

INNOVATIVE FINANCING FOR ENERGY CONSERVATION  
IN BUILDINGS

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ABSTRACT

The Department of Energy's (DOE's) state and local grant programs have accomplished a great deal. At current rates of federal funding, however, it will take many years to weatherize all low-income homes or reach all eligible schools and hospitals which need assistance. Due to the high priority being given to federal deficit reduction it is unlikely that federal funding will remain constant. DOE began several years ago to look at alternative ways to finance energy conservation activities. Among those alternatives were the variety of innovative financing arrangements that have begun to be offered in the private sector.

DOE has undertaken four types of activities designed to encourage the use of innovative financing for energy conservation projects: demonstration projects, analyses of innovative financing in various applications, grants to states for services related to innovative financing, and efforts to eliminate legal and regulatory barriers.

DOE has also been interested in finding out what percentage of our client group has used, or is aware of, alternative financing methodologies. In January, 1986, DOE mailed 3,500 survey forms to local agencies which administer the Weatherization Assistance Program (WAP), grantees of the Institutional Conservation Program (ICP), public utilities, and public utility commissions (PUCs) to query them concerning their current use of innovative financing, future plans, what their experiences have been, and, in general, their familiarity with the concept. The survey referenced eight forms of financing for energy conservation projects: direct loan, loan interest reduction, lease, lease purchase, shared savings, energy services contract, guaranteed cash flow contract, and conservation incentives. DOE received 1635 responses, a response rate of 48.7%.

The data show conclusively that there is no widespread use of these eight financing methods in the WAP and ICP client groups: 75% of WAP respondents and 73% of ICP respondents had never used any of them. Slightly over half of the utility respondents offer one or more of these financing methods to consumers. Utilities rely almost exclusively on direct loans or conservation incentives to encourage energy conservation. WAP respondents who considered using innovative financing but decided against it did so most often because of a lack of familiarity with the concept. ICP respondents, on the other hand, most often rejected the idea because they did not perceive it to be cost-effective. PUC respondents indicated that innovative financing programs are required of utilities in ten states. However, the data indicates a need for more communication among the states concerning these programs. DOE is reviewing these results in planning future initiatives to encourage use of innovative financing for conservation.

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DOE ACTIVITY

The Department of Energy's (DOE's) state and local grant programs have accomplished a great deal. At current rates of federal funding, however, it would take many years to weatherize all low-income homes or reach all eligible schools and hospitals that need assistance. Due to the high priority being given to federal deficit reduction it is unlikely that federal funding will remain constant. With this in mind, DOE through the Office of State and Local Assistance Programs began several years ago to look at alternative ways to finance energy conservation activities. Among those alternatives were the various innovative financing arrangements that have begun to be offered in the private sector by equipment vendors and energy service providers.

DOE has undertaken four types of activities designed to encourage the use of innovative financing for energy conservation projects:

- . demonstrations of innovative financing arrangements in a number of building types;
- . studies and analysis of opportunities to use innovative financing;
- . grants to states to provide services related to innovative financing; and
- . efforts to eliminate legal and regulatory roadblocks to the use of innovative financing in government buildings.

In cooperation with state and local governments, demonstrations are underway in the low-income multi-family housing sector and the institutional buildings sector. These demonstrations will be thoroughly documented, so that other building owners will be able to take advantage of the innovative financing strategy most suited to their needs. Various types of innovative financing methodologies are being tested. In the low-income sector, projects center around shared savings, bank participation, and establishment of a local weatherization agency as an energy services company.

In the institutional sector, along with several studies analyzing different financing approaches, DOE is also implementing projects to attract alternative financing for groups of buildings for which federal grant funding has not been available: schools and hospitals that failed to qualify, and local government and private school buildings, which are not eligible for assistance under these DOE grant programs.

Using other DOE funds, 10-15 states are carrying out a variety of analyses, demonstrations, and technical assistance activities to increase the use of alternative financing strategies to support energy conservation projects--in state buildings, small commercial buildings, multi-family residential buildings and others.

DOE's Federal Energy Management Program (FEMP) has been active since 1982 in encouraging federal agencies to adopt alternative financing arrangements to support building energy efficiency projects. FEMP operates a Clearinghouse on Energy Financing Partnerships which locates, acquires and prepares annotated bibliographies of literature on innovative financing, monitors related activity by state and local governments, and prepares and disseminates information on public and private sector projects.

DOE's Office of Policy has developed CONVEST, an IBM PC-compatible software program designed to help building owners save money through comprehensive analysis of conservation investment alternatives. The program allows the owner to analyze financing arrangements such as third party financing, commercial loans, municipal bonds, government grants, internal financing, or any combination of options.

#### INNOVATIVE FINANCING SURVEY

Along with activities designed to encourage the use of alternative financing for energy conservation projects, DOE has been interested in finding out what percentage of our client group has used, or is at least familiar with, alternative financing methodologies.

In January, 1986, DOE mailed 3,500 survey forms to local agencies which administer the Weatherization Assistance Program (WAP), grantees of the Institutional Conservation Program (ICP), public utilities, and public utility commissions to query them concerning their current use of innovative financing, future plans, what their experiences have been, and, in general, their familiarity with the concept. The survey referenced eight forms of financing for energy conservation projects: direct loan, loan interest reduction, lease, lease purchase, shared savings, energy services contract, guaranteed cash flow contract, and conservation incentives.

The survey was sent to all local WAP agencies (N=1218), PUC's in all 50 states, utilities representing all states (N=485), and 20% of ICP grantees in each of four funding cycles (N=1682). We received replies from 1635, a response rate of 48.7%

The main objective of the survey was to gather information on the awareness and use of these types of financing on the part of utilities and participants in WAP and ICP. As illustrated in the table below, the data show conclusively that there is no widespread use of these eight financing methods in the client groups.

Table I. Awareness and Use of Referenced Financing Methods

	<u>WAP (N=526)</u>	<u>ICP (N=792)</u>	<u>UT (N=241)</u>
1. "Used Innovative Financing"	25%	27%	51%
2. "NEVER USED"	75%	73%	49%
3. "Heard of Innovative Financing"	60%	79%	77%
4. "NEVER HEARD OF"	40%	21%	23%

WAP respondents were largely rural community action agencies. Respondents were most familiar with direct loans to finance weatherization, and least familiar with conservation incentives. The majority of those who considered using one of the financing methods but decided against it did so because of lack of familiarity.

ICP respondents were mostly public schools. The group was most familiar with shared savings and lease purchase, but had most often used direct loans and conservation incentives. Perhaps many of those who had never used the forms of financing referenced in the survey had heard of the two types mentioned above. The majority of those who considered such use but decided against it did so because they did not perceive it to be cost-effective. Of those responding to this question, 75% indicated that cost-effectiveness is their primary factor in choosing a financing arrangement.

There is an interesting contrast between WAP and ICP respondents. WAP respondents report deciding against these financing methods because they were not sufficiently familiar with them. ICP respondents, on the other hand, rejected their use because they were perceived not to be cost-effective. These findings may indicate the need to use different approaches to encourage use of innovative financing in these client groups. Overall, ICP respondents were much more aware of innovative financing than were WAP respondents.

The majority of utilities that responded were small utilities providing either electricity only or gas and electricity, with an overwhelmingly residential customer base. Of the 182 utilities which responded to the question, 32% indicated that they had provided direct loans to their customers, and 25% had offered conservation incentives. The other forms of financing were virtually unused, which may indicate that utilities, although their programs are generally very successful, tend to overrely on reaching their customers through these two forms of financing.

The two tables below illustrate, by type of financing method, the awareness and use of each financing method by the three respondent groups.

Table II. Awareness of the Eight Referenced Financing Methods

"Have you ever heard of the organizational use (for energy conservation) of any of the following methods?"

	WAP(N=526)	ICP(N=792)	UT(N=241)
1. Direct loan.....	47%	46%	68%
2. Loan interest reduction.....	34%	17%	36%
3. Lease.....	14%	42%	30%
4. Lease purchase.....	15%	52%	30%
5. Shared savings.....	19%	52%	36%
6. Energy Services Contract.....	18%	32%	28%
7. Guaranteed Cash Flow Contract.....	9%	25%	17%
8. Conservation Incentives.....	30%	30%	52%
9. Other.....	5%	5%	6%
10. NEVER HEARD OF ANY.....	40%	21%	23%

Table II. Use of the Eight Referenced Financing Methods

"In the last year, has your organization used any of these innovative financing methods?"

	WAP(N=323)	ICP(N=627)	UT(N=183)
1. Direct loan.....	13%	9%	32%
2. Loan Interest Reduction.....	8%	6%	8%
3. Lease.....	1%	1%	1%
4. Lease purchase.....	1%	3%	2%
5. Shared Savings.....	1%	3%	3%
6. Energy Services Contract.....	2%	1%	2%
7. Guaranteed Cash Flow Contract.....	1%	2%	2%
8. Conservation Incentives.....	1%	9%	24%
9. Other.....	2%	2%	5%
10. NEVER USED.....	75%	73%	49%

Of the 37 PUC's that responded, 10 reported that innovative financing is required of some utilities. Those PUC's are in the states of California, Maine, Minnesota, North Carolina, New Jersey, New York, Oregon, Utah, Washington, and Wisconsin. Nineteen were aware of utilities that are voluntarily offering innovative financing arrangements to their customers. Ten PUC's indicated awareness of utilities in other states using innovative financing methods. Interestingly, some states with required programs were nearly without comment on the activities in other states. The findings seem to show a need for more communication between PUC's on innovative financing arrangements.

DOE is reviewing all of these findings in planning future activities to encourage use of alternative financing for energy conservation activities in our client sectors.