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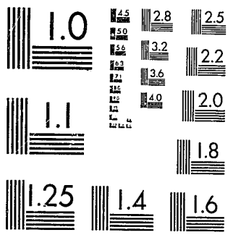

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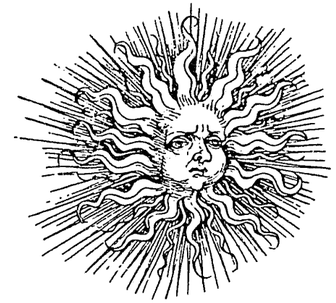
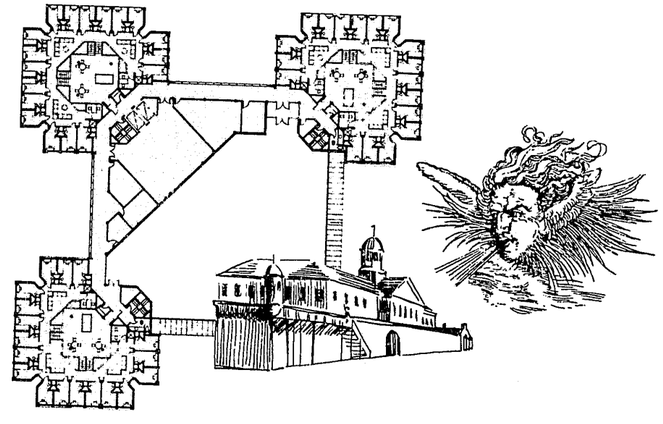
Saving Energy Dollars In Prisons and Jails





a publication of the **National Institute of Justice**

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Harry M. Bratt
Acting Director

DOJ-1980-11

Saving Energy Dollars In Prisons and Jails

National Criminal Justice Reference Service

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December 1980

U. S. Department of Justice
National Institute of Justice

National Institute of Justice
Harry M. Bratt
Acting Director

This General Information Pamphlet has been prepared by the National Criminal Justice Reference Service, an international clearinghouse of information on law enforcement and crininal justice sponsored by the National Institute of Justice, a research center of the U. S. Department of Justice. NCJRS is operated and administered by Aspen Systems Corporation for the National Institute under contract number J-LEAA-023-77. Opinions stated in this pamphlet do not necessarily represent the official position or policies of the U. S. Department of Justice.

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Table of Contents

Acknowledgments

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Eileen Garry of NCJRS researched, identified, and developed the correctional facility examples found throughout. She prepared the Resource and Reference Lists and wrote the initial drafts of the document.

Technical expertise in energy conservation came from S. Wayne Stiefel of the Center for Product Technology, National Bureau of Standards. We drew heavily on his draft paper in final preparation of this booklet.

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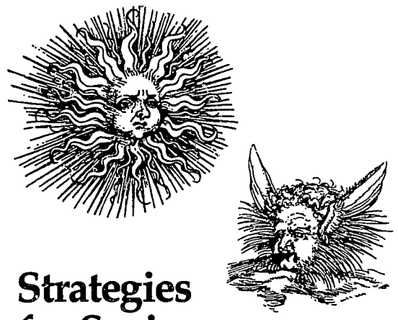
Braiding these threads together as editor and rewrite person was Joe Holt Anderson of NCJRS, who prepared the final manuscript. Mr. Anderson, a stubborn sort, insists that I say here that I acted as his editor during this final stage, perhaps so that I can share the blame for any omissions or errors he failed to catch. I did so act and do so share.

Georgette Semick
Director, NCJRS



Strategies for Savings

Prisons and jails are energy-gobbling institutions. The cost of providing heat and cooling for even minimal levels of comfort is high; add to that the energy demands of kitchens, laundries, prison industries, hot showers for officers and inmates, and the lighting required for security.

Ecologists and engineers measure energy expenditure in watts, horsepower, calories, or, as this booklet will, Btu's* -- and the expenditure of the world's finite supplies of fossil fuels, once seemingly inexhaustible, has become a frightening prospect. Prison and jail officials measure energy expenditure in dollars -- and the budget-strained corrections administrator will welcome any savings he can find to offset spiraling personnel and other costs. Increasingly, ways are being found to meet the challenge of cutting energy costs in prisons and jails:

- A campus-style medium security prison housing 320 inmates was only 4 years old; yet an engineering study showed how it could save $51,000 a year -- 24 percent of its energy costs -- with only a $35,000 investment. The changes would pay for themselves in less than 9 months. (See page 7 of this booklet.)

- A 40-year-old medium security prison whose 925 inmates are housed partly in cellblocks, partly in dormitories, found it could save $54,000 a year -- 17 percent of its energy cost -- but would have to invest $227,000 to do it. Yet even this would pay for itself in a little more than 4 years. (Page 9.)

* British thermal unit (Btu) is the amount of energy required to raise the temperature of 1 pound of water by 1 degree Fahrenheit. It measures all forms of energy expenditure, of course, not just that fraction used to heat water. Other technical terms indicated by an asterisk in this booklet are defined in the glossary which begins on p. 26.

- Some new institutions not only are supplying much of their energy needs by sunpower but are entering a new era in prison industries by manufacturing and selling solar energy collectors to other institutions and businesses. (Page 18.)

- A new State facility in Minnesota not only is built partly underground to take advantage of the earth's own heat, its energy use will be controlled by a computerized energy management system. (Page 19.)

Most of these examples come from the Federal prison system, but increasingly States and localities also are finding energy-efficient ways of retrofitting* -- mechanically updating -- old correctional structures and, for even greater savings, incorporating energy-saving design into new ones.

Both practical corrections management and court-backed public pressure to relieve overcrowded conditions are spurring a wave of new corrections construction across the Nation. The 1979 Sourcebook of Criminal Justice Statistics(1) showed new correctional construction, renovation, or both planned or in progress in 44 States and the District of Columbia. Whatever the reason for construction or renovation, the most cost-efficient time to effect future energy savings is the present. It has been estimated that the capital cost of correctional construction represents only about 2 percent of a facility's total lifetime operating cost(2). Spending a bit more on new capital construction is obviously a bargain if it substantially reduces the lifetime cost of a big money-burner -- energy.

This booklet introduces the steps by which an administrator can determine what his institution's energy-saving potential may be. It will give examples of what others have accomplished (and the imaginative approaches they have found, such as heating a corrections facility with the gases from hog manure -- page 19). A resource list, both on a national level and State-by-State, will suggest places to call for assistance, in many cases at little or no cost. A reference list -- organized by subject -- suggests other useful reading in the field.

1 Criminal Justice Research Center, Albany, N.Y., for National Justice Information and Statistics Service, 1980.

2 The Maryland Criminal Justice Council has used this 2-percent figure, basing it on a projected 100-year life of a corrections facility and a 1975 study which found construction was 8 percent of the 30-year cost (30-Year Life-Cycle Cost Analysis of a Detention Facility, Alameda County, Calif., Frank C. Hope and Associates).

* In glossary.

LEAA Preparing Manual on Energy Conservation

In 1980 the Corrections Division of the Law Enforcement Assistance Administration contracted with Unified Industries, Inc., to conduct an energy-conservation survey of U.S. correctional facilities. After determining what energy-saving programs are being instituted, the contractor will prepare a handbook for correctional officials and policymakers on how best to find and reduce energy waste. The manual, when available, will include a long introduction, written in laymen's language, to the technical material which follows. That material will serve as a self-assessment tool to determine just what kind of energy program you need.

For information about the survey and about the planned handbook, write to:

Corrections Division
Law Enforcement Assistance Administration
U.S. Department of Justice
633 Indiana Avenue, NW.
Washington, DC 20531

Chapter One

Problems and Opportunities: Other Administrators' Approaches

Not surprisingly, the Federal Government is the Nation's largest single energy user, at more than 2 percent of total U.S. energy consumption(1). Correctional institutions in the Bureau of Prisons system expended $12 million for 4.9 trillion Btu's of energy during fiscal year 1979 while providing for 11.7 million square feet of space. This compares to $8.4 million in FY 1976 for 10.6 million square feet. The cost per square foot increased by 29 percent while the cost per Btu increased by 30 percent(2).

Since 1973 both legislation and executive orders have promoted energy conservation within the Government, including the Energy Policy and Conservation Act of 1975 and President Carter's Executive Order of 1977, which set conservation goals for Federal buildings, specifically identifying prison facilities:

- For existing buildings, a 20-percent reduction in energy use between 1975 and 1985.
- For new buildings, a reduction of 45 percent during the same period.

The 1977 Order also directed agencies to consider in their building plans only those energy conservation improvements which are cost-effective based on a life-cycle cost approach (explained in this booklet starting on p. 14) and to give highest priority to the most cost-effective programs. In November 1978 the National Energy Conservation Policy Act required agencies to perform energy surveys of Government buildings to retrofit them for maximum cost-effective energy efficiency by 1990.

1 The Federal Government Needs a Comprehensive Program to Curb Its Energy Use. General Accounting Office, 1979.

2 Energy Conservation Planning for Correctional Institutions. Draft paper by C. Wayne Stiefel, National Bureau of Standards, 1980.

The 1977 and 1978 emphases and growing present conservation awareness must have sprung in part from the discouraging results of earlier conservation efforts. Between 1974 and 1977, Federal energy use declined only 2.7 percent(3).

Two Ways To Go

Two strategies of energy conservation have emerged since the 1973 petroleum-shortage crisis: end-use restriction and total energy management(4).

Typical tactics in end-use restriction are setting thermostats low in winter and high in summer or reducing lighting requirements. This method has several drawbacks, including the possible decrease of human comfort and productivity as well as safety and security. (Besides, when you set the thermostat at 65, someone would usually come along behind you and reset it at 72.)

Total energy management, on the other hand, considers each building as a unique, complex system which should be made to run at top efficiency.

The many existing buildings which were designed and built before the 1970's did not include energy conservation as part of their design considerations. Such concerns could not be economically justified during an era of abundant and inexpensive energy; initial cost of construction was the chief consideration. Nevertheless, older systems include many components which can be modified to improve their efficiency. This, by definition, is retrofitting.

An inefficient system wastes energy every time it is used, while an efficient system consumes the minimum amount of energy needed to get the job done. End-use restriction, used alone as a conservation strategy, ignores the saving which could be achieved by increasing the efficiency of the system. Total energy management, while it may utilize some forms of end-use restriction, offers the flexibility required to conserve energy and cut costs while meeting the needs of the building users.

Causes of Heat Gain or Loss

Important to selection of an energy conservation strategy is an understanding of how subsystems interplay to cause losses or gains of heat.

The largest single uses of energy in buildings are heating and cooling. Heating and cooling requirements are influenced by climate, physical features of a building, and the activities conducted in the building. Among these contributing and conflicting factors are infiltration of outside air through cracks or passages in the structure; conduction of heat into or away from a building through ceilings and walls; ventilation; lighting, which not only expends energy in itself but produces heat as a byproduct; solar heat gain, which depends on building materials and colors; geographic location;

3 The Federal Government Needs a Comprehensive Program to Curb Its Energy Use. General Accounting Office, 1979.

4 With regard to these discussions, see especially citation 6 in Reference List.

machinery, even that used for cooling, which contributes heat as a byproduct; and the human occupants, whose bodily functions also contribute heat gain.

Thus the conservation planner must consider three systems whose heat gain or loss, depending on the season of the year, will reduce or increase the need for providing energy:

- Energized systems, which consume energy directly;
- Nonenergized systems, such as walls, windows, floors, roofs, ceilings, doors, and landscaping; and
- Human systems, persons who have an impact on when and how much energy is consumed.

Spending Money To Save Money

Unfortunately, energy conservation projects that can pay off in future years require spending this year's dollars. How does an administrator justify even the exploratory costs of energy conservation to budget-paring policymakers, to budget-hungry subordinates with their own needs, and to himself, warily walking a continuing budgetary tightrope?

Perhaps, before explaining the seven steps necessary to implement an energy management plan, we should look more closely at two of the facilities mentioned in the introduction to see whether their experience offers hope to other would-be energy savers. Although these are large facilities, with capacities of 320 and 925 inmates respectively, any one of their many buildings might exemplify what might be done, say, in a small jail.

Butner: The Fast Payoff

The Federal Correctional Institution (FCI) at Butner, N.C., has both a mental health component and an experimental correctional function. It is a medium security facility which accepts inmates transferred from other facilities who are within 3 years of release. Among the vocational fields in which it offers training is heating and air conditioning.

FCI Butner, which opened in 1976, was one of two institutions selected by the Bureau of Prisons for its pilot efforts of complying with the 1977 Executive Order on energy conservation. An energy audit performed by JRB Associates, Inc., identified feasible, cost-effective projects for conserving and renewing energy.

The JRB recommendations ranged from the minor saving of 11 million Btu's per year from use of energy-conserving lamps to the almost 6 trillion Btu's to be saved by shutting down some heating, ventilation, and air conditioning (HVAC) systems. JRB calculated how long each change would take to pay for itself in savings. A reduction in domestic hot water temperature could be effected at no cost, an immediate payback. Energy-conserving lamps, although they would cost only $426 total, would take almost 7 years to pay for themselves. Table 1 shows the detailed list of options. Total estimated annual savings from the recommendations would be 12.3 trillion Btu's a year, or $51,000; cost of the retrofitting would be only $36,272. Thus, the average "simple payback period"* would be 0.7 years, or not quite 9 months.

* In glossary.

Table 1
Savings Options at FCI Butner

	Option	Energy Savings (10^6Btu)	Energy Cost Savings	System Cost	Simple Payback Period (Years)
1.	Reduce air volumes	2,170	$14,471	$7,500	.5
2.	Shut down HVAC systems	5,739	20,700	16,400	.8
3.	Night setback during heating season	2,706	7,371	9,240	1.3
4.	Reduce domestic hot water temperature	34	232	0	0
5.	Remove ballasts*	261	1,532	491	.3
6.	Timer controller	1,030	6,038	1,650	.3
7.	Photocell controlled exterior lighting	87	509	565	1.1
8.	Energy-conserving lamps	11	62	426	6.9
Totals		12,338	$50,915	$36,272	.7

Source: JRB Associates, Inc.

* In glossary.

The warden named an energy conservation committee to work with the facility's work programing committee to set high priorities for the energy-saving work. Each building is inspected weekly for progress in conservation and possible new opportunities; a monthly report goes to the Bureau of Prisons regional office. Department of Energy regulations and Bureau of Prisons policy call for thermostats to be set no lower than 78 degrees for cooling and no higher than 65 degrees for heating. Butner is permitted exemptions for heating the medical facility and the seven inmate living (not working) areas; these are heated to 68 degrees. Heating and cooling of areas not in continuous use are shut down when the areas are unoccupied. Automatic night-time setback thermostats have been installed in some areas.

Hot water heater timers shut off the heaters in unoccupied buildings and temperatures are set at the lowest setting except for those in food service, where 180 F. is maintained.

Nonessential lighting has been removed and nonuniform lighting installed in other lamps and fixtures. (Nonuniform lighting means that each lamp size is selected for that particular location's needs; that not all lamps are as bright as others.) All incandescent lighting has been lowered from 150 watt to 60; fluorescent fixtures have been installed in many places; and photoelectric cells control most outdoor lighting -- a security improvement as well as an energy savings when contrasted with manual operation of these lights.

A load demand system* has been installed to lower peak electrical demand of air conditioning, ventilation, hot water heating, and related equipment. The facility will soon be converting from fuel oil to natural gas heat with an anticipated additional cost saving of 34 percent.

Corrections institutions find wall-mounted thermostats are often tampered with, incurring high maintenance costs. Where vandalism is high in Butner, the thermostats have been installed in air return ducts (5).

And the total cost savings continue.

El Reno: One Step at a Time

FCI El Reno, Okla., was built in the 1940's as a reformatory, with other buildings added over the years. Newer buildings are air conditioned; air conditioning has been added in older buildings where feasible, even if only provided by small window units. All buildings are heated with low-pressure steam, which is also used in the kitchen and laundry areas.

Not surprisingly for such an old facility, the greatest heat saving JRB recommended would be derived from roof insulation -- almost 16 trillion Btu's or $25,000 annually. Its installation cost was set at $200,000 -- an 8-year simple payback for this item. Other potential large savings included night setback of heating thermostats, insulation of steam pipes and return pipes, and maintenance of steam traps. These and other recommendations, many of them similar to those at Butner, offered an estimated annual saving of 31.6 trillion Btu's -- only $54,000, since fuels cost more in North Carolina than in Oklahoma -- and at a retrofitting cost of $277,078. Thus the simple payback period would be 4.2 years.

The recommendations are being acted on as they become feasible(6). An appropriation for the roof insulation is expected in 1982 (see p. 15, next chapter, for a cost-effectiveness discussion on such items as insulation).

Why the Difference?

Obviously, with a simple payback period of less than a year, Butner had little choice but to accept happily the JRB recommendations. El Reno, in order to realize much greater dollar savings, still has to go through the budgetary process for several years. It is an older facility, built in a part of the country, the Southwest, where buildings traditionally are put up less "tight" than elsewhere. (That is to say, more cracks and crevices were tolerated, a condition which is changing even in the Southwest as concern for energy costs increases.)

Although generalizing is risky, it appears from these and other examples that the more recently a prison or jail has been built, the more economical it may be to make energy-efficient. (See,

* In glossary.

5 Information to NCJRS from Douglas M. Vaughan, Sr., facility manager.

6 Information to NCJRS from C.H. Sherrod, facilities operation manager.

however, p. 16.) On the other hand, the older it is, the more work has to be done, more expensively, but the greater the eventual savings.

Rather than generalize, of course, the careful administrator has to know specifically what can be done at his own facility in order to spend less on energy and thus have more to spend on personnel and other needs. Finding out what can be done and what it will cost is the subject of the next chapter.

Table 2
Savings Options at FCI El Reno

	Option	Annual Energy Saving (10^6 Btu)	Annual Energy Cost Savings	System Cost	Simple Payback Period (Years)
1.	Shut down air conditioning systems	685	$ 3,869	$ 2,960	.8
2.	Night setback during heating season	7,050	11,143	6,475	.6
3.	Reduce temperature stratification	4,189	6,610	12,240	1.9
4.	Add roof insulation	15,831	25,014	200,135	8.0
5.	Insulate condensate pipes and steam pipes	86	136	293	2.2
6.	Reduce domestic hot water temperature	7	11	0	0
7.	Maintain steam traps	3,450	5,459	2,200	.4
8.	Repair freezer door seals	34	191	370	1.9
9.	Remove lamps and ballasts	67	378	162	.4
10.	Use energy-conserving lamps	214	1,209	2,243	1.9
	TOTALS	31,613	$54,020	$227,078	4.2

Source: JRB Associates, Inc.

Chapter Two

Setting Up an Energy Management Program

Seven basic steps(1) are generally followed in successful energy management programs for any building or building complex, correctional or otherwise, large or small:

1. Organize the program,
2. Collect historical energy use and cost data,
3. Conduct a detailed energy audit,
4. Analyze the data to identify conservation opportunities,
5. Perform economic analyses to establish priorities for conservation opportunities within budget limits,
6. Implement the options selected, and
7. Continue to monitor energy use.

Step 1: Organizing the Program

An energy coordinator should be named along with staff to assist. A large institution might be able to spare one or more officials full-time -- an engineer and a corrections officer might work together, with other officers and employees to assist them on specific phases of the program.

A small-county jail might name a capable assistant warden or deputy sheriff as a part-time coordinator, to work with existing

1 Stiefel, cited in note 2, p. 4 above. See also citation 6 in Reference List.

community resources such as volunteer engineers (or a county engineer) and interested science teachers. (See page 18 for the story of how an eighth-grade teacher helped one New York State institution.)

Set, and keep, realistic deadlines. Remember that no one will believe you really mean business unless management demonstrates its commitment to the energy-saving effort by providing -- or finding -- adequate resources.

Depending on the expertise available within your institution or your State's central corrections office, you may need to seek help elsewhere. A first step would be looking at the Resource List starting on p. 37 of this booklet, both under your State name and in the general listings. Some States have agencies that will conduct for you the audit described in Step 3 below; if your institution is in one of these, you might ask State help before the historical data are collected. Other States provide training in how to conduct energy audits or refer you to firms specializing in the type of audit you need.

Step 2: Collecting Historical Use and Cost Data

Here you may want to hire an expert, but chances are you have resources within your own organization to collect at least preliminary data. You may even wish to use the data you collect to convince policymakers that an expert should be called in for the next step.

Establishing historical patterns of energy use is necessary not only to identify where significant opportunities for savings exist but to serve as a baseline when it comes time to establish your conservation goals. Month-by-month consumption over a 12-month period is tabulated(2), using Btu's, kilowatt hours, dollars, or any other measured unit used to purchase your energy supply.

Comparisons on a square foot basis (say, Btu's per square foot) can be made between buildings of similar construction, although comparisons between buildings of, say, vastly different ceiling heights would yield confusing results. To see where the greatest payoffs in efficiency improvement can be made, divide the monthly Btu's consumed for each building by the respective "conditioned" square foot area -- the space artificially heated, cooled, or ventilated.

To make valid comparisons for space heat requirements from year to year, climatic data must also be tabulated on a monthly basis. Requirements for space heat and fuel consumption vary according to a published index known as heating degree days;* there is also an index of cooling degree days.* These and guidelines for their use are available from local utilities or local reports of the National Weather Service.

Several publications provide formats for tabulating the historical data (see citations 6 and 32 in the reference list near the end of this booklet). The historical data tell how much energy has been used and how usage varies with the time of year; they may also point up operating problems calling for corrective maintenance.

2 Citation 6 in Reference List.

* In glossary.

Step 3: Conducting a Detailed Energy Audit

Now that you have detailed how much energy has been used in the past, you must learn just what it was used for. (In the process, you may also learn how it is wasted.) The audit will permit you to analyze whether each energy use is essential and whether it can be reduced effectively. The audit identifies such probable causes of inefficiency as inferior design, installation, operation, or maintenance practices.

A detailed audit plan should be drawn up, explaining clearly the objectives and criteria to be used -- taking into account the budget allocated for the detailed audit and the complexity of the institution's plant and facilities. If you don't get State help and if outside audit personnel are to be used, the plan can serve as a basic document in a request for proposal.

Depending on the expertise within your organization and the resources available in your State (discussed in Step 2 above), you may need a consulting architect or other professional with experience in both mechanical and electrical engineering systems. It might also be worth consulting a qualified illumination engineer if lighting systems are old and contribute substantially to energy requirements.

Your historical survey will have provided energy consumption and cost data, weather data, etc., to which you will now add detailed building and plant plans, updated to show later modifications; operating and maintenance logs; and utility rate schedules. Second, a walkthrough audit helps identify what systems are presently installed, the evident condition of plant and equipment, and the quality of maintenance and operating procedure. If something doesn't look right, you should try to determine why it was done that way in the first place. An engineer might spot a light fixture that would be more efficient closer to the floor; a corrections officer might point out that the fixture's original placement was to prevent vandalism. Together they might work out a solution which met both conservation and security goals.

Finally, more detailed inspections and measurements are conducted for the energized, nonenergized, and human systems. An example of a detailed measurement for an energized system would be the analysis of flue gases or estimating a heat balance on the boiler, then determining what savings might be made by adjusting the air/fuel ratio. Detailed analysis of nonenergized systems might include use of infrared studies to locate roof, wall, and window areas where great heat losses by radiation might be reduced. Analysis of human systems might reveal savings through more prudent use of hot water or through cooking in covered rather than uncovered pots and kettles.

This step, the audit, flows almost immediately into Step 4.

Step 4: Identifying Conservation Opportunities

Preparing the audit report becomes, in itself, the next stage of developing an energy management program. Here, each energy-wasting condition or practice must be identified and corrective actions suggested. The analyst should watch for domino effects: if insulation will sufficiently reduce the demand on a heating plant, it may thus permit some equipment to be shut down, creating a further saving. The report should contain the facts needed by management to make decisions committing resources. Therefore, it is important that you work with the auditor to be sure you

understand the language used and concepts. The auditor should be communicating on your terms. A report might include:

- No-cost or relatively low-cost changes in existing equipment or operating practices; reducing hot water temperature is an example.
- Recommendations for changes in maintenance practices and existing equipment. An example might be adding photoelectric controls for outdoor lighting.
- Estimated costs for retrofitting, changing procedures, or adding to facilities or equipment, taking into account the effect of each modification on interrelated systems.
- Warning signals of possible problems in implementation, such as disruption of operations or security arrangements and conflict with correctional standards or health and safety codes.

Given such a set of recommendations and listing of possible effects, managers and policymakers are ready to start determining which energy-saving steps will be cost-effective and therefore implemented.

Step 5: Perform Economic Analyses To Establish Priorities

Discussing recommendations from energy audits at FCI's Butner and El Reno, we mentioned "simple payback," which is indeed the simplest method of measuring the economic worth of a given conservation opportunity. By dividing the initial cost of implementing a savings by the annual savings derived, we learn how long it will take the alteration of a system to "pay for itself." Computing a simple payback period,* however, fails to account for many economic variables.

The Federal Energy Management Programs endorse life cycle costing (LCC)* as a tool for evaluating both energy conservation programs and the introduction of renewable energy sources, such as solar programs. It takes into account relevant costs over time of a building's design, systems, components, materials, and operations. It uses an adjustment technique known as discounting* -- not the same thing as depreciation -- to reflect the fact that future dollar consequences of a present expenditure can be accurately assessed only by taking account of the influence of time value of money.* This time value reflects not only inflation but the earning potential which can be derived by today's investments.

An LCC analysis requires: 1) establishing a common time (e.g., 1980) for expressing cost and saving values; 2) establishing a study period (say 40 years if that is the predictable remaining economic life of the building or equipment); 3) identifying and estimating all relevant cost and savings factors; 4) converting, through discounting, all costs and savings at different times to the common time selected in 1) above; 5) analyzing the effect of changing assumptions (for example, where estimates are uncertain, results could be calculated for both high and low estimates).

These present-value dollar figures, useful as they are, still don't tell you which three or four of a dozen or so potential savings will fit best into a tight budget. For that you need another technical tool, the savings-to-investment ratio.

* In glossary.

Complicated? Here's Some Help

"Life cycle costing," "savings to investment ratio," "optimal net savings," and other systems and tools needed in the cost analysis of energy conservation planning sound complicated. Indeed they are.

References 6 on page 30 and 29 through 34 on page 33, however, give step-by-step guidance; 6 and 33 provide worksheets for these computations. In addition, the Department of Energy has published tables which incorporate not only the discount factors to compute the present worth of energy expenditures, but also the expected escalation rates of all fuels on a region-by-region basis.

Some of the agencies listed in the State-by-State resource list (starting p. 37) will give assistance with cost analysis, or at least guidance on where to find assistance.

That ratio, called SIR, is obtained by dividing the net present value of project benefits by the net present value of project investments. If a specific conservation proposal would save $250,000 over its life cycle and would cost $100,000, its SIR would be 2.5:

$$\frac{\$250,000 \text{ savings}}{\$100,000 \text{ investment}} = 2.5 \text{ SIR.}$$

Obviously, so long as the SIR is greater than 1 -- even 1.01 -- the proposal is cost-effective, though perhaps not one you'd jump for. If the package of conservation opportunities requires more investment than your budget can stand, pick the highest SIR item, then the next highest, and so on down until you run out of funds. That will give you the highest eventual savings.

Steps 6 and 7: Implementation and Followup

Once you've gotten this far, these last two steps in the seven-step plan for developing an energy management system should provide little problem. Implementation had to be planned in some detail, and with an eye for possible pitfalls, in order to complete your energy audit and cost analysis. Now you follow your plan. Periodic reinspection and continual monitoring of energy consumption measurements may reveal new areas for savings or ways in which your conservation program could have been -- and still can be -- more effectively implemented. With each new increase in your fuel bills you will now feel free to gloat about your foresight and resourcefulness.

The "Layer Decision:" How Much Is Enough?

When figuring cost-effectiveness, a lot more is not necessarily better than just "some." Addition of thermal insulation offers a good example of a conservation opportunity which can be implemented in varying degrees. The more insulation you add, the more energy you save, but at a diminishing return rate. That is, each additional unit of insulation saves less energy than the preceding unit.

Thus, when it becomes a question not of whether to do something -- like insulating -- but of how much to do it, you need a tool that economists call incremental or marginal analysis. Divide the project into steps -- "increments." In our example, each layer of insulation is an increment and each must be judged on its economic merit. Say that each layer costs $10,000. The first layer saves $40,000 (over its life cycle, remember?) and thus is obviously a bargain. The second layer saves another $30,000 (in our oversimplified example) and is still a bargain. The third saves $20,000 and still makes sense. If a fourth level will save $10,001, it's worth it, but stop there. That's the point where the total savings are greatest -- $100,001 savings for a $40,000 investment. That's a total SIR a hair over 2.5, in the example. But at this point if you only have $10,000 left in your budget and have a conservation item unrelated to the insulation but with a cost of $10,000 and a SIR of 1.5, you'd skip the fourth level of insulation in favor of the unrelated conservation opportunity. Similarly, if you had a $20,000 item with a SIR of 2.5, you're likely to skip both the third and fourth levels and select the $20,000 item instead.

If the project involved a more flexible form of measurement -- say "inches" of pressure or "revolutions per minute" -- rather than "layers," you might arbitrarily establish the increments to be measured at, say, 10ths of an inch or 100 r/min.

Sometimes It's Just Not Worth It

Consultants retained to study what one Middle Atlantic State should do about its 169-year-old State penitentiary acknowledged an inclination toward tearing it down and building a new one, but found little justification for such a decision in their cost analysis of energy savings.

Comparing the life cycle costs for a renovation scheme and for new construction, the analysts found that capital cost of new construction would be 40 to 50 percent higher than one plan for renovation. They found that the present structure loses 74 Btu's per square foot per hour because of inefficient heating and insulation and that new construction could hold heat loss to 25 Btu/ft^2/hr. However, renovation could reduce heat loss to 40 Btu/ft^2/hr. The annual savings in energy cost for a $71 million new construction as opposed to a $48 million renovation would total only about $85,000.

The analysts wrote:

> . . . the annual additional cost of energy for a renovated versus a new facility is not so great as to substantially reduce the significant difference in capital cost . . . Therefore, the decision regarding . . . renovated versus a new construction option cannot be made based upon . . . energy consumption costs.(3)

3 Evaluation for Alternative Methods of Improving Maryland State Penitentiary and Maryland House of Corrections, Carter-Goble-Roberts, Inc., March 1980.

Chapter Three

For These Institutions, The Future Is Now

The preceding chapters primarily discussed ways of reducing consumption of energy from conventional sources. "Conventional," in this sense, means power mainly derived from fossil fuels -- petroleum, natural gas, coal -- plus some electricity generated not from fossil fuels but from nuclear and hydroelectric power. However, correctional administrators are not limited to such sources.

Controlled shortages of petroleum in the world market, plus the foreseeable depletion of fossil fuels, brought increased efforts over the past decade to find cost-effective ways to utilize benign, nondepletable sources of energy, primarily the Sun. By "solar energy," most people understand heating (and sometimes cooling) from the direct collection of the Sun's light and heat. Scientists and technicians, however, include within the term "solar energy" such sources as organic materials and windpower, renewable energy supplies derived indirectly from the Sun.

Although solar power for everyone may be, as we so frequently hear, at least 20 years away, many new prison and jail facilities are already taking advantage of it. This chapter will detail some of these futuristic ways of providing and managing energy, already in use and waiting for other imaginative, cost-conscious corrections administrators, engineers, and architects to incorporate them into future plans. Cost analysis of such systems is performed the same way as that discussed earlier for conventional systems.

Placed in the Sun: Solar Energy

The Federal Correctional Institution at Bastrop, Tex., was planned for solar power. It opened in 1979 to house some 470 young adult male offenders in medium security. Four dormitories surround a large central building where, through Department of Energy aid, black chrome solar collectors ride south-facing roof slopes. The solar plant in the central building provides heated and chilled water for the central building and the dormitories, with hot water

provided for cafeteria, laundry, and showers. The system produces 98 percent of the hot water, 66 percent of the hot air, and 8 percent of the cooling requirements for the institution.

Training in refrigeration/air conditioning and solar energy techniques are among educational opportunities Bastrop offers its inmates(1).

FCI Otisville, N.Y., is among correctional facilities that manufacture solar collectors for sale to other institutions, the military, and private industry. So are FCI El Reno, Okla., and State institutions in Florida and California(2). Water flowing through the light-receptive collectors is heated and used both for hot water supply and to transmit energy for other purposes.

Otisville, however, has gone a step further by building and utilizing photovoltaic cells, which generate electricity through the play of sunpower on adjacent dissimilar materials. The photovoltaic plant powers shop tools in the plumbing and heating shop and is also available as an emergency lighting source for certain areas of the institution. The Otisville inmates recently refurbished a number of used golf carts and fitted solar receptors on their roofs to provide perpetual power through the trickle charging of the carts' batteries. Significant savings are expected as the carts begin to replace automobiles for light transportation around the facility(3).

At Warwick, N.Y., the State's Mid-Orange Correctional Facility undertook a do-it-yourself solar conversion program without the Department of Energy aid obtained at Otisville. Philip Inger, an eighth-grade junior high science teacher, took a summer job at the prison as a vocational instructor and invited inmate-students to design solar energy systems for the prison. Area residents donated most materials and an inmate sketched an air heater type of collector which was built out of 78 coffee cans welded together and painted black. Another inmate built a model of a solar hot water heater which is being constructed by his fellow inmates using mainly donated scrap copper tubing. The Mid-Orange superintendent says the two panels will save 1,600 gallons of oil in a typical winter and he hopes to add other panels(4).

In California, the Rehabilitation Center at Norco developed a solar hot water system as early as 1977 and thought of building solar collectors. "After studying it," a State Correctional Industries commissioner said, "we realized that what was really needed all over the country was people to install systems, not build them." Now 20 of the center's 1,550 inmates, including 2 of the 350 women, are learning solar installation(5).

In what may well be a very incomplete list, solar installers and technicians are also being trained at FCI Memphis, Tenn., and at State institutions in Florida, Georgia, and Connecticut(6).

1 Information from Donald C. Voth, Bureau of Prisons.

2 Information from Donald Voth and from Jack Schaller, American Institute of Criminal Justice, Philadelphia.

3 Correctional Service News, 5, 4 (April 1980), New York State Department of Correctional Services.

4 Correctional Service News, 5, 9 (September 1980).

5 Los Angeles Times, April 2, 1980.

6 Jack Schaller.

One of the citizens involved in early planning for the new jail being built for Baltimore County, Md., was also a leading ecologist. At his insistence, the request for architectural proposals specified that the building's energy-consuming systems be solar-assisted. Collector panels stand out boldly in the winning architects' drawing of the modernistic new building(7).

The new Volusia Correctional Facility near Daytona Beach, Fla., is designed for solar water heating. The system is estimated to cost $375,000 of which $225,000 goes for solar collectors(8).

At least two older Florida Correctional Institutes, Dade and Baker, are undergoing retrofitting to solar water heating for dormitories. Each solar panel system has a temperature differential controller to monitor storage and collector temperatures and to control the circulating pump accordingly. The Dade project is budgeted at $58,000 for construction; the Baker project at $95,000.

Warmth From Waste: Biomass

A lot of potential energy just gets thrown away. As Appendix B explains, there are many ways of using organic material as an energy source. They are beginning to creep into use in correctional facilities.

Arkansas, for example, plans to supply most of the heat for a new correctional institution with gases generated from the tons of hog manure collected from its State prison farm system(9).

The Monroe Correctional Institution in Washington State has switched to methane gas. The Menard Correctional Institution in Illinois manufactures gasahol to power State vehicles(10).

These of course are complex technologies, requiring expert, professional engineering not only for efficiency but, more important, for safety.

At Stillwater, Minn., the Correctional Institute is using wood pellets to fire its furnace, having converted from coal. Wood from elms afflicted with Dutch elm disease is converted into the pellets, which produce about two-thirds as much energy per pound as coal and are considerably less expensive. Similarly the Central Georgia Correctional Center is burning wood pellets and sawdust for heat.

Minnesota Underground: The Warmth of Earth

A new State high security facility being built at Oak Park Heights, Minn., will have its base and one side of the building built into the ground. Apart from the security aspects of the prison's design,

7 Information from Harvey C. Byrd, NCJRS, formerly of Maryland Criminal Justice Council.

8 Information on Volusia, Dade, and Baker from Frank McLane, Florida Department of Corrections.

9 Information from Ron Stanfield, Arkansas State Energy Conservation and Planning Office.

10 Information in this and next paragraphs from Jack Schaller.

the under-earth construction will permit normal ground temperatures to assist both in heating and cooling the facility(11).

Prison officials expect further energy savings through the use of a Delta 1000 energy management computer system for which the manufacturer, Honeywell, Inc., claims the following capabilities:

- Evaluate building systems and assess energy consumption and operational conditions to pinpoint immediately any malfunction.
- Perform preventive maintenance functions without manual operation of energy systems.
- Maintain reports of energy consumption, thus providing further incentive for building supervision to maintain efficient operations.

11 Ron Johnson, Honeywell, Inc., in press release Aug. 20, 1979.

How To Use This Booklet

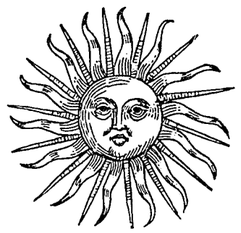
No one is going to plunge straight from reading these pages into a total energy management plan for his jail or prison. Instead, the authors have tried to give the reader a sampling of what can be done, what has been done, of ideas worth thinking about.

Appendix A, following this page, gives a few pointers on lighting. Appendix B gives a very quick set of definitions of various energy-yielding biological processes falling under the general heading "biomass." We have not discussed windpower in detail. Neither, lacking examples from the corrections field, have we discussed cogeneration -- the utilization of the heat produced as a byproduct of generating electrical or mechanical energy. Both offer possibilities for corrections officials to explore.

Indeed, if the preceding pages have captured a correctional administrator's interest, he should turn next to the reference and resource lists to learn where he can find an abundance of detailed information. If he enters into an energy conservation program, we hope he will share his experiences with Unified Industries, Inc., which will be preparing the forthcoming energy conservation handbook for LEAA's Corrections Division.

In addition, this booklet includes a glossary of energy and accounting terms useful in considering a conservation investment. Not all the terms are used in the preceding text, but almost all will be useful to anyone exploring further into the literature.

Appendix
A



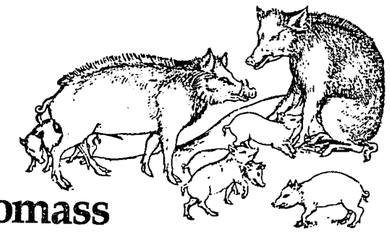
Lighting

Energy for lighting is estimated at 5 percent of national consumption and perhaps 20 percent of the total used in buildings. Significant energy savings can be realized by a reduction in illumination levels to the minimum required for safety and efficiency.

Many institutions routinely use 100-watt bulbs as nightlights in areas where not that much light is needed. A 100-watt bulb burning continuously for a year uses $35.04 electricity. A 60-watt bulb would use only $21.02. The 60-watt bulb might be quite adequate if its fixture were kept clean. Bulbs, tubes, shades, and reflective surfaces both inside and out should be cleaned at regular intervals because up to 30 percent of the light can be lost by accumulation of dust.

If you replace a 100-watt incandescent light with a 25-watt fluorescent light, you get exactly the same light output but a 70 percent reduction in energy consumption. And the fluorescent tube will last 15 times as long as the incandescent bulb.

Appendix
B



Biomass

Biomass is organic material such as trees, crops, manure, seaweed, and algae. These materials capture and store energy from the Sun through a process called photosynthesis. The energy can be released through a conversion process to produce a variety of fuels including hydrogen, charcoal, methane, and synthetic oils. These fuels can then be used to produce electricity, heat, steam, or transportation fuels to reduce the use of conventional, nonrenewable energy sources.

Use of biomass is not a new idea. In the 1880's wood supplied more than 90 percent of our energy needs. In the 1940's, 20 percent of the homes in the United States used wood for space heating. (Heating from wood pellets or fiber pellets converted from refuse is gaining favor in the 1980's.)

Today several industries and utilities are using biomass to supply more than 1.4 quads of energy each year for electricity, process heat, and space conditioning. A "quad" is a quadrillion Btu's. One quad of energy is enough to heat 50,000 homes for 20 years. The total national energy consumption is 75 quads a year, so the 1.4 quads from biomass represents almost 2 percent of the total.

The world now produces billions of tons of biomass each year. Although not all of this resource can be used for energy production, enough may be available to supply several additional quads of the Nation's energy yearly by the end of this century.

Biomass wastes and residues can be converted to energy in many ways. Conversion techniques range from relatively simple to quite complex. Basically, there are two types of biomass energy (bioenergy) conversion processes: thermochemical conversion and biological conversion.

Thermochemical Conversion

Thermochemical conversion uses heat, sometimes in the absence of air, to produce chemical reactions in biomass. Examples of such conversions include direct combustion, gasification, and pyrolysis.

Direct Combustion

Direct combustion is the simplest and best developed biomass conversion process. Forest and agricultural wastes and residues can be burned to produce steam, electricity, or heat for industries, utilities, and homes.

Gasification

Gasification releases bioenergy by heating wastes in a limited amount of air or oxygen. Wastes from forest products, industries, or food processing operations can be used to produce synthetic natural gas.

Pyrolysis

Pyrolysis also breaks down biomass with heat, but in the absence of oxygen and at a lower temperature than is required for gasification. The biomass resources used in this process include manure, agricultural and wood wastes, papermill wastes, and municipal solid wastes. Pyrolysis yields oil, charcoal, and synthetic natural gas.

Biological Conversion

Biological conversion (bioconversion) is a chemical reaction caused by treating biomass with enzymes, fungi, or microorganisms. Two processes are used today to produce liquid or solid fuels: anaerobic digestion and fermentation.

Anaerobic Digestion

Anaerobic digestion is the controlled decay of organic material in the absence of oxygen. Manure, agricultural wastes, sewerage, paper, seaweed, and algae can all be converted to produce methane gas.

Fermentation

Fermentation is a well-established process by which carbohydrates are fermented and distilled to produce ethyl alcohol (ethanol). Ethanol can be mixed with gasoline to produce gasohol.

Fuels from biomass will only become more widely used if they are competitive in cost, convenience, and reliability with conventional energy sources. Although certain technological and institutional conditions limit the use of some biomass conversion processes, other processes are ready to use.

Biomass use offers these benefits:

- Biomass is readily available in current wastes and potentially available from energy crops;
- Biomass is a renewable and inexhaustible resource if properly managed;
- Uses of residues and wastes can lessen our environmental problems. Wood wastes, garbage, and agricultural residues are frequently burned merely as a means of disposal instead instead of for production of energy;
- Biomass is safer and cleaner than several other energy sources;
- Certain biomass conversion processes are highly efficient. In most cases, it is more economical to use residues onsite for electricity production, even on a small scale, than to transport coal from the mine to the generating plant.

"Utilizing Biological Residues for Energy" is among the reading lists available from the Solar Information Data Bank, Solar Energy Research Institute, 1617 Cole Boulevard, Golden, CO 80401.

Glossary

Ballast -- A device used in starting circuits for fluorescent and other types of gaseous discharge lamps to limit current flow and to provide voltage at proper design levels.

British thermal unit (Btu) -- A unit of energy equal to the heat required to raise the temperature of 1 pound of water 1 degree Fahrenheit.

Degree day, cooling -- A measure of the need for air conditioning based on the outdoor temperature. Because no accurate index has been developed to measure the humidity's effect, cooling degree days are determined as the number of Fahrenheit degrees by which the outdoor mean daily temperature exceeds 65.

Degree day, heating -- A measure of the coldness of weather experienced, the difference between 65 degrees Fahrenheit and the outdoor mean daily temperature.

Discounted payback period -- Considers the time value of money (which see below) in determining the length of time for the annual net benefits derived from an investment to equal the amount invested.

Discounting -- The practice of adjusting cash flow receipts and disbursements by the interest rate for the time funds are in use; process of adjusting cash flows for the time value of money.

Economic life -- The period over which the investment being considered is deemed to be the lowest cost alternative for satisfying a particular need. The factors which combine to influence the economic life of an asset are: (1) the period of time during which the asset will be used; (2) the period of time over which the asset lasts physically; (3) the period of time over which the asset is technologically superior to other alternatives.

Energy requirement -- Total energy used by a building to maintain selected inside design conditions through a typical year's climate conditions.

Enthalpy -- For the purpose of air conditioning, the total heat content of air above a selected level, usually stated in units of Btu/lb. When comparing two air streams, the one with the higher enthalpy will require more energy to cool it to a satisfactory level.

Heat redistribution system -- A system which transfers excess heat from one zone of a building to another zone which requires heat, as from the interior zone to the perimeter zone. This usually minimizes the total energy required for heating.

Interior zone -- In a multi-story building, the interior space beginning about 15 feet from the outside wall and including all floors except the top. This space is not affected by outside temperature.

Investment costs -- Initial costs of design, engineering, purchase, and installation exclusive of sunk costs (which see).

Kilowatt hour (kWh) -- A measure of total electrical energy consumed over a period of time. One kWh is equal to the energy consumed at the rate of one kW for one hour. A 100-W lamp burning for 10 hours will consume one kWh of energy.

Kilowatt (kW) -- 1,000 watts.

Life cycle costing -- Method of expenditure evaluation which recognizes the sum of all costs associated with the expenditure during the time it is in use; an evaluation technique.

Load demand system -- Equipment which reduces level of energy consumption at peak periods. It might, for example, override thermostats.

Peak demand -- Maximum electric demand expressed in kW for a specific period of time during the month (usually 15 or 30 minutes).

Present value -- A computed value based on the concept that a sum of money invested today will earn interest, that a dollar today is worth more than a dollar to be received in the future by the amount of interest it might earn.

Recurring costs -- Those costs which recur on a periodic basis throughout the life of a project.

Retrofit -- A modification of existing equipment or plant to reflect changes in technology or policy since original manufacture or construction.

Savings/investment ratio (SIR) -- The resultant factor obtained by dividing the net present value of project benefits by the net present value of project investments. A savings/investment ratio which is greater than 1.0 indicates that the proposed investment is cost-effective. SIR is considered the best measure of overall expenditure performance.

Simple payback period -- Length of time necessary to recover in savings or benefits the initial investment in a project without considering the time value of money.

Sunk cost -- A cost which has already been incurred and should not be considered in measuring the economic performance of a current investment alternative.

Time value of money -- Difference between the value of a dollar today and its value at some future point in time if invested at a stated rate of interest.

Watt (W) -- A measure of power, now usually electric power, equal to 3.4 Btu/hour.

Zero year -- Represents annualized conditions the day before the system being evaluated starts yielding economic benefits.

Reference List

Of the wealth of energy conservation material published since 1970, very little is corrections-specific. This booklet, which presents only a brief outline, and the detailed handbook being prepared by the LEAA Corrections Division will be among the first. However, a number of energy-conservation books and documents were added to the criminal justice collection of the National Criminal Justice Reference Service (NCJRS) to prepare this booklet -- and to fulfill future needs of NCJRS users.

The items listed here are selected from among those books and documents. They are cited under the following classifications:

"How To Obtain These Documents" begins on page 35.

General

1. Department of the Army. Engineering Instructions for Preparation of Feasibility Studies for Total Energy, Selective Energy, and Heat Pump Systems. Washington, D.C., 1977.
MICROFICHE NCJ 65397

Architectural, geographical, design, and cost considerations are discussed for the three types of systems.

2. Energy Conservation Manual -- a Tool for Energy Management. New York: Hospitality, Lodging and Travel Research Foundation, 1977. NCJ 66073

Practical energy conserving techniques for hotel and motel operations, some applicable to other enterprises. A 1979 supplement, V. 2, covers maintenance. NCJ 66074

3. Massachusetts Department of Community Affairs. Assistance in Local Government Energy Conservation in Massachusetts. By D. A. Harkins. U.S. Department of Housing and Urban Development. Springfield, Va.: National Technical Information Service.

V. 1, 1976: Energy Management in Municipal Buildings.
NTIS Stock No. PB-276 794. MICROFICHE NCJ 65953

V. 5, 1977: Final Report -- Project Overview.
NTIS Stock No. PB-276 797. MICROFICHE NCJ 65959

For the supervisor instituting an energy management program.

4. National Association of Counties. Guide To Reducing Energy Use -- Budget Costs. Washington, D.C. Department of Energy (Distribution), 1978.
DOE Stock No. HCP/U60505-01 MICROFICHE NCJ 66019
Developed by a group of 22 city and county representatives, gives why's and how's on color-coded pages.

5. Energy Conservation Communication Kit -- for Plant Communities and Employees. Washington, D.C.: National Association of Manufacturers, 1979. NCJ 66075
A flexible model from which companies can formulate their own employee-community conservation programs.

6. Total Energy Management -- a Practical Handbook on Energy Conservation and Management. 2d edition. Washington, D.C.: National Electrical Contractors Association, 1979. NCJ 65890
Contrasts end-use restriction with total energy management and discusses application of both approaches. Also provides detailed instructions and worksheets for developing an energy management program.

7. Real Estate Research Corp. Capacity Building -- Local Government Approaches to Energy Conservation. Department of Housing and Urban Development. Washington, D.C.: Government Printing Office, 1979.
GPO Stock No. 023-000-00550-6 MICROFICHE NCJ 67108
An overview of three projects testing varied approaches to municipal energy conservation management.

8. Texas Energy Auditor Training Manual for Schools, Hospitals, Local Governments and Public Care Institutions. Austin: Texas Energy and Natural Resources Advisory Council, 1980. NCJ 72830
Provides information for saving energy and related costs through implementation of maintenance and operating procedures and conservation methods which provide a quick return on the investment.

Architecture, Materials, and Design

Walls (see also citations 41 and 42):

9. Masonry Industry Committee. M Factor -- the Use of Mass To Save Energy in the Heating and Cooling of Buildings. NCJ 66023
Quantifies and promotes the thermal performance of masonry walls and proposes new method of calculating heat loss.

10. Walls To Save Energy -- a Design Professional's Guide to Energy Conservation with Brick. McLean, Va.: Brick Institute of America. MICROFICHE NCJ 66022
Energy-saving qualities of brick are enumerated as well as factors of capacity insulation and thermal inertia.

Windows

11. Fischer, R.E., and W.F. Wagner, Jr. Energy-Effective Windows. National Bureau of Standards. Washington, D.C.: Government Printing Office, 1978.
GPO Stock No. 003-003-01929-1 MICROFICHE NCJ 64371
Proceedings of a joint Department of Energy-Bureau of Standards roundtable in 1977 to define available research and technologies and anticipate designer and industry needs.

12. Kusuda, T., and B.L. Collins. Simplified Analysis of Thermal Characteristics of Windows -- Two Case Studies. National Bureau of Standards. Washington, D.C.: Government Printing Office, 1978.
GPO Stock No. 003-003-01892-9 MICROFICHE NCJ 64370
Results of a simplified analysis for annual heating, cooling, and lighting requirements associated with windows.

13. Rubin, A.I., R.L. Tibbott, and B.L. Collins. Window Blinds as a Potential Energy Saver -- a Case Study. National Bureau of Standards. Washington, D.C.: Government Printing Office, 1978.
GPO Stock No. 003-003-01936-4 MICROFICHE NCJ 64368
The Bureau of Standards reports a study of the use of internal shading devices in its own building at Gaithersburg, Md.

Other (see also Government Codes and Reviews):

14. American Institute of Architects. "New Guidelines for Energy Savings in Office Buildings." AIA Journal (May 1974):31-38, 66, 68. NCJ 64403
A chart showing relationships among energy, cost, and building design, and an energy conservation checklist based on climatic conditions.

15. Blissett, M. "Conservation of Energy in Public Procurement." Journal of Purchasing and Materials Management 14 (Spring 1978):21-25, 32 NCJ 66535
The Energy Policy and Conservation Act of 1975, requiring cooperative State and local procurement as a means of energy conservation, appears not to result in a significant energy saving per dollar spent.

16. Cooke, P.W., and R.M. Eisenhard. Building Energy Conservation Programs -- a Preliminary Examination of Regulatory Activities at the State Level. Washington, D.C.: National Bureau of Standards, 1977.
NBSIR 77-1259 MICROFICHE NCJ 64697
Energy conservation regulations in 21 selected States are reviewed to provide a data base for promoting building thermal efficiency standards.

17. Environmental Law Institute. Building To Save Energy -- Legal and Regulatory Approaches. By G.P. Thompson. National Science Foundation. Cambridge, Mass.: Ballinger, 1980. NCJ 68342
Part of a series on legal and administrative strategies for State and local energy conservation programs, this book focuses on building regulation.

18. Arthur D. Little, Inc. Energy Conservation in New Building Design -- an Impact Assessment of American Society of Heating, Refrigeration, and Air Conditioning Engineers Standard 90-75. Institute of Environmental Health Sciences, Department of Health, Education, and Welfare. Washington, D.C.: Government Printing Office, 1975.
GPO Stock No. 041-018-00098-4 MICROFICHE NCJ 64791
Energy, economic, and institutional impacts of the society's standard are analyzed in a 271-page study. See also citation 25.

19. Watson, D. Energy Conservation Through Building Design. New York: McGraw-Hill, 1979. $19.50 prepaid only. NCJ 67544
An architectural record book bridges the disciplines of architect and engineer, practitioner and researcher to develop pioneering approaches to combining energy conservation with creative design.

Government Codes and Reviews

Department of Energy

20. Energy Performance Standards for New Buildings -- Proposed Rulemaking and Public Hearings. Federal Register 44, 230 (Nov. 28, 1979):68120-68181. MICROFICHE NCJ 66029

General Accounting Office

21. Uncertainties About the Effectiveness of Federal Programs To Make New Buildings More Energy Efficient. 1980. Charge for more than one copy.
GAO Stock No. EMD-80-32 MICROFICHE NCJ 66915

22. Federal Government Needs a Comprehensive Program to Curb Its Energy Use. 1979. Charge for more than one copy.
GAO Stock No. EMD-80-11 MICROFICHE NCJ 64821

23. Framework for Developing a National Energy Conservation Program. 1979. Charge for more than one copy.
GAO Stock No. EMD-79-76 MICROFICHE NCJ 67004

24. Anderson, E.B., and L.E. Hodges. "Energy Analysis -- Accounting Without Dollars." GAO Review, 12, 2 (Spring 1977):37-44.
MICROFICHE NCJ 66114
Contends that energy itself is a more fundamental unit of account than costs.

Other

25. BOCA Basic Energy Conservation Code, 2d edition. Chicago: Building Officials and Code Administrators (BOCA) International, 1978. MICROFICHE NCJ 66517
Based on American Society of Heating, Refrigerating, and Air Conditioning Engineers Standard 90-75. See also citation 18.

26. Code for Energy Conservation in New Building Construction. Chicago, Building Officials and Code Administrators International, 1977. MICROFICHE NCJ 66021

27. Background to BEPS (Building Energy Performance Standards). Washington, D.C.: Conservation Foundation.
MICROFICHE NCJ 66026
Explores development of the standards through interaction of professional associations and Government agencies. See citations 20 and 34.

28. Reader's Guide to the NOPR (Notice of Proposed Rulemaking). Washington, D.C.: Conservation Foundation.
MICROFICHE NCJ 66028
Another background document concerning citation 20.

Cost Analysis

See reference 6.

29. Haviland, C.S. Life Cycle Cost Analysis -- a Guide for Architects. Washington, D.C.: American Institute of Architects, 1977. $10.00 must be prepaid. NCJ 67522

30. Logistics Management Institute. Life Cycle Costing Guide -- A Guide for Applying the Concepts of Life Cycle Costing to Procurements by State and Local Governments. Washington, D.C.: Department of Commerce, Experimental Technology Incentives Program. NCJ 65467

31. Marshall, H.E., and R.T. Ruegg. Life-Cycle Costing Guide for Energy Conservation in Buildings. Washington, D.C.: National Bureau of Standards, 1977. MICROFICHE NCJ 64373

32. Energy Research and Development Administration. Life Cycle Costing Emphasizing Energy Conservation Guidelines for Investment Analysis -- 1976. By Reynolds, Smith, and Mills, Architects-Engineers-Planners, Inc. Springfield, Va.: National Technical Information Service, revised 1977.
NTIS Stock No. ERDA-76/130 MICROFICHE NCJ 65366

33. Ruegg, R.T., et al. Life-Cycle Costing -- A Guide for Selecting Energy Conservation Projects for Public Buildings. National Bureau of Standards for Department of Energy. Washington, D.C.: Government Printing Office, 1978.
GPO Stock No. 003-003-01980-1 MICROFICHE NCJ 64217

34. BEPS (Building Energy Performance Standards) and the Art of Life Cycle Costing. Washington, D.C.: Conservation Foundation. MICROFICHE NCJ 66027
See citations 20 and 27.

Retrofitting — Conventional

35. Brooks, S.D., et al. Guide to Reducing Energy Use -- Budget Costs. V. II: Local Energy Management Program. National Association of Counties for Department of Energy. Washington, D.C.: National Association of Counties, 1979. NCJ 66020
Although later chapters discuss such varied topics as new buildings, solar energy, and car pools, the early part of this 71-page volume focuses on existing buildings and includes the energy audit.

36. Burch, D.M., and C.M. Hunt. Retrofitting an Existing Wood-Frame Residence for Energy Conservation -- an Experimental Study. National Bureau of Standards. Washington, D.C.: Government Printing Office, 1978.
GPO Stock No. 003-003-01885-6 MICROFICHE NCJ 64369
Report of a test to provide technical information for conservation programs in existing buildings. Much material on insulation.

37. Department of Energy. Guidelines for Saving Energy in Existing Buildings -- Building Owners and Operators Manual. By Dubin-Mindell-Bloome Associates Springfield, Va.: National Technical Information Service, 1975.
NTIS Stock No. PB 249 928 MICROFICHE NCJ 64820
Examines national energy usage in existing buildings, presents methods for reducing consumption, and analyzes resulting costs and benefits.

38. General Accounting Office. Evaluation of the Plan to Conserve Energy in Federal Office Buildings Through Retrofit Programs. 1977. Charge for more than one copy.
GAO Stock No. EMD-78-2 MICROFICHE NCJ 67891
Suggested ways in which the Department of Energy might enhance the retrofit portion of its 10-year plan to improve the energy efficiency of Federal buildings.

39. Rossiter, W.J., Jr., and R.G. Mathey. Criteria for Retrofit Materials and Products for Weatherization of Residences. National Bureau of Standards for Department of Energy. Washington, D.C.: Government Printing Office, 1978.
GPO Stock No. 003-003-01976-3 MICROFICHE NCJ 64372
Identifies criteria for materials and products considered eligible for weatherization assistance in housing units.

40. Energy Conservation Retrofit for Existing Public and Institutional Facilities. For National Science Foundation. Washington, D.C.: Public Technology, Inc., 1977. $6 prepaid only.
NCJ 72781

Solar Energy

41. Brick for Passive Solar Heating. McLean, Va.: Brick Institute of America. MICROFICHE NCJ 66025
Asserts that passive system design can reduce fossil fuel consumption 60 to 80 percent in most locations. See also citation 10.

42. Use of Solar Energy Heating Systems in Brick Buildings. McLean, Va.: Brick Institute of America.
MICROFICHE NCJ 66024
Explains the difference between active and passive solar energy systems and suggests advantages of each.

43. Uniform Solar Energy Code, 1979 edition. Los Angeles, International Association of Plumbing and Mechanical Officers.
NCJ 67464
The association adopted this proposed uniform code at its 1978 convention and plans to revise it every 3 years.

44. Ruegg, R.T. Evaluating Incentives for Solar Energy -- Final Report. Washington, D.C.: National Bureau of Standards, 1976. NBSIR 76-1127 MICROFICHE NCJ 64819
A life-cycle cost model and a computer program are described that measure the dollar impacts of alternative incentives on the private costs of solar heating systems.

45. Ruegg, R.T. Solar Heating and Cooling in Buildings -- Methods of Economic Evaluation -- Final Report. Washington, D.C.: National Bureau of Standards, 1975. MICROFICHE NCJ 65367
Addresses economic issues in solar heating and cooling systems and compares their economic efficiency with conventional systems.

How To Obtain These Documents

From the Publishers:

For books and documents available from Government sources, specify stock number where available, remit payment unless you maintain a prepayment account with the agency, and use the following addresses:

Government Printing Office (items 7, 11, 12, 13, 18, 33, 36, 39):

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

National Technical Information Service (items 3, 32, 37):

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22151

National Bureau of Standards (items 16, 31, 44, 45):

National Bureau of Standards
U.S. Department of Commerce
Washington, DC 20234

Department of Energy (item 4):

Distribution (Adm73)
U.S. Department of Energy
Washington, DC 20545

General Accounting Office (items 21, 22, 23):

Distribution Section, Room 4522
U.S. General Accounting Office
Washington, DC 20548

Department of Commerce (item 30):

Experimental Technology Incentives Program
Room A-735
U.S. Department of Commerce
Washington, DC 20234

Department of the Army (item 1):

Office of the Chief of Engineers
U.S. Department of Army
Washington, DC 20315

These items, if not available from your library or bookseller, are available from the publishers:

Item 17: Ballinger Publishing Co.
17 Dunster Street
Harvard Square
Cambridge, MA 02138

Item 19: McGraw Hill Book Company
1221 Avenue of the Americas
New York, NY 10020

Item 29: Publications Department
American Institute of Architects
1735 New York Avenue NW.
Washington, DC 20006

Item 40: Public Technology, Inc.
Attn: Jamie Feathers
1160 Connecticut Avenue NW.
Washington, DC 20036

Addresses for other organizations are given in the Resource List. Some of these organizations may restrict distribution of publications, providing them to their members only.

It also is possible that some of these publications may be available for lending by the resource agency listed for your State.

From NCJRS:

For those books and documents so indicated, you can obtain free microfiche copies by specifying title and NCJ number and sending a self-addressed mailing label to:

NCJRS Microfiche Program
Box 6000
Rockville, MD 20850

Although requests from others may create long waiting lists, any item in the NCJRS collection may be borrowed by Interlibrary Loan for a user in the United States, Puerto Rico, or Canada. Have your public, corporate, or academic library complete an Interlibrary Loan form, specifying the NCJ number, and send to:

NCJRS Document Loan Program
Box 6000
Rockville, MD 20850

The NCJRS Reading Room, open to the public, is located at 1600 Research Boulevard, Rockville. To determine availability of documents and to get instructions to Research Boulevard, it is recommended you telephone (301) 251-5500 in advance.

Resource List

The following is listed below for each State:

- Name, address, and telephone number of agency available to assist corrections officials with energy conservation efforts.
- Name of contact person.
- Nature of assistance available.

Information was supplied by the agencies themselves.

A list of other, specialized, national or regional resources begins on page 51.

Alabama

Energy Management Board
Development Office
Office of the Governor
3734 Atlanta Highway
Montgomery, AL 36130
(205) 832-5010

Leonard McGarr

This office will conduct the actual energy audit at no cost.

Alaska

Department of Transportation and Public Facilities
4111 Aviation Avenue
Anchorage, AK 99502
(907) 266-1675

Paul Carr

At present, all correctional facilities are under the jurisdiction of Health and Social Services. They are nearing completion of inventory and condition survey of all State-owned buildings.

Arizona

OEPD/Energy Programs Section
507 State Capitol
1700 West Washington Street
Phoenix, AZ 85007
(602) 255-3303

Lionel Lowe

This office has several technical workbooks available and offers training classes under the Institutions Building Grants Program. Although correctional facilities do not fall under this category, corrections administrators would be welcome at the training sessions. These sessions last 2 days and supply basic general information, looking at size of buildings, energy consumption, lighting per square foot, type of energy used. Cooling, heating, and lighting systems are discussed.

Arkansas

Department of Energy
300 Kavanaugh
Little Rock, AR 72205
(501) 371-1370

Ron Stanfield

The State uses an energy consumption data reporting system which records electricity and gas measured against square feet in the main correctional facilities. The Cummins institution was recently audited for ways to improve energy efficiency and energy management. A report recommending changes is being prepared. Use of dairy and hog herd manure to produce methane gas is being considered. The toll-free number in Arkansas only is 1-800-482-1122.

California

Energy Commission
1111 Howe Avenue
Sacramento, CA 95825
(916) 920-6161

Wendell Bakkens

State has the Federal Schools/Hospital Program available for local facilities. In the past an audit team from this office performed audits and assisted State and local agencies. Because of Propositions 13 and 9 in California, this office probably will not be able to perform actual audits, but will coordinate workshops for facility operators.

Colorado

Office of Energy Conservation
1600 Downing Street, 2d Floor
Denver, CO 80218
(303) 839-2186

Skip Gray
Mary Downs
John McAllister

Energy office conducts two types of workshops, one in training persons to conduct a general audit, the other more intensive audits. Once the results of audit are completed, suggestions for retrofitting are then made. The State has considerable printed information, brochures, solar books, etc., which it will make available to correctional administrators.

Connecticut

Energy Division
80 Washington Street
Hartford, CT 06115
(203) 566-8464

Todd Cook

All State facilities including correctional facilities are planning to be audited by the Bureau of Public Works. The office distributes general information on energy conservation. Seminars and workshops are being conducted and correctional administrators could be invited.

Delaware

Delaware Energy Office
114 West Waters Street
Dover, DE 19901
(302) 678-5644

Bob Bartley, Director

Delaware has a State Energy Management System and the Department of Corrections is represented on the State Energy Conservation Council. All State facilities are under mandate from the governor to reduce energy consumption by 15 percent. Correctional facilities have been computer-monitored since 1967 in their use of energy. No energy audits have been conducted in the facilities to date but plans to do so are under way. The Department of Corrections is aware of techniques to reduce energy, including the use of low-flow plumbing, revamped security lights. All new buildings must meet ASHRAE 90-75 (see references 18, 25).

Florida

State Energy Office
301 Farris Bryand Building
620 South Meridian Street
Tallahassee, FL 32304
(904) 488-2475

Harold Gelnaw

Florida has two programs for correctional institutions:

1. Can fall under Schools/Hospital Program in part -- conducts/audits programs for all State facilities.
2. Energy Audit Training Program is a 3-day course to teach person in charge of the mechanical/maintenance aspect of prisons how to do an audit using low- to no-cost techniques. Florida State Prison (Raiford) is undergoing change to use of wood burning in place of oil, saving on energy while providing work for prisoners. Also considering production of gasahol by prisoners. Training program claims high rate of success -- facilities that have completed the program and audit are saving 15 percent of energy cost. Computer used to monitor energy use in all State facilities.

Georgia

Georgia Office of Energy Resources
615 Trinity-Washington Building
270 Washington Street S.W.
Atlanta, GA 30334
(404) 656-5176

Mark Zwecker, Director

This office conducts two programs: commercial energy extension services and industrial energy extension service. Office conducts workshops using manuals and handbooks on various aspects of conservation, provides technical assistance, and performs audits.

Hawaii

State Energy Office
1164 Bishop Street, Suite 1515
Honolulu, HI 96813
(808) 548-4080

Alfred S. Harris

The State discontinued monitoring energy consumption of correctional facilities a few years ago but is now considering starting up again. There have been no audits of correctional facilities to date. General energy conservation material is distributed upon request.

Idaho

Office of Energy
State House
Boise, ID 83720
(208) 384-3258

Answers solar and other energy-related questions. A monthly general energy-related newsletter is available upon request.

Illinois

Institute of Natural Resources
325 West Adams
Springfield, IL 62706
(217) 785-8576

Steve Thomas

Through the Capitol Development Board all large State correctional facilities have been audited. The Institute of Natural Resources maintains a consolidated building energy reporting system. This is a simple data input/data output system which reports gross energy consumption on a monthly basis. Many State correctional facilities use this reporting system. The information is collected, analyzed, and fed back to the correctional administrator so the facility can see how well it is doing. The office distributes energy conservation materials and holds regional training workshops. Through the Office of Administrative Services information is made available regarding energy efficient procurement programs.

Indiana

Indiana Department of Commerce
The Energy Group
440 North Meridian Street
Indianapolis, IN 46204
(317) 232-8940

Jane Schuler

No specific department for correctional facilities but the office does provide technical assistance. For government-owned buildings, excluding Federal, they will provide a walkthrough audit. They contract with the Indiana Center for Advanced Research to provide the Indiana Search Center as an information clearinghouse. The toll-free phone number is 1-800-622-4934. This office will distribute workbooks and material regarding energy conservation on request.

Iowa

Energy Policy Council
215 East Seventh Street
Des Moines, IA 50319
(515) 281-4420

Tom Heiting

Under the State Energy Management Program the State of Iowa spent $1.4 million on energy audits of State facilities. It currently has training programs for auditors. Upon request council will distribute information on energy conservation.

Kansas

Energy Office
503 Kansas Avenue
Topeka, KS 66603
No phone requests will be handled. You must contact this office in writing.

Kevin Halbach

This office handles requests on two levels: local and State. For a local facility (county or city, jail, courthouse, police station, etc.) office will perform actual audit on request through the Institution Building Grant Program. All State facilities, (penitentiary, prison, juvenile retention center) are being audited during the period July 1980 - June 1981. On the local level any material requested on energy conservation will be distributed. On request office will make professional architects and engineers available for technical assistance. On the State level office sends out information on energy conservation and will train auditors and energy management personnel. A data base is maintained on consumption levels and office performs rate analysis to assure the best possible rate is being given by the utility companies. The Department of Corrections is currently having rate analysis performed.

Kentucky

Department of Energy
Box 1888
Lexington, KY 40601
(606) 252-5535

Bob Johnston, Director
Division of Conservation

Kentucky does not have a program geared specifically toward corrections; however, many of department's materials could be adapted. Has manuals and handbooks on "how to" free of charge. Some technical resources available as well. Training program not specific for corrections; however, there is a nontechnical program geared for the schools that correctional administrators could take part in.

Louisiana

Division of Research and Development
Department of Natural Resources
625 North Fourth Street
Box 44156
Baton Rouge, LA 70804
(504) 342-4500

Ed Buford

Under the Schools/Hospitals Program, letters were sent to government agencies in Louisiana, including correctional institutions, announcing a training program for preliminary energy audits. The division was disappointed in low response from correctional institutions. Training sessions will provide instructions and materials on how to perform an energy audit. Instructors will include an architect and engineer. The program will take place in 13 different parts of the State, with no location more than 25 miles from the facility taking part.

Maine

Bureau of Public Improvement
Station 77
State Office Building
Augusta, ME 04333
(207) 289-2904

Steve Winter

All State correctional institutions are now being audited for the envelope of the building, heat distribution system, and temperature controls. The Maine Correctional Center is being converted from heavy oil to coal. Recommendations of the Thomson State Facility audit included reducing and eliminating steam leaks, returning condensate, lowering steam pressure at night, and adjusting air-handling units. All are being implemented. An investment of approximately $100,000 is projected to save 200,000 gallons of oil. The facility is also using a more fuel efficient boiler. The exterior of the prerelease center at the Maine Correctional Center is being completely insulated.

Maryland

Office of Energy Policy
Energy and Coastal Zone Administration
Department of Natural Resources
1302 State Office Building
301 West Preston Street
Baltimore, MD 21201
(301) 383-6810

Wallace Hankins
Mel Stimel

The Maryland Energy Office has two sections that deal with energy audits. Correctional institutions do not really fall under either; however, the information could be applied. The State is currently

considering what should be done for correctional facilities. The programs now in existence are:

1. Commercial/Industrial.

2. Schools and Hospitals. Facilities for juveniles could fall under this program. The first step is a preliminary audit. Next, an auditor trained by the program looks at the situation. Next, the facility can seek technical assistance -- consulting firm can be brought in -- and retrofitting designed. Federal aid for retrofitting sometimes is 50 percent.

Massachusetts

Executive Office of Energy Resources
73 Tremont Street, Room 700
Boston, MA 02108
(617) 727-1990

Gelff MacAdie

All State correctional facilities are hooked into a consumption monitoring system. The facilities receive summary reports. The office will provide energy audits on request. Seminars are held frequently. Many energy conservation documents available upon request. Technical expertise is also available. Energy conservation projects are funded through the Energy Conservation Improvement Grant Program.

Michigan

Energy Administration
Bureau of Facilities
Mason Building
Lansing, MI 48909
(517) 373-0196

Miles Nishiyama

Mr. Nishiyama has actually performed audits on correctional facilities in Michigan -- he described it as "a one man program." Other persons are "borrowed" for specific jobs, but are not a permanent part of a program. They also conduct training programs for audit instruction. The State Physical Plant Association (made up of people from corrections and mental health) holds conferences and workshops during the year as well. An example of a workshop held was one on boiler efficiency.

Minnesota

Energy Agency
740 American Center Building
160 East Kellogg Boulevard
St. Paul, MN 55101
(612) 296-8204

Glenn Heapy

The State office performs audits of State buildings including correctional facilities. After the audit the office approaches the legislature for funding. Office is presently auditing many State correctional facilities. It conducts seminars on energy conservation and monitors energy consumption of all State correctional facilities. Quarterly reports are sent to the facilities, including graphs on electricity use, fuel use, costs, and how much money, if any, program has saved. The graphs compare fiscal years 1973 and 1980.

Mississippi

Department of Energy and Transportation
510 George Street, Suite 300
Watkins Building
Jackson, MS 39202
(601) 961-4733

Wilbur G. Ball

After receiving notice of the Unified Industries program under LEAA, Mississippi is now in the planning stage for performing audits of correctional facilities. Department has communicated with the Department of Corrections and has assigned a staff person to work with correctional facilities.

Missouri

Energy Program,
Division of Policy Development
Department of Natural Resources
1014 Madison Street
Box 176
Jefferson City, MO 65101
(314) 751-4000

J. W. Abbott, Director

Missouri has a complete monitoring system of energy use in State buildings. Department of Building is involved in training for audits. Holds regular meetings in the conservation area and will provide full training to Missouri administrators.

Montana

Energy Division
Department of Natural Resources
and Conservation
412 St. Johns Hospital Building
25 South Ewing Street
Helena, MT 59601
(406) 449-3940

Fred Easy

This office would first assist the correctional administration by identifying who can conduct an audit. Office also conducts Energy Audit Workshops that enable those involved to become qualified to contract with the government. Fifteen workshops have been held already in Montana with no response from correction facilities.

Nebraska

Energy Office
Conservation Division
Box 95085
Lincoln, NE 68509
(402) 471-2867

Larry Riegel

This agency would make energy audit available to all State agencies; it employs State employees with Department of Energy money. Office supplies the requestor with a list of recommendations and will assist in workshops, technical assistance grants, and retrofit projects. Energy conservation material available upon request.

Nevada

Department of Energy
400 West King, Room 106
Carson City, NV 89710

Kelly Jackson

The office could provide limited funds to some State facilities under the Energy Conservation Plan. This program hopes to include correctional facilities. This office will provide limited assistance by:

1. Providing information on general energy management systems
2. Helping solicit professional help
3. Identifying cost-effective systems.

This office does not perform the actual audit.

New Hampshire

Council on Energy
Executive Department
Office of the Governor
2 1/2 Beacon Street
Concord, NH 03301

Rudy Cartier
Bill Johnson

Correctional administrators who contact this office for information would be put in touch with an energy auditing company. The State currently has a contract with an auditing company, but it is for the Institutions Building Grants Facilities Program -- and at this time the council does not think prisons can be classified here. Would be able to help them get the audit done.

New Jersey

Department of Energy
101 Commerce Street
Newark, NJ 07102
(201) 648-3902 - Joe Korb (training program)
(201) 648-3420 - Rix Beals (conservation in State buildings)

Energy conservation in State buildings is being managed on a one-to-one basis. Department is incorporating correctional adminstrators into training sessions held for their Schools/Hospital program.

New Mexico

Energy and Minerals Department
State Securities Building
113 Washington Street
Box 2770
Sante Fe, NM 87503
(505) 827-2471

Walt Smith

This office has performed actual audits and also organized audits for State buildings by outside firms. Would provide correctional administrators with assistance either by doing actual audit or holding training sessions. In addition, New Mexico is under a conservation mandate: correctional institutions must decrease their use of gasoline by 10 percent.

New York

State Energy Office
2 Rockefeller Plaza
Albany, NY 12223
(518) 474-7183

Eugene Sunshine, Director of Energy Conservation

The office would first refer any corrections administrator wanting information about audits to the appropriate correctional central office -- State Department of Corrections, New York City Department of Corrections, State Commission of Corrections. County and local facilities can participate under the Schools/Hospital Program. Energy office has established contacts and works closely with people in corrections.

North Carolina

Energy Division
Technical Section
Box 25249
Raleigh, NC 27611
(919) 733-2230

Bob Powell, Chief of Technical Section

This office would advise correctional administrators about "Energy Walk Through," a program under the State Conservation Plan. This office coordinates and funds audits, which are done by the North Carolina State University Industrial Extension Office. These engineers (graduate students and teachers) "walk through" and recommend measures to conserve. Would not deal with something as large as, say, a whole heating system that was wasteful; would recommend specialist.

North Dakota

Federal Aid Coordination Office
Energy Management and Conservation Programs
1533 North 12th Street
Bismarck, ND 58501
(701) 224-2250

Mike Mahlum

This office funded a full engineering audit of the State penitentiary last year. If administrators of correctional institutions called this office, it would provide names of auditing companies. Office is currently funding an audit in the State Industrial School, which is a rehabilitation facility. The North Dakota office is working to develop a program under which individuals would have to pass a course to become certified by the State as an energy auditor. The office does not have an audit handbook, but does have general conservation materials.

Ohio

Department of Energy
Division of Conservation
30 East Broad Street
Columbus, OH 43215
(614) 466-6797

Ken Cristofani

Although department has no specific programs for correctional institutions there are a number of workshops and seminars readily

available to interested persons. Information available on life-cycle costing, energy audits, and energy management programs. Seminars conducted on lighting efficiency standards and plans under way to develop auditing training courses.

Oklahoma

Department of Energy
440 North Lincoln Boulevard
Suite 251
Oklahoma City, OK 73105
(405) 521-2995

Darla Hoffman

This office would actually perform an audit for a correctional facility or provide information on how the facility itself could go about it. One man in the office, Micah Smith, has done many audits in the State. The office has substantial printed materials about energy conservation available on request.

Oregon

Department of Energy
102 Labor and Industries Building
Capitol Mall
Salem, OR 97310

Mary Anderson

The Oregon Office provides training in conducting energy audits for building operators. Under the Schools/Hospital Program, local governments and public care institutions can get 50 percent matching funds from the Federal Government for retrofitting. Correctional institutions could fall under this category if they have a certified vocational center. Department conducts training programs so that personnel at the facility can walk through and identify their own problems. They are also taught to identify retrofitting measures. The 2-day workshops included heating, ventilation, air conditioning, and lighting measures. Those attending are also instructed on how to apply for the retrofitting grant. A school would be applying for only 50 percent Federal funds with the other half coming from the State. A correctional institution on the State level, without classification as a "school," would be applying for 100 percent Federal funds.

Pennsylvania

Governor's Energy Council
1625 North Front
Harrisburg, PA 17102
(717) 783-9989

Edward Bigelow

The State has no ongoing energy programs in correctional institutions. Council can and will provide limited technical assistance to correctional administrators. Energy conservation audit workbook is available.

Rhode Island

Governor's Energy Office
80 Dean Street
Providence, RI 02903
(401) 277-3370

Conducts policy planning and coordination, solar economic studies, energy conservation training, and workshops. Energy information center answers technical and nontechnical questions. Publishes

Southern New England Solar Directory, list of solar buildings in Rhode Island, solar and alternative energies handbook, and other publications.

South Carolina

Office of Governor
Division of Energy Resources
SCN Center, Suite 1110
1122 Lady Street
Columbia, SC 29201
(803) 758-8110

Frank Barrett

Division has several self-audit workbooks available to interested individuals; the State has worked with State correctional departments the last 4-1/2 years. The State receives quarterly reports on energy conservation and energy use. A State audit was done at the Manning Correctional Institute. Division provides consultation services as manpower resources allow.

South Dakota

Office of Energy Policy
Capitol Lake Plaza
Pierre, SD 57501
(605) 773-3603

Ray Henderson

This office is small and limited in what it can do. Any audits on State buildings are contracted out. If a correctional administrator were to contact this office, he would be referred to the State Engineer's Office, which suggests the names of auditing firms.

Tennessee

Energy Authority
707 Capitol Boulevard Building
226 Capitol Boulevard
Nashville, TN 37219
(615) 741-1772

Robert Brown
Terry Ellis

Through the State Building Energy Management Program, the State conducts energy audits on State-owned buildings. For a facility with over 10,000 square feet a contract is made with an engineer from the State Schools of Engineering who conducts the audit and makes recommendations to maintenance managers and coordinators at the facility. These facilities are monitored through monthly reports to determine changing energy consumption patterns. For facilities of less than 10,000 square feet, a less thorough "walkthrough" audit is performed and improvements and recommendations are pointed out to facility managers. The State Building Energy Management Program has helped in auditing 59 percent of the total square footage of correctional institutions. They have audited 100 percent of large correctional buildings and 36 percent of overall correctional facilities.

Tennessee correctional facilities at the local and county level could work within the Schools/Hospital Program. Under this program, the facility first submits an energy data survey reviewing basic uses of energy for the past 12 months. The facility then receives an energy audit grant application. The office then funds the audit. The audit must be performed by a certified auditor, of whom the State has a list. The facility is given a copy of the audit. A technical assistance audit is also performed identifying potential energy savings.

Texas

Texas Energy and Natural
Resources Advisory Council
411 West 13 Street
Room 903
Austin, TX 78701
(512) 475-5491

Duane Keeran

Some local correctional institutions will fall under Schools/Hospital Program, which provides both a general walkthrough audit and a technical assistance audit. The council does not conduct actual audits. The State has had an Energy Audit Training Program in the past and offers a Technical Assistance Audit Program periodically. The office will give out list of those attending for administrators who desire names of available auditors. Publishes "Texas Energy Auditor Training Manual," NCJ 72830.

Utah

Energy Conservation and Development Council
231 East 400 South
Suite 101
Salt Lake City, UT 84111
(801) 533-5424

Mike Glenn
Jim Byrne

Under the Institutions Building Grants Program, council would grant money for energy audits on local and county facilities. For State facilities, the office would provide training to staff on how to conduct an audit. Council also refers to groups who are willing to perform audits.

Vermont

State Energy Office
State Office Building
Montpelier, VT 05602
(802) 828-2393

Lee Perkins

During the spring and summer of 1978 the State conducted audits for many community correctional centers. (There are no State facilities -- closed in 1975). State will make audits available upon request. It has a hotline available for Vermont residents -- 1-800-642-3281. Office makes energy conservation material available upon request and conducts workshops throughout the State.

Virginia
Energy Division
Office of Emergency and
Energy Services
310 Turner Road
Richmond, VA 23225
(804) 786-8451

Francis McCall
Francis Campbell

This office works basically with the Schools/Hospital Program. Local and county facilities could take part in preliminary audits and suggestions for technical assistance but not the 50 percent matching funds from the Federal Government. This office does not perform actual audits but does have a directory available of professional architects and engineers.

Washington

State Energy Office
400 East Union Street
Olympia, WA 89504
(206) 754-0724

Steve Loftness

This office has substantial information on energy audits available. It holds Energy Audit Training Programs under the Schools/Hospital Program and correctional administrators are welcome to attend. Local and county facilities could receive funds for energy audits under this program.

West Virginia

Governor's Office of Economic
and Community Development
1262 1/2 Greenbrier Street
Charleston, WV 25311
(304) 348-8860

B. McCoy

Office currently has no programs available for correctional facilities and no liaison available. State is not monitoring correctional energy use. No audits have yet been done. Office is willing to include correctional administrators in their energy auditor training programs.

Wisconsin

State Energy Office
101 South Webster Street
Madison, WI 53702
(608) 266-8234

Dewey Edwards

Distributes general information on energy conservation and plans to audit all State facilities. Office has recently audited the Waupun facility and the Green Bay Corrections Institute. Lighting at Fox Lake Correctional Institute is being changed from incandescent and mercury to high-pressure sodium outside and from incandescent to fluorescent inside.

Wyoming

Energy Conservation Office
Capitol Hill Office Building
Cheyenne, WY 82002
(307) 777-7131

Ed Maycumber

Under the Institutions Building Grants Program, funds may be available. Under this program, a Casper jail was audited. The office will distribute DOE manuals on energy conservation upon request. Little money presently available.

Specialized Resources

Trade and professional associations, clearinghouses, and government agencies which cross state boundaries and which might be able to assist with your specific problems are listed alphabetically below. Information given here is based on statements by the organizations themselves and not on any critical survey; NCJRS has not verified the quality or integrity of any of the organizations' work.

1. Air Conditioning and Refrigeration
Institute
1815 North Fort Myer Drive
Arlington, VA 22209
(703) 524-8800

Develops and establishes equipment and application standards and certifies performance of certain products. Promotes uniformity in local codes and regulations affecting industry's products. Publication list available upon request. Publications include "Heat, Cool and Save Energy With a Heat Pump" and various standards documents.

2. Alternative Sources of Energy
Route 2, Box 90 A
107 South Central Avenue
Milaca, MN 56353
(612) 983-6892

Nancy Strachota

A nonprofit, tax-exempt, scientific and educational organization concerned with the development and use of renewable resources. Publishes "Alternative Sources of Energy," a bimonthly magazine which covers a variety of topics including solar energy applications, wind energy, energy news, etc.; $15 for individuals, $20 for institutions. Also publishes a monthly newsletter, "Energy Digest," available for $6 per subscription. Organization offers information, referral, and consulting services in all areas of renewable energy and conservation. Services include bibliographic searches, consulting and professional support and telephone information requests. Information is on a fee basis.

3. American Public Power Association
2600 Virginia Avenue NW.
Washington, DC 20037
(202) 342-7200

Virginia Campbell

Trade association. Associate membership ($200 a year) includes magazine, newsletters, notice of seminars. Maintains a publication list. Publishes "Utilities In-House Conservation Guide," $35, and "Energy Conservation Guide Book," $35.

4. American Section of the International Solar
Energy Society (AS of ISES)
c/o American Technological University
Box 1416
Killeen, TX 76544
(817) 526-1300

Rose Fairfield

Principal organization promoting solar energy in the United States and Canada. The full proceedings of meetings, conferences, and worksh·;s organized or cosponsored by the AS of ISES constitute a

major part of the publishing program of the society. Nonmembers may order publications from Pergamon Press, Fairview Park, Elmsford, NY. Membership fee for AS of ISES and ISES is $40.

5. American Gas Association (AGA)
1515 Wilson Boulevard
Arlington, VA 22209
(703) 841-8400

Frank Crogmann, Manager,
National Accounts and Commercial Marketing

Provides information on sales, finance, utilization, research, management, safety, accounting, and other phases of gas transmission and distribution. Sponsors an independent committee which compiles standards on construction and performance of appliances and equipment. Maintains a library of books, pamphlets, films, and magazines.

6. American Hotel and Motel Association
Hospitality, Lodging and Research Foundation
888 Seventh Avenue
New York, NY 10019
(212) 265-4506

Mr. Ellis

Federation of state and regional hotel associations. Promotes business of hotels and motels and works to improve operating methods through dissemination of current information on industry methods. Maintains an Energy Task Force Committee. Publishes "Energy Conservation Manual -- A Tool For Energy Management," NCJ 66073, and "Energy Maintenance Manual, Vol. II," NCJ 66074, at $45 per manual.

7. Association of Energy Engineers (AEE)
4025 Pleasantdale Road
Suite 340
Atlanta, GA 30340
(404) 447-5083

Mr. Tillman

The AEE fosters technological developments in new areas of energy engineering such as solar energy, energy conservation, and synthetic fuels. Publishes "Life Cycle Costing: A Practical Guide for Energy Managers," $32.00; "Solar Energy Utilization," $18.50; "Energy Handbook," $49.50; "Energy Auditing," $45.00; "Handbook of Energy Conservation for Mechanical Systems in Buildings," $39.95; "Handbook on Energy Audits," $32.00; "The AAE Directory of Energy Professionals," $24.50.

8. Battelle Memorial Institute
505 King Avenue
Columbus, OH 43201
(614) 424-6424

Nonprofit, public-purpose organization. Institute conducts scientific research on contract basis for industrial firms and government agencies in various fields including energy. Provides publications list.

9. Brick Institute of America (BIA)
Allen Yorkdale, P.E.
Director, Engineering and Research
1750 Old Meadow Road
McLean, VA 22102
(703) 893-4010

Institute maintains technical library on engineering and ceramics pertinent to masonry construction. Has list of 18 regional organizations available upon request. Sends developed package of information out. Documents and pamphlets include: "Brick for Passive Solar Heating," NCJ 66025; "The Use of Solar Energy Heating Systems in Brick Buildings," NCJ 66024; "The 'M' Factor: The Use of Mass To Save Energy in the Heating and Cooling of Buildings," NCJ 66023; "Walls To Save Energy," NCJ 66022; "Federal Register, Part II, Energy Performance Standards for New Buildings," NCJ 66029. Institute also distributes a list of active regional affiliates.

10. Building Officals and Code Administrators (BOCA)
International, Inc.
17926 South Halsted
Homewood, IL 60430
(312) 799-2300

A nonprofit service organization serving public and governmental needs. It provides authoritative technical, educational, and informational services relating to all specialty areas of code administration and enforcement. BOCA's model code services program is dedicated to the improvement of building regulations, and the effective administration, organization, and methods of enforcement of these regulations by professionally staffed State and local governmental units. "The BOCA Basic Energy Conservation Code/1978," NCJ 66519, is a compilation of model energy conservation requirements published separately in the BOCA Basic Building, Basic Mechanical, and Basic Plumbing Codes.

11. Citizens Energy Project (CEP)
1413 K Street, 8th Floor
Washington, DC 20005
(202) 387-8998

This project specializes in research on energy, community development, and environmental protection. Maintains library of over 1,000 volumes on energy and energy technology; provides a publication list. Publishes Energy Directory, a listing of over 500 groups, manufacturers, and government agencies working in the area of energy. Publishes a bimonthly "Mid-Atlantic News" newsletter.

12. Committee on Architecture for Justice
Chairman, Norm Wirkler
The Durrant Group
1 Dubuque Plaza
Dubuque, IA 52001
(319) 583-9131

Consists of about 50 architects who work in law enforcement, courts, and corrections. Exhibits at ACA conference with display of new projects. Committee is part of the American Institute of Architects.

13. Con Edison
Consumer Affairs
4 Irving Place, Room 1625-S
New York, NY 10003
(212) 460-6056

Juana E. Torre

This producer and distributor of gas, electricity, and steam provides numerous free pamphlets on energy conservation, available upon request, and provides a catalog of available programs, exhibits, and literature.

14. Conservation Foundation
1717 Massachusetts Avenue NW.
Washington, DC 20036
(202) 797-4300

Gordon Binder

Nonprofit research organization, funded by contributions and foundations, conducts research on energy conservation. Has fact sheets on various topics, but requestor must ask to be placed on mailing list. Disseminates information on "Building Energy Performance Standards (BEPS)," NCJ 66026; "BEPS and the Art of Life Cycle Costing," NCJ 66027; "A Reader's Guide to the NOPR," NCJ 66028.

15. Edison Electric Institute
1111 19th Street NW.
Washington, DC 20036
(202) 828-7400

H. Halstead Dunham

Institute publishes electrical information. Pamphlet on ways to control electric bills and conserve energy is available free. "We Can Save Ourselves; How to Live Better on Fewer Energy Dollars" available for $2.50. Institute also publishes case history studies which look at savings in heating, lighting, and ventilation in buildings and are available in publication titled "Case Studies in Energy Management," $3.

16. The Electrification Council
1111 19th Street NW.
Washington, DC 20036
(202) 828-7518

Harold E. Bowles

Developed "Energy Management Action," one of a series of professional training programs. The Electrification Council is a nonprofit organization for education in the efficient use of electrical energy. Specifications for its training program were developed by an Energy Management Task Force made up of professionals representing various segments of the electric industry. The Leader's Guide is $30, the Student Text, $25. Also available are 108 overhead projection transparencies at $225.

17. Energy Clearinghouse
300 National Press Building
Washington, DC 20045
(202) 638-3005

Weekly document service compiling unedited, unabridged energy-related news releases from the Department of Energy, the Interior Department, the Environmental Protection Agency, and the Nuclear Regulatory Commission. Subscription $100 per year.

18. Energy Information Administration (EIA)
1726 M Street NW.
Washington, DC 20460
(202) 634-5610

Lincoln Moses, Director

EIA collects, processes, and publishes data on several energy topics including energy reserves, demand, production, and consumption. It provides analyses of data to assist individuals in both the private and the public sectors in understanding energy trends. Its quarterly "Energy Experts Directory" can be picked up free at EIA's offices (Room 850), but EIA will not mail it to you. Subscriptions are $4.50 a year from the Superintendent of Documents, Washington, DC 20402.

19. "Energy Insider"
Department of Energy
Mail Stop Ga-343
Washington, DC 20585
(202) 252-5577

Martin Moon, Editor

Published biweekly by DOE's Editorial Services Division, Office of Public Affairs, for the information of agency employees and circulated upon request to researchers, news media, and others interested in the field of energy. The content is reprintable without permission and pictures are available for reproduction upon request.

20. Energy Research and Information Foundation
3500 Kingman Boulevard
Des Moines, IA 50311
(515) 277-0253

Linda Nicholson

The group advances public awareness in energy needs, conservation, and alternative energy systems. It publishes a directory listing over 500 solar and wind resource persons in Iowa and also publishes a newsletter, "Currents."

21. Environment Information Center (EIC)
292 Madison Avenue
New York, NY 10017
(212) 949-9494

Lewis Slebodo

A private clearinghouse for energy and environment information. EIC's document data base in energy covers the technical and nontechnical literature for traditional and unconventional energy sources. EIC's energy organizational data bank provides information on more than 3,000 of the nation's leading energy organizations.

22. Federal Construction Council
c/o Academy of Sciences
2101 Constitution Avenue NW.
Washington, DC 20418
(202) 389-6497

Henry A. Borger

Members are senior professionals employed by Federal agencies that support the Council's work and members of Building Research Advisory Board of the National Academy of Sciences. The purpose is to foster continuing cooperation among Federal construction agencies in connection with the design, construction, and operation of Federal facilities. This group is a special element of the Building Research Advisory Board, Commission on Sociotechnical Systems, National Research Council.

23. HUD USER
Information Service
Box 280
Germantown, MD 20767
(301) 251-5154

HUD USER is an information service sponsored by the Office of Policy Development and Research (PD&R), U.S. Department of Housing and Urban Development. Personalized reference searches of the computerized data base give the user direct access to information on a variety of topics including energy conservation. The publication distribution service offers reports at no charge. Registration form

is available from the address or phone number above. HUD USER is also the dissemination center for PD&R publications.

24. Illuminating Engineering Society of North America
345 East 47th Street
New York, NY 10017
(212) 644-7926

Edward Campbell

Professional society whose members include engineers, architects, designers, and manufacturers dealing with illumination. Provides assistance with technical problems, reference help, and training aids, and conducts local, regional, and national meetings and conferences. Monthly magazine, "Lighting Design and Application," $30 nonmember subscription per year; "Journal of the Illuminating Engineering Society," a technical quarterly, $30 nonmember subscription. Distributes publications list which includes documents on the energy management series including "Report Relating the Lighting Design Procedure to Effective Energy Utilization" and "Energy Management and the Lighting of Office Buildings."

25. The Institute for Management, Inc.
IFM Building
P.O. Box 589
Old Saybrook, CT 06475
(203) 388-5723

Edward T. Enfield, Circulation Director

Publishes "Energy Management Report" twice a month. The report describes new energy analysis techniques, new energy legislation, reviews of energy-reduction devices, case studies of energy systems, and data needed to help make intelligent decisions on energy management problems. Cost is $4 per issue.

26. Institute of Gas Technology
3424 State Street
Chicago, IL 60616
(312) 567-3650

Harold Mensch

Educational and research facility sponsored by companies engaged in production, processing, transmission, and distribution of utility gas and related fuels. Conducts research for the utility gas industry and others with energy problems related to gas technology.

27. International Compendium for the National
Solar Energy Education Campaign
10762 Tucker Street
Beltsville, MD 20705
(301) 937-0040

The compendium is the largest single distributor of popular reading material on solar energy and energy conservation in the country. It has three divisions: 1) shading division which sells and installs different window devices for conservation; 2) solar division which sells and installs solar energy systems; 3) education division which distributes reading materials including the catalog, "Solar Energy Books."

28. International District Heating Association
1735 Eye Street NW.
Suite 611
Washington, DC 20006
(202) 223-2922

Katharine Stierhoff

Organization founded for the advancement of the art, science, standards, and knowledge of district heating. Favors exchange of information relating to management and operation of district heating systems. Many large institutions have developed their own district heating, so such a system can be easily incorporated into the planning of correctional institutions. A district heating system can be fueled by any number of fuel sources from oil to coal to refuse, increasing its flexibility. The systems often utilize co-generated energy and rejected heat. Association publishes a quarterly magazine, "District Heating," at $6 per year. Will also provide names of consultants.

29. Mid Atlantic Solar Energy Association
2233 Grays Ferry Avenue
Philadelphia, PA 19146
(215) 963-0880

Linda Knapp

A regional chapter of the American Section of the International Solar Energy Society. The Association has members from a variety of fields: architecture, engineering, construction. Membership is $15 per year. Membership information includes publications list. Educational resources and technical information available.

30. National Association of Counties (NAOC)
1735 New York Avenue NW.
Washington, DC 20006
(202) 785-9577

Randy Swisher, Director, Energy Policy Project

Provides a research and reference service for county officials and represents county officials at the national level. Published "A Guide to Reducing Energy Use Budget Costs - Volumes I and II," NCJ 66019 and 66020.

31. National Association of Manufacturers
1776 F Street NW.
Washington, DC 20006
(202) 331-3783

Joseph Ogiony

Association represents to the Government industry's views on national and international problems. Has information on the efficient use of energy and energy management. Published Energy Conservation Communications Kit, NCJ 66075, $3 from NAM.

32. National Conference of States on Building Codes (NCSBCS)
1970 Chain Bridge Road
McLean, VA 22101
(703) 790-5750

Carylyn Fitch

Nonprofit corporation founded to increase interstate cooperation and to coordinate intergovernmental reforms of building codes. Developed and published "Code for Energy Conservation in New Building Construction," NCJ 66021. Has also developed a training program entitled

"Energy Conservation Technique Series." NCSBCS has had an important role in formulation of standards for energy conservation in design and construction.

33. National Electrical Manufacturers Association (NEMA)
2101 L Street NW.
Washington, DC 20037
(202) 457-8400

Dan Shipp

Manufactures equipment and apparatus used for generation, transmission, distribution, and utilization of electric power. Develops product standards; distributes information on reducing energy use. Distributes "Total Energy Management: A Practical Handbook on Energy Conservation and Management," NCJ 65890. The book guides building owners and managers through the process of auditing their energy use and sells from NEMA at $1 per copy.

34. The National Energy Information Center
1726 M Street NW.
Room 850
Washington, DC 20460
(202) 634-5610

This is a part of the Office of Energy Information Services, listed below, and provides information and assistance to Federal, State, and local agencies, the academic community, industrial and commercial organizations, and the public. This office also develops information exchange programs and acts as a focal point for reference and referral services on energy.

35. National Energy Information System (NEIS)
12th Street and Pennsylvania Avenue NW.
Room 5312
Washington, DC 20461
(202) 633-9577

The Energy Information Administration created this system to ensure completeness, timeliness, accuracy, precision, and accessibility of data to external organizations and individuals as well as EIA users. NEIS will define the limits of energy data requirements, provide information about the nature and location of data available to satisfy those requirements, identify data gaps and take steps to eliminate them, provide ready access to all data needed and coordinate exchanges of data with sources and users outside EIA, and evaluate the success of the systems within NEIS in satisfying user's requirements.

36. National Solar Heating and Cooling Information Center
Box 1607
Rockville, MD 20850
(800) 523-2929
(800) 462-4983 in Pennsylvania
(800) 523-4700 in Alaska and Hawaii

Operates in cooperation with the U.S. Department of Housing and Urban Development and the Department of Energy. Provides hot line and other services to the public and supports many specialized information centers at national laboratories in support of energy problems. The Center provides basic information on solar energy, detailed information with regard to architects who specialize in solar design, builders with solar experience, solar equipment manufacturers, bibliographies, list of qualified speakers etc. The Center maintains an up-to-date list of solar workshops, conferences, and meetings.

37. Office of Energy Information Services (OEIS)
1726 M Street NW.
Room 850
Washington, DC 20460
(202) 634-5610

Organizational unit within the EIA that is responsible for disseminating energy information and information products and for assisting EIA program officials in providing and distributing energy statistics and analysis.

38. Southern Solar Energy Center (SSEC)
61 Perimeter Park
Atlanta, GA 30341
(404) 458-8765

Cindy Brincks

One of four regional centers created by U.S. Department of Energy to enhance and speed solar energy utilization. Center's basic function is to design and initiate programs which foster greater public awareness, acceptance, and use of solar energy in the Southern region. The Center staff includes architects, engineers, economists and market and information specialists. SSEC activities include technical and economic assessment, program planning, and regional coordination. SSEC is developing an information services program to increase public awareness and knowledge of solar technologies, and is establishing a technical documents collection, developing basic information pieces and publishing a newsletter.

39. Solar Energy Research Institute (SERI)
1617 Cole Boulevard
Golden, CO 80401
(303) 231-1000

Rosemary Cortez

SERI is the National Center for Solar Energy Research Development. It maintains the Solar Energy Information Data Bank, which covers both technical and general information about solar energy. The bank also provides information about specific government and private groups working in the area. SERI provides several specialized reading lists.

40. Technical Information Center (TIC)
U.S. Department of Energy
Oak Ridge, TN
(615) 576-1188

Doris Brooks

Technical Information Center is responsible for collecting, announcing, distributing, and making available through the National Technical Information Service (NTIS), technical reports resulting from DOE's research and development programs. TIC provides DOE with administrative tools needed to assure program directors that contractors are reporting their technical progress and, in an effort to prevent duplication of costly research, provides an Energy Research in Progress (RIP) data base, which contains descriptions of energy research projects in the United States. TIC built and maintains an Energy Data Base (EDB).

41. United States Conference of Mayors
1620 I Street NW.
Washington, DC 20006
(202) 293-7330

Thomas Graves

Group aims to promote improved municipal government by cooperation among cities and with State and Federal Governments. Published "A Guide to Reducing Energy Use Budget Costs," NCJ 66019, and "A Guide to Reducing Energy Use Budget Costs, Vol. II," NCJ 66020.

42. United States General Accounting Office
Energy and Minerals Division
Room 4068, Vanguard Building
441 G Street NW.
Washington, DC 20548
(202) 634-5635

The Energy and Minerals Division distributes publications list of reports relating to energy conservation. Examples: "Report to the Secretary of Energy on Evaluation of the Plan to Conserve Energy in Federal Buildings Through Retrofit Programs," NCJ 67891; "A Framework for Developing a National Energy Conservation Program," NCJ 67004; "The Solar in Federal Buildings Demonstration Program," NCJ 66484; "The Federal Government Needs a Comprehensive Program to Curb Its Energy Use," NCJ 64821; "Uncertainties About the Effectiveness of Federal Programs to Make New Buildings More Energy Efficient," NCJ 66915. Single copies of GAO reports are available free of charge. Requests for additional copies should be accompanied by payment of $1 per copy. Requests for single copies should be sent to:

U.S. General Accounting Office
Distribution Section, Room 1518
441 G Street NW.
Washington, DC 20548
(202) 275-6241

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NCJRS Document Loan Program
Box 6000
Rockville, MD 20850

The NCJRS Reading Room, open to the public, is located at 1600 Research Boulevard, Rockville. To determine availability of documents and to get instructions to Research Boulevard, it is recommended you telephone (301) 251-5500 in advance.

END