

ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILES 86/2

963 SCOMM44: HOUSE POWER ALTERNATIVES STUDY COMM. 1979-80

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It is recommended that the existing geothermal statute (38.05.181) be repealed and re-enacted in a simplified form.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 (29.63.090), 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.
 - i. 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

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		

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,

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.

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,

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.

APPENDIX C

Alaska Funding Options



JUNEAU ALASKA

Alaska State Legislature

House

April 3, 1979

MEMORANDUM

TO: The Honorable Ernie Haugen
House Finance Committee

FROM: Milt Barker, ^{AB} 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 HB 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 CSHB 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.

MBB:pw

Attachments

Introduced: 2/27/79
Referred: Finance

BY THE RULES COMMITTEE BY
REQUEST OF THE LEGISLATIVE
COUNCIL (for the State
Energy Policy Committee)

1 IN THE HOUSE

2 HOUSE BILL NO. 309

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 the construction of power
7 projects."

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

9 * Section 1. AS 37.05.158(c) is amended to read:

10 (c) The proceeds of the reserve for energy facilities development
11 account shall be appropriated annually [SUBJECT TO ANNUAL APPROPRIATION]
12 by the legislature and used for the construction of power projects.
13 Plans for expenditures from the account shall be submitted by the gover-
14 nor in accordance with the Executive Budget Act (AS 37.07) as part of
15 his annual budget presentation.

16 * Sec. 2. AS 44.56.170 is amended by adding new subsections to read:

17 (g) Applications for loans under (b)(2) of this section shall
18 contain information in the form prescribed by the authority to enable
19 the authority to determine whether the construction costs of the project
20 could also be financed under other provisions of AS 44.56. If it
21 appears to the applicant that the construction costs of the project can
22 be financed only under (b)(2) of this section, the application shall
23 also be accompanied by an analysis which compares the anticipated
24 revenues from the project which will be available after payment of
25 estimated expenses of operation and maintenance to an assumed schedule,
26 approved by the authority, of principal or sinking fund payments and
27 interest payments which would be payable if the loan was secured from a
28 private lender. If the anticipated available revenues are not at least
29 equal to the assumed payments necessary, the authority may not make the

1 loan unless there is available in the fund or from any other source an
2 amount which, when added to the anticipated revenues, equals the
3 assumed payments.

4 (h) The authority may establish an account in the power project
5 revolving fund from which it may purchase revenue bonds issued appli-
6 cants for loans under (b) of this section for the construction costs of
7 the project. The revenue bonds may be secured by a senior, parity or
8 subordinate pledge of revenues of a project and may be purchased by the
9 authority at the same time bonds are issued to other investors secured
10 by a senior, parity or subordinate pledge of revenues of the project.
11 The revenue bonds purchased by the authority may bear interest at such
12 rate or rates, mature at such time or times, and contain such other
13 terms and conditions as the authority determines necessary to permit the
14 sale of the bonds to other investors.

15 Sec. 3. AS 44.56.230 is amended by adding new paragraphs to read:

16 (8) "small-scale" means a facility producing not more than 25
17 megawatts of power;

18 (9) "construction costs" means the cost of constructing,
19 equipping, modifying or expanding a project and includes the costs of
20 feasibility studies, design work and reconnaissance studies.
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Benier

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 facili-
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.
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APPENDIX D

District Heating Article

DISTRICT HEATING:
LEGAL & INSTITUTIONAL PARAMETERS

Kenneth A. Wonstolen

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 political: 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 via 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 and 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; geoheating 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

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 scales 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 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.

- o Specifies that funds would be available to local governments and State agencies to provide public services necessary to support geothermal activities.

o No such provision

- 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 No such provision

- o Provides for an interagency counsel with local and public membership to determine projects which merit funding support.

o No such provision

- o Requires biennial reporting of expenditures and accomplishments made as a result of projects undertaken.

o No such provision

- o Requires reevaluation of program at the end of 10 years.

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 50 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.

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

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 plans, 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 application,s 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.

APPENDIX F

Life-Cycle Costing Bill

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 I. 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.

LEGIS/50—The Center for Legislative Improvement is a national nonpartisan, not-for-profit organization working for state government improvement in the 50 states. It was founded in 1965 as The Citizens Conference on State Legislatures by citizens in education, labor, business, government, agriculture, and civic affairs.

LEGIS/50—The Center for Legislative Improvement
333 West Colfax
Denver, Colorado 80204
(303) 825-1776

· PLEASE NOTE: THE PRECEDING PAGES WERE TREATED
· AS A UNIT IN THE ORIGINAL DOCUMENT. · ·

legis 50

UTILITY POLICY, CONSERVATION & EMERGING TECHNOLOGIES

ONYX ROOM

Workshop Chairman - Rep. George Sheldon - Florida
Rep. Bill Edwards - Wyoming
Staff Assistant - Linda Waldman

Participants:

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Rep. Anne Just	Vermont
Rep. Margaret Bronson	Alaska
Rep. Paul Bolster	Georgia
Sen. Charles L. Butts	Ohio
Ably. Steve Coulter	Nevada
Sen. Joseph Kurada	Hawaii
Rep. Herb Hunnekens	Montana
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Adrienne Anderson	Colorado
Richard Westfall	Colorado
Sherry Valentine	NCSL
Jim Patterson	Colorado School of Mines
George Tung	Colorado
Jerry Hill	Amoco/Atlanta

LEGIS - 50

Utility Policy Workshop

Preliminary Agenda

I. National Energy Policy Objectives in the Utility Sector

1. Assure adequate and reliable bulk power and natural gas supplies.
2. Reduce utility reliance on oil and gas for electric power generation.
3. Promote the use of renewable energy resources and decentralized systems where economically justified.
4. Provide incentives for increased efficiency and conservation and in the use of electricity and natural gas.
5. Make more efficient use of the existing investment in bulk power generation and transmission facilities thereby reducing the need for new facilities.
6. Increase the efficiency of the regulatory decision-making process in the utility sector while assuring effective participation by all concerned parties.

II. Federal Programmatic Efforts

1. Power Supply & Reliability

- o Regional need-for-power assessments and workshops.
- o Weekly bulk power monitoring winter reports to states and utilities.
- o Annual 10-year and 20-year reviews and assessment of regional power supply adequacy.
- o Investigation of bulk power outages
- o Reliability study (PURPA).

2. Reduction in Utility Oil-Gas Consumption

- o Coal-conversion program (Fuel Use Act)
- o Substitution of natural gas for oil
- o Power-wheeling (coal-by-wire)
- o Innovative technologies (e.g., coal-oil mixtures)

3. Promote Solar & Renewables

- o Demonstration projects with PUC's and utilities.
- o Information transfer to state regulatory agencies and utilities.
- o PURPA guideline on non-discriminatory rates for solar and renewables.
- o Intervention before state and federal regulatory agencies.
- o Cogeneration rules (PURPA)

4. Promote Conservation

- o Rate design, load management and conservation project demonstrations sponsored jointly with state regulatory agencies.
- o Rate design guidelines and interventions under PURPA.
- o NECPA modifications needed to provide greater state flexibility in conservation service program design.
- o Analysis and documentation of alternative utility roles in conservation service programs.
- o State workshops and information transfer.

5. Increase Utility Efficiency

- o Regulatory incentive to increase powerplant availability.
- o Data compilation and analysis of comparative system performance.
- o Promote power pooling and economic dispatch through studies and regulatory interventions.
- o Identify needed transmission links to promote greater system coordination.

6. Improve Regulatory Efficiency

- o Grants to state agencies to assist in PURPA implementation.
- o Regulatory efficiency studies and research.

- o Development of new regulatory tools and processes.
- o Workshops, seminars, educational programs for PUC staff.
- o Support for National Regulatory Research Institute.
- o State Consumer Office Grants.
- o Consumer Intervenor training programs.

III. State Legislative Agenda

1. Power Supply & Reliability

- o Coordinated powerplant siting and licensing procedures.
- o Coordinated need-for-power determinations with neighboring jurisdictions.
- o Support for PUC efforts to provide utilities with adequate revenues to assure timely completion of needed facilities.

2. Reduction in Utility Oil-Gas Consumption

- o Support for coal conversion efforts (e.g., air quality waivers, financial incentives, etc.)
- o Eliminate tariff barriers to purchased power used to displace oil.
- o Increased oversight on automatic flow-through of oil costs through fuel adjustment clauses.
- o Financial support for innovative projects.

3. Promote Solar & Renewables

- o Financial incentives (tax credits, etc.).
- o Provide flexibility for varying degrees of utility involvement in solar and renewables.
- o Facilitate utility access to waste products and biomass materials.
- o Adopt rate designs which allow solar and renewables to compete on their merits (i.e., non-discriminatory rates).
- o Adopt rate designs which encourage cogeneration projects with consideration of fuel-use and reliability implications.

4. Promote Conservation

- o Assure serious PUC consideration of PURPA rate-making and regulatory standards and adoption where shown to be cost-effective.
- o Conduct periodic oversight hearings on utility conservation program effectiveness.
- o Provide adequate support for State agencies responsible for NECPA implementation.
- o Financial incentives (tax credits, etc.).

5. Increase Utility Efficiency

- o Eliminate regulatory barriers to coordinated operation (i.e., power pooling) and economic dispatch.
- o Eliminate barriers to utility interconnection.
- o Provide regulatory incentives for improved utility performance (e.g., incentive rate of return).
- o Conduct periodic oversight hearings on comparative utility performance (intra-State and inter-State).

6. Improve Regulatory Efficiency

- o Assure adequate financial and technical support for all State agencies responsible for utility regulation.
- o Consolidation of overlapping or fragmented regulatory functions.
- o Provide PUC's with needed flexibility to undertake innovative regulatory practices.
- o Encourage inter-State and regional regulatory proceedings where issues transcend single political jurisdiction.
- o Support NRRI.
- o Clarify roles of PUC's versus state energy offices.
- o Establish state consumer offices to represent consumer interests before PUC's.
- o Provide intervenor funding to assure effective participation of all concerned parties in state regulatory proceedings.

14 DEC 1979

STATE AND LOCAL CONSERVATION GRANT PROGRAMS

Program Description

The Schools and Hospitals Grants Program authorized in the NECPA in November 1978 provides 50/50 matching grants for energy audits and retrofit projects for schools and hospital buildings.

The Local Government and Public Care Buildings Grant Program authorized under NEPH provides 50/50 matching grant monies for energy audits.

The State Energy Conservation Grant Program authorized by EPCA in 1975 and the Supplemental State Energy Conservation Grant Program authorized by ECPA in 1976 provide 100% grant funds for state-wide conservation programming.

The Energy Extension Service provides 100% grant funds for targeted energy information dissemination and energy outreach.

Discussion Points

- o The State Energy Offices will be the focal point for Federal monies going into each State.
- o The responsibilities of State Energy Offices has increased enormously over the past three years.
- o The State Energy Offices should be the focal point and the coordination point for intra-state activities.
- o SEO's need strong support from State legislatures.
- o Need to review existing authorities for conservation programming and develop new authorities to meet Federal requirements and meet defined State needs.
- o State Government Energy Management Program
 1. Energy Savings and cost avoidance.
 2. Set example and provide leadership to other elements within State.

- o Energy Conservation in Building Codes is an example.
 - 1. Not meeting Federal requirements.
 - 2. Preparation for BEPs
 - 3. Influence on substate governments.

Potential Outcomes

- o Recommendation that States establish energy management programs for State buildings.
- o Recommendation that States provide resources and guidance to substate units for conservation in the public sector.
- o Support SEO's request for matching funds for the NECPA programs.
- o Recommendation that State legislatures support:
 - 1. Close cooperation between legislative staffs and SEO in setting State energy policy.
 - 2. SEO's be strengthened to be able to fully review and analyze the impact of Federal and State energy policy proposals.
 - 3. SEO's be supported in their participation in the development at Federal energy policies and programs.

WEATHERIZATION ASSISTANCE PROGRAM

1. Program operates through State offices to Community Action Agencies.
2. Program funded at \$200 million per year.
3. Two major problems:
 - a. Matching labor to materials.
 - b. Addressing the needs of low-income tenants.
4. Waiver Procedure to address labor needs.
5. Status of Program:
 1. \$213 thousand as of October 31.
 2. 15-20 thousand homes/month.
 3. Need to double that by spring.
6. State legislators can help by assisting the State Offices in their management of the program.
 1. Expediting the flow of funds.
 2. Keeping accurate records.
 3. Insuring quality workmanship.
 4. Insuring fiscal accountability.

DR. KENNETH FRIEDMAN
ACTING DIRECTOR, POLICY COORDINATION AND SUPPORT DIVISION
POLICY, PLANNING AND EVALUATION
OFFICE OF ASSISTANT SECRETARY
CONSERVATION AND SOLAR ENERGY

ALCOHOL FUELS
DENVER, COLORADO
DECEMBER 18, 1979

1. ALTERNATIVE RENEWABLE FUELS: LIQUID SOLAR ENERGY
2. MEASURES OF PRESENT GASOHOL CONSUMPTION
3. PRESENT PRODUCTION CAPABILITIES
 - (A) LARGE SCALE 10 - 50 MILLION/GALLONS/YR
 - (B) SMALL SCALE/APPROPRIATE TECHNOLOGY
4. FEEDSTOCK POSSIBILITIES
 - (A) CORN
 - (B) BAGASSE
 - (C) WHEAT
 - (D) CHEESE WHEY
 - (E) CELLULOSIC MATERIALS
 - (F) SWEET SORGHUM
 - (G) WOOD
5. U.S. LIQUID FUELS CONSUMPTION
 - (A) TRENDS
 - (B) IMPACT OF IRANIAN EMBARGO

6. ISSUES IMPACTING FUTURE GASOHOL CONSUMPTION IN THE U.S.
 - (A) FOOD VS. FUEL
 - (B) END-USE ISSUES: FUEL ECONOMY, PERFORMANCE, IMPACT ON ENGINES, COSTS, DISTRIBUTION PROBLEMS.
 - (C) NET ENERGY BALANCE
 - (D) IMPORTS
 - (E) END-USE SUITABILITY -- NON-HIGHWAY USES
7. PRESENT GOVERNMENT INCENIVES
 - (A) STATE
 - (B) FEDERAL
8. SECTION 932 IMPLEMENTATIONS FOR ALCOHOL FUELS
9. POSSIBLE STATE ROLES
 - (A) FLEET DEMONSTRATION ACTIVITIES
 - (B) GASOLINE TAX INCENTIVES
 - (C) INCENTIVES FOR ALCOHOL FUELS PRODUCTION
10. PRESENT FEDERAL GOVERNMENT PROGRAMS
 - (A) BIOMASS PROGRAM
 - (B) ALTERNATIVE FUELS UTILIZATION PROGRAM

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MR. STEVEN POTTS, SPECIAL ASSISTANT TO THE SECRETARY
DEPARTMENT OF ENERGY
WASHINGTON, D.C. 20585

RECENT OVERVIEW STUDIES

U.S. DEPARTMENT OF ENERGY, "THE REPORT OF THE ALCOHOL
FUELS POLICY REVIEW," JUNE 1979, 119 PP.

CONGRESS OF THE UNITED STATES, OFFICE OF TECHNOLOGY
ASSESSMENT, "GASOHOL: A TECHNICAL MEMORANDUM,"
SEPTEMBER 1979, 71 PP.

333 West Colfax
Denver, Colorado 80204
(303) 825-1776

January 4, 1979

Representative Brian Rogers
P.O. Box K
Fairbanks, Alaska 99701

Dear Representative Rogers:

I am very pleased that you were able to attend the National Legislative Town Meeting on Energy and hope that you found it productive. I believe that state legislators are finally beginning to be recognized as major innovative forces in the nation's energy policy-making, and the Town Meeting clearly shows why that is the case.

The Town Meeting should encourage the exchange of information among legislators interested in energy policy. To promote that, I am enclosing a list of legislators who attended the conference. This is just the first of several contacts we will make with you as a follow-up to the meeting. Please feel free to call on us if we can be of any service to you.

Good luck in your legislative activities during 1980.

Sincerely,


James E. Arnold
Executive Director

JEA/lg
Enclosure

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Former Majority Leader,
Indiana House of Representatives
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G. D. Searle & Company
Skokie, Illinois

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State Senator
Greensboro, North Carolina

Jess Unruh
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Former Speaker, California State Assembly
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December 17-19, 1979
Denver, Colorado

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Ncat the National Center for Appropriate Technology

What Is Appropriate Technology?

A response to a problem. As prices rise faster than income, many Americans find it difficult to pay even their basic bills. A recent Community Services Administration study reflects the critical nature of this situation for the poor: Nearly 5 million families below the poverty line are falling short by approximately \$70 million every month in their ability to pay for heat, electricity and gasoline.

And energy costs are not the only problem. Low-income people also face financial burdens imposed by our large-scale, capital-intensive, centralized systems for production and distribution of food, health care and other necessities of life. But there are hopeful signs.

Appropriate alternatives. The sun, wind and water have been harnessed to produce energy and heat; greenhouses and intensive organic gardening are being used to grow nutritious food; decentralized health-care systems are providing low-cost medical services; composting toilets and methane digesters are producing fertilizers and fuels; community-based industries are creating products and jobs for local people.

These and similar technologies, designed to meet specific human needs and fit their local settings, are termed "appropriate technologies." Their purpose is to help people become more self-reliant, and to improve the quality of urban and rural life -- particularly for the nation's poor.

An appropriate technology:

- * is relatively inexpensive and simple to build, maintain and operate;
- * uses renewable resources rather than fossil fuels, and does not require high energy concentrations;
- * relies primarily on people's skills, not on automated machinery;
- * encourages human-scale operations, small businesses and community cohesion;
- * is protective of human health, and is ecologically sound.

Why the National Center?

NCAT's mission. The widespread problems stemming from our dependence on scarce and costly resources touch the entire country, but have their most damaging impacts on the poor. The National Center for Appropriate Technology, an independent, non-profit corporation, has been funded by the U.S. Community Services Administration (CSA) to develop and apply appropriate technologies to specific needs of low-income people, and to promote locally based programs that develop individual and community self-reliance.

A comprehensive program. The National Center's professional staff, with its headquarters in Butte, Montana, offers a comprehensive nationwide program of technical research and assistance, small grants, information and local support activities. NCAT's office in Washington, D.C., maintains close contact with national policymakers, Congress, administrative agencies and other organizations, tracking national legislation and providing information needed for wise policy formulation.

Goals of the Center are to:

- * develop appropriate technology solutions to energy-related and other problems experienced by low-income communities;
- * conduct research to assure that the poor are afforded high-quality, cost-effective opportunities in appropriate technology;
- * promote awareness and use of appropriate technology in low-income communities;
- * provide financial and technical assistance to encourage the use of small-scale, community-based technologies;
- * encourage public and private sectors to adopt policies that overcome existing legal, economic and other barriers to widespread use of appropriate technologies by the poor.

What's Being Done by Ncat?

Technical research. The National Center's technical staff conducts extensive research utilizing passive and active solar test facilities, a solar greenhouse and other resources at its Montana headquarters, and at other sites around the country. The technical program is focused on applied research - developing and testing model applications of appropriate technologies with potential for immediate impact on the problems of low-income consumers and their communities.

The NCAT technical staff comprises three research task groups:

- * renewable energy, including passive and active solar systems, wind generation and small-scale hydro power;
- * building technology, home weatherization, energy conservation, housing rehabilitation and transportation planning;
- * agriculture, biofuels and recycling, with concentrations in greenhouse and organic farming methods, community gardening, methane production and wood heat.

Small grants. Promising appropriate technology projects in local communities receive financial assistance and technical support under the National Center's small grants program. During its first two years of operation, the Center has awarded grants totaling more than \$1.7 million to 173 projects.

The NCAT grants program is focused directly on the principal research and development aims of the Center. The objective is to provide the funds necessary to demonstrate and utilize appropriate technologies in low-income communities.

Funded projects range from passive solar greenhouses and community gardens to home weatherization programs, solar job-training, low-cost housing and waste-recycling centers. A complete listing of grants is available from the Center at no charge.

How large are NCAT grants? The National Center's average grant is in the range of \$5,000 to \$10,000.

Who is eligible? NCAT may provide funding for projects sponsored by Community Action Agencies (CAAs); Community Development Corporations (CDCs); other local, non-profit CSA grantees; Indian tribes; and other public agencies.

How can you apply? The Center periodically announces requests for proposals (RFPs) that outline specific types of projects eligible for funding. To receive NCAT grant announcements, please write to the National Center's grants office in Butte.

Grants are awarded on a competitive basis, and only proposals responding to specific announcements are eligible for review and funding.

Field support. The National Center employs ten field representatives who help NCAT assess local needs and resources, provide decentralized services and develop local and regional networks for information-sharing and mutual assistance. In special cases, the Center may send technical staff members from Butte to advise and support local groups, funded projects, Community Action Agencies, state energy offices and other organizations or activities.

Information services. NCAT's resource center in Butte maintains one of the finest, most complete collections of appropriate technology materials in the United States. It collects books, periodicals, newsletters, reference works, research data and reports, policy papers and other documents on a wide range of activities related to appropriate technology: community development, agriculture, education, the environment, housing, health, employment, land use and policy alternatives, as well as technical research and development information.

Besides being a valuable asset to NCAT staff activities, the resource center provides reference services for individuals and groups seeking specific information on various aspects of appropriate technology, and answers hundreds of mail and telephone inquiries each year.

Published materials. The Center's own publications range from sophisticated technical reports and policy studies to do-it-yourself instructions for conserving energy in the home. All are aimed at spreading the word about appropriate technology among diverse audiences, from local grassroots groups to national policymakers.

The publications include research papers, survey reports, training manuals, bibliographies, resource lists, how-to brochures, and issue analyses probing various social, economic and legal barriers to adoption of appropriate technologies. Most NCAT publications, including a current catalog and order form, are available free from the Center's Butte office.

How Can You Get Involved?

The National Center for Appropriate Technology's job is a big one. Its work can be effective only through the cooperation and involvement of individuals who share the vision of a decentralized, self-sufficient, appropriate future. The Center exists as a national program only to provide the most effective support possible to assure the success of local programs and projects based on community participation.

Across the country, there are thousands of individuals, community groups, agencies, networks and centers advocating and practicing appropriate technology. Through its outreach and information programs, NCAT seeks to facilitate the networking required to bring these various elements together. Beyond that, the special role the National Center plays is that of providing the appropriate technology world with the technical capability to develop, test and evaluate applications of appropriate technology that work and that are useful to low-income people.

The Center is also seeking ideas in appropriate technology that can be utilized by low-income people. Of particular interest are ideas suited to self-help projects or small-scale manufacturing processes.

Mobilizing resources to support additional work in appropriate technology also is important, not only for the National Center but for local programs as well. The NCAT staff is interested in expanding access to financial and other resources for continuation of this vitally important work.

For More Information...

Requests for publications, or for information about NCAT and appropriate technology, may be directed by letter or by phone to the Information staff. Funding inquiries are answered by the Grants office.

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TOWN MEETING ON ENERGY

December 17-19, 1979
Denver, Colorado

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SCOMM

#44:12



POUCH V
JUNEAU, ALASKA 99811
OFFICIAL BUSINESS

MEMO: April 30, 1980
TO: Rep. Bill Miles, Chairman
House Resources Committee
FROM: Bob Speed, Adm. Assistant
RE: HB 687 Alaska Energy Center
Section analysis

SECTION ANALYSIS

SECTION 1: FINDINGS. An independent energy resource development center, directed toward assistance to the private sector, can help develop Alaska's energy resources so as to stimulate employment and also new industries based on use of those resources, while helping solve state energy problems. Also, Alaska has a responsibility to use part of its nonrenewable energy resource revenues to help accomplish these goals, and to foster technologies that will help the nation as a whole.

SECTION 2: INTENT. The energy center is to become financially self reliant for its operating expenses at the earliest possible date.

SECTION 3: ESTABLISHES the Alaska Energy Center as a public nonprofit corporation, legally independent, but an instrumentality of the state under the Department of Administration, as described below:

PURPOSE. Creation of employment opportunities for Alaskans is given a high priority, using state energy resources as a mechanism to create economically viable industries and businesses based on use of those resources and hardware necessary for their use. In doing this, the Energy Center is to determine and promote appropriate energy technologies; benefit state citizens by stabilizing energy costs; reducing dependence on nonrenewable energy sources, and through creation of new industries, businesses and jobs; and develop commercially feasible businesses related to those technologies.

9 BOARD OF DIRECTORS: The governing body shall be a board of directors (appointed by the governor).

COMPOSITION OF THE BOARD: The board consists of nine members, seven of whom are appointed by the governor as confirmed by the legislature in joint session. Two members of the legislature also serve, appointed at the beginning of each legislature by the presiding officers; they are ex-officio and cannot vote.

*had talk about energy, job to
this day something about it.*
Alaska State Legislature
House of Representatives

- ① Jobs, 1987 line
- ② R: D → return to country & would save of resource new industries
- ③ Public Service
- ④ NEW RESULT new industry jobs

TERM OF OFFICE: Ex officio nonvoting members (legislators) serve for the duration of the legislature during which they are appointed.

Governor's appointments serve three-year terms and may be reappointed; terms are staggered. Officers elected among the directors serve in those positions for three years.

REMOVAL AND VACANCIES: The governor may remove board members from their office with the consent of a majority of legislators in joint session; if the legislature is not in session, members can be suspended with loss of rights of participation, subject to review by the legislature within 30 days of the beginning of the next session.

Vacancies are filled by appointment and confirmation, as above, with the new appointment serving the duration of the term to which he is appointed.

QUALIFICATIONS OF BOARD MEMBERS: At least four of the board members appointed shall be state residents with experience in energy technology or energy development. At least three of the board members appointed must be nationally recognized experts in energy technology or energy development.

QUORUM: Four voting board members constitute a quorum.

COMPENSATION of board members: \$350 a day plus per diem and travel expenses relative to board meetings.

CONFLICTS OF INTEREST: Board members are subject to the state conflict of interest provisions.

EMPLOYMENT OF PERSONNEL: The board shall employ an executive director and determine his salary. The executive director shall be responsible, with approval of the board, for other staff.

POWERS: Standard corporate powers assigned by the State of Alaska. Also: to contract with private and governmental entities for projects, accept grants and loans, hold patents, copyrights, trademarks, royalties, etc.

DUTIES: Promote commercial development and use of appropriate energy technologies, sponsor research, oversee demonstrations of technology, provide financial and other support to inventors and businesses engaged in the development, demonstration and commercialization of energy technologies; and to manage projects appropriated by the legislature.

BUDGET AND APPROPRIATIONS: The Center is subject to the Executive Budget Act. *high cost*

ANNUAL REPORT: The board is responsible for preparation and submittal of an annual report to the legislature, which shall include project descriptions and the number of new jobs which have been created, the number of businesses assisted or created.