended, provided that the unit operations are regulated by the United States and that the conservation of geothermal resources is accomplished under such unit agreement.

Sec. 3

Administration of this chapter shall be under the principle of multiple use of public lands and, insofar as feasible, shall allow for the coexistence of other permits or leases of the same lands for other purposes. Leases or permits issued for lands withdrawn or acquired in aid of the functions of the Department of Natural Resources shall carry such conditions as will conform the lease operations to the purposes of such lands.

Sec. 4

A survey of the state's geothermal resources shall be performed by the state geologist and included in the complete geological survey of the state authorized by AS 41.07.020. A statement of the progress of the geothermal resources survey shall be contained in the annual report required by that section. A geothermal resources file shall be maintained and made available to the public in the offices of the State Geological and Geophysical Survey (and/or the State Division of Energy and Power Development).

Sec. 5

As used in this act, unless the context requires otherwise:

A. "byproduct" means dissolved or entrained minerals and gases (exclusive of hydrocarbon substances and helium) associated with geothermal resources, and demineralized water;

B. "correlative rights" means the right of each geothermal owner in a geothermal system to produce without waste his just and equitable share of the geothermal resources in the geothermal system;

C. "division" means the Division of Minerals and Energy Management in Article 2 of this chapter and means the Division of Forest, Land and Water Management in Article 3 of this chapter;

D. "geothermal area" means the general land area which is underlain or reasonably appears to be underlain by geothermal resources;

E. "geothermal fluid" means brines, water and steam naturally present in a geothermal system;

F. "geothermal resources" means (1) the natural heat of the earth at temperatures greater than 120 degrees Celsius; (2) the energy in whatever form, present in, resulting from, created by or which may be extracted from that natural heat, including pressure; (3) the material medium containing the energy; and (4) all dissolved or entrained minerals and gases which may be obtained from the material medium, but excluding hydrocarbon substances and helium;

G. "geothermal system" means any strata, pool, reservoir or other geologic formation containing geothermal resources;

H. "material medium" means geothermal fluids or water and other substances artificially introduced into a geothermal system to serve as a heat transfer medium;

I. "operator" means any person drilling, maintaining, operating, producing or in control of any well;

J. "owner" means any person who has the right to drill into, produce and make use of geothermal resources;

K. "person" means any individual, business entity, political subdivision or body politic of this or any other state;

L. "waste" means any inefficient, excessive or improper production, use or dissipation of geothermal resources, including, but not limited to:

(1) drilling, transporting or storage methods that cause or tend to cause unnecessary surface loss of geothermal resources;

(2) locating, spacing, drilling, equipping, operating, producing or venting of any well in such a manner that results or tends to result in reducing the ultimate economic recovery of geothermal resources.

M. "well" means any well drilled, converted or reactivated for the discovery, testing, production or subsurface injection of geothermal resources, or of groundwater valuable for its thermal energy.

ARTICLE 2. GEOTHERMAL LEASING AND REGULATION

Sec. 1

A. The Division of Minerals and Energy Management shall have and is hereby given jurisdiction over all persons and property, public and private, necessary to enforce the provisions of this article, and shall have the power and authority to make and enforce rules, regulations and orders reasonably necessary to carry out the purposes of the act.

B. Any affected person may apply for a hearing before the division, or the division may initiate proceedings upon any questions relating to the administration of this article, and jurisdiction is hereby conferred upon the division to hear and determine the same and enter its rule, regulation or order with respect thereto.

Sec. 2

The state of Alaska shall own all geothermal resources where it has title to the minerals or subsurface estate. Rights to explore for, develop and utilize geothermal resources owned by the state of Alaska may be obtained solely in accordance with the provisions of this article.

Sec. 3

The division may designate geothermal resource areas and declare certain of these, or portions thereof, as a "competitive geothermal resource area," each of which shall contain at least one well capable of producing geothermal resources in commercial quantities.

Sec. 4

A. The division may, under rules and procedures it shall adopt, grant prospecting permits and leases to any qualified person in order to explore for, develop or utilize state-owned geothermal resources.

B. Where title to the surface is held by a person other than the state, such person shall have a preferential right to a prospecting permit or lease for such parcel.

Sec. 5

A. On lands which have not been designated as a geothermal resource area, the division shall issue a prospecting permit to the first qualified applicant.

Such permit shall convey an exclusive right, for a period of two years, to prospect for geothermal resources on lands included within the permit. The division may, at its discretion, renew the permit for an additional one year. The division may revoke a permit should it find that the permittee has failed to diligently prosecute efforts to discover geothermal resources.

B. A holder of an exclusive prospecting permit shall have the right, within the permit term or thirty days thereafter, to convert such permit to a lease. Should the lands included within the permit be declared a "competitive geothermal resource area" during the permit term, the permittee must make application for a lease within thirty days or forfeit his conversion privileges and his exclusive right to prospect.

C. On lands which have been designated a geothermal resource area, prospecting permits may be granted on a non-exclusive basis for a one-year term. Such permits may, at the discretion of the division, be renewed annually. Holders of non-exclusive prospecting permits shall have no right to convert such permits to a lease; however, the division may allow expenditures made under such permits to be credited against lease payments for any lease covering the same lands, which is subsequently issued to the permittee.

Sec. 6

A. On lands which have not been declared a "competitive geothermal resource area," and which are not included under an exclusive prospecting permit, the division may issue a geothermal lease to the first qualified applicant.

B. On lands declared to be within a "competitive geothermal resource area," and which are not included under an exclusive prospecting permit, the division may issue geothermal leases by public auction to the highest qualified bidder. At the discretion of the division, competitive lease sales may be by oral or sealed bid, on the basis of a cash bonus, profit share or other single factor.

Sec. 7

A. The division shall, on all permits and leases, attach such conditions as it shall deem necessary to provide for multiple use of state lands, protect the rights of other persons holding an interest in the same lands, prevent waste and safeguard the natural environment and the public welfare.

B. The division shall require a geothermal permittee or lessee to compensate the owners of prior interests in the same lands for damage to those interests, or to post a sufficient bond pending judicial determination of the matter.

Sec. 8

A. Prospecting permits and leases granted under this article shall normally be issued on parcels at least 40 acres in size, but in no case more than 2560 acres in size.

B. No person shall own, or hold an interest in, geothermal leases covering more than 51,200 acres; except that leases in commercial production, individually or in concert, shall not be counted against this acreage limitation.

C. All prospecting permits and leases shall be subject to an annual rental, payable in advance, of at least one-dollar per acre.

Sec. 9

A. Geothermal leases shall be issued for a primary term of ten years and shall be renewed for an additional term of five years if the lessee is actively engaged in drilling operations. Geothermal leases shall be valid for the duration of commercial production up to a term of 40 years.

B. The division may renegotiate the provisions of a geothermal lease, including rentals and royalties, beginning 15 years after the initiation of commercial production and at 10 year intervals thereafter.

Sec. 10

A. The division shall charge a royalty of at least 10% but not more than 15% on the gross revenues derived from the production, sale or utilization of geothermal resources under a state lease. It shall also charge a royalty of at least 2% but not more than 10% on the net proceeds derived from the production, sale or utilization of byproducts under such lease. In no case shall the combined royalties on a lease be less than two-dollars per acre.

B. The division may, at its discretion and in the public interest, reduce, suspend or waive the royalties otherwise due under a state lease. In such cases, the lessee shall pay a minimum annual rental of three-dollars per acre.

Sec. 11

A. The division shall promulgate a development program on each discernible geothermal system, including well-spacing and pooling orders, limits on production and reinjection requirements, in order to prevent waste, promote maximum economic recovery and protect correlative rights.

B. Lessees on a geothermal system, or part thereof, may enter into a unit agreement for cooperative development, with the approval of the division. The division may suspend or modify its development program in accord with such unit agreement.

C. Should the owners of two-thirds of the leasehold interests in a geothermal system ratify a unit agreement approved by the division, the division may enforce the agreement as to lessees not a party to the agreement by allocating production under the principle of correlative rights and by apportioning costs and revenues.

D. Lease operations under a well-spacing and pooling order or an approved unit agreement shall be deemed to be in compliance with individual lease requirements.

Sec. 12

A. The division shall promulgate regulations covering the siting, spacing, drilling, casing, cementing, testing, logging, operating, producing and abandonment of geothermal wells so as to prevent:

- (1) geothermal resources, water or other fluids, and gases from escaping into strata other than that in which they are found (unless in accordance with an approved reinjection program);
- (2) pollution of surface and ground water;
- (3) premature cooling of any geothermal system by water encroachment or otherwise;
- (4) blowouts, cavings and seepage; and
- (5) unreasonable disturbance or injury to neighboring properties, prior water rights, human life, health and the natural environment.

B. The division shall cause the operator of any geothermal well or wells to file adequate individual or blanket surety bonds to ensure compliance with its regulations.

C. The division shall have the right to enter upon any property, public or private, to inspect a geothermal operation for compliance with its regulations.

D. Geothermal wells regulated by the division shall be exempt from Oil and Gas Commission jurisdiction under AS 31.05.030(g).

Sec. 13

A. Operators shall, prior to drilling a geothermal well, file a notice of intent with the Chief Officer of the Water Management Section of the Department of Natural Resources. Such notice shall contain sufficient information to enable the Chief Officer to determine whether the operation of such well will interfere with and impair an existing water right.

B. Operators shall not commence the drilling of a geothermal well without the approval of the Chief Officer, who shall grant such consent upon finding that:

- (1) the proposed geothermal well operation will not significantly interfere with or substantially impair an existing water right; or
- (2) the geothermal owner has acquired through purchase or condemnation adequate water rights to offset the potential interference or impairment; or
- (3) the geothermal owner has obtained and dedicated an equivalent amount of replacement water of comparable quality to the affected party or parties.

The Chief Officer shall retain his jurisdiction, including the authority to suspend well operation, in the event of unforeseen interference which occurs subsequent to his approval.

C. The withdrawal of geothermal fluid from a geothermal well and its sale or utilization for primary energy production shall not otherwise be subject to the Water Use Act (AS 46.15). The secondary use of spent geothermal fluids or of demineralized water obtained as a byproduct shall be subject to the provisions of the Water Use Act. However, the geothermal owner shall have a preferential right to appropriate such geothermal fluids or demineralized water, in order to make beneficial use thereof.

ARTICLE 3. LOW-TEMPERATURE DEVELOPMENT

Sec. 1

A. The Division of Forest, Land and Water Management shall have and is hereby given jurisdiction over all persons and property, public and private, necessary to enforce the provisions of this article, and shall have the power and authority to make and enforce rules, regulations and orders reasonably necessary to carry out the purposes of the act.

B. Any affected person may apply for a hearing before the division, or the division may initiate proceedings upon any questions relating to the administration of this article, and jurisdiction is hereby conferred upon the division to hear and determine the same and enter its rule, regulation or order with respect thereto.

Sec. 2

A. It is hereby declared that the beneficial use of groundwater includes the extraction for sale or use of thermal energy contained therein for domestic, commercial, industrial, agricultural, aquacultural or other purposes approved by the division.

B. Priority of appropriation includes the right to preserve thermal aspects of groundwater use from subsequent impairment.

C. The utilization of groundwater for thermal purposes shall be governed by the provisions of the Alaska Water Use Act (AS 46.15) and regulations promulgated thereunder.

Sec. 3

A. The division shall have the authority to issue a special land use lease to any qualified person who applies to use the surface of a state land parcel to construct a facility utilizing groundwater for thermal purposes, or utilizing spent geothermal fluids in a secondary application.

B. Prior to the issuance of such lease, the division shall determine that there is available unappropriated groundwater or spent geothermal fluids sufficient to achieve the purposes of the lease. In the case of groundwater, the appropriation shall be made in the name of the state of Alaska and dedicated to the benefit of the leasehold. Upon termination of the lease, the water right shall revert to the state, unless the division grants an extension of the water right for good cause and in the public interest.

Sec. 4

A. The division shall exercise discretion with regard to the term, renewal and acreage (not to exceed 160 acres in size) of any special land use lease issued under this article. Such conditions shall correspond to the intended use to be made of the state parcel. The division shall attach such other conditions to the lease as to protect the public interest and conform the lease operation to other established uses of such lands.

B. Lease payments to the state of Alaska shall be on the basis of an annual rental, payable in advance, or on the basis of a profit share, such payments to be negotiated between the lease applicant and the division. In no case shall such lease payments total less than three-dollars per acre.

Sec. 5

A. The division shall promulgate such regulations as are necessary to control the drilling of any groundwater wells for thermal purposes so as to prevent:

- (1) groundwater from escaping into strata other than that in which they are found (unless in accordance with an approved reinjection program);
- (2) pollution of surface and ground water;
- (3) impairment of prior water rights by premature cooling, or reduction in quality or quantity; and
- (4) unreasonable disturbance or injury to neighboring properties, human life, health and the natural environment.

B. The division shall have the authority to require any operator of a groundwater well for thermal purposes to file a notice of intent and receive the approval of the division prior to commencing actual drilling. The division may require the maintenance of such records and well logs as it may require and may enter upon any property, public or private, to inspect the operations for compliance with its regulations.

C. If the division finds that an encounter of oil, gas or other hazardous substance is likely to result from well drilling, the provisions of AS 31.05.030(g) shall apply.

ADDENDUM TO THE GEOTHERMAL RESOURCES ACT

Art. 1 § 1 B: (deletion)

It is declared to be in the public interest to foster and promote (under existing law) the utilization of the thermal energy

Art. 1 § 5: additional definition (E): reletter subsequent definitions

"geothermal effluent" means the material medium subsequent to electrical production or other primary energy extraction process;

Art. 1 § 5 F: (deletion)

. . . (3) the material medium (containing the energy); and

Art. 1 § 4 B: additional material

. . . preference right to a prospecting permit or lease for such parcel. Such right must be exercised at the time of the first application for a permit or lease on such lands, or it shall be forfeited.

Art. 1 § 5 A: additional material

. . . designated as a geothermal resource area or withdrawn from entry, the division shall issue

Art. 1 § 7: additional material (B); reletter existing B as C

B. Lease conditions shall include diligence requirements regarding drilling and lease development. Failure to comply with such conditions shall be grounds for termination of the lease, unless they be waived or suspended by the division for good cause shown and in the public interest.

Art. 2 § 10 B: addition and (deletion)

B. The division may, for good cause shown (at its discretion) and in the public interest, reduce, suspend or waive the minimum rentals and royalties otherwise due under a state lease. (In such cases, the lessee shall pay a minimum annual rental of three-dollars per acre.)

Art. 2 § 11 A: addition and (deletion)

. . . promulgate a development program on each producing (discernible) geothermal system

Art. 2 § 11 D: addition and (deletion)

D. Lease operations under an approved development program (a well-spacing and pooling order or an approved) or unit agreement shall be deemed

Art. 2 § 13 B: addition

. . . in the event of unforeseen interference to prior rights which occurs subsequent to his approval.

Art. 2 § 13 C: addition and (deletion)

. . . The secondary use of geothermal effluent (spent geothermal fluids) or of demineralized water . . . preferential right to appropriate such geothermal effluent (geothermal fluids) or demineralized water

Art. 3 § 2 B: delete entire section; reletter C to B

Some degradation of thermal aspects should be allowed, by analogy to allowable changes in the "condition of water occurrence" (AS 46.15.050). Excessive or unreasonable thermal degradation can be prevented via the regulatory authority regarding the prevention of "premature cooling" (Art. 3, § 5 of the proposed act).

Art. 3 § 3 A: addition and (deletion)

. . . or utilizing geothermal effluent (spent geothermal fluids) in a secondary application.

Art. 3 § 3 B: addition and (deletion)

. . . available unappropriated groundwater or geothermal effluent (spent geothermal fluids) sufficient to achieve Upon termination of the lease, (the) such groundwater right shall revert to the state, unless the division grants an extension (of the water right) for good cause shown and in the public interest. Water rights to geothermal effluent shall also be relinquished upon the termination of such lease and shall be available for subsequent appropriation, subject to the preference right of the original geothermal owner.

Art. 3 § 5 B: addition and (deletion)

. . . the maintenance of such records and well logs as it deems necessary (may require) and may enter

II. FINANCIAL PACKAGE

A. Tax Incentives

(1) Relevant tax incentives for geothermal producers relate to the income tax and the property tax. With regard to the income tax, Alaska follows the Internal Revenue Code. Thus, the geothermal tax incentives enacted in the National Energy Act of 1978 will be available to geothermal producers in the state. These include: deductions for intangible drilling costs for development purposes; a declining depletion allowance; and, an additional investment tax credit (not necessarily applicable to state income taxes). The legislature may wish to consider allowing intangible costs for exploration purposes to be deducted and insuring that a state investment tax credit is allowed.

The ad valorem property tax looms as the major disincentive to geothermal development. Front-end capital costs to develop a geothermal lease are quite high -- a single well may cost from half to more than a million dollars. Assessing an ad valorem tax on the value of the resource in place during these early years and before commercial return, may constitute an unbearable financial burden. Alternative approaches include: exemption from property taxation until commercial production begins; deferral of property tax payments until commercial production begins; and, substitution of a well-head yield tax for ad valorem assessment.

(2) Relevant tax incentives for geothermal users also relate to the income and property taxes. Income tax credits for expenditures for equipment to use geothermal resources (or alternate energy sources) can significantly reduce front-end capital costs and reduce payback periods. A federal alternate energy income tax credit is available, but many states have enacted supplemental legislation. Another option is to exempt the added value of a home or business due to installation of geothermal (or alternate energy sources) equipment from property taxation. A bill draft along these lines developed by the Alaska Division of Power and Energy Development, as well as an NCSL bill draft on the subject, is attached (see Appendix B).

B. Funding of Energy Development (see Small-Scale Hydro report)

Many funding avenues are available for consideration by the legislatures; a memorandum from the Legislative Finance Division listing these possibilities is attached (see Appendix C). With regard to geothermal development, three options are particularly attractive:

(1) direct funding (via grants or low-interest loans) for exploration and drilling costs incurred by municipalities. Revenue bonding is inapplicable to discovery and drilling costs due to the inherent risk. Use of general obligation bonds for such purposes is subject to debt limits and political constraints. Direct state funding would constitute an important alternative (see HB 309, Appendix C).

(2) "double barrel" bonding is the pledge of both project revenues and general revenues (full faith and credit) to secure bond issues. Given the risky nature of reliance on "new" energy sources such as geothermal, such authority may enhance the marketability of municipal geothermal bond issues (see HB 241, Appendix C).

(3) state bond guarantees would be another option to enhance the marketability of geothermal bond issues. Using state funds to guarantee bonds rather than to directly fund project construction should allow the available dollars to go farther. In addition, private capital markets would be the primary source of equity, rather than state revenues. Such involvement of the private sector should be encouraged; direct state funding would reduce such participation.

III. DISTRICT HEATING

A. District heating is an attractive and potentially near term application of geothermal resources and hot groundwater. Indeed, even normal gradient groundwater may be effeciently utilized via a water-to-air (groundwater referenced) heat pump. Given the lack of a power transmission grid in Alaska, direct geothermal uses such as district heating may turn out to be the most widespread type of development.

Alaska has expressed a strong constitutional (Art. X, Sec. 5) and statutory (29.63.090(d)) preference against the creation of new political entities to provide services which might be provided by existing ones. Municipalities (boroughs/cities) are already authorized to provide "heat, light, power (and) water" services (29.48.030). This seems adequate to cover district heating services. Borough service areas (29 53.090), public corporations or other municipal instrumentalities (29.59.010) are possible district heating vehicles. Municipal bonding, taxing, property, franchise, regulatory and other powers also are adequate for implementing district heating (see Appendix D).

While the existing authority seems adequate, it may enhance the marketability of municipal bonds to enact a statute declaring that municipal bonds may be issued to finance heating districts using geothermal, waste heat and alternate energy services. Also, such bonds might be accredited as legal investments for banks, trust funds and other institutional investors.

Alaska has a statute regarding Area Redevelopment (41.30) which is administered by the Board of the State Development Corporation. The statute authorizes cooperation with political subdivisions and industry to promote business expansion in redevelopment areas, including loans to aid financing. It is suggested that the legislature direct the Board to consider the organization of heating districts for industrial/commercial parks utilizing geothermal resources in its administration of the redevelopment program.

B. Public Utility Commission policies relating to the certification of new utilities (i.e., heating districts), service rates and reliability of service may have a significant impact on the development of district heating. NCSL will be conducting additional field research on these issues during its November visit to Alaska and may make recommendations on these matters at a later date.

IV. MISCELLANEOUS

A. Agency Funding

Agencies designated to administer the proposed Geothermal Resources Act will require adequate staff and funding levels to implement its provisions. These agencies and their responsibilities under the act include:

- (1) State Geological and Geophysical Survey - conduct a statewide assessment of geothermal resources and maintain files available to the public.
 1. the Division of Energy and Power Development might also be directed to maintain public geothermal files under the proposed statute.
- (2) Division of Energy and Minerals Management - designate geothermal resource areas, issue prospecting permits and leases, conduct lease sales, manage geothermal system development, regulate geothermal wells, promulgate rules and procedures and inspect geothermal operations.
- (3) Division of Forest, Land and Water Management - investigate the impact of geothermal operations on existing water rights, issue leases, grant hot groundwater rights, regulate groundwater wells, promulgate rules and procedures, and inspect thermal groundwater operations.

The legislature may, if the act is adopted, memorialize these agencies with regard to submission of an annual operating budget request sufficient to fund the above activities. Such funding might be derived from general revenues, by earmarking geothermal and special land use lease payments, or a combination thereof.

Boroughs and cities will also be impacted by geothermal development. Such impact may include preparing geothermal zoning elements, revising land use plans, issuing various local permits and providing increased local services. Earmarking of geothermal lease revenues for such purposes is a possible funding option in this regard. A bill has been proposed in the California legislature directing the conveyance of federal geothermal lease payments to impacted counties. The administration is recommending an alternative bill. Copies of these proposals are attached (Appendix E).

B. Life-Cycle Costing

Life-cycle costing is a vital concept for the development of alternate and renewable energy sources. Construction of facilities to generate power from and installation or retrofitting of equipment to use such sources entails large front-end costs. The economic advantage of alternate energy sources vis-a-vis conventional fuels emerges only when costs are compared over the total useful life of a facility or building. That is, alternate energy development is capital intensive with relatively fixed, low fuel costs. Conventional fuel development is often less capital intensive -- due to established infrastructure -- but fuel costs are high and subject to escalation.

Thus, life-cycle costing should be incorporated into economic analyses of state-financed loans or grants for energy development (see the Small-Scale Hydro report on this subject).

Also, construction, expansion or revamping of public buildings should include life-cycle costing of various energy systems. An NCSL bill draft on this subject is attached (see Appendix F).

C. Building Codes and Zoning

Local building codes and zoning ordinances can constitute a severe impediment to the utilization of alternate energy systems. On the other hand, innovative ordinances such as the San Diego County solar hot water requirement and the Portland insulation program can serve as a stimulus to the commercialization of alternate energy. NCSL is building capacity regarding these initiatives and may be able to offer assistance to legislative policy reviews. One option would be the adoption of a Joint Resolution expressing the sense of the legislature with regard to removing local ordinance impediments.

D. Water Use Act

The Office of Water Management is in the process of promulgating regulations (11 AAC 93) to implement the Water Use Act (46.15 AS). Clarification of the ability to condition certificates of appropriation has been identified as a desirable remedial amendment (see the discussion of HB 186 in the Small-Scale Hydro report). With regard to geothermal and hot groundwater three initiatives are worth of examination:

- (1) explicitly authorize the protection of thermal aspects of a water right via priority of appropriation;
- (2) explicitly authorize the Office to appropriate thermal groundwaters in the name of Alaska on state lands and dedicate those water rights to special land use lessees;
- (3) declare geothermal fluids (over 120°C) to be exempt from appropriation and the Water Use Act.

E. Environmental Procedures

Alaska's Environmental Procedures Coordination Act (EPCA) has not been thoroughly implemented (see the Small-Scale Hydro report for further analysis). With regard to geothermal development, the legislature may wish to direct that all the relevant permits be included within the EPCA process. In addition, it might be appropriate to develop a true master permit application for hot groundwater development, whereby only a single form would need to be completed. This is suggested as a method of simplifying the permit process for small-scale developers.

APPENDICES

- A. Alaska Technical Assistance Program/Geothermal
- B. Tax Credit Proposals
- C. Alaska Funding Options
- D. District Heating Article
- E. California Proposals on Earmarking Geothermal Lease Revenues
- F. Life-Cycle Costing Bill

APPENDIX A

Alaska Technical Assistance Program/Geothermal

APPENDIX B

Tax Credit Proposals

ALTERNATIVE ENERGY DEVICE TAX CREDIT

1979

GENERAL SESSION

Discussion Draft

_____ B. No. _____

By _____

AN ACT RELATING TO ALTERNATIVE ENERGY DEVELOPMENT: DEFINING ALTERNATIVE ENERGY DEVICES; PROVIDING AN INCOME TAX CREDIT FOR SUCH DEVICES; ALLOWING A CARRY OVER TO SUCCEEDING TAXABLE YEARS; PROVIDING FOR AMORTIZATION OF ALTERNATIVE ENERGY DEVICES IN COMMERCIAL USE; DESIGNATING THE STATE TAX COMMISSION TO ADMINISTER THIS ACT AND ESTABLISH STANDARDS IN CONJUNCTION WITH THE UTAH DIVISION OF WATER RIGHTS AND THE UTAH ENERGY OFFICE.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF UTAH:

SECTION I. Definition of Terms

As used in this act:

(a) "Alternative energy device" means (1) any system, mechanism or series of mechanisms which uses solar radiation, wind or geothermal resource for space heating, water heating or cooling, or for generation of mechanical or electrical energy for use but not for resale, (2) a system that employs a fluid-to-air heat pump operating on groundwater reservoir or a fluid reservoir heated by solar radiation or geothermal resource, and (3) equipment necessary to utilize and connect to a private or municipal system for purposes of heating and cooling that employs an alternative energy device or heat from an industrial or utility cogeneration system.

(b) "Cogeneration system" means a system which produces electrical energy and steam or forms of useful energy (such as heat) which are used for industrial, commercial, heating or cooling purposes.

(c) "Installation costs" means the costs, as determined according to standards established in the administration of this act, for acquisition, installation, construction, reconstruction or remodeling properly attributable to the use of an alternative energy device.

SECTION II. Residential Tax Credit

(1) Any resident individual taxpayer who completes installation of an alternative energy device for use in such taxpayer's principal dwelling prior to June 30, 1985, or who acquires title to a dwelling prior to June 30, 1985,

which dwelling is to be used as a taxpayer's principal dwelling and is supplied energy from an alternative energy device for which the credit allowed by this section has never been claimed, shall be entitled to claim a tax credit in an amount equal to thirty-five percent (35%) of the installation costs of such system or three thousand dollars (\$3,000), whichever is less, against the income tax liability imposed against the taxpayer pursuant to Title 59 Chapters 14 and 14A of the Utah Code Annotated, 1953. Such tax credit shall be deducted from the taxpayer's income tax liability for the taxable year in which the alternative energy device was completed or acquired and placed in service by the taxpayer.

(2) If the amount of such tax credit exceeds the taxpayer's income tax liability for such taxable year, the amount thereof which exceeds such tax liability may be carried over for deduction from the taxpayer's income tax liability in the next succeeding taxable year or years until the total amount of the tax credit has been deducted from tax liability.

(3) The provisions of this section shall be retroactive to the 1979 taxable year.

SECTION III. Commercial Tax Credit

Any taxpayer who completes installation of an alternative energy device upon real property located within this state prior to June 30, 1985, which real property is either used in a trade or business or held for the production of income, or any taxpayer who acquires title to real property located within this state prior to June 30, 1985, which real property is used in a trade or business or held for the production of income and is equipped with an alternative energy device for which the credit allowed by this section has never been claimed, shall be entitled to claim an income tax credit in an amount equal to thirty-five percent (35%) of the installation costs of such system or six thousand dollars (\$6,000) or an amount equal to the taxpayer's income tax liability in the taxable year for which the credit is claimed, whichever is less, against the tax liability imposed against such taxpayer pursuant to Title 59 Chapters 14 and 14A of the Utah Code Annotated, 1953. Such tax credit shall be deducted from the taxpayer's tax liability for the taxable year in which such system is acquired and placed into service by the taxpayer. This provision shall apply retroactively to include the 1979 taxable year.

SECTION IV. Federal Tax Credit

The federal income tax credit for an alternative energy device as defined in this act shall be subtracted from the state credit prior to obtaining the state credit so that the combined credit, state and federal, would be 35% or \$3,000 for claimants under Section II, and for claimants under Section III, 35% or \$6,000.

SECTION V. Amortization of Alternative Energy Device

(1) Retroactive to the 1979 taxable year, and in addition to the income tax credit allowable, any taxpayer who completes installation of an alternative energy device upon real property located within this state prior to June 30, 1985.

It is the policy of the State of Alaska to reduce the State's dependency on fossil fuels for internal use. It is the policy of the State to utilize these resources to garner income to the State for needed improvements and services.

FOR AN ACT ENTITLED "ALTERNATE ENERGY TAX CREDIT AND POLICY".

- I. Be it enacted by the State of Alaska that a State Corporate or Income tax credit of 75% of the cost of installing an Alternate Energy System in a home or business be granted to the installers.
 - A. Alternate Energy System is defined as systems that have the means of energy production utilizing energy sources other than fossil or nuclear fuels.
 - B. This would include but not be limited to: Solar, Wind, Biomass, Low head hydroelectric and geothermal energy systems.

If credit exceeds tax liability for year of installation, it can be carried forward to future years until tax credit is used entirely. This Act will remain in effect until 1991.
- II. The State of Alaska authorizes local taxing authorities to exempt property with alternate energy systems from increased assessment due to the system. Exemption extends until the last day of December 1999. This applies to new construction and retrofits.
- III. Energy conservation techniques and passive solar design qualify for the tax credit under the following criteria:
 - A. New construction can qualify if it saves more than 10% of the yearly fossil fuel or electrical resistivity consumption of the latest ASHRAE or State of Alaska lighting and thermal standard facility whichever is most energy efficient.
 - B. Retrofit homes or business can qualify for the exemption based on a 10% savings of energy consumption for the previous year resulting from passive design or energy conservation measures.
 - C. After the last day of December 1982, retrofit homes will qualify only on the portion of passive solar design or energy conservation measures that reduces fossil fuel or electrical resistivity consumption 10% above the latest ASHRAE or State lighting and thermal standards whichever is the most demanding.
 - D. Maximum tax credit allowed is \$10,000 combined Federal and State allowances. Federal credits must be taken first before state tax credits will be allowed.
- IV. All new multiunit housing facilities must have individual metering for heating and lighting controls to qualify for this tax credit.

APPENDIX C

Alaska Funding Options



Alaska State Legislature

House

April 3, 1979

JUNEAU ALASKA

MEMORANDUM

TO: The Honorable Ernie Haugen
House Finance Committee

FROM: Milt Barker,¹³ Fiscal Analyst
Legislative Finance Division

SUBJECT: Power Project Financing

Following is a summary of the various funding sources and mechanisms that might be used to finance power projects:

1. General Funds can be appropriated to fund entire projects, front-end costs (reconnaissance and feasibility studies, engineering, etc.), reserves for revenue bonds, or partial project costs. Appropriation of general funds can be designated as coming from the reserve for energy facilities development account which is allocated 5% of mineral rents, royalties, and bonuses, or the reserve for capital outlay account which is allocated 25% of mineral revenues.

If the appropriation is made as a grant, it should probably be viewed as a subsidy. This would allow undertaking of projects that would not otherwise occur, although it is conceivable that a project would be subsidized even if capable of being conventionally financed in order to lower costs to users, say to fight inflation or provide or promote economic development.

If the general funds are appropriated as a loan or to the power project revolving fund or water resources revolving fund to be passed on as a loan which will ultimately be paid back out of project revenues, the appropriation may or may not involve a subsidy depending on the terms of the loan.

The payback of loans from these revolving funds will eventually create another source of funding; however, at present there are essentially no unloaned funds in these revolving funds.

2. Revenue bonds can be sold by the State or the Alaska Power Authority for construction costs. If the State were to combine its full faith and credit with the pledged revenues in a "double-barreled" bond a lower interest rate could be obtained. (See attached materials on RS 241 which proposes this combined revenue-general obligation bond.) Such bonds would need voter approval.

3. Guarantees of revenue bonds have been proposed from permanent fund income in HB 414. Bond underwriters estimate this technique could get interest rates down to within 1/4 to 1/2 of a percentage point of G.O. bonds. The advantage of this proposal is that permanent fund income is the only available source of revenue that can legally be dedicated, thus avoiding the necessity of making a large appropriation to a reserve or guarantee fund to assure the bondholder of monies to be paid in the event of a default.

4. Subsidies of revenue bonds are proposed in CSBE 414 (attached) by setting aside 50% of permanent fund income for guarantees of bonds for which it is estimated that project revenues will not be sufficient to pay debt service.

5. G.O. bonds or double-barrel bonds could be issued for projects that were not capable of paying the debt service. This would be another way of providing subsidies where needed and determined to be appropriate.

6. A loan can be made from the permanent fund principal. However, it will usually be cheaper for the State to issue bonds, at least G.O.'s or guaranteed revenue bonds, at tax-exempt interest rates of say 6% than to appropriate or loan their general and permanent funds which can be invested in taxable securities earning more like 8%.

7. The Alaska renewable resources corporation could fund power projects from their 5% of mineral revenues; however, generally their mandate is to assist innovative projects rather than standard hydroelectric facilities.

NBB:pw

Attachments

APPENDIX D

District Heating Article

DISTRICT HEATING:
LEGAL & INSTITUTIONAL PARAMETERS

Kenneth A. Monstolen

National Conference of State Legislatures - Denver, Colorado
Geothermal Policy Project

ABSTRACT

District heating is a proven vehicle for the direct application of geothermal energy. Successful systems currently exist in Iceland, France and the U.S., with numerous others in planning or construction stages. As geothermal resources come on-line, district heating is likely to be a widespread method of utilization. Such systems will provide centralized space-conditioning, as well as "cascaded" uses where feasible. Legal and institutional factors should be examined to ensure an adequate foundation for implementing geothermal district heating.

INTRODUCTION

District heating basically means the centralized distribution of heat to multiple end-users within a particular service area. Cascaded utilization would involve the successive use of progressively cooler fluid (e.g. industrial process heat, space-conditioning, greenhousing, aquaculture). The heat source may be geothermal, solar or fossil fuel. The use of cogenerated or waste heat would be especially appropriate. If alternate energy sources are used, supplemental fossil fuel capacity may be necessary to meet peak demands or emergencies. Various entities, both private and public, may constitute vehicles to develop and operate a heating district. Such a heating district will be presumed to be a utility.

INVESTOR-OWNED UTILITIES

The private sector may organize a heating district by incorporating an investor-owned utility. Some existing utilities may already have a steam distribution system in place. In other states, specific legislative authorization for utilities to provide district heating services may be required. Such authorization should allow the production and transmission of various heat mediums, including geothermal, for public and private use.

In order to incorporate a new investor-owned utility, or expand the scope of an existing one, certification from the Public Service Commission (PSC) will ordinarily be necessary. Such a "certificate of public convenience and necessity" may be difficult to obtain where the

heating district would impinge on an existing heating utility (gas/electric) service area. State legislatures should consider exempting heating districts using alternate fuel sources or waste heat from the certification requirement. Alternatively, they may direct the PSC to grant certification where the public interest would be served, despite competition with an existing utility.

- Investor-owned utilities are under the rate-making jurisdiction of Public Service Commissions, although this may not be clear where heating/cooling services are newly authorized. PSC control of utility rates normally is justified due to the monopoly status accorded a utility in a particular service area. State legislatures may consider, as an incentive to investment, exempting heating districts using alternate or waste heat sources from PSC rate-making jurisdiction.

Thus, legislatures should review at least three aspects of district heating via investor-owned utilities: the authorization to provide district heating services; the requirement of PSC certification; and, the applicability of PSC rate-making jurisdiction.

PUBLICLY-OWNED UTILITIES

Counties, municipalities, special districts and other political subdivisions also are possible vehicles for implementing district heating. However, most political subdivisions possess no inherent powers. Thus, specific enabling legislation often will be necessary to authorize a political subdivision to organize a heating district. In some cases, municipal utility codes or authorizations to provide "water" may be liberally construed to cover district heating services. "Home rule" entities also may be able to implement district heating on their own initiative.

Where new enabling legislation is required, at least two approaches are possible. One is to enact a comprehensive, specific statute such as Oregon's Geothermal Heating Districts Act (ORS Chap. 523, 1977). Such an approach has the advantage of authorizing entities with a specific, single mandate. Alternatively, an existing political subdivision charter may be amended to include district heating, as Idaho has done with

its municipal code (S. 1062, 1979). While the district heating mandate to such entities may be diluted by existing functions, this approach has the advantage of utilizing personnel and infrastructure in place. In addition, where existing bonding and other powers are already adequate, the legislative drafting job is simplified.

Special districts, a species of local government, offer several advantages as district heating vehicles. They may usually cross other political subdivision boundaries and may sometimes include non-contiguous areas, important factors in matching resource and service load centers. Special districts may be able to impose differential taxing coincident with service areas. Their bond issues normally are exempt from constitutional debt limitations applied to cities and counties. And, they are organized and operated to perform a narrow range of similar functions.

Whatever political subdivision is chosen as a district heating vehicle, certain basic parameters need to be established. These relate to the method of heating district formation, the nature of its boundaries, its purposes and its powers, especially financial.

Formation of a heating district will normally involve resolutions of the governing bodies of participating political subdivisions or, perhaps, a local citizen initiative. A referendum on the matter may be required, especially where the district would have property taxation (ad valorem/special assessment) power. State legislative and/or Public Service Commission approval also may be necessary, although this is less common.

A heating district should have flexibility with regard to its boundaries. The crossing of municipal and county lines, and the inclusion of non-contiguous areas, may be necessary to match the heat source with load centers. Annexation capability would be a useful adjunct. The district also may require extra-territorial jurisdiction over sources of supply and facilities.

The purposes of a heating district will generally be to produce, distribute, utilize, sell and dispose of geothermal resources and other heat mediums for domestic, commercial and industrial use. The authority should be broad enough to include geothermal and cogenerated or waste heat sources, as well as the use of fossil fuels for peaking or emergencies such as well shut-downs. While centralized space-conditioning may often be the primary function, integrated development of cascaded uses should be within the purview of the district.

Since political subdivisions are inherently not risk-taking entities, the exploration function may require an innovative approach. Exploration may be an appropriate function for the district

where the geothermal resource is demonstrated or where outside (state/federal) capital is available. Otherwise, joint enterprise ability - joint-power authorities (with other political subdivisions) and joint ventures (with private industry) - may be necessary to obtain financing. Alternatively, franchises may be granted to private companies to explore for and produce the resource under a contract of sale. Exemption of such production from PSC rate-making jurisdiction would be an appropriate incentive to attract private risk capital. Publicly-owned utilities already are exempt from PSC jurisdiction in most states.

A geothermal heating utility will require the range of powers of a body corporate and politic: legal status to sue and be sued; ability to contract for services and employ personnel; ability to acquire and dispose of property (within and without the district); ability to fix rates for service; ability to apportion user charges and enforce collection (usually v's liens); and, the ability to generate capital.

The most likely avenue for capital financing of a geothermal heating district will be revenue bond issues. Service charges would be designed, and may be statutorily required, to retire revenue bond principal and interest, as well as covering operating expenses. However, the ability to levy special assessments may be a necessary concomitant in order to cover revenue shortfalls. Revenue bond issues are not subject to constitutional debt limits and usually need not be approved in an election.

Where the district has ad valorem taxation power, it may be authorized to issue general obligation bonds. Such bonds also may be retired by project revenues but are supported by the full faith and credit (taxes) of the issuing district. General obligation bonds will usually be subject to debt limits if the issuing authority is a municipality or county. Debt limits for special districts are less common, and if applicable, special district debts are generally not cumulative with other local political subdivision debt. General obligation bond issues may need to be approved in an election.

Whatever the bond option chosen, marketability is subject to legislative initiative. State legislatures should consider declaring heating district bonds a legal investment for all banks, trust funds, school funds and other institutional investors. Such accreditation would expand the capital market for the bonds.

A final consideration regarding the powers of heating districts is the grant of easements and eminent domain. Easements along, across or under public byways and existing transmission corridors would assist the district in forming its distribution network. The power to condemn easements on certain private property also may be necessary to complete the system. Consideration may be given to extending the eminent

domain power to existing geothermal wells and sources of supply, although such a proposal is likely to be controversial.

The problem of condemning existing wells or their forced incorporation into a heating district may be unavoidable where single or multi-family wells are already in use. Geothermal production for a heating district may result in reservoir drawdowns, rendering such wells useless. District monetary liability for such events, as opposed to the issuance of an injunction restraining operations, would result, as a practical matter, in condemnation. A possible method to minimize such liability would be the designation of system-wide economic drilling levels, above which no liability would accrue to the district.

Thus, the legislative agenda for public district heating is manifest. The charters of existing political subdivisions should be examined to identify suitable candidates and amended as necessary. Alternatively, a comprehensive, new district heating statute may be enacted. Formation, boundaries, purposes and powers are the parameters which need to be established for public heating districts.

CONCLUSION

While this paper has focused on the specific legal and institutional parameters of geothermal district heating, there are additional factors subject to legislative initiative which will generally affect the pace of implementing such systems. These include: public funding for demonstration projects; geheating public buildings; innovative and compatible building codes and zoning ordinances; public education and technical assistance; loan programs and tax incentives for alternate energy systems; royalties and taxes on resource production; streamlined regulatory and leasing procedures; and, resolution of ownership and water rights issues. While beyond the scope of this paper, the NCSL geothermal project is prepared to assist states to deal with these policy areas.

APPENDIX E

California Proposals on Earmarking Geothermal Lease Revenues

State-mandated local program: no.

The people of the State of California do enact as follows:

1 SECTION 1. Chapter 6 (commencing with Section
2 3790) is added to Division 3 of the Public Resources Code,
3 to read:

4

5

CHAPTER 6. GEOTHERMAL REVENUES

6

7 3790. All moneys received by the state from the
8 federal government for sales, bonuses, royalties, and
9 rentals of public lands within the State of California
10 under the federal Geothermal Steam Act of 1970, as
11 amended (Chapter 23 (commencing with Section 1001)
12 of Title 30 of the United States Code) shall be deposited
13 in the State Treasury and allocated by the Department of
14 Finance to the counties socially or economically
15 impacted by the federal geothermal leases generating
16 such revenues. The revenues allocated to counties under
17 this section shall be for the purpose of planning,
18 construction and maintenance of public facilities, and
19 provision of public services.

20 SEC. 2. This act is an urgency statute necessary for
21 the immediate preservation of the public peace, health,
22 or safety within the meaning of Article IV of the
23 Constitution and shall go into immediate effect. The facts
24 constituting such necessity are:

25 Moneys will be received from the federal government
26 in July from geothermal revenues and it is essential that
27 act be effective at that time.

O

FACT SHEET

COMPARISON OF THE GEOTHERMAL RESOURCES DEVELOPMENT FUND (GRDF) AND THE BOSCO BILL (AB1905)

- o Both bills establish procedures for dispersing the revenues returned to the State as a result of base sales on federal land pursuant to the Federal Land Policy and Management Act (FLPMA). Under FLPMA, half the revenue from bonus bids on geothermal leases, as well as from rentals and production royalties are returned to the State. The State is directed to place priority on using the funds to offset the impacts of geothermal development.

AB 1905

- o All of the funds returned to the State go directly to the county where the lease sale is held (county of origin)

GRDF

- o 60% of the funds go to the county of origin. 25% is available to assist other counties with known or potential resources plan for such development. 15% is available to supplement State agency programs which will promote environmentally sound and expeditious geothermal development.

- o No such provision
- o No such provision
- o No such provision
- o No such provision
- o Specifies that funds would be available to local governments and State agencies to provide public services necessary to support geothermal activities.
- o Would make funds available to local governments and State agencies to install geothermal district heating systems and demonstrate other direct heat and electrical applications.
- o Provides for an interagency counsel with local and public membership to determine projects which merit funding support.
- o Requires biennial reporting of expenditures and accomplishments made as a result of projects undertaken.
- o Requires reevaluation of program at the end of 10 years.

o Allows counties of origin to spend funds on anything.

o Funds would go only to counties where a federal lease sale has occurred. There are at least 17 counties in California with geothermal resources on federal, state or private lands. At least 4 of these counties will not have a federal lease sale, although there will be development occurring on State and private lands. They would receive no funds under this bill to plan for geothermal development.

o Counties of origin will not be able to receive funds until 6 to 12 months after the lease sale has occurred. This would make it difficult, if not impossible, to carry out advance planning prior to development pressures already occurring.

o Requires that funds only be expended on geothermal related activities.

o Funds would be available to all counties where it is needed to plan for geothermal development and not just counties with federal lands or lease sales.

o Funds would be available for all counties, well ahead of lease sales and development pressures.

o Specifies that funds would be available to local and State agencies to permit, monitor and inspect geothermal activities.

APPENDIX F

Life-Cycle Costing Bill

LEGISLATIVE INTENT

It is the intent of the Legislature to encourage alternative energy development in the State. Further, the Legislature recognizes that California has substantial geothermal energy potential. Geothermal resources offer excellent energy sources which are advantageous in that: (1) they are indigenous to California; (2) their development provides a stimulus to the State's economy; (3) the environmental impacts of geothermal direct heat may be more acceptable than those associated with traditional electrical generation, and mitigation of such impacts is better understood than those associated with traditional electric generation technologies; (4) their development reduces dependence on other fossil fuel sources; (5) geothermal power plants are small scale distributed technologies which can increase system reliability and flexibility; and (6) the lead time for electric power plant construction is relatively short. Based on the opportunities afforded by geothermal development, it is the intent of the Legislature to promote environmentally sound geothermal resources development.

POLICY

It is the policy of the Legislature to encourage environmentally sound geothermal resources development. It is further the policy of the Legislature to reduce the State's dependency on scarce fossil fuels. Therefore, in order to ensure that geothermal development occurs in an orderly and sound fashion, the Legislature hereby declares that all revenues derived from the U. S. Bureau of Land Management's activities under the Geothermal Steam Act of 1970 and distributed through Section 317 of the Federal Land Policy and Management Act (FLPMA), PL 94-579, be appropriated in the following ways:

GENERAL PURPOSES

All monies returned to the State pursuant to Section 317 of FLPMA shall be used to promote geothermal resources development related activities including, but not limited to:

- (1) Carrying out necessary planning activities to ensure orderly, environmentally sound geothermal development in as expeditious a manner as possible, including, but not limited to:

- (A) resource assessment and exploration technology
 - (B) local and regional planning and policy development and implementation for complying with State and federally mandated programs
 - (C) identification and incorporation of feasible mitigation measures necessary to offset adverse impacts to the State's natural resources including the necessary collection of baseline data and monitoring
 - (D) preparing geothermal elements to county general plan, zoning and other ordinance and accompanying environmental and planning documents.
- (2) Providing the necessary public services required to implement, mitigate and enhance geothermal resources development, including, but not limited to:
- (A) processing requests and preparing permit applications related environmental documents, monitoring and inspection of geothermal activities to insure compliance with local, regional and State laws, regulations, ordinances and other geothermal related activities: identifying and carrying out actions necessary to mitigate impacts as well as participating in research and development activities
 - (B) planning, construction, operations and maintenance of necessary public services.
- (3) Projects demonstrating the technical feasibility and economics of geothermal direct heat and electrical applications.
- (4) Other projects that can be shown to promote development consistent with the policies of this Act.

SPECIFIC PROVISIONS

Public Services means those services which local jurisdictions must provide as a result of geothermal development activities.

Local Jurisdictions means legal subdivisions of the State, including cities, counties, and special districts.

County of Origin means any county in which the Bureau of Land Management lease sale occurred.

Geothermal Resources Development Account means the account established in the State Controller's Office which shall consist of all monies returned to the State by the U. S. Treasury pursuant to Section 317 of the Federal Land Policy and Management Act.

Geothermal Resources Development Fund means those funds which are earmarked for disbursement by the Council and which shall consist of 40 percent of the Geothermal Resources Development Account.

Potential or Known Geothermal Resources means those areas of the State in which there is an identified geothermal resource either as: a) known geothermal resource area (KGRA) as designated by the U. S. Geological Survey; b) geothermal resource areas as designated by the Division of Oil and Gas; or, c) areas with surface manifestations and other indications of the presence of a geothermal resource.

The Geothermal Resources Development Fund and the Geothermal Resources Development Account are hereby created. All monies in the Account shall be expended for the purposes stated in the Act.

There is in the Department of Finance an advisory body known as the Geothermal Coordinating Council, hereafter known as the Council, which shall establish guidelines for the administration of monies in the Geothermal Resources Development Fund.

The Council shall have the authority to determine which local jurisdictions have potential or known geothermal resources for the prescribed purposes of this Act.

The Council shall coordinate with the California Energy Commission's statewide planning policy and research and development efforts, as well as other affected State agencies' geothermal planning and program activities, for the promotion or regulation of geothermal energy resources in establishing its guidelines for the administration of the Geothermal Resources Development Fund.

ASSEMBLY BILL

No. 1905

Introduced by Assemblyman Bosco
(Principal coauthor: Senator Keene)

May 21, 1979

REFERRED TO COMMITTEE ON RESOURCES, LAND USE, AND ENERGY

An act to add Chapter 6 (commencing with Section 3790) to Division 3 of the Public Resources Code, relating to geothermal revenues, and declaring the urgency thereof, to take effect immediately.

LEGISLATIVE COUNSEL'S DIGEST

AB 1905, as introduced, Bosco (Res., L.U., & E.). Geothermal resources: federal lease sales: disposition of revenues.

Existing state law does not provide for the distribution of moneys received by the state from federal geothermal lease sales of public lands. Existing federal law provides for 30 percent of the moneys received for geothermal leases under the federal Geothermal Steam Act of 1970, as amended, to be paid to the state where the leased lands are located.

This bill would provide that all moneys received by the state from the federal government for federal geothermal leases within California be deposited in the State Treasury and allocated by the Department of Finance to the counties socially or economically impacted by the federal geothermal leases generating the revenues.

This bill would take effect immediately as an urgency statute.

Vote: $\frac{2}{3}$. Appropriation: no. Fiscal committee: yes.

ALTERNATIVE ENERGY SYSTEMS FEASIBILITY STUDY ACT

1979

GENERAL SESSION

Discussion Draft

_____ B. No. _____

By _____

AN ACT RELATING TO THE PREPARATION OF FEASIBILITY STUDIES ON ALTERNATIVE ENERGY SYSTEMS FOR NEW OR RENOVATED PUBLIC BUILDINGS.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF UTAH:

SECTION 1. A new clause (c) is added to Section 63-9-49 (2) (UCA 1953) to read:

(c) (new material) Prepare an alternative energy systems feasibility study prior to the commencement of siting, construction or major renovation of buildings owned by the State of Utah and its political subdivisions. This provision applies to buildings having more than 20,000 square feet of usable floor space. The study shall employ life cycle cost analysis and include simulations of system performance over a year's operating period. At least two non-fossil energy systems shall be evaluated, including the utilization of geothermal or hot water resources where available. The study shall guide the selection of building site, design and energy systems.

which real property is either used in a trade or business or held for the production of income, may elect to amortize the adjusted basis of the alternative energy device based upon a period of sixty (60) months. In computing Utah taxable income, such amortization shall be allowed as a deduction from Utah adjusted gross income ratably over such sixty-month period beginning with the month in which such alternative energy device was completed or acquired and placed into service by the taxpayer. The election of the taxpayer to claim the amortization deduction allowed by this section shall be indicated in an appropriate statement attached to the taxpayer's income tax return for the taxable year in which such alternative energy device was completed or acquired and placed into service. As used in this section, "adjusted basis of the alternative energy device" shall mean an amount that is properly attributable to the construction, reconstruction, remodeling, installation or acquisition of such system.

(2) In any case where a taxpayer, hereinafter referred to as transferor, has qualified and elected to amortize the adjusted basis of an alternative energy device pursuant to subsection (1) and the real property equipped with such system is acquired and used in a trade or business or held for the production of income by another taxpayer, hereinafter referred to as transferee, and the transferor has not fully amortized the adjusted basis of such system as provided in subsection (1), the transferee shall be entitled to amortize that portion of the transferor's adjusted basis of such system remaining unamortized, but the total amount to be amortized by the transferee shall not exceed said transferee's adjusted basis in the system. The transferee shall amortize such remaining amount based upon the remaining portion of the sixty-month period unused by the transferor. The amount by which the transferee's adjusted basis exceeds the amount of the transferor's adjusted basis remaining unamortized shall be amortized over the useful life of the system.

SECTION VI. Administration

The Utah State Tax Commission in conjunction with the Utah Division of Water Rights and the Utah Energy Office is hereby authorized to administer this act and shall prescribe such rules, regulations and standards as may be deemed necessary to carry out the purposes of this act.

Alaska House of Representatives



COMMITTEE ON NATURAL RESOURCES
POUCH V • JUNEAU, ALASKA 99811

MEMORANDUM

TO: House Legislators

FROM: Bill Miles *Bm*

RE: CS for Sponsor Substitute for House Bill 779

DATE: April 15, 1980

Attached is a Sectional Analysis for CS for Sponsor Substitute for House Bill 779 - an act relating to State resources and the development of geothermal resources. The bill is tentatively scheduled for floor consideration Wednesday, April 16.

CO-CHAIRMEN

REP. ALVIN STERNBACK (465-3718) • REP. BILL MILES (465-3770)

VICE-CHAIRMAN

REP. FRED ZHAROFF

REP. PAT CARNEY • REP. C.V. CHAT CHATTERTON • REP. SAM COTTEN
REP. DICK ELIASON • REP. JACK FULLER • REP. RICK HALFORD

SECTIONAL ANALYSIS FOR COMMITTEE SUBSTITUTE FOR SPONSOR SUBSTITUTE FOR HOUSE BILL 779 .

Section 1 - Declaration of Policy

Section 2 - Technical amendment; adds geothermal resources to mineral and surface use reservation clause

Section 3 - Technical amendment; geothermal resource users must make provision to pay surface owners for all damages sustained by the owner relating to the development of the resource.

Section 4 - Permits and Leases:

A. Commissioner is authorized to grant prospecting permits and leases to qualified persons. When the surface title is held by someone other than the State, he has the preference right to a permit or lease for the area underlying the surface parcel.

B. Competitive geothermal areas may be designated by the Commissioner on the basis of "substantial geologic indications" or "competitive interest".

C. Commissioner may issue prospecting permits to the first qualified applicant in areas not designated for competitive sale or withdrawn from geothermal prospecting. Permits are for two years, and may be renewed for an additional one year term. If the permit holder discovers commercial quantities of geothermal resources, he has the right to convert the permit to a lease within 30 days after the expiration of the permit.

D. Competitive leases must be issued to the highest bidder on State land designated competitive and not subject to a prospecting permit. Competitive sales may be by oral or seal bid on the basis of a cash bonus, profit share, or royalty share.

E. Prospecting permits and leases must include at least 40 acres but not be more than 2,560 acres. No person may hold more than a total of 51,200 acres. Geothermal leases in commercial production do not count against the acreage limitations. Permits and leases are subject to a \$3.00 per acre per year rental. Rentals are credited against royalties for the same year.

F. Geothermal leases are issued for a primary term of 10 years and may be renewed for an additional term of 5 years if the lessee is actively drilling. Leases are good for the duration of commercial production. Royalties and rentals may be renegotiated by the Commissioner 20 years after the initiation of commercial production and at 10 year intervals thereafter.

G. Royalties are no less than 10% and no more than 15% of gross revenues. They may be taken in kind or in value.

Section 5 - Definition:

"Geothermal resources" - Over 120 degrees celsius.

Section 6 - Geothermal resource development. This section, which gives the Commissioner jurisdiction over all persons and property subject to the police power of the State, authorizes the regulation of the geothermal resource. It prohibits waste, requires development and operation plans and authorizes the Commissioner to issue well spacing and pooling orders, limits on production and reinjection requirements in order to "prevent waste, promote maximum economic recovery, and protect correlative rights". Lessees are authorized to enter into unit agreements, with the approval of the Commissioner. If more than two-thirds of the leasehold interests ratify a unit agreement, the Commissioner may enforce the agreement as to all parties. Production under these agreements is allocated under principle of correlative rights; costs and revenues apportioned among the participants. The Commissioner must also adopt drilling regulations with respect to the development and abandonment of geothermal wells. Geothermal resources which are regulated by the Commissioner under this chapter are exempt from the jurisdiction of the Alaska Oil and Gas Conservation Commission.

Operators need approval before beginning drilling operations. The date of filing the application for approval establishes a priority as to later appropriators of non-geothermal fluids. Approval may be conditioned to protect prior water rights. However, geothermal fluid is not subject to appropriation of Water Use Act, and no priority may be established among geothermal owners in a geothermal system.

Section 7 - Requires the state geologist to conduct surveys to determine geothermal resource potential.

Section 8 - Appropriation permits required under the Water Use Act may be terminated under the Administrative Procedures Act if the permittee has violated a term of the permit.

Section IX - Appropriation certificates may contain conditions including conditions that are necessary to protect the prior rights of other persons and the public interest.

Section X and XI - Geothermal resources are not water, for purposes of the constitutional requirement that water is subject to appropriation. The Constitution exempts "mineral and medicinal water" from this requirement. Geothermal resources are "mineral and medicinal waters".

STATE OF ALASKA

JAY S. HAMMOND, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF RESEARCH & DEVELOPMENT

323 E. 4TH AVENUE
ANCHORAGE, ALASKA 99501
279-5577

March 21, 1980

Representative Bill Miles
Co-chairman
House Resources Committee
Alaska State Legislature
Pouch V
Juneau, AK 99811

Dear Representative Miles:

SSHB 779, the proposed legislation relating to the development of geothermal resources, contains a subsection in its drilling regulations section (Sec. 41.06.040, page 7, line 27) that says:

(d) Geothermal wells regulated by the commissioner under this chapter are exempt from the jurisdiction of the Alaska Oil and Gas Conservation Commission under AS 31.05.030(g).

This subsection was included at the request of the AOGCC in order to clarify that the commission would not be responsible for geothermal resources under the "hazardous substance" clause in Sec. 31.05.030(g) (attached). It has been brought to my attention that the proposed Sec. 41.06.040(d) does not accomplish this purpose and creates some confusion as to when AOGCC regulations do apply.

Sec. 31.05.030(g) provides that the AOGCC may designate areas where there is likelihood of an unexpected encounter of oil, gas or other hazardous substance, and specify drilling depths in those areas below which any well or boring would be subject to AOGCC regulations.

According to the definition in proposed Sec. 41.06.060(9) of SSHB 779, geothermal well "means a well drilled converted or reactivated for the discovery, testing, production or subsurface injection of geothermal resources." Thus, exempting "geothermal wells" from AS 31.05.030(g) does not release the AOGCC from responsibility if a person drilling for some other purpose unexpectedly encounters geothermal resources or hot water under pressure.

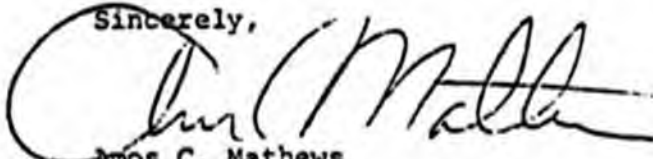
Furthermore, by exempting "geothermal wells" from the jurisdiction of AS 31.05.030(g), we are in essence saying that if a geothermal operator drills in an area of the state designated by the AOGCC as an area where there is likelihood of an unexpected encounter of oil, gas, or other hazardous substance, the geothermal operator would not be subject to AOGCC regulations and requirements, even when drilling below the depth

specified by AOGCC. Consequently, if the geothermal operator drilling in a designated area does encounter oil, gas or a hazardous substance other than geothermal resources below the specified depth, it is not clear whether or not his operation is subject to AOGCC regulations. Common sense dictates that it should be. However, the specific exemption of "geothermal wells" from AS 31.05.030(g) indicates that it may not be.

The Department of Natural Resources has drafted a new proposal to replace subsection (d) of proposed Sec. 41.06.040 in SSHB 779 that we feel will accomplish the purpose for which it was intended and avoid confusion in determining when AOGCC regulations apply. The attached DNR proposal establishes a mechanism whereby persons drilling for purposes unrelated to geothermal resources who unexpectedly encounter geothermal resources or hot water under pressure will be regulated by geothermal well drilling regulations under 41.06.040--not AOGCC regulations. It also specifically exempts geothermal resources and hot water under pressure from the term "hazardous substance" as used in AS 31.05.030(g).

The Department feels that this proposal could be further improved by deleting the last sentence that clarifies the term "hazardous substance" and actually amending AS 31.05 to define that term. DNR has offered assistance to the AOGCC if it wishes to submit such an amendment to be included in SSHB 779.

Sincerely,



Amos C. Mathews
Director

Attachments

DWR proposed replacement for Sec. 41.06.040(d) in SSHB 779 (page 7, line 27):

(d) Whenever a person engaged in a drilling operation not otherwise subject to this chapter encounters geothermal resources or water hot enough or under such pressure as to be hazardous, he shall be subject to regulations and requirements adopted under this chapter. When the commissioner finds sufficient likelihood that drilling in an area of the state will result in such an unexpected encounter, he may designate the area and specify conditions under which wells or any borings into the soil not otherwise subject to this chapter are subject to regulations and requirements adopted under this chapter. Neither geothermal resources nor water hot enough or under such pressure as to be hazardous shall be considered a "hazardous substance" for the purposes of AS 31.05.030(g).

STATE OF ALASKA

JAY S. HAMMOND, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES

OFFICE OF THE COMMISSIONER

POUCH M - JUNEAU 99811

March 13, 1980

Representative Bill Miles, Co-Chairman
House Resources Committee
Alaska State Legislature
Pouch V
Juneau, Alaska 99811

Dear Representative Miles:

The Department of Natural Resources appreciates this opportunity to comment on SSHB 779, "An Act relating to the development of geothermal resources." The Department has worked closely with the National Conference of State Legislatures (NCSL) during the drafting of this bill. We believe this bill is a tremendous improvement over the lengthy and outdated Geothermal Resources Act (AS 36.05.181) now on the books, and we strongly support the bill's intended purpose of encouraging the beneficial use of thermal resources in Alaska, especially direct applications of hot-water resources.

The Department feels that SSHB 779 effectively consolidates the essential aspects of our Geothermal Resources Act and appropriately deletes nonessential items to produce a shorter, more concise bill that will ease administration of and remove obstacles to development of thermal resources.

We are in favor of the bill's separation of functions and authorities affecting only state-owned lands and resources from statewide police powers, by retaining the former in Title 38 and placing the latter in Title 41. This is consistent with the approach of other state statutes and helps clarify the applicability of the proposed legislation.

The Department is particularly supportive of the bill's provision to define "geothermal resources" based on a temperature threshold (120°C.). This will allow for simplified procedures for obtaining rights to the use of hot-water resources (below 120°C.) by requiring nothing more than an ordinary water appropriation as opposed to the much more stringent leasing requirements. Consequently, it provides an incentive for the small scale development and local use of thermal energy, thus decreasing dependency on more expensive, nonrenewable energy resources.

We also support the submission of the Water Use Act "house-keeping" amendment, HB 186, as a companion bill to this legislation. Attached is DNR's recommended substitute bill for HB 186. Since HB 186 was introduced in the first session, the Revisor of Statutes has made several of renumbering and punctuation changes proposed in HB 186. The attached substitute deletes those sections of HB 186 that are now irrelevant for housekeeping purposes and contains minor modifications to make it more compatible with SSHB 779.

DNR's recommended substitute for HB 186 contains several provisions that are significant to SSHB 779 and that will prevent conflicts between geothermal development and water rights. Sec. 46.15.120 would clarify the State's ability to place conditions on certificates of appropriation in order to protect the correlative rights of geothermal owners in a geothermal system. Sec. 46.15.115 would clarify the grounds for termination of a permit as provided in AS 46.15.100. This would emphasize the State's ability to enforce safety and resource conservation aspects of drilling hot-water resources (below 120°C.) acquired under the Water Use Act.

The recommended HB 186 substitute would also include a definition of the phrase "mineral and medicinal water" which appears in both the constitution and the Water Use Act. "mineral and medicinal water" would be defined to include springs reserved by the federal government as was the intent of the framers of the Constitution, and also to include "geothermal fluids." In the Water Use Act, "water means all water of the state, surface and subsurface, occurring in a natural state except mineral and medicinal water." Therefore, the definition of "mineral and medicinal water" in HB 186 would exempt geothermal fluids from the definition of water in, and thus management and appropriation under the Water Use Act.

This provision is absolutely essential to SSHB 779. If geothermal fluid were not exempted from the definition of "water", SSHB 779 would create severe legal conflicts with the Water Use Act that would diminish or prevent the beneficial effects it was meant to encourage.

In analyzing SSHB 779, the Department has identified potential conflicts between the management of geothermal resources and water. We feel that SSHB 779 goes a long way to preventing these conflicts. However, there are some questions that have not been totally resolved. Due to the complexity of this issue, it is likely that some questions may not be resolved short of litigation and a judicial ruling DNR believes the intended purpose of SSHB 779 is extremely worth while and, if enacted with DNR's recommended substitute for HB 186, we think it would achieve that purpose. Once the Department has had some experience with the management

of geothermal resources and its relationship to water under this new legislation we will be in a position to consider potential amendments to resolve conflicts or questions which may arise.

Sincerely



Robert E. LeResche, Commissioner
Dept. of Natural Resources

Alaska Water Resources Board
323 East Fourth Avenue
Anchorage, Alaska 99501

PRESS RELEASE - March 17, 1980

For immediate release

For further information
contact:
Richard H. Sims - Kodiak
486-3157, 486-3613

**WATER BOARD RECOMMENDS
GEOTHERMAL, STREAMFLOW, FLOOD
LEGISLATION**

Meeting in Juneau on Tuesday through Friday the seven-member state water resources advisory board to the Governor has approved resolutions supporting legislation revamping the state's geothermal leasing laws, a bill establishing a process to adjudicate claims to instream flows of waters for navigation and fisheries, and a repeal of a territorial statute which provides broad liability of the state for flood control projects. The Board considered the existing geothermal leasing act a complex impediment to development and supported a provision in SSHB 779 which set a low end temperature cut-off of 120°C for geothermal leasing although some recommended a lower temperature. Water under 120°C would be handled as a relatively simple water right rather than by lease. The Board strongly endorsed HB 118 to set up a process for solving disputed claims to streamflows for navigation, fisheries, and other purposes. The Board recommended additional language to close a loophole in existing state law and require the federal government to use this procedure as well as state or local agencies.

In a surprising vote, the generally conservative board recommended the licensing of operators of highly portable suction dredges as a means to limit their unauthorized use on existing

valid mineral claims and fish streams by an expected influx of inexperienced outsiders from the lower 48.

In Thursday action the Board met with officials of the Yukon Territory Water Resources Agency and discussed common concerns over the expected summer "gold rush" from inexperienced non-resident operators. On Friday the Board reviewed Department of Environmental Conservation water quality studies and proposals related timber harvesting, mining, and road construction.

Members of the Board are Chairman Richard Sims - Kodiak, LeVake Renshaw - Anchorage, Charles Johnson - Nome, Peg Tileston - Anchorage, Wayne Westberg - Anchorage, David Vanderbrink - Homer, and Frederich Boness - Anchorage.

ALASKA WATER RESOURCES BOARD
323 E. Fourth Avenue
Anchorage, AK. 99501

March 14, 1980

Honorable Jay S. Hammond
Governor
State of Alaska
Pouch A
Juneau, Alaska 99811

Dear Governor:

At its March 11-12, 1980 meeting in Juneau the board heard testimony and discussed several pieces of pending legislation. Attached are the Board's recommendations on HB 186, HB 118, SSHB 779, and SB 395.. Because of the possibility of imminent mark-up of some of these bills, by copy of this letter I am transmitting the Board's recommendations to members of the House Resources Committee.

We would be happy to elaborate on our position regarding this legislation. We feel all four bills are very important and we support their passage with the changes we have recommended.

Sincerely,



Richard H. Sims, Chairman

cc: Representative Miles
Representative Osterback
Representative Zharoff
Representative Carney
Representative Cotten
Representative Fuller
Representative Chatterton
Representative Eliason
Representative Halford

ALASKA WATER RESOURCES BOARD

March 1980

Resolution 80-1

Whereas HB 118 introduced in the Eleventh Legislature proposes changes in the Water Use Act that would allow the inclusion of maintenance of instream flow and water level under the provisions of the Water Use Act; and

Whereas in Alaska the maintenance of instream flows and water levels is important to navigation, fish and wildlife habitat, recreation and other beneficial uses of streams, rivers and lakes; and

Whereas the present statute governing water rights, the Water Use Act, AS 46.15, presently states that a diversion, impoundment or withdrawal is a prerequisite for a use of water to be considered an appropriation and maintenance of instream flows and water levels does not meet this prerequisite; and

Whereas instream flows and water levels are presently being reserved under procedures that are distinct from the Water Use Act, creating reservations that have no standing in time within the water rights system, resulting in duplication and conflicts in water management efforts and delays in resolving conflicts and may not be enforceable in problem situations; and

Whereas the federal government may assert water rights in federal court when no state procedures exist for quantification of federal water rights; and

Whereas the lack of state procedure for allocation of stream flows and water levels is the only area in existing state statutes where the federal government does not come under state procedures for the allocation of claimed "non-reserved" federal water rights; and

Whereas state rules for the adjudication of water use are preferable to federal court action on such issues; and

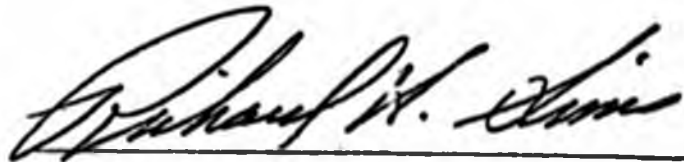
Whereas the provision in HB 118 resolve these problems and streamline the state's water management system; and

Whereas HB 118 is a necessary companion bill to effect implementation of HB 953.

Now therefore be it resolved that the Alaska Water Resources Board recommends passage of HB 118 with the following changes:

- page 1. line 16 add "," after subdivision, delete "or" and add
.after state "or agency of the United States."
- page 1. line 23 add "and other beneficial uses" and most
importantly
- page 2. line 1 delete "exists" and insert "is demonstrated"

Dated this 14 th day of March, 1980



Richard H. Sims, Chairman

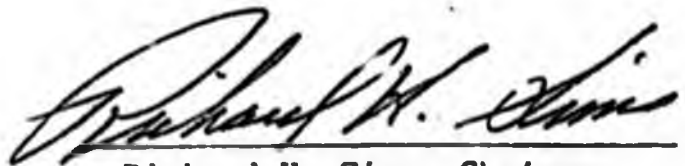
Alaska Water Resources Board
Resolution 80-2

Whereas a DNR substitute for HB 186 proposed in the Eleventh Legislature, second session proposes changes in the Water Use Act that will make it compatible with and a necessary companion to HB 779, the Geothermal Resources Act; and

Whereas HB 186 also proposes housekeeping amendments to the Water Use Act which will streamline and improve the efficiency of water rights processing in Alaska;

No therefore be it resolved that the Alaska Water Resources Board recommends passage of the DNR substitute HB 186 with the provision that in section 46.15.120, "correlative rights" be changed to "leasehold rights" since allocation of correlative rights would involve more than one leaseholder and since even a single geothermal leaseholder may need protection against later depletion of geothermal medium by subsequent water users.

Dated this 14 th day of March, 1980.



Richard H. Sims, Chairman

Alaska Water Resources Board
Resolution 80-3

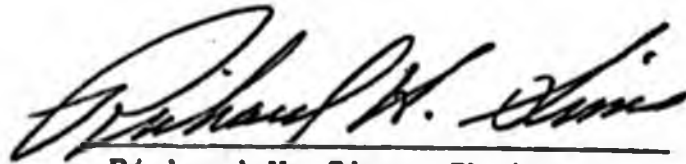
Whereas SSHB 779 introduced in the Eleventh Legislature, second session proposes changes in state law concerning development of Alaska's geothermal resources; and

Whereas the existing statutes are unnecessarily long and complex, and do not distinguish between large scale high temperature development and small scale lower temperature uses of geothermal resources and are an impediment to the development of geothermal resources;

Whereas SSHB 779 makes significant improvement in these deficiencies and attempts to remedy potential conflicts between high temperature geothermal development and rights in groundwater use.

Now therefore be it resolved that the Alaska Water Resources Board recommends passage of SSHB 779 in conjunction with Department of Natural Resources proposed substitute for HB 186.

Dated this 14 th day of March, 1980



Richard H. Sims, Chairman

Alaska Water Resources Board
Resolution 80-4

Whereas, Senate Bill No. 395 has been introduced to repeal AS 44.80.020 to AS 44.80.050, an act relating to flood control project damages; and

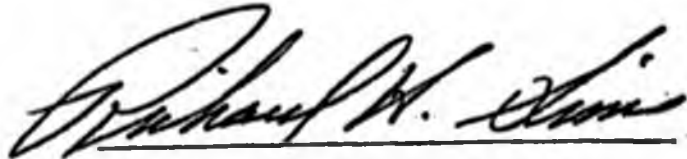
Whereas, the existing legislation provides automatic liability on behalf of the State for any flood control project; and

Whereas, under existing legislation that measure of liability is that of a private party rather than that of the sovereign; and

Whereas, each individual federally funded flood control project requires an acceptance of only federal liability by the State or municipality upon completion.

Therefore be it resolved, that the Alaska State Water Resources Board strongly recommends passage of Senate Bill 395.

Date this 14 th day of March, 1980



Richard H. Sims, Chairman

Alaska Water Resources Board

Resolution 30-5

Whereas the Water Resources Board perceives that the increased value of precious metal has triggered a large influx of inexperienced persons who wish to prospect for those metals through the use of small portable suction dredges; and

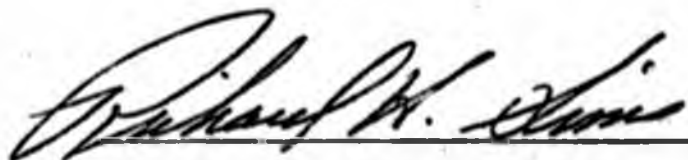
Whereas there is a significant potential for degradation of Alaskan streams through the increased use of small portable suction dredges; and

Whereas the use of portable suction dredge can have great detrimental effect on water quality and the habitat of anadromous fish; and

Whereas the extreme portability of the suction dredge and their use in non-established mineral claims results in great difficulty in preventing damage through stream surveillance.

Now therefore be it resolved that the Department of Environmental Conservation via legislation or regulation adopt a policy of licensing the operators of portable suction dredges on other than established mineral claims as a means of insuring that these operators are aware of the constraints placed on all citizens concerning stream degradation and protection of anadromous fish streams.

Dated this 14 th day of March, 1980.



Richard H. Sims, Chairman

PHONE MEMO		TO	DATE	TIME
FROM	Shell		4/78	
M	Dave Perry's charred	AREA CODE - TELEPHONE NO. - OF OFF.		
OR	JMR	EXTENSION #	279-5577	5x1230
MESSAGE				
Don't forget to bill				
CSSSHB 779-				
Don't forget to bill				
Don't forget to bill				

- Phoned
- Call Back
- Returned Call
- Wants To See You
- Will Call Again
- Was In
- See Operator

new bill
CSSSHB 779

Bennett

Original sponsor: Gardiner

1 IN THE HOUSE

BY THE FINANCE COMMITTEE

2 CS FOR HOUSE BILL NO. 241

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 ELEVENTH LEGISLATURE - FIRST SESSION

5 A BILL

6 For an Act entitled: "An Act relating to state bonding."

7 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

8 * Section 1. AS 37.15.010 is amended by adding a new subsection to read:

9 (b) General obligation bonds issued for acquiring, constructing,
10 improving and equipping a state-owned utility or other revenue-generat-
11 ing enterprise may be additionally secured by a pledge of the revenue
12 derived from operation. The bonds may contain the covenants which the
13 state bond committee considers advisable concerning

14 (1) the rates or fees to be charged for services rendered by
15 the public facilities, the revenue of which is pledged to the payment of
16 the bonds;

17 (2) the deposit and use of the revenue of the public faciliti-
18 ties;

19 (3) the issuance of additional bonds payable from revenue of
20 the public facilities;

21 (4) the rights of the bondholders in case of default in the
22 payment of the principal or interest on the bonds, including the appoint-
23 ment of a receiver to operate the public facilities;

24 (5) other covenants as the state bond committee determines.

CSSSHB 779- Synopsis

Cheryl-

This isn't an in-depth analysis in that I talked with someone at DNR in Anchorage to give it to me in a nutshell.

The present~~s~~ statutes dealing with geothermal resources are long, complicated and cumbersome. This bill would simplify the present statutes by:

- 1) Clearly defining the difference between geothermal and a water resource. Geothermal constitutes any water source found while drilling that is over 120 degrees Celsius. Anything under would be just a water resource.
- 2) The reason for the distinction is if the source is defined as geothermal, then it will fall into the same category as oil, minerals etc. The state then has a much higher interest particularly in land disposal areas and may want to develop the resource.
- 3) If the source is not geothermal, someone finding^{water} under 120 degrees Celsius ~~may~~ may use it for their own purposes and not be subjected to the present complicated permit process.

According to the guy at DNR, no one is against the bill or at least didn't testify against it at the House Resources hearings.

Fiscal impact is approx. \$48,400 the first year, by the creation of one civil engineering position at DNR.

THE LEGISLATURE OF THE STATE OF ALASKA
ELEVENTH LEGISLATURE

FISCAL NOTE

I. REQUEST

Bill/Resolution No. HB 779
 Title An Act relating to the development of geothermal resources
 Requested by House Resources Committee Date 2/25/80

II. FISCAL DETAIL

Agency Affected Department of Natural Resources
 Program Category Affected NRMEC
 BRU, Program, or Subprogram(s) Affected Water Management
 (Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 80	FY 81	FY 82	FY 83	FY 84	FY 85
100 PERSONAL SERVICES		38.4	40.3	42.3		
200 TRAVEL		4.5	4.5	4.5		
300 CONTRACTUAL		3.0	3.0	3.0		
400 COMMODITIES		1.0	1.0	1.0		
500 EQUIPMENT		1.5	.5	-0-		
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS, ETC.						
TOTAL		48.4	49.3	50.8		

FUNDING (Thousands of Dollars)

	FY 80	FY 81	FY 82	FY 83	FY 84	FY 85
GENERAL FUND		48.4	49.3	50.8		
FEDERAL FUNDS						
OTHER (Specify Fund Source)						

POSITIONS

	FY 80	FY 81	FY 82	FY 83	FY 84	FY 85
FULL TIME		1	1	1		
PART TIME						
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instructions, Section III)

SEE ATTACHMENT

IV. DATE 2/29/80 PREPARED BY *David King - Chakoff*
 AGENCY Division of Research & Development, DNR
 PHONE 279-5577
 Original: Legislative Finance
 cc: Budget and Management
 Prime Sponsor (First Legislator Named)

STATE
of ALASKA

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF RESEARCH AND DEVELOPMENT

MEMORANDUM

FR file

TO: JEFF HAYNES, Deputy Commissioner
Department of Natural Resources

DATE: February 29, 1980

FILE NO.

TELEPHONE NO.

FROM: MO MATHEWS, Director
Division of Research & Development

SUBJECT: Fiscal Note for House
Geothermal Bill

The House Resources Committee has requested a Fiscal Note for the proposed geothermal bill, HB 779. Most of DNR's responsibilities with respect to this bill are already adequately covered in the FY 81 budget. These include DGG's inventory project, a project to revise geothermal leasing regulations and support for a modest level of geothermal leasing. Descriptions of these projects are attached to the Fiscal Note. However, additional funding will be needed as HB 779 will create increased demands on the Department in three important areas not addressed in the FY 81 budget:

1. regulation of resource conservation and operation safety aspects of geothermal development;
2. management of water associated with thermal resources; and
3. technical assistance for geothermal and low-temperature hydrothermal development, and groundwater heat pump applications.

As indicated on the attached Fiscal Note, I feel that the increased demands on the Department for FY 81 can best be met by establishing one Civil Engineer II position in the Water Management Section of the Division of Forest, Land and Water Management. This position would set up a regulatory and procedural framework to meet DNR's safety and conservation responsibilities for geothermal resources and handle the increased water management responsibilities that accompany development of non-leasable (below 120° C.) hot-water resources that HB 779 is designed to encourage. The Water Section already has statewide responsibilities under the Water Use Act, regardless of surface land ownership, and this position could provide construction review and assistance in development on non-state lands as well. Both Tom Cook and Ross Schaff have been contacted by phone and have indicated that they have no problem with placing the regulatory responsibility in the Water Management Section. For future budget cycles, we can appropriately integrate these management and regulatory aspects of hot-water and geothermal resource use into the project budget framework.

The Fiscal Note for HB 779 should be forwarded to the Legislative Finance Committee and Bob Speed in the House Speakers Office as soon as possible.

cc: Tom Cook
Ross Schaff
Ted Smith/Brent Petrie

III ANALYSIS FOR HB 779

The Governor's FY 81 budget includes several projects that relate to geothermal resource inventory and management. (See attached budget sheet.) Because of this, the department feels that much of HB 779's fiscal impact can be absorbed without appropriating additional funds by redirecting slightly these already scheduled projects. However, additional support is necessary to carry out the department's new statewide responsibility per HB 779 for regulating the safety and resource conservation aspects of geothermal development.

Not only does HB 779 give to DNR this important, new regulatory responsibility for geothermal resources, but the department is also given the responsibility to regulate all hydrothermal resources that fall below the 120°C temperature threshold that is used to define geothermal resources. Recent experience indicates that sub-120°C hot water resource development (such as the Pilgrim Hot Spring project) may require regulation for safety and conservation purposes even though the resources involved are not considered "geothermal resources" for leasing purposes.

This fiscal note outlines what is needed for the department to expand its geothermal resource management program to include resource conservation and operation safety regulation of geothermal and hydrothermal development on a statewide basis. Specific program objectives are:

1. Develop and adopt simple and workable regulations and procedures dealing with operation safety and resource conservation of geothermal and hydrothermal development on all lands in Alaska as provided by HB 779;
2. Develop and maintain a program to promote safety and prevent waste of geothermal and hot water resources in the state.

The program would also include provisions for technical assistance to those wishing to develop geothermal resources and other agencies that are involved in such resource development.

To accomplish these objectives in FY 81, the department needs a minimum of one full time Civil Engineer II with special knowledge of drilling methods and operations, groundwater geology and fluid mechanics. A detailed description of this position's duties and associated position costs are outlined in the attached Request for New Position Form 13.

1	POSITION TITLE CIVIL ENGINEER II			RANGE/STEP 20A	BARG. UNIT. G	LOCATION Anchorage	APPRUV. GOV.	DISAPP.
2	TYPE OF POSITION PFT	STAFF MONTHS 12	IIP No.	PCN No. NEW	PRIORITY	FORM 12 PAGE/LINE	LEG.	
3	TYPE OF EXPENDITURE			AMOUNT				
	1			2		3		
4	PERSONAL SERVICES: SALARY \$2,532/month			30,384				
5	BENEFITS			4,548				
6	FICA			1,975				
7	HEALTH INS.			1,524				
8	TOTAL PERSONAL SERVICES			38,431				
9	TRAVEL			4,500				
10	CONTRACTUAL			3,000				
11	COMMODITIES			1,000				
12	EQUIPMENT			1,500				
13	OTHER							
14	TOTAL COST			48,431				
	CODE	FUNDING SOURCE						
15		FED RCPTS.						
16		GF MATCH.						
17		GEN FUND		48,431				
18		I-A RCPTS.						
19		IUM RCPTS						
20		OTHER						
21	CONTINUATION							
22	ADDITION		X		FOR B&M USE ONLY			

JUSTIFICATION:
Proposed legislation requires that the Department of Natural Resources adopt regulations and implement a program to prevent waste, contamination and injury caused by exploration, development and production of geothermal resources in the state. This new position will prepare regulations based on the new geothermal legislation and develop guidelines, standards and administrative procedures to implement DNR's new regulatory responsibilities. For each geothermal development project in the state, the position will (1) review and evaluate development and operation plans to determine compliance with its regulations; (2) perform site inspections of projects to ensure adherence to plans and specifications; (3) provide technical assistance with engineering and hydrologic problems as needed; and (4) maintain records on all aspects of development. Finally, in order to allow appropriation of hot water under AS 46.15 (Water Use Act) for the use of its heat value, to ensure an appropriator's right to that water and its thermal properties, to protect the rights of prior appropriators and to protect the public interest, this position will develop and apply criteria and standards for evaluating permit applications, issuing permits and making appropriations for the use of hot water. The position will also perform site inspections to ensure that appropriations are being perfected in accordance with the water use permit and to provide technical assistance to hydrothermal development projects.

In addition to the general civil engineering position

4A KEY NUMBER _____ COLUMN NO. _____

AGENCY Department of Natural Resources PROGRAM AREA NRMEC

BRU Water Management

COMPONENT Water Use Management

Page 1 of 2

REVISED DATE _____

FY 81

13 REQUEST FOR NEW POSITION.

requirements, this position will require knowledge and experience in drilling high pressure fluids for monitoring the design, operation and maintenance of water, oil or gas wells; groundwater hydrology and fluid mechanics.

Because the position will be responsible for implementing a safety and resource conservation program for hot-water and higher temperature geothermal resources that is independent of state-land ownership, considerations include but are not limited to development of state geothermal leases, and because of the inextricable connection between Water Use Act procedures and those tasks outlined above, this position and its support will be placed in the Water Management Section of the Division of Forest, Land and Water Management.

The responsibilities of the Water Management Section under the Water Use Act, especially its function of reviewing water use permits and making water appropriations, already transcend state-land management. The Department therefore feels that the safety and resource conservation regulatory aspects of hot-water and geothermal development is most efficiently and effectively placed with the Water Management Section.

AGENCY Department of Natural Resources PROGRAM AREA NRMEC

BRU Water Management

COMPONENT Water Use Management

Page 2 of 2

REVISED DATE _____

FY 81

23 13 CONTINUED

Project: Field Investigations of Coal Fields

Coal is a resource which is abundant in Alaska, although the obstacles to producing and transporting it are serious in many areas. It is desirable to conduct detailed investigations of potential large coal prospects to assist the State in the development of this resource. Under this Project, the Department would initiate a series of field projects to map coal fields where information is needed to assess the State's coal resources, and would compile coal resource atlases. Field study would be conducted at the Ikroavik Bay/Chignik Bay coal district on the Alaska peninsula or a like area.

COMPONENT: Geothermal Leasing/Development

Project: Geothermal Resource Inventory/Analysis

Geothermal energy, a renewable resource, is the least known of Alaska's energy resources. Nevertheless, indications are that a large portion of Alaska may constitute a geothermal resource province. As the cost of importing energy into rural areas continues to increase in real terms, local development of geothermal energy resources for power generation and/or heat becomes increasingly attractive. Geothermal prospects which are cooler than the boiling point of water may be used to heat buildings or be employed with greenhouses for commercial agriculture. Geothermal steam may be converted into electrical energy through the construction of power generating plants. Planning for any future geothermal development will require investigation of hot springs (surface indications of potential prospects) as well as volcanic and intrusive igneous rocks. The Department's current drilling program at Pilgrim Hot Springs in Nome and its assessment of hot springs and geothermal anomalies around the State are generating important information about geothermal prospects which are suitable for development, and should be continued. Under this Project, the Department will complete by FY 1982 a geothermal atlas, and design development plans based on detailed geologic investigations for 12 specific hot springs sites; it will also complete detailed geologic investigations of at least three specific quaternary volcanic sites including relative volcanic hazard potential and advisability of site selection.

Project: Revision of Geothermal Regulations

AGENCY Natural Resources PROGRAM AREA NRMEC

BRU Mineral & Energy Development

FY 81

2 ANALYTIC STATEMENT

Page _____ of _____

REVISED
DATE _____

001950

Alaska presently has on the books a Geothermal Steam Act which governs the leasing, use and development of geothermal energy. This Act was adapted from Federal legislation and is probably much too complicated to be suitable for development purposes in Alaska. Anticipating legislative action during FY 1980, the Department wishes to be prepared to revise its regulations at the beginning of FY 1981 to prepare for lease sales in FY 1981. Under this Project, the Department would (1) develop and adopt revised State regulations dealing with geothermal energy resources management and utilization, (2) establish intra- and interdepartmental procedures to implement the regulations, and (3) develop a program to promote utilization of geothermal resources where in the public interest.

Project: Geothermal Lease Sales

Pending outcome of Statewide geothermal resource inventories, the Department will not be certain of the best prospects for development. Consequently, it cannot be stated at this time what the ownership status is of lands determined to be good prospects. Nevertheless, the Department anticipates having this information by FY 1981 and desires to be prepared to lease geothermal prospects occurring on State land. Under this Project, the Department will conduct one or more geothermal lease sales during FY 1981.

AGENCY Natural Resources PROGRAM AREA NRMEC

DRU Mineral & Energy Development

FY 81

2 ANALYTIC STATEMENT

Page _____ of _____

REVISED
DATE _____

001951

PROJECT COSTS

	<u>100</u>	<u>200</u>	<u>300</u>	<u>400</u>	<u>500</u>	<u>Other</u>	<u>Total</u>	<u>Associated Capital</u>
Revisions of Mining Rights Acquisition Regulations*	11.2	.6	.2	.1	0		12.1	
Mineral Claim Adjudication	72.9	1.8	1.9	.9	.5		78.0	
Plans of Operation/Mining and Exploration	13.1	1.0	.1	.1	.5		14.8	
Mining Offices	173.3	0	0	6.8	0		180.1	
Public Assays	62.9	0	0	3.8	0		66.7	
Mineral Development Policy Analysis*	7.2	.5	.2	.1	0		8.0	
Surface Mining Control	36.7	5.1	.2	.1	0		42.1	
Revision of Coal Regulations*	3.1	0	2.7	0	0		5.8	
Field Investigations of Coal Fields	98.3	6.8	10.4	2.6	0		118.1	
Geothermal Resource Inventory/Analysis*	190.0	12.2	84.7	4.7	0		291.6	
Revision of Geothermal Regulations*	10.0	.6	4.6	.2	0		15.4	
Geothermal Lease Sale*	10.0	4.0	5.8	.2	0		20.0	
Total projects within continuation	457.2	14.7	12.6	14.3	1.0		499.8	
Total incremental projects	231.5	17.9	98.2	5.3	0		352.9	
Total all projects	688.7	32.6	110.8	19.6	1.0		852.7	

*submitted as an increment on Form 6
 **not submitted in detailed budget

AGENCY Natural Resources PROGRAM AREA NRMEC

DRU Mineral & Energy Development

FY 81

2 ANALYTIC STATEMENT

Page _____ of _____

REVISED DATE _____

0019700

File with
material

for

HB 779

(1980)

BOB SPEED
SPEAKER'S OFFICE

MANAGEMENT OF LAND, WATER AND HYDROTHERMAL RESOURCES
ASSOCIATED WITH HOT SPRINGS IN ALASKA

Dave Denig-Chakroff
Geothermal Program Coordinator

STATE OF ALASKA
Department of Natural Resources
Division of Research and Development
Policy Research/Land Entitlement Section

January 1980