

SCOMM

#44:13

INDUSTRIAL COGENERATION AND SMALL POWER PRODUCTION:  
AN OVERVIEW OF CONGRESSIONAL INCENTIVES TO ENCOURAGE  
THEIR DEVELOPMENT.

By: D. Jane Drennan\*

The energy crises of the 70's have prompted intense discussion of new or previously little-used energy sources. Unfortunately, among the major obstacles to the development of alternative energy sources have been an understandable reluctance on the part of private companies to invest money in new and uncertain ventures and the existence of restrictive government regulations. However, in recent legislation, Congress has attempted to lower both of these barriers to alternative energy development by simplifying the regulatory burden on concerns interested in seeking innovative solutions to their energy problems and creating financial assistance programs. Two possibilities for alternative power generation which have become more attractive due to recent legislation are cogeneration and small power production.

Technically speaking, "industrial cogeneration" is the use of fuel to generate both useful thermal energy and electricity in a sequential process. In the usual case, installation of a cogeneration facility at an existing industrial plant will permit the plant to harness the excess heat generated in connection with its industrial process and

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to use that heat to produce electricity which can then be used and/or sold to a local utility. "Small power production", on the other hand, involves the use of organic matter ("biomass"), waste, and/or renewable resources to produce electric energy. It is of course theoretically possible for a single facility to be both a cogenerator and small power producer. However, because the tax and market incentives provided for the two programs are basically identical, it is generally understood that the cogeneration program is aimed at facilities fueled by oil or gas, which facilities would not qualify as small power production facilities.

Neither cogeneration nor small power production is a new concept. Existing technologies and equipment can enable an industrial plant to become a cogenerator or small power producer without great difficulty. However, in the past, the risk of subjection to complex state and federal electric utility regulations and the unwillingness of electric utilities to purchase generated power or to sell backup power to these facilities at reasonable rates combined to limit interest in this area of power generation. Congress has attempted to remove regulatory and economic obstacles and to encourage industries to implement available technologies in a series of energy enactments: Title II of the Public Utility Regulatory Policies Act of 1978 ("PURPA") 1/ establishes guidelines for qualifying facilities and insures the

sale and purchase of their electrical power; section 206(c)(3) of the Natural Gas Policy Act of 1978 2/ exempts from incremental pricing part of the natural gas used by qualifying cogeneration facilities which meet certain additional criteria; the Energy Tax Act of 1978 and the Crude Oil Windfall Profit Tax Act of 1980 3/ provide energy investment tax credits to small power production and cogeneration facilities under certain conditions; and Title II of the Energy Security Act of 1980 4/ provides financial assistance for the construction of certain facilities producing energy from biomass.

#### QUALIFYING UNDER PURPA

The Federal Energy Regulatory Commission ("FERC"), which is entrusted with administering PURPA, has adopted standards for cogeneration facilities qualifying under the Act. FERC has made it clear that it is only to the extent that both electricity and useful thermal energy are produced in sequential process that cogeneration actually exists; merely using half of the steam produced to generate electricity and the other half in an industrial process does not constitute cogeneration. 5/

FERC has attempted to discourage the establishment of token cogeneration facilities which produce negligible amounts of electric power or useful thermal energy, by adopting operating and efficiency standards for two distinct modes of cogeneration: a "topping-cycle" and a "bottoming-cycle" facility. A "topping-cycle" cogeneration facility is

one which first produces electricity and then, from the reject heat from power production, produces useful thermal energy. 6/ The useful thermal energy output of the topping-cycle facility must not be less than 5% of its total energy output in any calendar year under the FERC operating standard. 7/ If the facility uses natural gas or oil, and was installed on or after March 13, 1980, 8/ it must meet the following efficiency standard: the aggregate of the useful electric power output plus one-half the useful thermal energy output in any calendar year must be no less than 45% of the total energy input of natural gas and oil. 9/

A "bottoming-cycle" facility reverses the process used in topping-cycle facilities, producing useful thermal energy first and then, from the reject heat emerging therefrom, electric power. 10/ Bottoming-cycle facilities are not subject to an operating standard, since FERC reasons that tokenism for such facilities will be discouraged by the fact that incremental pricing exemptions, discussed below, will be available only to the extent that reject heat is actually used to produce electricity. 11/ An energy efficiency standard applies to bottoming-cycle facilities only if installation began on or after March 13, 1980, and if natural gas or oil is used in supplementary firing (i.e., in the electric-generation phase of the process). When applicable,

the standard requires the facility to produce useful electric power output of no less than 45% of the natural gas and oil used for supplementary firing. 12/

In addition to the operating and efficiency standards, PURPA provides that a qualifying cogeneration facility may not be owned by a concern "primarily engaged in the generation or sale of electric power (other than electric power solely from cogeneration facilities or small power production facilities)." 13/ Where more than 50% of the equity interest in a cogeneration facility is held by an electric utility, an electric utility holding company, or any combination thereof (with subsidiaries' interests attributed to their parents), the facility cannot qualify. 14/

Small power production installations must satisfy several criteria established by FERC to qualify under PURPA. A qualifying facility must have as its primary energy source(s) biomass, waste, and/or renewable resources (e.g., water, wind, and solar power). An energy source(s) is considered primary when it provides more than 75% of the total energy input in any calendar year. 15/ Fossil fuels may be used as long as they do not exceed 25% of the total energy input in a year. 16/ The power production capacity of a small power production facility, together with the capacity of all other facilities using the same energy source and owned by the same concern, may not exceed 80 megawatts in order to qualify. 17/ Facilities with electrical

generation plants within one mile of each other are deemed to be located at the same site. 18/ Small power production facilities are subject to the same ownership restrictions as discussed above for cogeneration facilities. 19/

BENEFITS PROVIDED BY PURPA

PURPA mandates that FERC prescribe rules which "require electric utilities to offer to -- (1) sell electric energy to qualifying cogeneration facilities and qualifying small power production facilities and (2) purchase electric energy from such facilities." 20/ The rates for purchases from qualifying facilities are required to be just, reasonable, and nondiscriminatory, but may not exceed "the incremental cost to the electric utility of alternative electric energy" (the buyer's avoidance cost). 21/ The task of implementing FERC regulations regarding rates is placed upon the appropriate state authorities. 22/

Every electric utility has an obligation to purchase any energy available either directly or indirectly from a qualifying facility. 23/ However, such purchases are not required in any period in which they would result in costs greater than those the utility would incur if it generated an equivalent amount of energy itself, 24/ or during a system emergency where such purchases would contribute to the emergency. 25/

Because of differences between the avoidance costs of different utilities, a cogenerator or small power producer may find it more profitable to sell its output to a utility

other than the one with which it is directly interconnected. If the qualifying facility and the intermediate utility agree, the purchase obligation of the first utility may be shifted to the second utility. 26/

Electric utilities also have an obligation to sell power to qualifying facilities at fair and nondiscriminatory rates. 27/ Supplementary, back-up, maintenance, and interruptible power must be provided as well unless doing so would impair the utility's ability to render adequate service to its customers. 28/

Pursuant to its authority under PURPA, FERC has exempted qualifying cogeneration facilities and qualifying small power production facilities with a production capacity not exceeding 30 megawatts from all provisions of the Federal Power Act, except those dealing with wheeling, interconnection (with reference to qualifying facilities as applicants for interconnection), emergency authority, the filing of statements by directors of public utilities, and enforcement. 29/ Cogenerators, small power producers with a production capacity not exceeding 30 megawatts, and small power producers with a larger production capacity generated solely by energy input of which 50% or more is biomass, will not be subject to the Public Utilities Holding Company Act of 1935, 30/ or to state laws or regulations regarding rates (except to implement FERC rules under Title II of PURPA) or financial and organization requirements pertaining to electric utilities. 31/

EXEMPTIONS FROM INCREMENTAL PRICING

Section 206(c)(3) of the Natural Gas Policy Act exempts cogeneration facilities from incremental pricing. Before a facility can claim exemption, it must qualify under PURPA and also meet certain additional operating and efficiency criteria. Topping-cycle facilities must meet PURPA standards or, alternatively, if they were in existence on November 1, 1979 and used natural gas on or prior to that date, must have an overall energy efficiency of not less than 55% and an internal energy efficiency of at least 70% 32/ as computed under FERC definitions. 33/

Bottoming-cycle facilities qualify for the exemption to the extent that reject heat is actually used in producing electric power. Although natural gas used solely for supplementary firing is not ordinarily exempt, FERC has exempted it to the extent that qualifying facilities generate electricity which is sold to a utility. 34/

A separate exemption from the incremental pricing provisions of the NGPA is available for qualifying mechanical cogenerators which meet certain efficiency standards.

INVESTMENT TAX CREDIT

The Crude Oil Windfall Profit Tax Act of 1980 amended the Energy Tax Act of 1978 to allow a 10% energy credit from January 1, 1980, through December 31, 1982, for certain investments in cogeneration equipment. 35/ Cogeneration equipment does not qualify if the facility uses oil or natural gas for any purposes other than start-up, flame control, or back-up, or if more than 70% of its total fuel input in any taxable year consists of oil or natural gas. 36/

The Treasury Department has not yet published any regulations on this subject.

Pursuant to the Energy Tax Act of 1978, as amended by the Crude Oil Windfall Price Tax Act, boilers which primarily use biomass as a fuel are eligible for a 10% tax credit up to December 31, 1985. 37/

#### FEDERAL FINANCIAL ASSISTANCE

Title II of the Energy Security Act establishes a program of financial assistance for the construction of biomass energy facilities. This program is to be administered jointly by the Secretaries of Agriculture and Energy. The Act defines an eligible "biomass energy project" to be "any facility (or portion of a facility) located in the United States which is primarily for . . . the combustion of biomass for the purpose of generating industrial process heat, mechanical power, or electricity (including cogeneration)." 38/

Assistance provided under the Act can include loan guarantees, 39/ price guarantees, 40/ purchase agreements, 41/ and, for the construction of small scale facilities, 42/ loans. 43/ For the two year period beginning October 1, 1980, Congress has appropriated \$1.45 billion for the biomass energy program; no additional grants of financial assistance can be made after September 30, 1984, although funds already committed may be paid after that date. 44/

PRACTICAL EFFECTS

Cogeneration and small power production offer several attractions to companies interested in reducing their electric energy costs and/or obtaining greater security of supply. The technologies necessary are already available. Both cogeneration and small power production utilize energy or material that would otherwise go unused. Furthermore, Congress has passed a battery of provisions with the intention of stimulating private development. However, a decision to invest in cogeneration or small power production must still be made carefully and with full consideration of the engineering, legal, and economic aspects of these alternative energy sources.

Companies considering cogeneration must study not only the technical feasibility of harnessing the otherwise wasted heat in a manner which satisfies FERC requirements (especially the "sequential" test), but also other regulatory standards, the initial capital investment required, the cost of operation, the potential savings from self-produced electricity, and the potential revenues from the sale of energy.

A recent report by the General Accounting Office to Congress indicates that, because the amount of reject heat from an individual process is usually insufficient to generate electricity, topping-cycle facilities are more apt to be technologically feasible than bottoming-cycle facilities. 45/ The report also suggests that capital outlay can run into millions of dollars 46/ and that, since cogeneration requires

using more fuel than required only to raise process steam, increased operating expenses will necessarily be incurred with cogeneration.

The GAO report concludes that cost savings from cogeneration will depend upon the extent to which the cogeneration capacity is used, the cost of fuel, and the cost of electricity from other sources. 47/ Cogeneration may make economic sense to a particular company only if the capacity is used to its full design load as continuously as possible, the extra fuel required is both available and reasonably priced, and a significant savings and/or revenue is realized by the facility's energy production.

Similar considerations apply to small power production, which appears to have good potential for industrial plants which have combustible waste materials on hand that can be safely and efficiently used to fuel energy production.

In calculating potential revenue, companies must remember that a qualifying facility has no guarantee that it can sell its electricity at a rate reflecting its costs or providing a given return on its investment, since the maximum rate established by the regulations depends upon the imputed cost to the buyer of securing alternate energy and not the cost to the seller in generating it.

Both cogeneration and small power production have the potential to benefit not only the companies which will generate and market electric power, but also the electric utilities which will purchase it. Whether this potential

benefit can be translated into economic advantages outweighing the necessary expenditures depends upon the efficiencies that can be achieved and the costs of energy input. It remains to be seen whether the new incentives created by Congress are adequate to stimulate speedy and effective development of cogeneration and small power production capability.

FOOTNOTES

- 1/ 16 U.S.C. § 824a3.
- 2/ 15 U.S.C. § 3301 et seq.
- 3/ P.L. 96223.
- 4/ P.L. 96294.
- 5/ FERC Order No. 70, at 912 (March 13, 1980).
- 6/ 18 C.F.R. § 292.202(d).
- 7/ 18 C.F.R. § 292.205(a)(1).
- 8/ 18 C.F.R. § 292.205(a)(2)(i).
- 9/ 18 C.F.R. § 292.205(a)(2)(i)(B). If the useful thermal energy output is 15% or more of the total output, the 45% requirement is lowered to 42.5%.  
18 C.F.R. § 292.205(a)(2)(i)(A).
- 10/ 18 C.F.R. § 292.202(e).
- 11/ Order No. 70, at 44; 18 C.F.R. § 292.205(c)(2).
- 12/ 18 C.F.R. § 292.205(b), (f).
- 13/ 18 C.F.R. § 292.206(a).
- 14/ 18 C.F.R. § 202.206(b), as amended, FERC Order Granting in Part and Denying in Part Rehearing of Order No. 70, and Amending Regulations (August 4, 1980).
- 15/ 18 C.F.R. § 292.204(b)(1)(i).
- 16/ 18 C.F.R. § 292.204(b)(2).
- 17/ 18 C.F.R. § 292.204(a)(1).
- 18/ 18 C.F.R. § 292.204(a)(2). In the case of waterpower facilities, if water from the same impoundment is used to generate power, the facilities are considered located at the same site.
- 19/ 18 C.F.R. § 292.206.
- 20/ 16 U.S.C. § 824a-3(a).
- 21/ 16 U.S.C. § 824a-3(b).

- 22/ 16 U.S.C. § 824a3(f).
- 23/ 18 C.F.R. § 292.303(a).
- 24/ 18 C.F.R. § 292.304(f). The utility must notify the qualifying facility in time for it to cease delivery of energy to the utility, in accordance with applicable state law.
- 25/ 18 C.F.R. § 292.307(b)(1).
- 26/ 18 C.F.R. § 292.303(d).
- 27/ 16 U.S.C. § 824a-3(b).
- 28/ 18 C.F.R. § 292.305(b).
- 29/ 18 C.F.R. § 292.601.
- 30/ 18 C.F.R. § 292.602(a), (b).
- 31/ 18 C.F.R. § 292.602(a), (c).
- 32/ 18 C.F.R. §§ 292.205(c)(1)(ii), 292.502(c).
- 33/ 18 C.F.R. § 292.502(b)(5), (6), (7).
- 34/ FERC Order No. 49-A (December 27, 1979).
- 35/ 26 U.S.C. §§ 46(a)(2), 48(l)(2).
- 36/ 26 U.S.C. § 48(l)(14)(c).
- 37/ 26 U.S.C. § 46(a)(2)(c).
- 38/ P.L. 96-294, Section 203(5).
- 39/ Section 214.
- 40/ Section 215.
- 41/ Section 216.
- 42/ Small scale biomass energy projects are defined as those with an anticipated annual production capacity which is the energy equivalent of not more than 1,000,000 gallons of ethanol. Section 203(19). The Secretary of Energy is responsible for determining energy equivalency and has determined that a gallon of ethanol contains 84,400 Btu's. 45 Fed. Reg. 52,911 (August 8, 1980).

43/ Section 213.

44/ Sections 204, 221.

45/ Comptroller General's Report to the Congress: Industrial  
Coceneration -- What It Is, How It Works, Its Potential,  
Doc. No. EMD-80-7, at 6-7 (April 29, 1980).

46/ Id., at 48-49.

47/ Id., at 49.

WHILE IN SESSION:  
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REPRESENTATIVE  
**BRIAN ROGERS**  
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23 January 1981

Clarissa Quinlan  
Division of Energy & Power Development  
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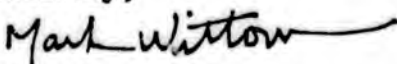
Dear Clarissa,

Rep. Rogers has asked that you provide us with a complete analysis of expenditures under the Residential Energy Conservation Program enacted in 1980. The analysis should show expenditures by category (audit, training, publicity, administration, refund and loan), number of dwellings improved, location of the residences and the month by month breakdown of expenditures since July 1980, projected to the end of FY 1981. You should include <sup>also</sup> ~~only~~ planned requests for supplemental appropriations.

We would also appreciate any comments you care to offer on the energy conservation program before we begin work on legislation to improve it. One of our main concerns is the large amounts of money required for the audit, at the expense of funding for physical improvements to the residences. Any immediate actions you can take to prevent the audit efforts from draining improvement funds, such as allowing refunds without an audit, are recommended by Rep. Rogers.

Please let me know if you have any questions.

Sincerely,



Mark Wittow  
907-465-3711/3799

MW/vb

cc: Representative Sam Cotten (att: Lisa Parker)  
Representative Terry Gardiner  
Representative Hugh Malone (att: Paul Quesnel)



## Raising A Fleet Of Rabbits

By Amory Lovins

I'd like to give you a few little numbers about how to save oil, because that is indeed a very urgent thing to do, and if you want to save a lot of oil quickly in this country there are only two important ways to do it. It's a distressingly simple prescription:

Stop living in sieves, and stop driving petrol pigs.

Now we know that a basic weatherization program in this country just over the next 10 years would save us upwards of 2½ million barrels a day, which, by the way, is two-fifths of our present rate of oil imports. That's a big number.

What about the other three-fifths of our imports? We could do that with one simple fast payback measure . . . namely, turn over the car stock faster. Any of you who have tried to trade in a gas-guzzler lately will know that its trade-in value has dropped pretty close to zero. So those gas-guzzlers have been trickling down to the poor people who can least afford to run them or replace them.

But we have a lot more options than gas-guzzlers. Our average car now gets 15 or 16 miles per gallon. The average U.S.-made car sold last year did about 19 mpg. The average import, however, did 32 mpg. A diesel Rabbit does about 42 mpg. The turbo-charged diesel Rabbit with a slightly down-sized engine so it gives the same performance as the present diesel Rabbit does about 64 mpg. Volkswagen has already tested a four-door, four-passenger car, bigger than the Rabbit, with a composite rating between 70 and 80 mpg. That's an advanced diesel. They've also taken a big, heavy car and stuck into it, using off-the-shelf components, a diesel electric hybrid-drive. That one did 83 mpg the first time they turned it on. We know that it's really pretty straightforward, without losing either comfort or performance, to get in the 70 to 100 mpg range, and if we really put together the best technologies we have, we can push it a lot further than that.

Now a fleet of, say, 60 mpg, that is about the same as the non-down-sized turbo-charged diesel Rabbit—20 extra horses in your Rabbit (that's difficult to visualize . . . very small horses . . .) would save us nearly 4 million barrels a day. More than we get from the Gulf; about two-thirds of our present rate of net oil imports; several pre-embargo Irans; 80 big synfuel plants; 2½ North

Slopes. It's a big number.

Well, how can we achieve that sort of fleet? I was figuring that rather than building synfuel plants, it would be much cheaper and quicker to save oil by using the same money to pay somewhere between half and all of the cost of giving you a free diesel Rabbit or Honda Civic, or an equivalent American car if Detroit would make one, provided, however, that you will scrap your automobile and get it off the road. It's no good to trade it in or sell it because then somebody else might drive it. You've got to get rid of it, recycle it. If you get rid of it and don't replace it, you ought to get a bounty based on its inefficiency and residual lifetime. Another way to do it would be that for each mile per gallon that your new car improves over the car you scrap, you should get a cash grant of about \$200. That would give us an average 5-year payback against synfuels.

Now you might suppose that it's really kind of hard for Detroit to make this sort of switch, even though the latest word we get is that the 70 to 80 mpg VW may be on the market as early as '84. That may speed things up a bit. Around 1940 Detroit apparently switched over to making tanks and jeeps and other completely different products in 6 or 8 months, having first said it was impossible. Now that is undoubtedly expensive to do. Detroit is already planning to spend around 50 billion dollars in this decade for re-tooling on two rather timid new generations of cars, but suppose instead they retooled in one giant leap-frog, straight to state-of-the-art hybrids at 100 mpg. And suppose that the additional cost . . . to do that was as high as 100 billion dollars. I don't think that's a plausible number. That's almost enough to rebuild Detroit from the bottom up. But if it were that much, and if we spread that 100 billion dollars extra cost over a complete new fleet, 100 million new cars and 30 million new trucks, that's \$770 per vehicle and the pay-back time is *one year* against the *present* gasoline price!

If only we had a government that was economically conservative, rather than either muddled or reactionary. . . .

—From Amory's address to the Passive Solar '81 conference in Amherst, Massachusetts, October 1980.

1/24

Brian -

Quinton called me Friday afternoon. She will be here Mon. - Wed. next week, and would like to talk w/you, if possible. I will meet w/ her first - I'm sure you'll see her at Energy Center meetings.

We talked again about audit v. grant \$. She feels that they are establishing a skilled group of people & short-term small business enterprises, some of which will grow & develop on their own, through the audit procedure.

This would be a benefit, if the audit is providing people with information equal to the subsidy paid by the state. If little information is conveyed, it's wasted money, ~~is~~ a make-work program at the expense of actual energy conservation improvements. Q feels that the SB 438 design - audit before grant - is a good one.

The only way to find out if the <sup>audit part of the</sup> program is worth the cost is to talk with a cross-section of people who have had the audits - we can't just hear from random comments or complaints. I propose to do a random check by phone or mail of 20-40 households that have had the audit, to get a cross-section of opinion. If you can think of a better way to get the same information, let me know.

What do you think?

MW

PS - The NCSL Renewable Energy Profile is the first good piece of work from them - several ideas worth pursuing, & a good review of existing projects & programs.

cannot afford to repay a portion of interest on a loan, and makes a determination in writing, he may reduce or eliminate the interest rate applicable to the loan.

(c) Repayments of the principal on a loan from the bulk fuel revolving loan fund shall be paid by the commissioner of commerce and economic development into the bulk fuel revolving loan fund. (§ 41 ch 83 SLA 1980)

**Sec. 45.87.030. Contracting authority.** The department may contract for the administration of the bulk fuel loan program established in this chapter. (§ 41 ch 83 SLA 1980)

**Sec. 45.87.500. Definitions.** In this chapter

(1) "bulk fuel storage facility" means a storage tank capable of holding at least 10,000 gallons of petroleum fuels;

(2) "community" means an organized municipality or an unincorporated village which is a social unit, with a population under 2,000;

(3) "department" means the Department of Commerce and Economic Development. (§ 41 ch 83 SLA 1980)

### Chapter 88. Alternative Technology and Power Resource Revolving Loan Fund.

Section	Section
10. Fund established [Terminates June 30, 1984]	30. Loan terms [Terminates June 30, 1984]
20. Powers and duties of the department in administering the fund [Terminates June 30, 1984]	40. Sale or transfer of mortgages and notes
	500. Definition

**Editor's note.** — The chapter heading "Resource Revolving Loan Fund" is was changed by the revisor to read "Alternative Technology and Power Resource Revolving Loan Fund."

**Sec. 45.88.010. Fund established [Terminates June 30, 1984].** There is established in the Department of Commerce and Economic Development the alternative technology and energy revolving loan fund to carry out the purposes of this chapter. Loans made under this chapter may be used

(1) to develop means of energy production utilizing energy sources other than fossil or nuclear fuel, including, but not limited to, windmills, water and solar energy devices; and

(2) to develop and implement methods of energy production, waste disposal, recycling, food production, transportation, building design, and industrial enterprise which may be more efficient, less costly, and

and energy intensive the appropriate to the A 1 ch 56 SLA 1979; an

**Effect of amendments.** — amendment inserted "techno" in that sentence, substitut "may be used" in sentence 2, and substit "other purpo" for "other purpo" in that sentence.

The 1980 amendment "energy" for "power resource revolving loan fund" near the introductory paragraph, the section to contain present and 1 by dividing the sec "may be used" and c at the end of the sec by the word "devices" to and inserting "and" fol amendment substituted energy "preceding" "revolving" at the end of the first sent introductory paragraph, "energy" for "power" precedi at the end of paragraph (1), loans made under

**Sec. 45.88.020. Power administering the fund**

1. make loans for the alternative energy s; implementation of more appropriate techn; 2. promulgate regula this chapter.

3. The department, i Science and Technology, made under this chapter loan terms. (§ 1 ch 29 S 1980)

**Effect of amendments.** — amendment added the language and for the developm "implementation" to the end of of subsection (a) and in with the Alaska Science and Technology" in sub The 1980 amendment "energy systems" for "power" to "installation of altern" at the beginning of paragraph (a).

energy intensive than those methods presently utilized and which are appropriate to the Alaska environment. (§ 1 ch 29 SLA 1978; am § 6 ch 56 SLA 1979; am § 28 ch 83 SLA 1980)

History of amendments. — The 1979 amendment inserted "technology and" in the first sentence, substituted "may be used" for "are to be used" in the second sentence, and substituted "other" for "other purpose" in the second sentence. The 1979 amendment substituted "power resource" preceding "revolving loan fund" near the middle of the second paragraph, restructured the second paragraph by dividing the second sentence into two sentences and changing the word "and" at the end of the second sentence to a semicolon, inserting "and" following the word "power" preceding "power" preceding "revolving loan fund" at the end of the first sentence in the second paragraph, substituted "power" for "power" preceding "devices" at the end of paragraph (1), deleted "In loans made under this chapter

may be used" at the beginning of present paragraph (2), and deleted the former last sentence, which read: "The fund may be used for no other purposes." Editor's note. — Section 1, ch. 56, SLA 1979, provides: "FINDINGS. The legislature finds that there is a need for development of small-scale and low-cost alternatives for Alaskans in regard to building design, food production, recycling, transportation, energy generation, waste disposal, and small-scale residential and industrial enterprise. Therefore, the legislature finds that the development and wider use of low-cost and small-scale technologies appropriate to Alaska should be encouraged." Section 8, ch. 56, SLA 1979, provides for the termination of the act relating to northern technology on June 30, 1984. As part of that act, the additions made to this section by ch. 56, SLA 1979, will terminate on June 30, 1984.

§ 45.88.020. Powers and duties of the department in administering the fund. (a) The department may

- make loans for the purchase, construction, and installation of alternative energy systems and for the development and implementation of more efficient, less costly, less energy intensive, and more appropriate technologies;
- promulgate regulations necessary to carry out the provisions of this chapter.

The department, in coordination with the Alaska Council on Science and Technology, shall develop eligibility standards for loans made under this chapter and adopt guidelines for the determination of loan terms. (§ 1 ch 29 SLA 1978; am § 6 ch 56 SLA 1979; am § 29 ch 83 SLA 1980)

History of amendments. — The 1979 amendment added the language beginning "for the development and implementation" to the end of paragraph (a) and inserted "in coordination with the Alaska Council on Science and Technology" in subsection (b). The 1979 amendment substituted "power systems" for "power resources" preceding "installation of alternative" near the beginning of paragraph (1) in subsection (a).

Editor's note. — Section 1, ch. 56, SLA 1979 provides: "FINDINGS. The legislature finds that there is a need for development of small-scale and low-cost alternatives for Alaskans in regard to building design, food production, recycling, transportation, energy generation, waste disposal, and small-scale residential and industrial enterprise. Therefore, the legislature finds that the development and wider use of low-cost and small-scale technologies

Title 47  
Welfare and Institutions

Title 46  
Water

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northern technology on June 30, 1984. As part of that act, the additions made to this section by ch. 56, SLA 1979, will terminate on June 30, 1984.

**Sec. 45.88.030. Loan terms.** (a) A loan for the development of an alternative energy system or for the development or implementation of a northern technology under this chapter may not exceed \$10,000.

(b) The duration for repayment of the loan may not exceed 20 years.

(c) Loans made under this chapter may be used to finance

(1) the cost of purchase, construction, and installation of an alternative energy system which is likely to result in energy conservation or energy cost savings; or

(2) the development and implementation of methods of waste disposal, recycling, food production, transportation, building design, and industrial enterprise which may be more efficient, less costly, and less energy intensive than those methods presently utilized and which are appropriate to the Alaska environment.

(d) All principal and interest payments on loans made under this chapter shall be paid into the alternative technology and energy revolving loan fund.

(e) The rate of interest

(1) for a loan, other than a loan described in (2) of this subsection, may not exceed nine and one-half percent a year on the unpaid balance of the loan;

(2) for a loan the proceeds of which are used for an alternative energy system

(A) is five percent, if the loan is made before January 1, 1984;

(B) equals the percentage of the average weekly yield of municipal bonds for the 12 months preceding the loan, as determined by the commissioner of commerce and economic development from municipal bond yield rates reported in the 30-year revenue index of the Weekly Bond Buyer, for a loan made after December 31, 1983, (§ 1 ch 29 SLA 1978; am § 7 ch 56 SLA 1979; am § 21 ch 72 SLA 1979; am §§ 30 - 33 ch 83 SLA 1980)

**Effect of amendments.** — The first 1979 amendment inserted "or for the development or implementation of a northern technology" in subsection (a), substituted "50 per cent" for "30 per cent" following the former language "no more than" in subsection (e), added the language beginning "or the development and implementation" to the end of subsection (c), inserted "technology and" in subsection (d), and substituted "nine and one-half per cent" for "eight per cent" in subsection (e).

The second 1979 amendment

substituted "nine and one-half per cent" for "eight per cent" in present paragraph (1) of subsection (e).

The 1980 amendment substituted "energy system" for "power resource" following "alternative" in subsection (c), restructured subsection (c) by deleting "more than 50 percent of" following "finance" at the end of the present introductory paragraph and dividing the remainder of the section into two paragraphs and designating them paragraphs (1) and (2), substituted "an alternative energy system which is likely

... result in energy conservation or energy savings, or for "the alternative power resource" at the end of present paragraph (c)(1), deleted "energy conservation" preceding "waste disposal" at the beginning of present paragraph (c), substituted "energy" for "power" preceding "revolving loan fund" at the end of subsection (d), and inserted "loan, other than a loan described in (1) of this subsection" near the beginning of subsection (e), and added paragraph (2) of subsection (e).

**Editor's note.** — Section 1, ch. 56, SLA 1979, provides: "FINDINGS. The legislature finds that there is a need for development of small-scale and low-cost

**Sec. 45.88.040. Sale or transfer of mortgages.** The commissioner may sell or transfer at auction to any bank or other private lender the mortgages and not subject to the Department of Commerce and Economic Development under this chapter.

Repealed by § 14 ch 122 SLA 1979; am § 14 ch 122 SLA 1979

**Effect of amendments.** — The 1979 amendment in the second sentence of subsection (b), substituted "may purchase the mortgages" for "shall purchase all of these mortgages" and added "following the Department of Commerce and Economic Development a fee of one per cent service fee" from subsection (c).

The 1980 amendment repealed

**Sec. 45.88.500. Definition. In this section**

"thermal energy" means a source of thermal, mechanical, or electrical energy dependent on oil or gas or a nuclear reactor for space heating and cooling, refrigeration, air conditioning, mechanical power, or the heating of water;

"alternative energy property" includes an alternative energy property as defined in the Internal Revenue Code (26 U.S.C.) and a method of architectural or engineering design for the collection, storage, and use of energy;

"device" means any other device approved by the commissioner for economic development under AS 45.88.030.

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...energy conservation or energy services or for "the alternative power source" at the end of present paragraph (c)(1), deleted "energy generation" preceding "waste disposal" at the beginning of present paragraph and substituted "energy" for "power" preceding "revolving loan fund" at the end of subsection (d), and inserted "or a loan, other than a loan described in 2 of this subsection "near the beginning of subsection (e), and added paragraph 2 of subsection (e).

Legislator's note. — Section 1, ch. 56, SLA 1979 provides: "FINDINGS. The legislature finds that there is a need for development of small-scale and low-cost

alternatives for Alaskans in regard to building design, food production, recycling, transportation, energy generation, waste disposal, and small-scale residential and industrial enterprise. Therefore, the legislature finds that the development and wider use of low-cost and small-scale technologies appropriate to Alaska should be encouraged."

Section 8, ch. 56, SLA 1979, provides for the termination of the act relating to northern technology on June 30, 1984. As part of that act, the additions made to this section by ch. 56, SLA 1979, will terminate on June 30, 1984.

Sec. 45.88.040. Sale or transfer of mortgages and notes. (a) The commissioner may sell or transfer at par value or at a premium or discount to any bank or other private purchaser for cash or other consideration the mortgages and notes held by the Department of Commerce and Economic Development as security for loans made under this chapter.

Repealed by § 14 ch 122 SLA 1980. (§ 1 ch 29 SLA 1978; am § 22 SLA 1979; am § 14, ch 122 SLA 1980)

Effect of amendments. — The 1979 amendment in the second sentence of subsection (b), substituted "may purchase the mortgages" for "shall purchase all of these mortgages" and added "allowing the Department of Commerce and Economic Development a fee of one per cent service fee" from the 1980 amendment repealed

subsection (b), which read: "The commissioner may sell or transfer at par value to the Department of Revenue the mortgages and notes held by the Department of Commerce and Economic Development as security for loans made under this chapter. The Department of Revenue may purchase the mortgages and notes offered."

Sec. 45.88.500. Definition. In this chapter, "alternative energy source" means

...a source of thermal, mechanical or electrical energy which is not dependent on oil or gas or a nuclear fuel for the supply of energy for heating and cooling, refrigeration and cold storage, electrical or mechanical power, or the heating of water;

...includes

...an alternative energy property as defined by sec. 48(1)(3)(A) of the Internal Revenue Code (26 U.S.C. sec. 48(1)(3)(A));

...a method of architectural design and construction which provides for the collection, storage and use of direct radiation from the sun;

...any other device approved by the commissioner of commerce and economic development under AS 44.33.040(12). (§ 34 ch 83 SLA 1980)

Title 47  
Welfare and Institutions

Title 46  
Water

1/28  
Jim Brewer  
Common

Audits - other audits can be

prof. rate -  $2\frac{1}{2}$  W. audit + overland  
travel time

Contract for \_\_\_\_\_ # of audits  
most terminate in March

auditors - own advertising or central #  
periodic invoices

- ① basic questionnaire sent
- ② Audit
- ③ Go ~~at~~ over measures & explain payback  
| booklet  
| - seminar
- ④ Application for refund of grant  
- summary sheet for audit must be attached  
- receipts or estimate for grant  
- check is made out for specific items  
to vendor  
Check to see that grants + loans weren't for same items  
no contracts with vendors

In-house regional allocation for audits  
Fla - extra heavy demand, over-constructed  
Met - In

If you pass the test, contract possible  
Utah - audit as setup for robbery - references needed  
3 training sessions Fla  
3 " " Anch.  
2 " " Valley - Comm Coll. - plan for future  
Kodiak, Ketchikan, Bethel, Kenai, Barrow, Valdez  
Nome?

Tremendous demand for training  
35 people in Kodiak, Ketchikan  
seen as business opportunity

Grants coming less quickly - will pick up this month  
50 through Dec.

auditors want additional contracts

7000 audits for money in fiscal note

Contracted w/ Int Hk Dwelling Council - non-profit  
did bldg inspection  
Fry DeZinski  
broad-based board

Steve Shannon - Dept. of Comm. - The

Discussion of prof. auditors assoc.  
need to establish self-licensing

Publicity - only done some  
Auch - mail-stuff in utility bills

Demand has jumped

Training has been priority - until CC's take over

Loans - check w/ Dir of Bus. Loans

Audits currently only for duplex  
plex w/ central heating

⇒ Draft reg for comm. bldgs - leg. teleconference hearing  
- looking for people to register for audits

⇒ RP 500K - grants to audits

CP's concern - quality of audit after rush training job  
should work out to release / re-education

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

# **1981 Appropriate Technology**

**SMALL GRANTS PROGRAM  
ALASKA**



***Conserve Energy Today  
Innovate for Tomorrow***



**U.S. DEPARTMENT OF ENERGY  
Alaska Division of Energy and Power Development**

**PROGRAM SOLICITATION &  
GRANT APPLICATION FORM**

**U.S. DEPARTMENT OF ENERGY, REGION X, and  
ALASKA DIVISION OF ENERGY AND POWER DEVELOPMENT**

**1981 Appropriate Technology  
SMALL GRANTS PROGRAM  
For Alaska**

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**PROGRAM SOLICITATION**

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**PROPOSALS MAY BE SUBMITTED ON:** February 16, 1981

**PROPOSALS MUST BE RECEIVED BY:** April 20, 1981

**PRINCIPAL PROGRAM OBJECTIVE:**

The principal program objective is to support and stimulate the further development, demonstration, and promotion of energy-related Appropriate Technology, as authorized by Public Law 95-39 and Part 470 of Title 10 of the Code of Federal Regulations.

**STATE PROGRAM MANAGER**

Alaska Division of Energy and Power Development  
Attn: Norman Bair  
Appropriate Technology  
8th Floor, MacKay Building  
338 Denali Street  
Anchorage, AK 99501  
(907) 276-0508

**REGIONAL PROGRAM MANAGER:**

U.S. Department of Energy (DOE)  
Region X  
Attn: Frank Brown,  
Appropriate Technology  
Room 1910, Federal Building  
915 Second Avenue  
Seattle, WA 98174  
(206) 442-1746 or (FTS) 399-1746

**HOW MUCH MONEY WILL BE AVAILABLE?**

In the 1981 Appropriate Technology Small Grants Program, grant funds will be divided among the ten Federal Regions based on (1) each Region's share of the nation's population, and (2) the number of proposals received per 100,000 Regional residents. Therefore, the precise amount of funds available for Region X (Alaska, Idaho, Oregon and Washington) grants will not be known until after the solicitation period has closed and the applications have been counted. The Regional Program Manager believes that approximately \$1,400,000 in DOE funds will be available for Region X grants in 1981. However, because Region X will receive most of its funds from the "number of proposals received per 100,000 residents" part of the national funding formula, this estimate can only be a rough estimate at this time. Actual Region X funding could range from \$500,000 to \$2,000,000. In addition, up to \$400,000 in matching grant funds may be provided by the State of Alaska for Alaskan recipients of DOE grants. Most Alaskan grants will likely be composed of 50 percent DOE funds and 50 percent State funds.

## INTRODUCTION:

Congress has authorized the U.S. Department of Energy (DOE) to establish a small grants program for the purpose of encouraging the promotion, development, and demonstration of small-scale, energy-related systems and technology referred to as Appropriate Technology because they are "appropriate to" and match local needs, skills, and available energy resources. This Program Solicitation describes the general characteristics of the Appropriate Technology Small Grants Program; the eligibility requirements and time schedule; application, evaluation, and selection procedures; and the general terms and conditions associated with Appropriate Technology Small Grants.

## WHAT IS ENERGY-RELATED APPROPRIATE TECHNOLOGY?

In terms of energy resources, Appropriate Technology is any process, application, system, or device which makes the best use of available renewable or nonrenewable energy resources, and conserves nonrenewable energy resources. Appropriate Technology is small scale; simple to install, operate, use, and maintain; low cost; safe; environmentally sound; and durable. Generally, Appropriate Technology projects use existing technology in unusual situations or for novel uses, or develop new ideas, devices, or products. Perhaps the key point is that Appropriate Technology should serve the needs of local communities and lead to an increase in community energy self-reliance through use of the available energy resources.

For the Alaska Appropriate Technology Program

- **Renewable energy resources** include solar radiation, sunlight, the movement of the wind, moving water, geothermal and hydrothermal heat, municipal and urban wastes, agricultural and forest products and wastes, wood, waste heat temperature differences in air and water, and others.
- **Nonrenewable energy resources** include natural gas, all crude oil-based products, coal, peat, oil shale, tar sands, and nuclear fuels.
- **Community** will be thought of in both a social and geographic sense. For example, a community could be a group of people of any size that live in a certain location, share government, have many common characteristics, and are somewhat distinct from the larger society in which they live. In this sense, a community could be a neighborhood, village, town, small city, island, portion of a rural borough, or valley, etc. A community may also be a social group which shares common interests or occupations. For example, an Appropriate Technology project could serve the energy needs of "Alaskan canneries," "Anchorage commuters," "rural Alaskans," or "wood stove users."

In other words, energy-related Appropriate Technology includes energy-conserving, small scale, simple, environmentally sound, safe, low cost, locally useful ideas, concepts, approaches, procedures, products, devices, systems, technologies, and/or activities that are "appropriate to" and match a community's cultural, economic, geographic, climatic, and social conditions and energy needs by using the community's skills and the available energy resources.

## EXAMPLES OF ENERGY-RELATED APPROPRIATE TECHNOLOGY:

Examples of energy-related Appropriate Technology projects include...

- Wind energy systems and devices
- Use of wood, wood wastes, charcoal, coal, or peat in small stoves or boilers, etc.
- Small water power systems
- Solar water heaters or space heaters
- Solar crop dryers, dehydrators, etc.
- Small scale uses of geothermal or hydrothermal energy
- Energy storage systems
- Methane production using digesters and organic wastes, etc.
- Electric vehicle improvements, demonstrations and/or use
- Use of pollutants for beneficial purposes
- Urban waste use and/or reuse through recycling
- Underground homes or homes built using unusual energy-conserving materials or processes
- Improved window systems, shutters, blinds, storm windows, etc.
- Films, slide shows, video projects, etc., that educate others about energy-related appropriate technology
- Hydrogen systems and demonstrations
- Improved, simple, low cost heat exchangers, Balch tubes, heat pipes, etc.
- Urban farming, cooperative farms
- Battery improvements
- Improved engines, pumps, motors, burners, boilers, heaters, etc.
- Solar-powered irrigation pumps

- Alternatives to energy-intensive wastewater treatment systems
- Improved forest management practices that lead to energy conservation
- Use of energy control systems to conserve energy
- Pelletizing, chipping, or other devices that make it easier to use biomass
- Life-style demonstrations; e.g., living simply, living lightly, etc.
- Solar-powered distilleries
- Photovoltaic systems and devices
- Small scale tidal, ocean current, or wave-powered systems and devices
- Passive solar systems and devices
- Aquacultural systems that produce valuable food or other valuable products using little energy
- Waste heat recovery systems
- Production of alcohol for fuel use
- Production and use of fermentation byproducts
- Use of bicycles
- Energy-farming; e.g., growing plants for their energy value
- Novel uses of steam
- Composting, sludge recycling
- Establishment of appropriate technology libraries, etc., to inform others of energy-related appropriate technology
- Use of communication systems as alternatives to transportation
- Waste oil reuse
- Alternatives to herbicide, pesticide, and/or fertilizer use
- Carpool, vanpool, mass transit projects
- Greenhouse use for crop production and/or space heating
- Water conservation devices
- Integrated self-reliance oriented home or farm demonstrations
- Educational, outreach, publicity, or other activities that encourage others to use appropriate technology
- Improved lighting, ventilation, appliance, refrigeration, or other systems that conserve energy
- Energy conserving farming practices (draft animal use, new types of tools, new types of frost control, etc.)
- Activities that can assist small appropriate technology businesses
- Dog sled use

### ELIGIBLE PROJECT TYPES:

Each Appropriate Technology project proposal must fall into one or more of the three following categories—it must be an Idea Development Project, a Device Development Project, or a Demonstration Project.

**Idea Development Projects** develop ideas, concepts, or investigative findings. Idea Development Projects could describe new energy-related concepts or how to utilize old systems or existing technologies for new or unusual uses. Idea Development Projects usually result in feasibility studies, reports, or technical papers. Idea Development grants cannot exceed \$10,000 for any program participant, including affiliates.

**Device Development Projects** involve studies, investigations, models, hardware development, experimental tests, or operational tests that use or apply investigative findings and/or theories and produce or improve useful products or devices. A Device Development Project should focus on a specific energy-related problem and develop and test a solution under controlled laboratory or other experimental conditions. Device Development grants cannot exceed \$50,000 for any program participant, including affiliates.

**Demonstration Projects** involve the testing, use or promotion of Appropriate Technology under actual operating conditions to show that commercial application and/or the widespread utilization of the technology is technically, economically, and environmentally feasible. Demonstration Projects may involve the commercial manufacturing and production engineering associated with a business entering the Appropriate Technology field. Most educational, outreach, library, and similar types of projects are Demonstration Projects. Demonstration grants cannot exceed \$50,000 for any program participant, including affiliates.

### FUNDING LIMITS:

A program participant may receive financial assistance for continuation of a previously funded Appropriate Technology project or initial assistance for a new project, as long as the total amount of financial assistance made available to any program participant, including affiliates, does not exceed \$50,000 of Appropriate Technology Program funds for specific project support, during any two-year period; and, as long as the funding limits for each type of project, noted above, are not exceeded.

**Affiliates** are concerns which, either directly or indirectly, control or have the power to control another concern, are controlled by or are within the power of control by another concern or, together with another concern, are controlled by or within the power of control of a third party, taking into consideration all appropriate factors, including common ownership, common management, and contractual relationships.

**Concerns** are any business entities organized for profit, even if ownership is in the hands of a nonprofit entity, with their principal place of business located in the United States. "Concerns" include, but are not limited to, individuals, partnerships, corporations, joint ventures, associations, and/or cooperatives. For the purpose of making affiliation decisions, any business entity, whether organized for profit or not, and any foreign business entity (i.e., a business entity located outside of the United States) will be included.

## WHERE MUST PROJECTS BE PERFORMED?

Projects receiving assistance under this Program Solicitation must be performed and/or located in the State of Alaska. Program applicants must be U.S. citizens but do not have to be residents of Alaska. Proposals will be evaluated by the Alaska State reviewers, regardless of where the applicant may live or do business.

If you receive this Program Solicitation and wish to perform an Appropriate Technology project outside of Alaska, please contact the Regional or State Program Manager and request the appropriate non-Alaskan Program Solicitation.

## WHO MAY APPLY?

Appropriate Technology Small Grants may be made to:

- **Individuals.**
- **Local nonprofit organizations and institutions**, including corporations, trusts, foundations, trade associations, or other institutions which are (1) entitled to an exemption under section 501(c)(3) of the Internal Revenue Code, or (2) not organized for profit and no part of the net earnings of the organization or institution benefiting any private shareholder or individual.
- **State agencies** or instrumentalities, or **interstate organizations.**
- **Local government agencies** or instrumentalities, including county, borough, municipality, city, town, village, township, local public authority, public utility district, special district, council of governments, local public school district, intrastate district or commission, regional or intrastate government entities, or other similar local unit of government agencies.
- **Indian tribes**, including any tribal band, nation, or other organized group or community of Indians which are (1) recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians, or (2) located on, or in proximity to, a Federal or State reservation, and act through that reservation's tribal organization.
- **Alaska native villages or regional or village corporations**, as defined in or established pursuant to the Alaska Native Claims Settlement Act.
- **Small businesses**, which are concerns, including affiliates, which are organized for profit, independently owned and operated, and are not nationally dominant in the field of operation associated with their Appropriate Technology project, and which have 100 employees or less.

## HOW TO APPLY:

Enclosed in this Program Solicitation are one or more fourteen-page Grant Application Forms. To apply for 1981 Appropriate Technology Small Grants, you must use the 1981 Grant Application Form. If you applied for a 1979 or 1980 Appropriate Technology Grant, you must complete the "Basic Information" introductory portion of the 1981 Grant Application Form, and then you may, if you wish, attach a copy of your 1979 or 1980 application (with appropriate references and revisions noted in the 1981 Grant Application Form) instead of completely filling out a 1981 application form.

Use one Grant Application Form for each project you propose. If you run out of application forms, you may request additional forms from the State Program Manager. Or, you may make a copy (either handwritten or typed, or copied on a copying machine) of the official Grant Application Form and submit the copied form.

Identical Appropriate Technology project proposals may be submitted by more than one applicant, using different "applicant type" categories, or for more than one project site or requested amount of financial assistance. Only one applicant type, one project site, and one grant request amount should be associated with each application form.

The State of Alaska is using a three-part-NCR Grant Application Form to eliminate the need to make file copies of the applications and to provide each applicant with a copy of his/her proposal. When you complete an application, you should tear off the **bottom sheet** of each page of the Grant Application Form, and turn in the other sheet and the original of each page. In this way, you will have a copy of your application for your personal or business records, and the review and evaluation process will not be delayed while copies are made of each application. Also, by reducing the amount of government copying, administrative labor costs are reduced, allowing more Program funds to be used for grants.

There is a hazard in using self-copying forms, however. **They can be messy and it is not possible to erase information from the sheets.** Therefore, we strongly encourage you to set the actual Grant Application Forms aside for a time, and organize your thoughts using scratch paper. We also strongly encourage you to complete your reading of this Program Solicitation and to read all questions on the Grant Application Form before starting to prepare a proposal. You should pay particularly close attention to the description of the Technical Evaluation and State Review criteria, against which your project proposal will be judged.

### **DEADLINE FOR RECEIVING APPLICATIONS:**

Grant Application Forms may be submitted at any time during the Solicitation Period, which opened at 9:00 a.m., Alaska Standard Time, on Monday, February 16, 1981, and **will close at 4:30 p.m., Alaska Standard Time, on Monday, April 20, 1981.** You can help speed the 1981 Program along by turning your proposal in early, so that the proposal processing workload can start before April 20th.

### **LATE PROPOSALS:**

**A proposal arriving at a designated submittal site after 4:30 p.m., Alaska Standard Time, April 20, 1981, will not be considered unless the proposal was mailed not later than April 15, 1981.**

**The only proof of the date of mailing of a late proposal will be the date of the U.S. Postal Service postmark on the envelope or wrapper and on any original certified or registered mail receipt retained by the Postal Service. If a postmark is not legible and the proposal is received after April 20, 1981, it will be assumed that the proposal was mailed late (i.e., after April 15, 1981). If you are concerned about submitting a potentially late proposal, ask the postal clerk to hand cancel your proposal's envelope or wrapper with a "bulls-eye" style postmark to make sure that your proposal postmark is legible and mail your proposal using certified or registered mail.**

### **MODIFYING PROPOSALS:**

You may modify a proposal submitted in the early weeks of the Solicitation Period by submitting the modifications by 4:30 p.m., Alaska Standard Time, Monday, April 20, 1981, or by mailing the modifications by registered mail or certified mail not later than April 15, 1981, as noted above. You are **not** encouraged to modify a proposal once it has been submitted.

### **WITHDRAWING PROPOSALS:**

Proposals may be withdrawn by written request to the State or Regional Program Manager at any time prior to the selection of applicants for financial assistance. Proposals may also be withdrawn in person by the applicant or the applicant's authorized representative, if sufficient identification is provided and the person signs a receipt.

## WHERE TO SUBMIT PROPOSALS:

In order to make program participation more convenient for Alaskans and reduce mailing, travel, and time burdens, Alaska will utilize a number of designated proposal submittal sites throughout the State. The Alaska Division of Energy and Power Development would prefer that Alaskan proposals that are mailed **be mailed directly to their Anchorage Office**. However, all of the following sites are available for you to use to hand-deliver proposals.

The State of Alaska  
Division of Energy and Power Development  
Eighth Floor, MacKay Building  
338 Denali Street  
Anchorage, AK 99501

The Office of the Governor  
Room 213  
Eskimo Building  
Kotzebue, AK 99752

The Office of the Governor  
Room 3  
The Nugget Inn  
Nome, AK 99762

The Cooperative Extension Service Office  
Room 19  
Kuskokwim Office Building  
Bethel, AK 99559

The Bristol Bay Native Association Office  
Dillingham, AK 99576

The A. Holmes Memorial Library  
Kodiak, AK 99615

The Cooperative Extension Service Office  
Wadell Building  
Homer, AK 99603

The Cooperative Extension Service Office  
Kenai Community College  
Library Building  
Soldotna, AK 99669

The State of Alaska  
Department of Commerce and  
Economic Development  
Ninth Floor, State Office Building  
Juneau, AK 99801

The Ketchikan Public Utilities Co.  
334 Front Street  
Ketchikan, AK 99901

Cordova Public Library  
Box 1170  
Cordova, AK 99574

Fairbanks North Star Borough  
Administrative Offices  
Community Research Center  
520 5th Ave.  
P.O. Box 1267  
Fairbanks, AK 99707

Kettleson Memorial Library  
Box 518  
Sitka, AK

Valdez Public Library  
Box 609  
Valdez, AK 99686

Office of Legislative Affairs  
P.O. Box 1470  
Wasilla, AK 99687

## THE EVALUATION AND REVIEW PROCESS AND CRITERIA:

Proposals submitted in Alaska will be initially processed by the Alaska Division of Energy and Power Development. Proposals will move through a three-step evaluation and review process after being received.

1. **Prescreening**—First, proposals will be prescreened to ensure that each proposal is properly signed and contains enough information to allow it to be evaluated and reviewed. In addition, during prescreening, each proposal will receive a unique proposal number, and an acknowledgment-of-receipt card will be mailed to each applicant, informing the applicant that the proposal was received.

If a proposal fails to meet the basic program standards, a letter will be promptly sent to the applicant, informing the applicant of the reason(s) why the proposal cannot be accepted for the 1981 Appropriate Technology Small Grants Program. If the solicitation period is still open (i.e., it is prior to April 20, 1981), this letter will encourage the applicant to resubmit a modified proposal by the deadline. If the solicitation period has closed, the applicant will be informed that he/she cannot reapply for the 1981 Program.

Therefore, each applicant should make certain:

1. That the proposed project will be performed in Alaska,
2. That the applicant is an eligible program participant,
3. That the proposed project fits into one of the three project types,
4. That the grant request fits within the dollar limits for the project type selected,
5. That all sections of the Grant Application Form are completed with enough information to allow evaluators and reviewers to perform evaluations and reviews, and
6. That the application is signed by the applicant on page 2 at question 5f.

To assist applicants and minimize the number of applications not surviving the Prescreening step, **page 14** of the Grant Application Form provides a checklist which you should use to make sure that you do not overlook something that may cause your application to be rejected during Prescreening. We encourage all applicants to use this checklist after completing each application.

2. **Technical Evaluation**—The second step in the evaluation and review process is the technical evaluation of each proposal. Alaskan citizens, recognized for their expertise in energy-related Appropriate Technology, will perform the technical evaluations of all proposals. Each Alaskan proposal will be judged against the following **Technical Evaluation Criteria** by at least one technical evaluator:

1. Does the proposed project involve appropriate technology?
2. Is the proposed project technically feasible?
3. Are the expected project results capable of being measured?
4. Does the proposed project have any potential adverse environmental, health, and/or safety impacts?
5. Can the proposed project be carried out with the funds being requested?

**The State Review**—The third step in the evaluation and review process will be the State Review. The Alaska Division of Energy and Power Development will establish a group of at least seven Alaskans to perform a review of the Alaskan proposals. The State Reviewers will represent a cross-section of Alaska's economic, social, geographic, and cultural interests. The proposals within a given technology category or categories with the highest technical evaluation ratings will be considered by the State Reviewers. The remaining 1981 applications will be screened by an independent group of Division employees and members of the public. They will send additional applications that may be low cost or appear highly promising to the State Reviewers.

The State Reviewers will judge by the following criteria:

1. Does the proposed project involve appropriate technology (is it simple to install, implement, operate, use, and maintain; is it environmentally sound; is it durable; does it chiefly utilize local resources, material, and labor; is it small scale; etc.)?
2. Does the proposed project serve local or Statewide energy needs? Would the energy savings or energy production impact be important?
3. Would the proposed project be innovative?
4. Are there institutional barriers that may adversely affect project implementation? Could the proposed project overcome the barriers?
5. Is the proposed project likely to lead to extensive commercialization or more widespread utilization of the associated technology?
6. Is the proposed project period and budget reasonable to carry out the project?

Because of the expected large number of technically feasible proposals to be received by the Alaska Division of Energy and Power Development relative to the amount of funding that will be available to the Department of Energy and State of Alaska for grants, the Division has identified certain considerations that it will require its State Reviewers to take particular note of when reviewing the Alaskan proposals. Emphasis will be placed on the following considerations, in addition to the six general State Review Criteria presented above.

1. The degree to which the applicant is willing to contribute time and labor to the proposed project. Proposals involving applicant or other contributions of time and labor will receive special emphasis, especially when compared against proposals requesting considerable funds for high salaries and overhead.
2. The visibility of projects and/or the willingness of the applicant to disseminate the results of his/her project to the public. Proposals which express a willingness on the part of the applicant to work with the Alaska Division of Energy and Power Development, the Alaska Energy Extension Service, Western SUN, local newspapers, or other appropriate sources of information dissemination will generally be more highly rated than those which do not express such a willingness.
3. The degree of near and/or mid-term potential for transfer of project activities or results to other Alaskan situations. Proposed projects that show great potential for near-term replication will generally be more highly rated by Alaskan State Reviewers than those projects which require many years of further development.

After the State Reviewers have completed their review of their assigned proposals, they will meet as a group over a period of two to seven days to discuss their findings, and reach conclusions regarding which Alaskan proposals should be recommended to the Alaska Division of Energy and Power Development. The individual State Reviewer findings and comments will be assessed and compared against one another and eventually, proposals will be rank-ordered, in a prioritized manner, up to a certain total monetary limit cooperatively established by the Regional and State Program Managers.

The State Reviewers will also reach agreement as to the appropriate grant award that they believe should be associated with each rank-ordered proposal. Their rank-ordered State List, with any supplemental special comments and recommendations, will be forwarded to the Alaska Division of Energy and Power Development upon completion of their meeting.

Applicants should take special note that the State Reviewers have a responsibility to produce a "balanced" State List that includes proposals from all parts of Alaska; proposals involving a diversity of technology types and project types (demonstration projects, idea development projects, etc.); and proposals submitted by a diversity of applicants and eligible applicant categories. Creating a State List that is "balanced" will be the main task confronting the State Reviewers. Sometimes, this leads to proposals being highly ranked by the State Review that are not necessarily the "best" proposal in that

subject, but instead, fulfill a perceived "gap" in the State List distribution. For example, a Fairbanks nonprofit group's wind system proposal may be ranked high on the State List because the State Reviewers determine that a wind project should be on the list, that a Fairbanks area project should be on the list, and that a nonprofit group's project should be on the list (even though there may be a slightly more highly-rated wind system proposal in Seward, a slightly more highly-rated nonprofit group proposal in Homer, or a few more high-rated Fairbanks area proposals in other subject areas).

Finally, please note that in order to provide a consistent nationwide and Regional standard for evaluating and reviewing Appropriate Technology Program proposals, no proposal can be selected for financial assistance which has not been subjected to the full range of criteria described in this Program Solicitation. Applicants cannot selectively request that their proposal be compared against only some of the Technical Evaluation or State Review Criteria. In addition, because of the nature of the review and ranking process, applicants cannot be considered who request that only the DOE be authorized to evaluate their proposals.

## THE SELECTION PROCESS:

Proposals ranked on the State List by the State Reviewers will move through a three-step selection process.

1. **Alaska Division of Energy and Power Development Review**—The State Reviewers will jointly transmit their State List to the Division Director. The Division may, at its discretion, review the State Reviewer recommendations, rankings, comments, ratings, and other information, and may make minor adjustments to the State List to reflect the Division's energy program priorities.

The Division will also assess the State Reviewer recommendations regarding the appropriate funding levels for each listed proposal and may make changes deemed necessary and appropriate. The Division will then finalize Alaska's Approved State List and formally transmit that list, together with the State Reviewer's recommendations and lists, and a written explanation of any changes deemed necessary, to Region X DOE as Alaska's recommendation for 1981 Appropriate Technology Program selections.

2. **Region X DOE Selection Panel**—The Regional Program Manager will select a five- to seven-member DOE Selection Panel, composed of technically qualified and appropriate technology-conscious employees of DOE Offices, Laboratories, Administrations, or other field offices within Region X. The Selection Panel Chairperson will receive each State's Approved State List, convene the Selection Panel, and, together with the Selection Panel, combine each State's ranked projects into a Regional List of projects. The Selection Panel members will then review the Regional List to ensure that the Regional List of projects would, if selected for grants, appear to result in:

1. A balanced Regional distribution of projects, with projects performed in a variety of geographic, population density, and climatic conditions;
2. A diversity of projects, activities, and technologies being performed;
3. Participation by a diverse group of grant applicants, including at least one grant applicant of each eligible grant applicant category; and
4. The best overall use of 1981 Appropriate Technology Program funds.

To achieve these objectives, it may be necessary for the DOE Selection Panel to make minor adjustments to the Approved State Lists. For example, it is possible that the Alaska and Idaho State Lists might both be dominated by wind system proposals, in which case the Regional List could have too great an emphasis on wind systems. To solve this distribution problem, some of the lower-ranked wind system proposals on the Alaska and Idaho Approved State Lists could be eliminated by the DOE Selection Panel and replaced by the next most highly-ranked non-wind system proposals on those Approved State Lists. Such adjustments would not be expected to be extensive.

3. **DOE Selection Official Action**—The DOE Selection Panel will forward the Regional List, with specified grant award amounts noted for each proposal on the List, to the Region X Regional Representative of the Secretary of Energy, who will perform a final review of the recommended proposals and the distribution effects of selecting those proposals for financial assistance. Once satisfied that a particular Regional List would best achieve the Appropriate Technology Program Goals, the Regional Representative will officially select proposals to receive financial assistance.

## **THE TIME SCHEDULE FOR ACTION ON PROPOSALS:**

1. **Prescreening** is scheduled to be completed during May, 1981.
2. **Technical Evaluations** are scheduled to be completed in June, 1981.
3. **The State Review** is scheduled to be completed by mid-June, 1981, with Alaska's Approved State List scheduled to be completed and submitted to Region X DOE by July, 1981.
4. **Region X DOE Selection** actions are scheduled to be completed during July, 1981.
5. **Public Announcements** of selected applicants are scheduled to be made during September or October, 1981.
6. Applicants selected to receive financial assistance should be notified during August. Formal grant offers are expected to be mailed out to selected applicants during September and October. Grantees may expect to receive grant funds within 2-4 weeks of their return of signed grant documents to DOE (i.e., in November or December, 1981).

## **HOW TO GET HELP IN PREPARING YOUR APPLICATION:**

The Alaska Division of Energy and Power Development will staff a phone line which Alaskan applicants may use to have Program-related questions answered (907-276-0508). Applicants may also come to the Division Office in Anchorage (Eighth Floor, MacKay Bldg., 338 Denali Street) during working hours for direct assistance.

In addition to Alaska Division of Energy and Power Office in Anchorage, each of the local offices where applications may be submitted will offer limited assistance in terms of answering requests for additional application forms and discussing eligibility requirements.

The State of Alaska will sponsor a number of grant applicant "proposal writing" workshops throughout the State. At this time, workshops are planned for Anchorage, Dillingham (during the Beaver Roundup), Fairbanks, Kenai, Kodiak and Palmer. Others may also be scheduled. These workshops will take place in February and March. For specific dates, times, and locations, please contact the Division of Energy and Power Development. Also watch your local newspaper for details and listen to your local radio stations. The workshops will be well-publicized.

## **IF YOU ARE NOT SELECTED:**

Because of the high number of grant applications expected and the relatively limited funding available, the Appropriate Technology Program selection process is expected to be very competitive—only seven to twelve percent of all proposals submitted are likely to be selected to receive financial assistance. Therefore, many good projects may not receive assistance under this Program.

In an effort to encourage continued interest in small scale energy conserving projects and activities, all unselected applicants may request debriefings. Such debriefings may help to make the unselected applicant's project more competitive in any future cycle of the Appropriate Technology Program or in other Programs offered by DOE, other Federal agencies, or State or local agencies. Unselected applicants will have 30 days to submit written requests for debriefings after receipt of their notification that their proposal was eliminated from funding consideration. Written debriefings will be sent by the State Program Manager at the earliest feasible time after receipt of debriefing requests.

## IF YOU ARE SELECTED:

**Method of Payment**—Region X DOE intends to make one lump sum advance payment to grantees, unless the grant is large (in excess of \$10,000) and the grantee's project would be carried out over a period in excess of six months.

**Preaward Costs**—In general, no costs or expenditures can be charged to a grant prior to its effective date (the date it is issued by DOE and sent to the potential grantee) unless special permission is received from DOE. Because Region X intends to assemble grant documents rapidly in this 1981 Program, it is expected that the authorizing of preaward costs will be very limited (i.e., the time between selection and the effective date of the grant should be quite short). However, if you have **special circumstances** that make it essential to your project's success to start making project expenditures as rapidly as possible (e.g., getting supplies on a barge to Alaska by August, short construction season, consultant availability, etc.), you should make special note of these circumstances in your Grant Application Form. This program is **not** designed to provide funding for the 1981 construction season.

**Visitation Rights**—As an Appropriate Technology Program grantee, you will be required to provide public visibility of your project, including allowing reasonable access to your project site during the Project Period. You will, however, remain "in control" of such visits because all official visits can only occur with your prior permission and you do not have to allow visits that would interfere with the normal use of your project site (e.g., if you are a small family farmer, you could disallow visits during most of the busy harvest season). DOE may also enter into an agreement with you to allow some limited degree of project visitation rights to continue after the Project Period has ended. These post-Project Period visitation agreements will be entered into on a case-by-case basis.

**Project Monitoring and Reports**—Appropriate Technology grantees have the primary monitoring responsibilities to assure that project milestones and activities are being achieved. You will have the responsibility to manage the day-to-day operation of your project. However, Region X will require periodic brief Project Performance Reports and a Final Project Report which inform the Region X and Division of Energy and Power Development staff of your achievements and the status of your project. In addition, the Division will perform field monitoring of the Alaskan Appropriate Technology projects for the DOE. Grantees should expect one or two monitoring site visits each year.

**Project Income**—Income earned from activities or projects carried out in whole or in part with Appropriate Technology grant funds may generally be retained by grantees, if the first increment of income—up to the amount of the grant—is utilized to further Appropriate Technology Program goals of promoting, developing, and demonstrating energy-related Appropriate Technology. Income earned from grant-assisted projects can be a complex issue, however, and must often be dealt with on a case-by-case basis.

**Property Ownership**—Property ownership relationships in the Appropriate Technology Program can be complex and must generally be dealt with on a case-by-case basis. In general, if a grantee is a unit of local, regional, or State government; a local nonprofit organization or institution; Indian Tribe; Alaskan Native corporation or village; a community college; or institution of higher education; all property acquired using Appropriate Technology funds may be kept by the grantee, if the grantee continues to use the property for other Federal grant programs, or for the purpose of encouraging, developing, or demonstrating energy-related Appropriate Technology. These types of grantees receive title to acquired property at the time of purchase during the Project Period and retain title after the Project Period ends, if the conditions noted above are satisfied.

It is possible that, if a grantee is an individual or small business, all real property and equipment costing more than \$300 per item with a useful life of more than one year may become the property of the DOE and may not be retained by the grantee. The National Office of the DOE is presently examining the legal basis for allowing individuals and small businesses to obtain title to real property and expensive equipment at the time it is purchased and to retain title after the Project Period has ended, provided that the property continues to be used for Appropriate Technology Program purposes. It is hoped that this issue will be resolved in favor of individual and small business grantees by the time the 1981 selections are made. Individuals and small businesses who apply should know that the DOE has never taken possession of any real property or equipment purchased with Appropriate Technology funds, nor has it any current plans to do so.

**Sharing Information—**Because a major goal of the Appropriate Technology Program is the sharing and distributing of information developed by Program grantees, your Project Performance Reports and project results will be made a matter of public record, unless private and confidential information is presented in a Performance Report. In addition, you may expect TV, radio, or newspaper reporters to visit you to obtain information about your project. Many of the 1979 and 1980 grantees have had their projects and names presented in magazines such as TIME, FORTUNE, Popular Science, etc., in newspaper stories, and on TV shows and radio interviews, etc. Other 1979 and 1980 grantees have been invited to be special speakers at meetings of technical associations or at Statewide solar energy conferences, etc. As an Appropriate Technology grantee, you will be asked to be a participant in such public activities.

Please note that detailed information concerning DOE financial assistance policies, procedures, and relationships with grantees are contained in the DOE Assistance Regulations (Part 600 of Title 10 of the Code of Federal Regulations), which are available from the Regional Program Manager. These regulations present specific information regarding access to and retention of records, budget revisions, contracting requirements, use of and separation of grant funds, bookkeeping and accounting requirements, use of income earned as part of an Appropriate Technology project, etc. In addition, copies of "A Summary of Your Grant Relationship with the DOE," which explains the relationship between Appropriate Technology grantees and the Region X Office, are available from the Regional Program Manager. The State Program Manager can provide details regarding the State of Alaska requirements for those grantees receiving DOE and State of Alaska funds.

### **OTHER SPECIAL INFORMATION:**

**PROPOSAL PREPARATION COSTS:** The DOE and Alaska Division of Energy and Power Development assume no responsibility for any costs associated with the preparation of proposals submitted under this Program Solicitation.

**SELECTION RESERVATION:** The DOE and Alaska Division of Energy and Power Development reserve the right to select for financial assistance, in whole or in part, any, all, or none of the proposals received in response to this Program Solicitation.

**COST SHARING AND JOINT FUNDING PROJECTS:** Applicants are encouraged to offer to share in the costs of performing their proposed projects, either through an offer of in-kind contributions (donated labor, donated materials, provision of project sites, etc.) or through direct monetary contributions, or to arrange that other agencies, groups, organizations, businesses, etc., provide some degree of cost sharing. State Reviewers and the members of the DOE Selection Panel will be encouraged to be alert for cost sharing opportunities as they reach their decision regarding the appropriate grant award amount for each recommended project proposal.

In addition to seeking cost sharing relationships, the Regional Program Manager is authorized to participate in joint funding relationships with other Federal agencies if such relationships are in the best interest of all participating agencies' programs. Such joint funding may include more than one type of financial assistance relationship.

### **NON-ENGLISH PROPOSALS:**

Applications under this Program Solicitation may be submitted in any written or spoken language, including Aleut, Yupik, Sugvik, Inupik, Tlingit, and Athabaskan. Application Form questions may be rewritten into these or other non-English languages to facilitate non-English applications. For languages which are only spoken, tape-recorded verbal proposals will be accepted.

### **PRIVACY OF THE INFORMATION IN YOUR PROPOSAL:**

It is DOE policy to use information contained in proposals only for evaluation and review purposes, except when such information is generally available to the public, is already Government property, or is available to the Government without restriction from any source, or the applicant has authorized the DOE to release proposal information for specified non-evaluation purposes (see page 1 of the Grant Application Form). If you are selected for a grant, DOE and the Division of Energy and Power Development will have the right to use, duplicate, or disclose any non-confidential or non-proprietary information contained in your proposal.

## **CONFIDENTIALITY AND CONFLICT OF INTEREST:**

All individuals involved in the proposal evaluation and review process, including the Technical Evaluation reviewers, State Reviewers, Alaska Division of Energy and Power Development staff, Region X DOE staff, and others, must sign non-disclosure of information agreements prior to handling any proposal. Under no circumstances may any individual utilize any privileged or proprietary or other information contained in any proposal for personal gain or other improper purpose. In addition, all evaluators and reviewers will be required to sign agreements stating that they will not evaluate or review any proposal which, in their judgment, could not be impartially and fairly reviewed due to the presence of an actual or potential conflict of interest that would prevent them from objectively evaluating the proposal. The DOE and Alaska Division will go to great lengths to ensure that the entire evaluation, review and selection process is performed in an objective and fair manner and that proposals are rated strictly on their comparative merit and their individual merit when compared against the Technical Evaluation and State Review Criteria.

If a proposal includes confidential information, trade secrets, and/or privileged or confidential commercial, business, or financial information which an applicant wishes to fully protect, the applicant should complete the Confidentiality Notice on the **first page** of the Grant Application Form by listing the pages of the Grant Application Form which contain the confidential information. Every effort will then be made to protect this information from any disclosure or use beyond the proposal evaluation and review period. All information contained in each proposal will be handled in accordance with the policies and procedures set forth in the DOE Assistance Regulations and Procurement Regulations, and disclosed only in accordance with the Federal Freedom of Information Act.

## **INVENTIONS AND PATENTS:**

DOE is required by law to take title to inventions conceived or first put into practice under a DOE grant. However, applicants under this Program Solicitation may request that title to inventions be given back to them. When DOE gives back to a grantee the rights, title in, and interests in inventions, this is called a "waiver." In this Program, a waiver will be given to any applicant if it is requested at **question 18 on page 12** of the Grant Application Form and if:

1. The applicant is an individual or small business, or
2. The applicant is other than an individual or small business and satisfies DOE at some time prior to entering into a grant agreement that the applicant would intend to and has a reasonable plan to market or commercialize the invention(s) or technologies that are being developed. This commercialization plan or statement should be included in the Grant Application Form or provided to DOE after notification of being selected for an Appropriate Technology Small Grant.

Note that if the Government does give title to an invention back to an applicant, there will be some conditions attached. These conditions will take into account the public interest, the rights of the grantee, and the rights of the Government to use the resulting patent for its own purposes. If you wish to receive further details on the patents issue, contact the Regional Program Manager.

## **THE ACKNOWLEDGMENT CARD (on Back Cover):**

Complete one Acknowledgment Card for **each** application which you are submitting. Send in one Acknowledgment Card with each Grant Application Form. Remember that each proposal will receive a separate Proposal Number and that the use of the Acknowledgment Card is the most practical means for you to be informed of your application's Proposal Number. If you do not receive your Card(s) back (with your Proposal Number on it) within three weeks after proposal submittal, contact the State Program Manager.

## APPLICATION FORM INSTRUCTIONS:

### OVERALL INSTRUCTIONS:

Remember that you will **not** be able to erase errors: if you make an error, **just cross out the mistake** and continue with your text. Remember to **read all questions first** before preparing your actual proposal. Also, you are strongly encouraged to **clearly print or use a typewriter**. In the 1979 and 1980 Programs, many proposals could hardly be read by evaluators and reviewers, and it is likely that the ability to read and understand proposals had some effect on the selection decisions. It can only work to the advantage of an applicant to have a neat and easy-to-read application.

Also, **DO NOT USE** a magic marker or felt-tip pen when completing the Grant Application Form pages. Felt-tip pens will not always leave a clear impression on the bottom sheet of each page of the Form. **Use only ballpoint pens, sharp pencils, or a typewriter**, etc. Unstaple the Application Form pages before filling out an application and **fill out each page separately** (don't fill out page 3 while page 3 is resting on top of page 4).

### PAGE 1:

The only item to complete on Page 1 is the Confidentiality Notice, which was described on Page 13 of this Program Solicitation.

### PAGE 2 (the Proposal Information page):

**Question 1**—Provide a short descriptive title of your project, such as "Use of a Small Wind Machine for Electricity in Coastal Alaska."

**Question 2**—List the location where your project would be performed or located.

**Question 3**—Projects in the Small Grants Program must be either idea development, device development or demonstration projects. If you feel your project falls into more than one category, then choose the one that best describes the INNOVATIVE characteristics of your project. For example, if you are first developing a device, then demonstrating it, list your project as a device development project.

**Question 4**—Enter the total amount of money you are requesting from the Small Grants Program. This amount must agree with the total listed on the Budget Summary page (page 10), and, it must not exceed the limits for the project type checked in question 3. Round your request to the nearest dollar.

There is a funding limit of \$50,000 in DOE funds per program participant per each two-year period. You cannot, for example, ask for \$60,000 for a combined Idea Development-Device Development project.

**Question 5.** PRINT or TYPE your name on line 5a. If you are not submitting this application as an individual (see Question 6) enter the name of the organization, agency, small business or group that is sponsoring the project on line 5b.

Enter the address, city, State and ZIP CODE of where you wish to receive mail concerning your project on lines 5c and 5d.

Provide a phone number where you can be reached on line 5e. Be sure to include the area code. If you cannot be reached at this number during normal working hours ( 8 a.m. to 5 p.m.) provide the hours when you can be reached at the number listed.

**Sign** the application on line 5f. The signature on line 5f **must** be the same as the name printed on line 5a.

If the name of an organization, small business, agency or group was entered on line 5b, then a person within that organization, business, agency, or group authorized to contract for the organization, **MUST** sign the application on line 5g.

If you are submitting this application jointly with a second individual or business or organization, then Co-applicant information must be completed in the space provided. Note that the individual or organization listed as "applicant" will usually become the actual legal DOE and State grantee for proposals which are submitted jointly. DOE and the State of Alaska will not usually make joint grants.

**Question 6**—There are seven applicant categories in the Small Grants Program. You must choose ONE of these categories. If you wish to submit this application under two different categories, then you must submit two separate applications. (For example, you may submit a project as an individual and as a non-profit organization. In that case, you should submit one proposal as an individual and one proposal as a nonprofit organization.) If submitting two or more applications to the program, be sure to indicate this on page 13.

**Question 7**—Below are listed 47 type categories. Your application will be assigned for technology review based upon the primary technology type category you provided on line 7a. You should read all the categories carefully before making a choice. Choose the ONE category that best describes the INNOVATIVE characteristics of your proposed project. Remember that you must list only ONE category as the primary technology type category.

**If you feel that your project has other special innovative characteristics, you may list up to three additional technology type categories on line 7b.**

## **TECHNOLOGY TYPE CATEGORIES (for use in completing page 2):**

### **Solar projects**

01. Earth sheltered buildings
02. Active space heating or cooling
03. Domestic hot water systems, swimming pool heating
04. Greenhouse systems (either attached or detached)
05. Passive systems (roof ponds, trombe walls, shading, etc.)
06. Process heat applications (crop drying, lumber drying, etc.)
07. Photovoltaic systems
08. Mechanical power or heat engines

### **Biomass projects**

09. Alcohol fuels (production and utilization)
10. Methane or other gaseous fuels (production and utilization)
11. Wood, coal, peat or other direct combustion technologies
12. Food, biomass or protein production systems
13. Municipal/industrial bio-waste utilization
14. Studies assessing biomass utilization potential

### **Wind projects**

15. Electricity production
16. Mechanical energy or heat production
17. Studies assessing wind resource potential

### **Geothermal projects**

18. Space or water heating/cooling
19. Industrial or commercial process heat
20. Electricity production
21. Studies assessing the utilization potential of geothermal resources

### **Water related projects**

22. Wave, tidal, ocean current or ocean thermal conversion
23. Hydroelectric projects
24. Hydraulic rams, etc.
25. Studies assessing the energy potential of water resources

### **Energy Storage and Transfer projects**

26. Chemical storage systems (batteries, salts, etc.)
27. Inert Mass storage systems (rock beds, water columns, etc.)
28. Mechanical storage systems (flywheels, etc.)
29. Heat exchangers and modifications to heat pumps
30. Soil or ground water used as either an energy source or heat sink

**Energy Conservation projects**

31. Innovations in building design and construction methods
32. Building products and materials
33. Building retrofit innovations
34. Lighting improvements
35. Waste heat recovery
36. Appliances—related projects
37. Combustion engine efficiency improvements
38. Air or water-based transportation
39. Land based transportation
40. Energy monitoring or management
41. Solid waste recycling, or resource or water reclamation or reuse
42. Commercial and industrial conservation (including co-generation)
43. Agricultural projects (irrigation pump testing, draft animal use, etc.)

**Education and Technology Transfer projects**

44. Curriculum development and training aids
45. Publications, manuals, films, etc.
46. Workshops, networking, outreach activities
47. Resource centers (libraries, tool banks, etc.)

**Question 8**—Five general sectors of public benefit are listed in Question 8. Check the one which your project would effect the most. If your project would have an impact in more than one sector, mark the box of the sector receiving the GREATEST potential benefit.

**Question 9**—Four general types of energy impact are listed in Question 9. Check the ONE type which would be most affected by your project. If you believe that your project would have an impact of more than one type, indicate the GREATEST type of impact your project would have.

**Question 10**—Check the box that indicates how you **first** learned about the 1981 Small Grants Program. Check only **one** box.

**PAGE 3 (The Project Summary Page):**

This page is self-explanatory.

**PAGE 4 (The Detailed Project Description):**

This is where you should describe the details of your proposed project. It is most important that you provide information that addresses the **Technical Evaluation Criteria** presented on Page 7 of this Program Solicitation.

If you are resubmitting an unselected proposal (or a continuation proposal) from the 1979 or 1980 Program, you may use the technical description from that prior application as the technical description for your 1981 application by referencing it in the 1981 form and attaching the existing technical description to the 1981 form. The DOE and Division of Energy and Power Development would prefer that attachments to the 1981 form be limited and that any blueprints, drawings, photographs, and other descriptive materials be folded or reduced to an 8½" x 11" size. All attachments will become the property of the Government, though DOE intends to return attachments to proposers upon their request.

**PAGES 5 and 6 (BLANK PAGES):**

Note that there are three blank pages in the Grant Application Form package (the pages numbered 5, 6, and 12). Applicants **may use these pages wherever they are needed**. For example, if your Detailed Project Description requires only one page (Page 4), but you run out of space on the Project Personnel page (Page 7); you could use one of the blank pages to complete your Project Personnel description, and insert the blank page after the Page 7 Project Personnel page. **If you shift the blank pages to new positions in your Grant Application Form, please cross-out the existing page numbers and re-number the**

**Grant Application Form pages correctly** (of course, Pages 1 through 4 will never need re-numbering). Please use the blank pages provided before attaching additional pages of descriptive information on new blank pages of your own stationery. Note that you **do not** have to submit a 14-page Grant Application Form—if your Detailed Project Description can fit on Page 4, and the Public Benefits can be described on Page 11, and all other subjects can be described on one page, you should only submit a 12-page Grant Application. Don't submit the blank pages if you don't use them.

**PAGE 7 (The Project Personnel Page):**

This page is self-explanatory.

**PAGE 8 (The Project Schedule):**

Only list the major activities associated with your project (e.g., equipment purchases, start of construction, completion of important tests, etc.). List the activities in the column on the left. Put a dot in the box for the month when you would start that activity, a dot in the month box for the month when the activity would be completed, and then connect the dots with a line. If your project would take until after October 1983 to be completed, please develop and attach a continuation sheet.

**PAGE 9 (The Budget Support Sheet):**

This important sheet describes how your grant request amount was computed. You may need more pages to complete a thorough Budget Support Description, especially if your project is complex or involves many individuals or supplies/equipment.

First, identify the **personnel/skills/positions** needed to carry out your project (e.g., Joan Williams - solar designer; a skilled carpenter; a bulldozer operator). Then, identify the wage rate or salary associated with these key personnel and the hours or months of their employment on your project. For each person/skill/position compute your monetary needs and list these amounts in the proper column on the right side of the form. If the labor is donated, enter the value of the labor in the "Other Contributions" column and write "donated" in the space where the calculations are displayed. If another agency is paying for the personnel costs, in whole or in part, place the value of the other agency's contributions in the proper column and name the agency in the space where the calculations are displayed. **For all wages/salaries/labor costs, place a "1" in the column titled "Cost Category Number."**

Then, determine any **fringe benefits** associated with the employment of personnel to carry out your project. Include any necessary Social Security, Workers Compensation, Unemployment Insurance, health/life insurance costs, etc. Either enter each fringe benefit category or write "Fringe Benefits at XXXX Percent," and enter the percent affecting your particular situation. **Fringe Benefits Are Cost Category "2."**

Next, list the **equipment** needed to perform your project (e.g., typewriters, pumps, monitoring devices, trailers, solar collectors, boilers, tanks, roto-tillers, pigs, wind electric generators, desks). Equipment is considered to be all non-consumable items (things that don't get used up as you carry out your project) with a life expectancy of one year or more. For each piece or group of equipment, list their estimated cost/value in the proper column according to whether DOE funds would be used to acquire the equipment and **place a "3" in the Cost Category Number column.**

**Materials and Supplies** should be listed next. Materials and Supplies include items like pencils and paper, film, postage, and accounting record books, and items that are needed to prepare, perform, or carry out the project, such as lumber, wire, nails, chemicals, pipe and plumbing materials, mounts, brackets, and other hardware, feed for animals, fertilizers for an urban farm, etc. **Mark "4"** in the Cost Category column for each group of materials and supplies required.

**Cost Category "5" is Travel.** List the travel costs associated with the performance of your project. Local travel costs should be computed at a rate not to exceed 22½ cents per mile. Out-of-town travel costs should be computed using "coach" or "economy" or similar rates. Include any needed per diem, meal, motel, etc., costs in this category.

List your project's **consultant and subcontractor** requirements next as **Cost Category "6."** List only major subcontractors here. Please attempt to limit the fees of experts, consultants, and required spe-

cialists to \$200.00 per day. Proposals will **not** be eliminated from funding consideration if consultant fees exceed these guidelines; however, excessive consultant fees will be closely examined.

Finally, determine any **other costs** associated with your proposed project. For example, there may be telephone, report printing, space acquisition, lease or rental agreement, storage, liability insurance or bonding, permit, audit, advertising, bookkeeping, administrative overhead, clerical or similar costs associated with the performance of your project. **Other Costs should be identified as Cost Category "7."**

**PAGE 10 (The Budget Summary):**

To complete page 10, total the Cost Category entries on the Budget Support Sheet (round-off all entries to the nearest dollar) and transfer them to the Budget Summary. Make sure that the total amount requested on the Budget Summary matches the amount presented at question 4 on page 2 of the application form.

**PAGE 11 (Community/Public Benefits):**

Use this section of the Grant Application Form to describe how the public would benefit from your proposed project. Do not use this section to repeat the description of the technical features and characteristics of your project. Be sure to address the **State Review Criteria** presented on pages 7 and 8 of this Program Solicitation.

**PAGE 12 (Patent Waiver Request):**

If you want the Federal Government to give title to inventions back to you, please check the appropriate box. In the case of box "b," please also briefly present your plans for marketing any inventions. You should state your plans to manufacture or have manufactured for sale the invention, your plans to obtain investment funds, your plans to license others to use the invention, or any other plans related to a commercialization effort. For additional information, please refer to the Inventions and Patents section of this Program Solicitation.

**PAGE 13 (Funding Limitation, Information Release, Etc.):**

**Question 21**—This is the section of the Grant Application Form where you should inform the DOE and the Alaska Division of Energy and Power Development of any actions on your part to have this project funded by other agencies or other DOE Programs. If you have submitted this project proposal to other agencies or programs, you should list the agencies, the date you submitted your proposal, and the current status of your application to these other agencies or programs.

**Questions 22, 23, and 24**—Region X has had some success in interesting other agencies in funding highly-rated but unselected Appropriate Technology project proposals. Answering "Yes" to these questions allows the Region X staff some flexibility in seeking out alternative funding or technical assistance if your application is not selected for an Appropriate Technology grant.

**PAGE 14 and FINAL INSTRUCTIONS:**

1. Be sure to **use the Page 14 Check List** and leave it in your grant application form.
2. Be sure that each proposal submitted is for a different project (e.g., if you propose a solar project for Big Delta, and for Circle, each should be submitted as a separate application. Or, if you propose a \$30,000 methane digester project and a \$15,000 scaled-down version of the same project, prepare each as a separate application. Don't turn in a "\$15,000 to \$30,000" proposal on one grant application form.
3. Be sure to **submit one Acknowledgment Card with each separate application.**
4. **Deliver the original and one copy** of your Grant Application, including all attachments, by 4:30 p.m., Alaska Standard Time, on **April 20, 1981**, to a designated submittal site; or, get your Grant Application in the **mail** (use certified mail, if possible) by 5:00 p.m., Alaska Standard Time, on **April 15, 1981**. Keep the third copy of your proposal for your use.

---

**FOR DOE AND DIVISION USE ONLY**

Date Received: \_\_\_\_\_

Proposal Number: 181-\_\_\_\_\_

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**U.S. DEPARTMENT OF ENERGY, REGION X and  
ALASKA DIVISION OF ENERGY AND POWER DEVELOPMENT**

**1981 Appropriate Technology  
SMALL GRANTS PROGRAM  
For Alaskan Projects**

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**GRANT APPLICATION FORM**

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**NOTICE FOR HANDLING PROPOSALS**

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This proposal shall be used or duplicated only for Department of Energy (DOE) Appropriate Technology (A.T.) Program evaluation and review purposes, and this notice shall be affixed to any reproduction or abstract thereof. This proposal shall not be shown or provided to anyone not directly involved in the A.T. Program evaluation and review process unless permission is obtained from DOE. The restrictions contained in this notice do not apply to any data or commercial or financial information contained in this proposal if it is already generally available to the public, is already available to the Government on an unrestricted basis, is already the property of the Government, or is or becomes available from any source, including the proposer, without restriction. Submitted copies of this proposal become the property of the Federal Government. The DOE cannot guarantee the return of your proposal.

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**CONFIDENTIALITY NOTICE**

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This Notice is to be completed **BY THE APPLICANT**  
if confidential data are contained in the proposal.

The data contained on page(s): \_\_\_\_\_ of this application have been submitted in confidence and contain trade secrets and/or privileged or confidential commercial or financial information, and such data shall be used or disclosed only for evaluation purposes, provided that if a grant is awarded to this applicant as a result of or in connection with the submission of this application, the Government shall have the right to use or disclose the data herein to the extent provided in the grant. This restriction does not limit the Government's right to use or disclose the data obtained without restriction from any source, including the applicant.

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# BASIC PROPOSAL INFORMATION

Proposal Number: 181-

1. Project Title: \_\_\_\_\_

2. Principal Project Location: \_\_\_\_\_ AK  
 City Borough State Zip

3. Project type: Check  the ONE category that BEST describes your project.  
 Idea development (\$10,000 maximum)       Device development (\$50,000 maximum)       Demonstration (\$50,000 maximum)

4. Total Grant Request: \$ \_\_\_\_\_ .00

5. Applicant and Co-applicant Information. Please PRINT or TYPE.

a. _____ Applicant's name	a. _____ Co-applicant's name
b. _____ Organization name, if applicable	b. _____ Organization name, if applicable
c. _____ Address	c. _____ Address
d. _____ City State Zip	d. _____ City State Zip
e. ( ) _____ Area code and phone number	e. ( ) _____ Area code and phone number
f. _____ Applicant's signature	f. _____ Co-applicant's signature
g. _____ Authorized signature for organization, if applicable	g. _____ Authorized signature for organization, if applicable

6a. Applicant category. Check  only ONE category.  
 Individual       Nonprofit organization or institution       State or interstate agency  
 Small business       College or university       Local or regional agency  
 Indian tribe or Alaskan Native organization

7a. Primary Project Category:

7b. Secondary Project Categories (if applicable):

8. Check <input checked="" type="checkbox"/> the ONE sector that will receive the GREATEST benefit from your project. <input type="checkbox"/> Agriculture, Forestry or Fisheries <input type="checkbox"/> Commercial or industrial <input type="checkbox"/> Residential <input type="checkbox"/> Governmental <input type="checkbox"/> Transportation	9. Check <input checked="" type="checkbox"/> ONE category as being the MAJOR energy impact area of your project. <input type="checkbox"/> Energy conservation <input type="checkbox"/> Developing new energy resources <input type="checkbox"/> Energy substitution <input type="checkbox"/> Public awareness	10. From what source did you FIRST learn about the Small Grants Program? (Check <input checked="" type="checkbox"/> only ONE) <input type="checkbox"/> Direct mail <input type="checkbox"/> Newspapers <input type="checkbox"/> A.T. publications <input type="checkbox"/> Public meetings <input type="checkbox"/> Radio/television <input type="checkbox"/> Congressmen <input type="checkbox"/> Friends
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## PROJECT SUMMARY

Proposal Number: 181-

11. Provide a brief, non-technical, descriptive summary of your proposed energy-related project. What are you trying to accomplish or achieve with your project? What is the purpose of your project? What special energy-saving devices, systems or information will exist when your project ends? How will others use what you have developed or learned? Limit your summary to this page.



## DETAILED PROJECT DESCRIPTION

Proposal Number: 181 -

12. Provide a complete and reasonably detailed **technical description** of your project. Explain exactly what you are going to do and how you are going to do it. Use additional pages, if needed. Provide photos, blueprints, drawings, and any supporting information you believe necessary. Be sure that your description describes how your project will meet the **Technical Evaluation Criteria** listed in the Program Solicitation. Clearly indicate any confidential information or data as described in the Program Solicitation.



**Proposal Number: 181-**



Proposal Number: 181 -



## KEY PROJECT PERSONNEL

Proposal Number: 181-

13. Identify the key personnel, consultants and subcontractors, including yourself, who will contribute most to the performance of your proposed project. Describe the role of each participant in the project and the number of hours each person will devote to the project. List or attach only those qualifications which relate to the project. (Qualifications may include education, job-related skills, practical skills, hobbies, etc.)





**BUDGET SUMMARY**

Proposal Number: 181-

16. Complete this page per the instructions in the Program Solicitation.

**AMOUNT REQUESTED FROM DOE**

Cost Category Number	Cost Category	Total from the Budget Support Sheet
1.	SALARIES and WAGES	\$
2.	FRINGE BENEFITS	
3.	EQUIPMENT	
4.	MATERIALS/SUPPLIES	
5.	TRAVEL	
6.	CONSULTANTS/SUBCONTRACTS	
7.	OTHER COSTS—RENTALS, OVERHEAD, SPACE COSTS, ETC.	
TOTAL AMOUNT REQUESTED FROM DOE		\$

**COST SHARING SUMMARY (IF APPLICABLE)**

NON-DOE SOURCE OF SUPPORT OR FINANCIAL ASSISTANCE	AMOUNT OR VALUE
	\$
TOTAL AMOUNT CONTRIBUTED BY OTHERS	\$

**COMMUNITY/PUBLIC BENEFITS**

Proposal Number: 181 -

17. Describe the social and economic benefits your project will provide to your community, Alaska, the region, etc. DO NOT include technical details. Refer to the State Review Criteria on Page 8 of the Program Solicitation. Be certain to highlight any special qualities your proposal offers. Use the top of the next page, if needed.

Proposal Number: 181-

## PATENT WAIVER REQUEST

- 18a.  I qualify as a small business or as an individual and request that title to any inventions associated with this project be given back to me.
- 18b.  I am not applying as a small business nor as an individual; however, I request that title to inventions be given back to me. In order to qualify, my plan and intentions to commercialize or use the invention so it will be made available to the public are as described below:
- 18c.  I do not request a patent waiver.

**FUNDING LIMITATION**

Proposal Number: 181-

19. Have you previously received funds under the Appropriate Technology Small Grants Program?

YES NO 

20. If your answer is yes, please identify:

a. The DOE Office through which you received funds: \_\_\_\_\_

b. Your DOE Grant Number(s): \_\_\_\_\_

c. The total amount of your previous Grant(s) (DOE funds): \$ \_\_\_\_\_

d. The type(s) of project(s) for which you have received funds (i.e., idea development, device development or demonstration):

\_\_\_\_\_

\_\_\_\_\_

**OTHER FUNDING SOURCES**

21. Is this proposed project being funded or supported by any other source or have you submitted this or a similar proposal for funding to any organization (other than Region X DOE)? (For example, National Center for Appropriate Technology, National Bureau of Standards, State and local governments, private groups). If yes, please provide a brief explanation. This will **not** have any negative effect on your proposal.

\_\_\_\_\_

\_\_\_\_\_

**RELEASE OF INFORMATION**

22. May DOE forward this application to other agencies or nonprofit organizations for funding consideration?

YES NO 

23. May DOE forward this application to other agencies for their information?

YES NO 

24. May DOE make use of the data/information contained in this application for the purpose of encouraging, promoting, developing, or demonstrating energy-related appropriate technology?

YES NO **MULTIPLE APPLICATION**

25. How many applications have you submitted to the 1981 Region X Appropriate Technology Small Grants Program? \_\_\_\_\_

If more than one, explain briefly. This will not have any negative effect on your proposal.

\_\_\_\_\_

\_\_\_\_\_



# APPLICATION FORM CHECK LIST

Proposal Number: 181 -

26. Go back through your proposal to ensure that:

YES NO

- Your project would be performed in Region X.
- You are an eligible Small Grants Program applicant.
- Your project fits into one of the three project types.
- Your project budget fits within the dollar limits for your project type.
- All sections of the Application Form have been completed with enough technical cost, or other information to allow evaluators and reviewers to perform evaluations and reviews.
- You signed this Application at Question 5.

FOR DOE USE ONLY
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>
<input type="checkbox"/>

All of the above boxes must be checked "Yes" in order for your application to be considered for financial assistance.

### FOR DOE AND DIVISION USE ONLY

All questions (above) must be answered 'Yes' to survive prescreening.

This proposal survives prescreening:

Acknowledgement card sent:  Date: \_\_\_\_\_

If any questions are answered 'No', return the application with an appropriate form letter describing the reasons why the proposal cannot be accepted under the 1981 A.T. Program.

This proposal does **not** survive prescreening:

Form letter sent:  Date: \_\_\_\_\_

Prescreened by: \_\_\_\_\_

**ACKNOWLEDGMENT-OF-RECEIPT CARD:**

Please print your name and address on this Acknowledgment Card and return it with your application. Do not mail the card separately; simply enclose it with your application. The Proposal Number given to this application will be noted on the card. The card, in turn, will be mailed back to you in order to provide you with assurance that the application was received and to inform you of the assigned identifying number. If you do not receive this card within two weeks of the submittal of your application, contact the Alaska Division of Energy and Power Development. IF YOU NEED TO CONTACT US ABOUT YOUR APPLICATION AFTER RECEIVING YOUR PROPOSAL NUMBER, YOU MUST PROVIDE US WITH YOUR PROPOSAL NUMBER.

CUT ALONG THIS LINE

U.S. DEPARTMENT OF ENERGY  
REGION X  
1992 FEDERAL BUILDING  
915 SECOND AVENUE  
SEATTLE, WASHINGTON 98174

POSTAGE AND FEES PAID  
UNITED STATES  
DEPARTMENT OF ENERGY  
DOE-350



CUT ALONG THIS LINE

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UNITED STATES DEPARTMENT OF ENERGY

REGION X  
1992 FEDERAL BUILDING  
915 SECOND AVENUE  
SEATTLE, WASHINGTON 98174

OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE \$300

Mr. Mark Wittow  
Office of Representative Malone  
Pouch V  
Juneau, Alaska 99811

CUT ALONG THIS LINE

ACKNOWLEDGEMENT OF RECEIPT CARD

This card acknowledges receipt of your proposal submitted under the 1981 Region X U.S. Department of Energy Appropriate Technology Small Grants Program. If you want to contact anyone in Region X DOE or the Alaska Division of Energy and Power Development regarding your proposal, please refer to the Proposal Number on this card. Thank you for your application and interest in small scale energy conserving projects and technologies.

Please print or type your address on the other side of this card.

FOR DOE AND DIVISION USE ONLY

Proposal Number: 181-

POSTAGE AND FEES PAID  
UNITED STATES  
DEPARTMENT OF ENERGY  
DOE-350



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



# Alaska State Legislature House of Representatives

POUCH V  
JUNEAU, ALASKA 99811  
OFFICIAL BUSINESS

MEMO: Nov. 11, 1980

TO: Whom it may concern

FROM: Bob Speed, A.A.  
Office of the Speaker

RE: Initial observations and concerns  
re: report, "SB:438 -- Implications for the Division  
of Energy and Power Development," prepared by  
Alaska Renewable Energy Associates, Oct. 2, 1980

First, I would like to compliment the authors of this report, which I found to be one of the most valuable I have read in regard to state policy regarding energy conservation and renewable energy development. The conclusions arrived at address many of my concerns in regard to provisions of SB 438 as passed into law, and also to things left out of the bill. In addition, much new information is added relative to needed revisions and additions to the law, and also to the state's programs vis a vis federal legislation and the problems of trying to coordinate the two. It is apparent that we need to (work with other states to) influence the Congress, as well as to clarify and revise our own programs to compliment federal ones.

After a first reading, I have a number of comments and questions outlined below, chronologically according to page; however, I want beforehand to stress that I believe particular attention should be paid to the point brought up on page 38 having to do with constraints on the availability of federal tax credits for expenditures having to do with subsidized loans. If applied broadly enough to include state mortgage loans on energy-conservative housing, the IRS definition could totally stop progress that could be made through proper use of state incentives.

Two other considerations must be acknowledged in reading the report. First, companion legislation to SB 438 included HB 687, creating the Alaska Energy Center. One of the objectives defined for the Energy Center was creation and oversight of a program to develop appropriate designs for northern-climate architectural design. Therefore, some of the duties ascribed to the Division of Energy and Power Development may be shared with AEC, as well as other state agencies, most specifically the Department of Transportation and Public Facilities. Second, the legislature and the governor's office are now studying agency responsibilities in regard to energy and may redefine roles and responsibilities of various agencies in the future, if such redefinition will improve the administration of energy programs.

EXECUTIVE SUMMARY:

I concur that the recommendations for state action in regard to provisions of SB 438, and for legislative revisions, would improve current law. As regards financial incentives, recommendations numbers 1-8, recommendations #1 and #7 would most probably be done through cooperation with the Alaska Energy Center. The energy center would either have staff capable of providing these services, or have them under contract in connection with its architectural program.

Regarding the conflicts mentioned with regard to state and federal programs, it is most apparent that the state, through its energy lead agencies, should closely monitor federal legislation and its impacts on state programs; first for the purpose of revising state law as appropriate, and second to influence Congress to clarify and revise its own legislation to better serve its intent to provide incentives. It is apparent that the IRS has subverted the original intent in cases where Congress did act to provide incentives, and these barriers should be removed.

It is apparent that grants and loans would be preferable to the business tax credit because of the reasons given in the report; and also to simplify the state's energy program. It should also be noted that an effort to repeal business income taxes altogether is likely during the Twelfth Legislature. Whether this effort will succeed is unknown; the idea is not universally acceptable.

Page 10: AES Performance:

--Paragraph 2: the Alaska Energy Center and DEPD could provide professional services to the Department of Revenue; the energy center would have the needed expertise as well as mandates of its own in this regard.

--Paragraph 3: The "white elephant" statement is very much to the point; I have used the example of heat pumps myself. This is the reason training programs for professionals, education for the general public, and making state professional expertise available to people were stressed so strongly in SB 438 and HB 687.

Page 11: Passive design:

It was specifically the intent of the legislature that passive design be given equal footing with any other example of alternative energy technology, since passive function is one of the most appropriate uses of solar energy available to Alaska. The legislation was written and intended to provide a liberal definition of passive function in the context of agency interpretation. Not to give every benefit of the doubt to the designer would violate the legislative intent. I like the definitions provided in succeeding pages.

page 18: Alt. Tech. and Energy Revolving Loan Fund:

In Paragraph 1 (first complete paragraph), it is stated again in relation to so-called "white elephants" that "...the state legislature did not intend to subsidize inane alternative energy applications." There are a number of implications to this statement, some of which bear on other aspects of the report in which monitoring and quality judgments (regulation) by state officials are discussed. First of all, the context in which the above quotation is used is in itself perjorative, and second is a misunderstanding of the legislature's intention. There can be another interpretation of "inane alternative energy applicaitons," and that term is "innovative" or perhaps experimental.

This brings up a major point in this legislation, and one which for the ump-teenth time makes me wish we had taken the time to write a letter of intent for this bill; time did not allow that. The point is this: this legislation was intended to provide Alaskans with a great deal of lattitude in the use of this money, especially loan money. Alaskans have a long-standing tradition of self-reliance, out of necessity. Alaskans tend to be "good with their hands" and many Alaskans like to innovate, to tinker. It should not have to be pointed out that most of the most significant inventions and innovations have developed just this way. The entire concept of appropriate technology is based on that fact; that given a need and a mind, a way can be devised to solve a problem. The solution may be applicable to other similar cases, and it may be an idea no one had previously considered. This program was established to stimulate, and hopefully to reward, experimentation. The legislature went to a great deal of effort to try to devise a mechanism that would ensure that self-built systems would be judged by different standards than commercial ones.

For one time, I would like to see state "regulators" keep hands off in this important area. Let the free market work for once. Especially in regard to a loan program, subsidized or not, the applicant himself is the check on the system. No one who would apply for one of these loans would intentionally build an "inane" system. To think otherwise is foolish and illogical. This is another reason the legislature specifically provided for public access to state expertise -- through DEPD's staff and the energy center's innovation center, for example. As far as I'm concerned, the only factor on which an alternative energy loan should be judged is upon the ability of someone to pay back the loan. Regulation should be directed toward ensuring quality and proper installation of commercial systems, not toward what a person willing to commit himself to the challenge is able to work out on his own property.

This single statement in the authors' text is the one I disagree with most strongly. The comments above represent my views and those of the legislators who worked most closely in writing the legislation.

Page 20, first paragraph:

The question of how to determine energy cost savings of a building heated by hydroelectrically-derived resistance heating system is a valid one; especially since electric resistance heating is an inefficient use of a valuable resource. Such heating can only be justified in an area where there is excess hydroelectric capacity, and even then future growth patterns have to be considered (evidence the Pacific Northwest, which now rues the day that they ever promoted "all-electric" homes). This question deserves careful consideration as a policy issue.

Page 21, fourth paragraph, to page 24:

Deregulation, and other processes of removing subsidies for use of petroleum have to continue, and consumers should expect to pay full marginal cost of consumed energy. A large part of the reason alternative energy forms and conservation have to be subsidized at this point is because of the subsidies that still exist for consumption of fossil fuels and nuclear power. In Alaska, a complicating factor will continue to be the state's vast oil wealth which many residents, and the elected officials representing them, will expect to be used to offset increasing energy costs. The result could be that the state may be moved off track from a responsible energy future toward one which will continue to subsidize fossil fuels or encourage projects which may not offer the best alternative from a long-range cost-benefit analysis. Ultimately, the choice is to make the least-cost choices now or to subsidize and leave future generations (who may not have the resources, financial and otherwise) to re-solve the problem.

Page 32ff, Evaluation of state financial incentives:

This section is one of the most important of the whole report, from my viewpoint, and reflects many of the points I tried to get across to legislators last session. However, I didn't have the facts and figures available to back up my position and the final bill reflects that. This aspect of energy legislation is critical for resolution this year. The section also points out the work that must be done at the federal level to convince Congress that they should work to make their own programs more flexible and more helpful to state programs, rather than competitive.

In respect to the business tax credit, I agree that this should be replaced with a grant-and-loan program similar to that which superceded the resident tax credit, as noted above.

I would like to see further research done on what type of "mix" Alaska should shoot for in terms of grants, low-interest loans, loan guarantees or other incentives. I am particularly enamored with zero-interest loans being used in other states, but it remains to be seen whether anyone else -- especially legislators -- shares that enthusiasm.

**\*\*PLEASE NOTE\*\***

**THE ORIGINAL FILE CONTAINS AN OVERSIZED DOCUMENT THAT  
IS UNSUITABLE FOR FILMING. PLEASE REFER TO THE ALASKA  
STATE ARCHIVES TO VIEW THE ORIGINAL.**

Description: Homer News, v. 8, #47 page 21  
Thursday, November 20, 1980

# Alternative Energy Technical Assistance Program

## Village Energy Retrofit Demonstration

AETAP will be providing technical assistance to the Rural Alaska Community Action Program in developing a program to select one Alaskan village for a demonstration project implementing as many conservation and renewable energy strategies as possible. This project is still in the formative stage.

## Program Specification for the Alaska Energy Center

The Alaska Energy Center has asked AETAP to assist in outlining private resources available to implement their work plan. The first project will be to outline necessary data instrumentation and possible contractors for establishing a net work of renewable energy data collection stations throughout Alaska. This will be followed by other similar tasks, including possible technical assistance in developing a passive solar design competition for Alaska.

## Education Programs in Alternative Energy

AETAP is to provide all possible assistance to those providing workshops and seminars about alternative energy. Where technical expertise is not available, AETAP staff will organize and carry out classes, such as the Passive Solar Design Class currently offered at Anchorage Community College. However, AETAP prefers to help institutions select instructors from those available in the private sector.

## Private Businesses

AETAP is to provide a limited (3-5 hrs.) of consultation to private businesses. Initial projects include helping an Eagle River business to adapt an underground home kit for utilization of passive solar in Alaska, an Anchorage developer interested in planning 100+ acres on Turnagain Arm as a solar subdivision, initial planning for a shutter manufacturer, financial planning for a proposed Homer wind generator manufacturing concern, and a farmer in Palmer desiring solar drying facilities.

## Individuals

AETAP will be providing technical assistance to individuals at the request of the Energy Extension Service, DEPD. The first round of consultations will be with recipients of the DOE/AT grants program.

## Future Projects

AETAP would like to provide free counselling on the conservation and renewable energy possibilities of any contemplated project. In addition to this open solicitation of projects, AETAP is especially interested in the following projects:

- \*Energy-Efficient Rural Housing Projects
- \*Energy-Efficient Greenhouse/Local Food Production
- \*Energy-Efficient Demonstration Farm, Point McKenzie
- \*Atlas of Renewable Energy Resources for Alaska
- \*Wind-Electric Greenhouse Project
- \*Passive Solar Commercial & Industrial Demonstration Project

For more information or appointment to discuss specific projects,  
please contact:

Skip Roy, Technical Director  
Alternative Energy Technology Assistance Program  
1577 C Street, Suite 297  
Anchorage, Alaska 99501  
(907) 277-5151

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

JOSEPH McINTIRE  
Executive Director

SKIP ROY  
Technical Director

**Alternative Energy Technical  
Assistance Program**  
(AETAP)

1577 "C" Street  
Anchorage, Alaska 99501

Phone 277-5151

February 4, 1981

AETAP is a non-profit corporation funded by the Alaska Legislature.

AETAP was created to bridge the gap between Alaskan decision-makers interested in alternative energy and the practicing professionals in the field. AETAP will provide free consultations with anyone interested in incorporation alternative energies strategies --city managers, developers, legislators, state agencies, individuals. In order to do this effectively, AETAP will be developing short summaries of the available technologies as well as economic white papers on the alternative energy possibilities for 20 Alaskan communities.

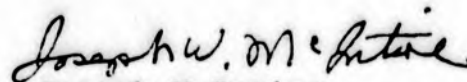
The AETAP staff is intimately acquainted with the use of these technologies in Alaska.

The initial response to AETAP has been very rewarding. The attached list of projects is the result of our first three weeks of operation.

If you are involved in making decisions about projects using energy in Alaska, you owe it to your constituents or clients to examine the possibilities of incorporating conservation or alternative energy into your projects. This can often result in savings of thousands of dollars over the lifetime of the project.

For further information please contact:

AETAP  
1577 C Street  
Anchorage, Alaska 99501  
(907) 277-5151



Joseph McIntire  
Executive Director

# STATE OF ALASKA

## DEPARTMENT OF COMMERCE & ECONOMIC DEVELOPMENT

DIVISION OF ENERGY & POWER DEVELOPMENT

JAY S. HAMMOND  
GOVERNOR

7TH FLOOR MACKAY BLDG.  
338 DENALI STREET  
ANCHORAGE, ALASKA 99501  
PHONE: (907) 276-0508

Honorable Brian Rogers  
Alaska House of Representatives  
Pouch Z  
Juneau, Alaska 99811

Dear Brian:

In a recent letter Mark Wittow requested information on your behalf regarding the Alaska Residential Energy Conservation Program which was established last year through Senate Bill 438.

The short report accompanying this letter is intended to answer the questions posed in Mark's letter and to provide you with an explanation of some of our decisions. I've also identified some of the key strengths and weaknesses which have developed since implementation of the program began.

Generally, the manner in which the program was structured in the law has worked out very well. Of course, there have been problems associated with start-up, but the approach taken in the legislation of using the audits as prerequisites for grants, refunds and loans is excellent. Our experience so far has shown that the recipients of the audit are not just interested in the financial incentives, but, more importantly, in the informational and educational element of the audit itself.

We recently sponsored a workshop in Fairbanks through the Interior Alaska Dwelling Council. The public response to that effort has further convinced me that future "how-to-do-it" educational programs will be an important key to assuring that the individual resident actually follows through with implementing the various energy conservation measures identified in the audit. In the long run the real benefit of the program will be education received by the resident through the individual assistance provided by the auditor, the Alaska specific booklets and the workshops.

Your continued interest in the program is appreciated. I am looking forward to meeting with you to discuss our experience to date in more detail.

Sincerely,



Clarissa Quinlan  
Director

RESIDENTIAL ENERGY CONSERVATION PROGRAM  
DIVISION OF ENERGY AND POWER DEVELOPMENT

The Residential Energy Conservation Program enacted into law in 1980 is comprised of four phases: development of audit standards, training of energy auditors, contracting with State certified auditors and processing the subsequent applications for refunds/grants and loans. Development of the audit and implementation of training were the Division's first priority actions. There was, however, a great deal of pressure from all sectors to implement the program immediately, without field testing the audit, the training or the testing procedures.

When setting up the structure and procedures for this program, it became necessary on several occasions to determine specific legislative intent behind several sections of the law. For example, we learned that the auditor training and contracting requirements were designed to accomplish two things. First, it would provide a means for determining energy savings and the payback associated with a specific conservation measure; thus, the cost-effectiveness of the State's expenditures could be evaluated with grants and loans only made available for measures with 7 and 10 year paybacks respectively. Second, a subsidiary benefit of contracting for the performance of audits would be an opportunity for jobs for unemployed individuals. This latter intent made it necessary to adopt a training program and residential audit that was not too detailed or complicated.

The strategy adopted by the Division was to utilize a newly developed residential audit and training package prepared under the Federal Residential Conservation Service (RCS) program. Several million dollars had already been spent on its development; however, field testing had not been accomplished. Two of the largest utilities in the state, Alaska Gas and Service and Chugach Electric Association, are also mandated by the federal law to participate in RCS program. Our selection of this audit immediately assured compliance with RCS requirements.

We clearly understood that the RCS audit was not the ideal audit for Alaska, at least in its present form. It did, however, enable earlier start-up and was sufficiently flexible so as to allow the inclusion of Alaska-specific variables so that it could be used in the state, at least initially. At no time were we under the belief that it was the "ultimate" or would it be the final product. Should funding permit this year, we intend to begin working with experienced auditors now under contract to both streamline the audit itself and improve the associated training program. To date we have had no serious problems with the audit itself and have been making adjustments and improvements as we go along. Contrary to unsubstantiated claims by some Alaskan fledgling auditors, reasonable field testing of the audit procedure, training and examination of auditors does need to be accomplished and evaluated. Due to the tight time frame we did not have this option available to us. Our field testing and program revision is being accomplished concurrent with program implementation.

Between July and October the audit and training packages were developed and classes were instituted through the Statewide Community College system. In order to have an initial host of auditors trained and eligible to contract in the most expeditious manner the first classes were held in November in the major urban centers and were only 40 hours long (5 days). Simultaneously, with this step, we were reviewing and approving those existing commercial home energy audits (on a provisional basis) in order to allow refunds/grants and loans earlier than the State subsidized audit would allow. This step was successfully completed and implemented by October 1, 1980.

By December 1, 1980, contracts were being processed for Fairbanks, Anchorage and, shortly thereafter Juneau. Since that time, we have sought to provide training to all the community colleges in order to make the program benefits available Statewide.

To date intensive training sessions have been held in the following communities: Fairbanks (3), Anchorage (3), Juneau, Kodiak, Kenai, Matanuska-Susitna Valley (2), Ketchikan, Bethel, and Valdez with sessions scheduled for Nome and Barrow. Semester long courses have already been initiated in Fairbanks and Anchorage.

Seven residential energy auditor course instructors were trained to conduct sessions out of the urban areas. Already, five community college local instructors have been trained to conduct future semester long courses at their colleges with appropriate local condition emphasis.

Almost 500 students in open enrollment have attended (or are attending) the training sessions. As of this date 236 have passed the written and practical tests and have been certified as meeting base levels of residential energy auditing knowledge. Experience is, of necessity, being obtained in the field. We have conducted four proficiency upgrading workshops and have two more scheduled. The audit procedure is being revised constantly as input from the auditors in the field is being received. The training has also been revised twice. With additional funds we will simplify the audit forms and revise the training accordingly. Analysis of the forms indicates the number of forms used can be reduced to no more than five pages. This will be a significant improvement in itself.

During this first half of the fiscal year funds were mainly expended in implementation procedures:

1. Development of audit;
2. Development of training;
3. Salaries for instructors;
4. Printing costs for the training manuals and the forms needed for accomplishing and processing the audit;
5. Brochures and press releases for publicity;
6. Homeowner's Energy Audit Information Manual; and
7. Personal services and associated administration costs.

The demand for energy audit training, and the concurrent anticipation by those trained wanting the subsequent State auditing contract, was so great that the Division had to immediately adhere to an allocation plan. We felt that an appropriate portion of the money must be reserved for all communities during fiscal year 1981 since the program was being demanded Statewide. By February 1, 1981, approximately \$1 million dollars had been committed to fund approximately 6,500 to 6,600 audits.

Refund/grant requests were sparsely received between October 1 and December 31, 1980, when the provisional audits were in effect (only 37 in three months). However, between January 1 and February 18 (six weeks) we have processed for payment 84 refund/grant applications. All processed to date total 121 refunds/grants, \$35,000, for a total of approximately 2.2 billion BTU's saved in the first year which would convert to approximately \$17,500 (based on fuel oil at \$1.10 per gallon). The seven-year dollar savings would be approximately \$122,500. It is apparent that this program is definitely cost-effective. Since the audits are now readily available to most residents, we have started to experience the impact of the vast numbers of documents we must deal with. We expect to receive, evaluate and process for payment approximately 6,500 audits by April 1, 1981, and an equal number of refund/grant applications. The present staff for this program and two other programs received in SB 438 is only five. We are mandated by the law to complete a 30-day turnaround on the refund/grant applications. In order to accomplish this task, we complete the field warrant in Anchorage and mail it directly to the applicant. This serves to comply with the law and expedite processing, law, but has placed a much larger workload on the accounting and clerical staff.

Monitoring and evaluating energy auditors' performance is an absolute necessity if quality audits are to be maintained. The Division has instituted four mechanisms to control the quality of the audit and auditor. These are the requirements of the contract between the State and the auditor; homeowner auditor evaluations and complaints; Division "paper" checks of audits completed; and selective on-site visits. Since the audit is the first step in the homeowner's contact with the program, it is imperative that the audit be properly completed. At this time, limited staffing only allows a very cursory check of the audits and selective on-site monitoring.

Another area of concern is that there are numerous types of data generated by this program on housing, BTU's and dollar savings, etc. With some careful planning it is very likely that the energy audit may be the best source of specific housing stock information in Alaska. To date none of this highly valuable information has been captured and processed. Battelle as part of the Alternatives to Susitna Study, will be computerizing and analyzing statistics within the Railbelt. This will be a positive first step toward establishing an effective monitoring and evaluation system for this program.

Numerous unanticipated problems were encountered in implementing this program. A total of 10 new programs were gained by the Division as of July 1, 1980. Consequently, the Division was involved in establishing the accounts, setting up new positions through the Division of Personnel, and where possible hiring into those positions. (Qualified applicants for some

technical positions have yet to be found.) Existing staff were utilized to establish the new programs including planning and development of procedures while still performing regular full-time duties of other existing jobs.

If this program is to continue in this fiscal year, immediate supplemental funding is necessary. There are several ways to view the program. At its current funding level it will not provide consistent funding on which energy auditors can base new small business ventures. It would also, unless continued for 20 years, serve only a small segment of the population.

Preliminary housing data now available from the 1980 Census indicates a total of 162,466 houses in Alaska. Recognizing that we will have provided audits to only approximately 7,700 homes this fiscal year, we have a balance of 154,766 homes within Alaska that are potentially interested in an audit, grant and/or loan.

Before requesting funds to meet demand, we must consider several factors. It takes time to expand a program and sufficient staff is required to implement and administer a program of this magnitude. The program has momentum and good public acceptance and interest at this time. To sustain the program with existing staff and the two additional positions which have now been requested, this office could provide Statewide contracts for approximately 3,500 additional audits at a cost of \$500.0. An additional amount of \$962.5 would be needed to ensure grants were available (3,500 x \$275) for each audit completed. Forms and manuals are a factor in expense of the program. Approximately \$20.0 would be needed for these items.

Continued training is necessary if we are to meet the needs of the program. Two types of training will now be required. As stated earlier, the early training was brief and intense in order to expedite implementation of the program. Many complaints were received due to this. We have already initiated the semester long courses, but we now must develop and conduct follow-on training workshops to upgrade the proficiency of residential energy auditors with experience in the field.

Audit development and training costs as of January 31 are listed below:

Audit and Auditor Training Development	45.0
Training Courses Implementation	52.5
Training Materials	3.4
Administration	3.1
Personnel Service	11.1

A comprehensive breakdown of all supplemental items is presented in Attachment A.

Since we do not know the intent of the Legislature on these programs, we have charted some possible funding levels. No inflation factor has been added. Refund/grant totals to accompany the audits are shown based on an average of \$275 per grant. This average takes into account single and multi-family dwellings.

Also note that if funding for this program would be substantially increased, we have learned from experience that there is a time lag between the award and the implementation. New positions would have to be established, staff hired, and publicity informing the public of the availability of the increased funds, more training established, etc. Once the program is fully staffed and publicity was accomplished, continuity should follow.

REQUEST FOR SUPPLEMENTAL FUNDING FOR REMAINDER OF FY 81 (MARCH THROUGH JUNE)

<u>Audit Development</u>		<u>Account Code</u>
Technical review and upgrading of Residential Energy Audit	\$ 15.0	
Professional Services for Commercial and Institutional Energy Audit Standards	25.0	
Total	<u>40.0</u>	300
 <u>Training</u>		
Professional Services for Revision of training materials	5.0	300
Instructors fees for four additional intensive workshops (Sitka, Unalaska, Dillingham, Nome)	12.0	
Travel and Per Diem	5.0	200
Instructors fees for approximately 10 Residential Energy Auditor recertification and proficiency upgrading workshops (2 Fairbanks, 3 Anchorage, 1 Juneau, 1 Ketchikan, 1 Bethel, 1 Kodiak, 1 Barrow)	26.4	300
Travel and per diem	10.2	200
Training materials and supplies (Residential Energy Audit classes, Recertification workshops, Professional Commercial Auditor Seminars)	10.0	300
Total	<u>\$ 68.6</u>	
<u>Energy Audits</u> (approximately 3,500 Statewide)	500.0	300
Required forms and manuals	20.0	300
 <u>Energy Refund/Grants</u>		
An additional 3,500 audits Statewide calculated at approximately \$275 per audit	\$ 962.5	700
 <u>Monitoring of Energy Audits</u>		
These funds will be used to insure that the audit quality is maintained by all energy auditors performing the State Energy Audit. These funds will provide quality control checks on all audits completed. On-site checks will be made on auditors.	\$ 30.0	300
 <u>Homeowner Workshops</u>		
"How-to-do-it" homeowner workshops to be sponsored in 5 Alaska communities under the auspices of a local community organization.	\$ 20.0	300
<u>Statistical Analysis &amp; Information Retrieval</u>	\$20.0	300
TOTAL	<u>\$ 1,661.1</u>	

## 5 YEAR PLAN

	1982	1983-86	Total
TRAINING	\$150,000	\$300,000 We expect that training will be terminated at the State level by 1983.	\$450,000
ENERGY AUDIT CONTRACTS	\$480,000 30,953 audits	\$1,920,000 123,812 audits	\$2,400,000 154,765 audits
REFUNDS/GRANTS	\$8,512,075	\$34,048,300	\$42,560,375
TOTAL	\$9,142,075	\$36,268,300	\$45,410,375

NOTE: No inflation factor has been added into these figures.

2m A

3m G

378,000 - Adm.

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Jan - SB 113

Testimony of RurAL CAP  
On the Residential Energy Audit Program

These comments begin with section-by-section comments on the draft regulatory language, and then outline some of the major voids.

3 AAC 37.010, Entitled: "Training and Certification of Residential Energy Auditors"

Requires completion of an approved training program as a condition of certification. It would be more appropriate for the Division to set a standard sufficient to ensure the quality of audits and enforce it, rather than specifying the procedure by which auditors achieve this standard. AS 44.33.040(16) requires only that the Department of Commerce & Economic Development establish "A Training and Certification Program", not that the training program be the sole basis for achieving the certification. One of the critical constraints on the efficiency of this program is the rate at which new auditors can be trained. The Division is cutting off its own nose by artificially restricting the supply of auditors.

Subsection (B) Could Be Placed in the "Definitions" Section.

It is not clear what public purpose is served by subsection (c). Presumably it is based on the relative complexity of auditing multifamily complexes, but it looks a lot like a provision suggested by a trade union or a professional association of engineers or architects.

3AAC 37.015, 'Eligibility for Grants, Refunds and Loans'

What is the purpose of the non-reimbursable performance agreements that auditors must sign, if the audits that they conduct are to allow the \$300 reimbursement to the homeowner? The performance provisions of this agreement could be incorporated either into the regulations themselves, or into the auditor certification process. In either case, the savings in administrative costs would be substantial.

It may be significant that the citation for the statutory authority for this provision is blank in the draft version of the regulations. There probably is none.

37.015 Could be incorporated here, but it should be deleted in its entirety. The rationale for this recommendation is outlined above.

3AAC 37.030, "Criteria for the Performance of Residential Energy Audits"

The statutory definition of an audit could be restated here. The audit is actually a great deal more than the preparation of the form.

In subsection (c), what is the audit summary? This term is not defined. However, it is further explained later in subsection (e).

RurAL CAP finds subsection (f) absolutely unacceptable in its present wording. If all information derived from residential energy audits is confidential, the Division effectively eliminates the opportunity to develop a good data base for community energy planning purposes, with no corresponding benefit to anyone! It would be appropriate to prohibit the release of any information which might tend to divulge the identity of an individual homeowner, but the current language is silly. With all of the legal talent available to the Division through the Attorney General's Office, this sloppiness in drafting is inexcusable.

Subsection (g) belongs in a separate "definitions" section. Subsection (h) again takes a stab at defining the residential energy audit. It should be combined with (a), and relocated in the "definitions" section.

If our comments on 3AAC 37.010 (c) are accepted, then this section is unnecessary. The general suggestions for competitive procurement of audit services by the State would allow the cost and financial reimbursement computations to occur in the marketplace, rather than in more State regulations. When the Division uses its option to negotiate for the conduct of audits, rather than using competitive procurement, how are auditors made aware of the availability of contracts. Specifically, how has the Division complied with AS 46.11.030 (a)(3), which states that: (The Department of Commerce and Economic Development shall) (3) develop a program by which to advise persons certified under AS 44.33.040(16) to perform energy audits of contracts to be awarded for performance of energy audits. This decision has resulted in the inefficient expenditure of up to 40% of the legislative appropriation for reimbursing the cost of energy audits. The decision by the Division to use non-competitive procurement may cost consumers in excess of \$100 million in lost energy savings over the life of this program. This is an unconscionable misallocation of state resources.

### 3 AAC 37.040, "Expiration and Renewal of Certification"

What earthly purpose would be served by requiring annual recertification of energy auditors, on or about June 30, especially those that are just graduating now? Are you really suggesting that auditors be required to retake the same training course every year, whether they need it or not? Again, the Division should regulate the quality of the audits conducted, not extraneous factors like the frequency of training. Again, we run up the administrative costs without a corresponding benefit.

The fact that AS 44.33.040 (16) requires the Department to establish a training program, should not lead the Division to require by regulation that every energy auditor experience the benefits of this program on an annual basis.

3 AAC 37.050, "Revocation of Certification of Residential Energy Auditors"

In general, we are wary of passive phrases such as "when it has been determined that the auditor has failed to comply." Due process requires that the regulations specify who does the determining and the standards that they use. Otherwise, this section is fine.

In subsection (c), a procedure for appeal to the Commissioner should be added. Revocation of a certificate is a very serious proceeding, involving a forced change in career. Other State agencies provide appeals to the Commissioner on issues as narrow as 6 weeks worth of unemployment benefits. Others have suggested the use of a professional review board. Composed partly of auditors. In any case, the standard should be one of full protection of the due process rights of the energy auditor.

ECONOMIC CONSIDERATIONS FOR IMPLEMENTATION OF  
THE RESIDENTIAL ENERGY AUDIT PROGRAM

COMMENTS SUBMITTED BY MATTHEW W. BERMAN, Ph.D  
ON BEHALF OF RURAL ALASKA COMMUNITY ACTION PROGRAM

There are a number of economic issues related to the State of Alaska's energy audit program that should be addressed in any set of reasonable regulations designed to implement the program. These issues are not addressed in the current proposed regulations, neither in the emergency regulations nor the draft substitute regulations, but rather are expressed in program directives and implicit policies of the Division of Energy & Power Development. As such, the decisions are in effect hidden from the public review process, despite their immense importance for the value and success of the overall energy conservation program.

Two general categories of economic problems with the current strategy for implementation of the energy audit program are discussed below. One concerns the effect of a number of policy decisions regarding eligibility of certain conservation investments for grants or loans under the program. Certain policy decisions of the Division are likely to have the unintended effect of discouraging many cost-effective conservation investments. The other type of economic problem with the implementation of the program concerns the process of contracting for audits with individuals and firms in the private sector. The failure by the Division to use competitive procurement of audits, combined with artificial restrictions on the supply of available certified auditors can be shown to result in serious welfare losses to energy consumers and taxpayers throughout the state.

Unintended Discouragements to Conservation

The energy audit and conservation program offered under SB 438 was intended to offer strong financial encouragement to homeowners and landlords to save energy. Unfortunately, the Division's choice of the way to implement the program may bring about the opposite result. Specifically, there are three major problems with Division policy regarding which investments qualify for grants, reimbursements and loans.

Payback Criterion for Loans

The criterion for eligibility of conservation improvements for state subsidies in SB 438 is a payback period of seven years or less for grants, and ten years or less for loans. Such criteria is not greatly aberrant from sound economic principles for investments with a useful life of ten years or less, if one accepts the assumption that energy prices will rise at approximately the same rate per year as market interest rates. In this case the payback calculation is equivalent to the current economic measure of the value of an investment, namely, the discounted cash flow of net benefits.

However, the seven and ten-year payback standard severely underestimates the inherent worth of investments that have much longer

useful lives. These long-lived conservation improvements may keep paying benefits in energy savings for thirty years or more, but only the first ten years of benefits are evaluated (for the loan program). Thus there are inevitably many investments, such as insulation, which are expensive and difficult to finance in the conventional loan market, and will be ineligible for the state program, even though they have enormous net benefits to the homeowner. In effect, the short time horizon of the payback encourages homeowners to buy solutions to their energy problems that are cheaper and do not last very long, while discouraging them from investing in many cost-effective long-lived solutions.

Section 35 of the law states clearly that grants or refunds may be given only when the expenditure "would be exceeded by reduced energy costs attributable to ... the conservation improvement within seven years." However, loans (up to \$5,000) may be given for the "amount, as determined by an energy audit, which is equal to the estimated total energy cost saving attributable to the energy conservation improvement" after ten years. Thus it is clearly too narrow an interpretation of the law for the Division of Energy and Power Development to restrict the making of loans to those investments that have a payback period of ten years or less. For the intent of the law to be served, the Division must establish regulations stating that loans may be granted to assist purchase of any conservation improvement identified on an energy audit, regardless of the payback period, so long as the loan balance does not exceed the total estimated value of energy conserved by the identified improvements over the next ten years.

#### HUD Minimum Standards

DEPD Alaska Residential Energy Conservation Program Directive Number 2, dated January 5, 1981, establishes standards for evaluation of energy conservation measures. Part B.1 of the directive states that "structural insulation will be evaluated according to the minimum HUD standards for Alaska .... A homeowner will be given the option of improving the existing R value, up to HUD minimum standards." By implication, a homeowner is not given the option of improving the insulation of his or her home above the HUD minimum standards for new construction, even when an energy audit shows that this investment will payback in less than ten years.

This restriction placed on insulation investments is arbitrary, unnecessary and contrary to the intent of the legislation. Furthermore, this major policy decision for implementation of SB 438 was made through executive order rather than through administrative regulation, so that it was not subject as it should be to a public hearing. The HUD standards are statewide minimum acceptable insulation criteria. In many areas of Alaska, substantial improvements may be made to building insulation beyond the HUD minimum standards that return more added energy savings over ten years than the added cost. For example, it may pay homeowners in Interior Alaska to install attic insulation up to R-60, but the DEPD loan program will not loan any money to go beyond R-38, no matter what the payback computation show. One wonders what purpose the Division is trying to serve with with unreasonable and arbitrary limit.

## Pricing of Energy Savings

SB 438 specifically avoids describing the method of valuation of energy savings that accrue from conservation investments funded under the program. The way this matter has been treated in the series of program directives and regulations, it would seem that the Division considers the question trivial. The method of pricing of BTU's saved by various conservation improvements is critical to the successful administration of the program, and needs to be specified clearly in administrative regulations.

The price of a gallon of fuel oil, a thousand cubic feet of natural gas or a kilowatt hour of electricity is an average of the costs of many different sources of that form of energy sold by the retailer. In many cases, the difference between the highest cost source and the average cost paid by the consumer is enormous. When the consumer is able through a conservation improvement to conserve one gallon of fuel oil or a kilowatt hour of electricity, it is the highest cost source that is conserved, even though the consumer does not realize this fact, and it is not reflected in that household's current utility bills.

Consumers do eventually bear the cost, however, through higher rates of increase in energy prices.

For example, residents of a village in rural Alaska may buy most of their fuel oil in one bulk shipment at a cost of, say, \$2.00 per gallon. If that supply runs out during the winter, additional oil may have to be airlifted at a cost of \$4.50 per gallon. If 90% of the oil burned by the household in a typical year is from the lower-cost source, the average cost of energy is \$2.25. However, if a household saves energy through a conservation improvement, it is the \$4.50 oil that is no longer needed. In order to evaluate the true value of the energy savings to the community of a conservation improvement identified on the audit form, the cost of fuel oil should properly be \$4.50, not \$2.25. Note that as the residents of the village are able to burn less of the \$4.50 oil, everyone's average fuel costs decrease. This is why the use of the current average fuel price for the payback calculation underestimates the value of energy savings.

Another problem with evaluation of a unit of energy saved from a conservation improvement is that government programs to subsidize energy costs hide the true cost of energy. An example of such a program is the power production cost assistance program. In addition, public utility regulation prevents electric and gas utilities from charging consumers the replacement cost of the energy provided to consumers. A rate structure based on the historical cost of service may price energy as much as ten times below its replacement cost, as for example with low-cost Cook Inlet natural gas supplies.

The rationale for using the highest-cost source of a particular form of energy in a given service area, including consideration of the replacement cost for electricity (and gas), is discussed in more detail in pages 19-31 of a report prepared for DEPD by Alaska Renewable Energy Associates, dated October 2, 1980, titled, "SB 438: Implications for the Division of Energy and Power Development."

Continuing to use the average cost of energy (which may be subsidized) instead of the incremental cost will weaken greatly the incentives for conservation offered by the program, to the apparent benefit of no one.

If the Division rejects the analysis and conclusions of the Alaska Renewable Energy Associates study, one would like to see some kind of statement to the public explaining the reasons. Since this problem is not addressed in proposed regulations or in executive orders to date, there is no indication that the Division has even considered this important issue.

#### Wasteful Contracting for Audits

The fee set by the Division of Energy and Power Development for reimbursing the auditors has been set at \$128.00 for the basic single-family resident. Added to the \$10 paid by the resident, the total rate is \$138.00 for Anchorage, with higher figures set for other communities as determined by the CRA COLA. It is not possible to determine from the public record of the activities of the Division exactly how this figure was determined. More importantly, it is unclear why the Division did not opt for competitive procurement of audits to establish a competitive cost for performing the energy audit in Alaskan cities.

#### Economics of the Supply of Auditors

The price of \$138.00 per audit (Anchorage base) is probably considerably higher than necessary to get the job done. With the assistance of a small office computer to perform much of the burdensome calculations required of the audit form, Rural CAP estimates that the audit should take three to four hours to complete. Of course, the time would be much less for those familiar with rural Alaska to audit the simpler homes characteristic of that area. At a generous compensation of \$20.00 per hour for Anchorage, the average labor cost should not be more than \$75.00 per audit.

A small business set up to perform residential energy audits might spend as much as \$10,000 for office equipment, including a small computer, for two or three auditors. At the rate of just one audit per workingday, two auditors could easily perform 400 residential audits per year. Over a minimum five-year estimated life for the program, the \$10,000 for equipment could be amortized over 2,000 audits for a mere \$5.00 per audit. An overhead cost of \$500.00 per month for rental of a small office would only come to \$15.00 per audit. Adding costs for bonding and insurance, in a well-functioning competitive market, it seems likely that the services of certified auditors could be procured for around \$100.00 per audit, rather than the \$138.00 fee currently paid by the state.

While it seems that the cost to the state for energy audits is about 40% higher than it would be in an efficient, competitive market, it is easy to see that the state may have difficulty retaining a sufficient number of qualified auditors, even at the higher price. With an apparent motive of allowing wider distribution of the benefits of the program, the Division has placed a limit of 50 on the number of audits that a given auditor may perform (this year). The effect of this restriction is to make the fixed startup costs of the program too high for many prospective auditors. One can readily see that a \$10,000 investment in office equipment (including the computer) is prohibitive. It may take more than two hours to perform the computations with a calculator that could be done in minutes with a small computer.

In addition, the Division is requiring for certification of the auditors not only that they be able to pass a test of competency each year, but that they also take a week-long 40-hour course in energy auditing every year. This is in spite of testimony from auditors that experience is the best teacher for retaining competence for the job.

The combined effect of the limit of 50 audits and the requirement of retaking the training course every year (before June 30 of this year for auditors already certified) is nearly to double the time spent by the typical auditor per audit performed. Thus the \$138.00 figure becomes about the minimum that the state could pay for an audit and insure a sufficient supply of auditors from the private sector. It appears that the inefficiencies which the Division has built into the administration of the program are likely to consume 40% of the funds available for audits this year.

### Massive Waste of Energy

The funds appropriated for the current fiscal year may be sufficient to audit 7,000 units. If the funding effort is continued at its present level of \$1.4 million (increased only to offset the impact of inflation), approximately one half the residential housing units in Alaska could be audited in seven years. With a 40% savings in cost per audit which might accrue from elimination of the costly rules of the Division and the use of competitive procurement, the same number of units could be audited within five years. It can be shown that this two-year average delay for households to obtain access to state funds for conservation improvements involves an enormous cost to consumers in higher energy bills.

Consider just the benefits of the \$300.00 grant program, in which practically everyone would want to participate. Although accurate data are scarce until energy audits are analyzed, it is not an unreasonable estimate that the first \$300 for weatherstripping, door sweeps, window caulking and some storm windows or shutters would save 70 million BTUs over that two year period of delay. Depending on the location of the residence and its associated incremental cost of energy, this amount of energy is worth between \$500.00 and \$2,000.00 with the higher figure more typical of rural Alaska and its higher fuel costs. It does not take much proficiency in arithmetic to demonstrate that the cost to Alaskan consumers from the delay in full implementation of the program due to inefficiencies built into its administration may be \$100 million in higher home heating bills.

It is the argument here that these costs to consumers can be avoided by the combination of competitive procurement and elimination of certain costly administrative rules. Given the quality control of the standardized testing for certification, and the required bonding for certified auditors, it is difficult to deny the superiority of the competitive market mechanism for setting the lowest profitable price for the service in the state's larger cities. In smaller towns and in rural areas, there might be considerable advantage in retaining local residents to perform the audits, and there might not be sufficient local auditors to obtain competitive bids. In this case, the Division can, and should, adopt by regulation a mechanism for negotiating contracts in these areas at a rate equal to the Anchorage competitive price adjusted by the regional cost of living index, giving suitable preference to local resident auditors. Such a strategy will undoubtedly bring substantial cost savings in administration, and allow consumers to reap the enormous benefits of the program as fast as possible under the limits of available funds.



# Alaska State Legislature

## House of Representatives

Committee on Finance

Pouch V  
State Capitol  
Juneau, Alaska 99811

Room 519-Capitol

HOUSE FINANCE COMMITTEE -----TUESDAY, FEB. 24, 1981

H.B.188--Reconstruction of Iditarod Elem. School, Wasilla

H.B.136--Dept. of Natural Resources for Iditarod Trail Race

H.B.173--Special loan purchase prog. and residential energy audits.

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The statutory definition of an audit could be restated here. The audit is actually a great deal more than the preparation of the form.

In subsection (c), what is the audit summary? This term is not defined. However, it is further explained later in subsection (e).

RurAL CAP finds subsection (f) absolutely unacceptable in its present wording. If all information derived from residential energy audits is confidential, the Division effectively eliminates the opportunity to develop a good data base for community energy planning purposes, with no corresponding benefit to anyone! It would be appropriate to prohibit the release of any information which might tend to divulge the identity of an individual homeowner, but the current language is silly. With all of the legal talent available to the Division through the Attorney General's Office, this sloppiness in drafting is inexcusable.

Subsection (g) belongs in a separate "definitions" section. Subsection (h) again takes a stab at defining the residential energy audit. It should be combined with (a), and relocated in the "definitions" section.

If our comments on 3AAC 37.010 (c) are accepted, then this section is unnecessary. The general suggestions for competitive procurement of audit services by the State would allow the cost and financial reimbursement computations to occur in the marketplace, rather than in more State regulations. When the Division uses its option to negotiate for the conduct of audits, rather than using competitive procurement, how are auditors made aware of the availability of contracts. Specifically, how has the Division complied with AS 46.11.030 (a)(3), which states that: (The Department of Commerce and Economic Development shall) (3) develop a program by which to advise persons certified under AS 44.33.040(16) to perform energy audits of contracts to be awarded for performance of energy audits. This decision has resulted in the inefficient expenditure of up to 40% of the legislative appropriation for reimbursing the cost of energy audits. The decision by the Division to use non-competitive procurement may cost consumers in excess of \$100 million in lost energy savings over the life of this program. This is an unconscionable misallocation of state resources.

### 3 AAC 37.040, "Expiration and Renewal of Certification"

What earthly purpose would be served by requiring annual recertification of energy auditors, on or about June 30, especially those that are just graduating now? Are you really suggesting that auditors be required to retake the same training course every year, whether they need it or not? Again, the Division should regulate the quality of the audits conducted, not extraneous factors like the frequency of training. Again, we run up the administrative costs without a corresponding benefit.

The fact that AS 44.33.040 (16) requires the Department to establish a training program, should not lead the Division to require by regulation that every energy auditor experience the benefits of this program on an annual basis.

3 AAC 37.050, "Revocation of Certification of Residential Energy Auditors"

In general, we are wary of passive phrases such as "when it has been determined that the auditor has failed to comply." Due process requires that the regulations specify who does the determining and the standards that they use. Otherwise, this section is fine.

In subsection (c), a procedure for appeal to the Commissioner should be added. Revocation of a certificate is a very serious proceeding, involving a forced change in career. Other State agencies provide appeals to the Commissioner on issues as narrow as 6 weeks worth of unemployment benefits. Others have suggested the use of a professional review board. Composed partly of auditors. In any case, the standard should be one of full protection of the due process rights of the energy auditor.

ECONOMIC CONSIDERATIONS FOR IMPLEMENTATION OF  
THE RESIDENTIAL ENERGY AUDIT PROGRAM

COMMENTS SUBMITTED BY MATTHEW W. BERMAN, Ph.D  
ON BEHALF OF RURAL ALASKA COMMUNITY ACTION PROGRAM

There are a number of economic issues related to the State of Alaska's energy audit program that should be addressed in any set of reasonable regulations designed to implement the program. These issues are not addressed in the current proposed regulations, neither in the emergency regulations nor the draft substitute regulations, but rather are expressed in program directives and implicit policies of the Division of Energy & Power Development. As such, the decisions are in effect hidden from the public review process, despite their immense importance for the value and success of the overall energy conservation program.

Two general categories of economic problems with the current strategy for implementation of the energy audit program are discussed below. One concerns the effect of a number of policy decisions regarding eligibility of certain conservation investments for grants or loans under the program. Certain policy decisions of the Division are likely to have the unintended effect of discouraging many cost-effective conservation investments. The other type of economic problem with the implementation of the program concerns the process of contracting for audits with individuals and firms in the private sector. The failure by the Division to use competitive procurement of audits, combined with artificial restrictions on the supply of available certified auditors can be shown to result in serious welfare losses to energy consumers and taxpayers throughout the state.

Unintended Discouragements to Conservation

The energy audit and conservation program offered under SB 438 was intended to offer strong financial encouragement to homeowners and landlords to save energy. Unfortunately, the Division's choice of the way to implement the program may bring about the opposite result. Specifically, there are three major problems with Division policy regarding which investments qualify for grants, reimbursements and loans.

Payback Criterion for Loans

The criterion for eligibility of conservation improvements for state subsidies in SB 438 is a payback period of seven years or less for grants, and ten years or less for loans. Such criteria is not greatly aberrant from sound economic principles for investments with a useful life of ten years or less, if one accepts the assumption that energy prices will rise at approximately the same rate per year as market interest rates. In this case the payback calculation is equivalent to the current economic measure of the value of an investment, namely, the discounted cash flow of net benefits.

However, the seven and ten-year payback standard severely underestimates the inherent worth of investments that have much longer

useful lives. These long-lived conservation improvements may keep paying benefits in energy savings for thirty years or more, but only the first ten years of benefits are evaluated (for the loan program). Thus there are inevitably many investments, such as insulation, which are expensive and difficult to finance in the conventional loan market, and will be ineligible for the state program, even though they have enormous net benefits to the homeowner. In effect, the short time horizon of the payback encourages homeowners to buy solutions to their energy problems that are cheaper and do not last very long, while discouraging them from investing in many cost-effective long-lived solutions.

Section 35 of the law states clearly that grants or refunds may be given only when the expenditure "would be exceeded by reduced energy costs attributable to ... the conservation improvement within seven years." However, loans (up to \$5,000) may be given for the "amount, as determined by an energy audit, which is equal to the estimated total energy cost saving attributable to the energy conservation improvement" after ten years. Thus it is clearly too narrow an interpretation of the law for the Division of Energy and Power Development to restrict the making of loans to those investments that have a payback period of ten years or less. For the intent of the law to be served, the Division must establish regulations stating that loans may be granted to assist purchase of any conservation improvement identified on an energy audit, regardless of the payback period, so long as the loan balance does not exceed the total estimated value of energy conserved by the identified improvements over the next ten years.

#### HUD Minimum Standards

DEPD Alaska Residential Energy Conservation Program Directive Number 2, dated January 5, 1981, establishes standards for evaluation of energy conservation measures. Part B.1 of the directive states that "structural insulation will be evaluated according to the minimum HUD standards for Alaska .... A homeowner will be given the option of improving the existing R value, up to HUD minimum standards." By implication, a homeowner is not given the option of improving the insulation of his or her home above the HUD minimum standards for new construction, even when an energy audit shows that this investment will payback in less than ten years.

This restriction placed on insulation investments is arbitrary, unnecessary and contrary to the intent of the legislation. Furthermore, this major policy decision for implementation of SB 438 was made through executive order rather than through administrative regulation, so that it was not subject as it should be to a public hearing. The HUD standards are statewide minimum acceptable insulation criteria. In many areas of Alaska, substantial improvements may be made to building insulation beyond the HUD minimum standards that return more added energy savings over ten years than the added cost. For example, it may pay homeowners in Interior Alaska to install attic insulation up to R-60, but the DEPD loan program will not loan any money to go beyond R-38, no matter what the payback computation show. One wonders what purpose the Division is trying to serve with with unreasonable and arbitrary limit.

## Pricing of Energy Savings

SB 438 specifically avoids describing the method of valuation of energy savings that accrue from conservation investments funded under the program. The way this matter has been treated in the series of program directives and regulations, it would seem that the Division considers the question trivial. The method of pricing of BTU's saved by various conservation improvements is critical to the successful administration of the program, and needs to be specified clearly in administrative regulations.

The price of a gallon of fuel oil, a thousand cubic feet of natural gas or a kilowatt hour of electricity is an average of the costs of many different sources of that form of energy sold by the retailer. In many cases, the difference between the highest cost source and the average cost paid by the consumer is enormous. When the consumer is able through a conservation improvement to conserve one gallon of fuel oil or a kilowatt hour of electricity, it is the highest cost source that is conserved, even though the consumer does not realize this fact, and it is not reflected in that household's current utility bills.

Consumers do eventually bear the cost, however, through higher rates of increase in energy prices.

For example, residents of a village in rural Alaska may buy most of their fuel oil in one bulk shipment at a cost of, say, \$2.00 per gallon. If that supply runs out during the winter, additional oil may have to be airlifted at a cost of \$4.50 per gallon. If 90% of the oil burned by the household in a typical year is from the lower-cost source, the average cost of energy is \$2.25. However, if a household saves energy through a conservation improvement, it is the \$4.50 oil that is no longer needed. In order to evaluate the true value of the energy savings to the community of a conservation improvement identified on the audit form, the cost of fuel oil should properly be \$4.50, not \$2.25. Note that as the residents of the village are able to burn less of the \$4.50 oil, everyone's average fuel costs decrease. This is why the use of the current average fuel price for the payback calculation underestimates the value of energy savings.

Another problem with evaluation of a unit of energy saved from a conservation improvement is that government programs to subsidize energy costs hide the true cost of energy. An example of such a program is the power production cost assistance program. In addition, public utility regulation prevents electric and gas utilities from charging consumers the replacement cost of the energy provided to consumers. A rate structure based on the historical cost of service may price energy as much as ten times below its replacement cost, as for example with low-cost Cook Inlet natural gas supplies.

The rationale for using the highest-cost source of a particular form of energy in a given service area, including consideration of the replacement cost for electricity (and gas), is discussed in more detail in pages 19-31 of a report prepared for DEPD by Alaska Renewable Energy Associates, dated October 2, 1980, titled, "SB 438: Implications for the Division of Energy and Power Development."

Continuing to use the average cost of energy (which may be subsidized) instead of the incremental cost will weaken greatly the incentives for conservation offered by the program, to the apparent benefit of no one.

If the Division rejects the analysis and conclusions of the Alaska Renewable Energy Associates study, one would like to see some kind of statement to the public explaining the reasons. Since this problem is not addressed in proposed regulations or in executive orders to date, there is no indication that the Division has even considered this important issue.

#### Wasteful Contracting for Audits

The fee set by the Division of Energy and Power Development for reimbursing the auditors has been set at \$128.00 for the basic single-family resident. Added to the \$10 paid by the resident, the total rate is \$138.00 for Anchorage, with higher figures set for other communities as determined by the CRA COLA. It is not possible to determine from the public record of the activities of the Division exactly how this figure was determined. More importantly, it is unclear why the Division did not opt for competitive procurement of audits to establish a competitive cost for performing the energy audit in Alaskan cities.

#### Economics of the Supply of Auditors

The price of \$138.00 per audit (Anchorage base) is probably considerably higher than necessary to get the job done. With the assistance of a small office computer to perform much of the burdensome calculations required of the audit form, RurAL CAP estimates that the audit should take three to four hours to complete. Of course, the time would be much less for those familiar with rural Alaska to audit the simpler homes characteristic of that area. At a generous compensation of \$20.00 per hour for Anchorage, the average labor cost should not be more than \$75.00 per audit.

A small business set up to perform residential energy audits might spend as much as \$10,000 for office equipment, including a small computer, for two or three auditors. At the rate of just one audit per workingday, two auditors could easily perform 400 residential audits per year. Over a minimum five-year estimated life for the program, the \$10,000 for equipment could be amortized over 2,000 audits for a mere \$5.00 per audit. An overhead cost of \$500.00 per month for rental of a small office would only come to \$15.00 per audit. Adding costs for bonding and insurance, in a well-functioning competitive market, it seems likely that the services of certified auditors could be procured for around \$100.00 per audit, rather than the \$138.00 fee currently paid by the state.

While it seems that the cost to the state for energy audits is about 40% higher than it would be in an efficient, competitive market, it is easy to see that the state may have difficulty retaining a sufficient number of qualified auditors, even at the higher price. With an apparent motive of allowing wider distribution of the benefits of the program, the Division has placed a limit of 50 on the number of audits that a given auditor may perform (this year). The effect of this restriction is to make the fixed startup costs of the program too high for many prospective auditors. One can readily see that a \$10,000 investment in office equipment (including the computer) is prohibitive. It may take more than two hours to perform the computations with a calculator that could be done in minutes with a small computer.

In addition, the Division is requiring for certification of the auditors not only that they be able to pass a test of competency each year, but that they also take a week-long 40-hour course in energy auditing every year. This is in spite of testimony from auditors that experience is the best teacher for retaining competence for the job.

The combined effect of the limit of 50 audits and the requirement of retaking the training course every year (before June 30 of this year for auditors already certified) is nearly to double the time spent by the typical auditor per audit performed. Thus the \$138.00 figure becomes about the minimum that the state could pay for an audit and insure a sufficient supply of auditors from the private sector. It appears that the inefficiencies which the Division has built into the administration of the program are likely to consume 40% of the funds available for audits this year.

### Massive Waste of Energy

The funds appropriated for the current fiscal year may be sufficient to audit 7,000 units. If the funding effort is continued at its present level of \$1.4 million (increased only to offset the impact of inflation), approximately one half the residential housing units in Alaska could be audited in seven years. With a 40% savings in cost per audit which might accrue from elimination of the costly rules of the Division and the use of competitive procurement, the same number of units could be audited within five years. It can be shown that this two-year average delay for households to obtain access to state funds for conservation improvements involves an enormous cost to consumers in higher energy bills.

Consider just the benefits of the \$300.00 grant program, in which practically everyone would want to participate. Although accurate data are scarce until energy audits are analyzed, it is not an unreasonable estimate that the first \$300 for weatherstripping, door sweeps, window caulking and some storm windows or shutters would save 70 million BTUs over that two year period of delay. Depending on the location of the residence and its associated incremental cost of energy, this amount of energy is worth between \$500.00 and \$2,000.00 with the higher figure more typical of rural Alaska and its higher fuel costs. It does not take much proficiency in arithmetic to demonstrate that the cost to Alaskan consumers from the delay in full implementation of the program due to inefficiencies built into its administration may be \$100 million in higher home heating bills.

It is the argument here that these costs to consumers can be avoided by the combination of competitive procurement and elimination of certain costly administrative rules. Given the quality control of the standardized testing for certification, and the required bonding for certified auditors, it is difficult to deny the superiority of the competitive market mechanism for setting the lowest profitable price for the service in the state's larger cities. In smaller towns and in rural areas, there might be considerable advantage in retaining local residents to perform the audits, and there might not be sufficient local auditors to obtain competitive bids. In this case, the Division can, and should, adopt by regulation a mechanism for negotiating contracts in these areas at a rate equal to the Anchorage competitive price adjusted by the regional cost of living index, giving suitable preference to local resident auditors. Such a strategy will undoubtedly bring substantial cost savings in administration, and allow consumers to reap the enormous benefits of the program as fast as possible under the limits of available funds.

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

PROJECTION OF POWER PRODUCTION ASSISTANCE PROGRAM  
February 9, 1981

*Handwritten:*  
H. 1  
Josephine  
1/1

(1) Utility	(2) Location	(3) Actual Power Production Cost (¢/KWH)	(4) Adjusted Power Production Cost (¢/KWH)	(5) Assistance (¢/KWH)	(6) Utility Reported Annual KWH Sales Qualifying for Ass.	(7) Estimate of Annualized Total Assistance	(8) Total Column
Alaska Village Elec. Coop.	Villages	29.97	12.14	17.83	5,220,116	\$ 930,747	
Copper Valley Elec.	Glennallen <sup>1</sup>	11.94	9.44	2.50	3,394,370	84,859	
	Valdez <sup>1</sup>	11.8723	9.4308	2.44	10,482,241	255,767	
Cordova Electric Coop.	Cordova	12.5262	9.5289	3.00	5,710,401	171,312	
Haines Light & Power	Haines <sup>1</sup>	11.3132	9.3470	1.97	2,856,958	56,282	
Kodiak Electric Assoc.	Kodiak <sup>1</sup>	10.75	9.26	1.49	16,821,696	250,643	
	Port Lions	27.99	11.85	16.14	255,596	41,253	
Kotzebue Electric Assoc.	Kotzebue	14.4345	9.8152	4.6193	3,537,228	163,395	
Manley Utility Co.	Manley Hot Sprgs. <sup>2</sup>	23.13	12.01	11.12	42,141	4,686	
Matanuska Elec. Assoc.	Unalakleet	19.665	10.600	9.065	476,103	43,159	
McGrath Light & Power	McGrath	20.20	10.68	9.52	412,056	39,228	
Naknek Electric Assoc.	Egegik	32.8964	12.5845	20.3119	44,896	9,119	
	Naknek	16.8533	10.1779	6.6754	1,419,570	94,762	
Nome Joint Utility Systems	Nome <sup>2</sup>	12.750	9,562	3.188	14,873,600	474,170	
	Nushagak Elec. Coop.	Dillingham <sup>1</sup>	14,9937	9,8991	5,0946	2,331,584	118,785
Tlingit-Haida Regional Electric Authority	Angoon						
	Hoonah	19.98	10.65	9.33	2,736,791	255,343	
	Kake						
	Klawock						
	Kasaan						

\$2,993,511

<sup>1</sup> The listed PPCs for these locations include the requested or Staff corrected, pending adjustments to approved PPCs.  
<sup>2</sup> Proposed initial filing pending.

on of leases valued at \$12,000 or more annually for state office space. No such approval was given for the lease which provided new offices. While state law requires approval of leases of \$12,000 or more by concurrent

the law is applicable to the Department of Administration, said Elgee. Since "just about every single lease we have (is more than \$12,000 a year) ... the law could virtually shut down the ex-

Court in 1960 held that the law which provides that the legislature by concurrent resolution adopted by both houses can annul a regulation of an agency or department violates the state constitution.

ministration. The study was based on interviews in 10 cities with 1,340 men. Half of those interviewed were veterans and about

Half the Vietnam veterans found white-collar jobs, compared to 69 percent of the nonveterans.

# DNR chief Katz targets oil use, Alpetco

**By NANCY SHUTE**  
Empire Washington Bureau  
WASHINGTON — Pricing and use of the state's royalty oil and management of Alpetco will be John Katz's top priorities at the state's new Department of Natural Resources commissioner, the Gov. Jay Hammond appointee said today. Katz officially broke his silence on the appointment this morning by broadly outlining his philosophical approach to the office, while refusing to comment on any differences with his controversial predecessor, Robert LeResche. Also on Katz's priority list are an assessment of the state's position on the Alaska natural gas pipeline, implementation of

state land disposal laws and continuing his present work protecting state interests in the implementation of the Alaska lands bill. The current uproar over the state's policy towards hard-rock mining on state-selected lands is also a key concern. Katz termed a controversial draft attorney general's opinion which recommends a leasing system for mining claims "certainly a competent and professional handling of the subject," but added that the interpretation of the law was a "very close question." Adopting the opinion in its current form could have "far-reaching impacts" and would require major policy changes by the

state, Katz said. "That's as far as I'll go on that," he said. The former Anchorage attorney, who just two months ago took on a new job as Hammond's special representative in Washington, will move to the commissionership July 1. Katz said he hoped to work with LeResche, who resigned the position, both next month during a visit to the state and in June before taking office, but will not be actively involved in departmental policy-making. "LeResche will be commissioner until the day he leaves," Katz asserted. The 37-year-old Katz, who spent the last two years in Washington as the state's representative in the Alaska lands bill bat-

tle, has earned a reputation for moderation with both pro-development and pro-environment forces. Katz was a top contender for the Interior Department solicitorship, but was passed over for an attorney more closely allied with Interior Secretary James Watt's aggressive development philosophy. He said today he hoped to create an "open door" policy in the department, and would meet with pro-development and pro-environment groups in order to assure accessibility and defuse rebellion against state regulation of controversial issues. "I want their assessment of strengths and weaknesses in the department."

Katz also promised to make prompt decisions as a bureaucrat. "After a short grace period, I want the people of Alaska to hold me personally accountable, and I will hold people (in the department) personally accountable," he added. The attorney quickly denied any suggestions that he will use the post as a stepping stone to elected office, saying instead he would probably return to practicing law when the political appointment expires. His departure from the sound and fury of the nation's capitol will not be entirely without regret. "But I am an Alaskan," he added. "Sometimes I feel a little bit estranged from Washington, D.C."

Utilities Receiving Power Production Assistance - Feb.

1	2	3	4	5	6
Utility Name	Average Res. Monthly Usage for 200 kWh	Average Rate	Current DPCA per kWh	Average Res. Monthly Bill per month	Current DPCA per month
1 AVEC	(17) 175 kWh	44.47¢	17.83¢	\$ 77.82	\$ 31.20 (40%)
2					
3 HALDES LIGHT & POWER	(80) 471 kWh	19.1¢	1.74¢	\$ 78.71	\$ 8.20 (10%)
4					
5 KOTZEBUE ELECTRIC ASSN	(90) 446 kWh	23.36¢	4.6193¢	\$ 91.23	\$ 20.60 (22%)
6					
7 I-AREA	(80) 335 kWh	38.715¢	13.2948¢	\$ 127.67¢	\$ 44.54 (34%)
8					
9 COPPER VALLEY ELEC. ASSN	(80) (6 months) 370 kWh	20.96¢	2.46¢	\$ 76.03	\$ 9.10 (12%)
10	(6 months) 545 kWh	21.330¢	1.95¢	\$ 88.65	\$ 10.63 (12%)
11					
12 KODIAK ELECTRIC ASSN	(80) (200 kWh) 184 kWh	34.579¢	16.14¢	\$ 63.79	\$ 29.70 (46%)
13	(200 kWh) 497 kWh	16.05¢	1.19¢	\$ 76.33	\$ 5.91 (7%)
14					
15 CORDOVA ELECTRIC ASSN	(79) 505 kWh	19.635¢	3.0¢	\$ 92.93	\$ 15.15 (16%)
16					
17 MATANUSKA ELECTRIC - UNAIKLU	(79) 325 kWh	26.535¢	9.52¢	\$ 84.48	\$ 30.94 (36%)
18					
19 NUSHAGAK ELECTRIC ASSN	(80) 512 kWh	21.655¢	4.9956¢	\$ 99.97	\$ 25.58 (25%)
20					
21 HALNEK ELECTRIC ASSN	(80) (200 kWh) 491 kWh	29.430¢	6.6754¢	\$ 144.50	\$ 33.16 (23%)
22	(200 kWh) 168 kWh	34.840¢	20.319¢	\$ 58.33	\$ 34.12 (58%)
23					
24				column	column
25				1 X 2	1 X 3
26					
27					
28					
29					
30					

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XB-334

## MEMORANDUM

State of Alaska

TO: Carolyn Guess, Commissioner  
Alaska Public Utilities Commission

DATE: February 3, 1981

FILE NO:

TELEPHONE NO:

FROM: Lynn Dorrrough, Economist  
Alaska Power AuthoritySUBJECT: Power Production  
Assistance Program

As you requested, the following illustrates payments approved by the APA to utilities participating in the Power Production Assistance Program, for FY 1981 to date:

<u>Utility</u>	<u>Total Payments</u>	<u>No. of Payments</u>
1. Alaska Village Electric Cooperative	\$383,241.76	3
2. Tlingit-Haida R.E.A.	88,143.45	4
3. Kodiak Electric		
A) Kodiak serv. area \$62,998.44		3
B) Port Lions serv. area <u>10,177.69</u>	73,176.13	<u>3</u> 6
4. Copper Valley Electric Association		
A) Glennallen serv. area 13,457.35		2
B) Valdez serv. area <u>35,670.20</u>	49,127.55	<u>2</u> 4
5. Kotzebue Elec. Assoc.	26,992.56	2
6. Unalakleet Valley Elec. Cooperative	13,305.52	2
7. Cordova Electric Cooperative	11,730.61	1
8. McGrath Light & Power	9,447.75	2
9. Haines Light & Power	6,567.03	2
	<u>\$661,732.36</u>	

## Payments by month:

October 1980	\$21,324.43
November 1980	42,147.15
December 1980	338,912.47
January 1981	259,348.31
Total	<u>\$661,732.36</u>

In addition to the preceding historical payments, Nushagak Electric Cooperative will be submitting its first request for payment during February. Discussions with their accounting manager indicate an initial request for payment of approximately \$13,500 will be received.

cc: Terry McGuire, Director of Finance