

FINANCING ENERGY EFFICIENCY IN PUBLIC HOUSING:
INNOVATIVE REGULATORY OPPORTUNITIESProfessor Steven Ferrey
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ABSTRACT

Public housing represents about 20% of all low-income rental housing in the nation and almost 40% of all low-income multifamily rental housing nationwide. The federal government subsidizes the bulk of energy operating costs in this housing, making the case for energy efficiency even more compelling. However, energy efficiency has not been successfully accomplished. This results both from severe regulatory inhibitions and a lack of financing for energy efficiency incentives for public housing.

In 1985, there was a fundamental change in the federal energy regulation of public housing. While this change was not meant to encourage energy efficiency, it opened a strategic opportunity for savvy local public housing authorities. By embarking on a carefully conceived efficiency investment program, the energy efficiency of the public housing stock can be improved, dwelling units made more comfortable, tenant utility costs lowered, local housing authority cash flow improved and long-term HUD energy obligation reduced -- all at no cost to the local housing authority. Through creative use of the regulatory system, a "win-win" outcome for all concerned parties can be achieved.

This paper reviews the salient points of the recent regulatory change and introduces the reader to the complicated environment of public housing energy regulation. It reviews the energy saving potential in public housing buildings and appliances, and charts a six-phase implementation of the strategy, illustrating impacts on energy efficiency, cash flow and funding allocations from HUD. It concludes that by creative use of the author's energy efficiency strategy, non-utility cash flow for the housing authority and its tenants can be increased from 14-25% in the first year. This paper identifies a special regulatory roadmap to reach a major section of the rental market heretofore screened off from effective efficiency investments. It provides a vehicle to address these needs paired with creative financing mechanisms to implement the strategy at the local level.

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SCALING THE CHASM:
CREATING STRATEGIC OPPORTUNITIES FROM THE REGULATORY VOID

Public housing comprises almost 40% of all low-income multifamily rental units in the country. Housing more than 3 million low-income families, more than one-third of whom are elderly or handicapped, public housing represents a major government investment in housing for the least able. However, the energy history of public housing is written in the script of inefficiency, controversy and lost opportunities. This inefficiency is even more perplexing given the significant federal subsidy which pays a large share of dwelling energy operating costs.

In 1985, new public housing energy regulations became effective.¹ Designed by HUD to deregulate the establishment of tenant utility allowances in public housing, they have created strategic opportunities for local public housing authorities to improve the energy efficiency of dwellings, lower utility bills, increase project cash flow and increase tenant comfort and welfare, all at no net cost to the local housing authority. Such a "win-win" opportunity is unprecedented in public housing -- where energy decisions historically pit management against tenants, and often against HUD, itself.

But successful scaling of the energy regulatory void can only be accomplished by local housing authorities which know how to exploit strategic regulatory opportunities and can use creative financing to cover the up-front costs of implementing energy efficiency strategies. The paper, after briefly summarizing key elements of the regulatory strategy, develops a methodology for creative financing to finance up-front costs to the local housing authority.²

LHAs are free now to establish and administer their own utility allowance systems. Four factors in the new utility allowance standard are primary:

- o Allowances can distinguish between the dwellings which have and have not received conservation retrofit.³

- o Allowances need no longer be based on actual historic utility usage data.⁴
- o Significant differences in allowances based solely on the type of utility metering no longer are required.⁵
- o Allowances can reflect the conserving or efficient behavior of tenants.⁶

The new utility allowance discretion delinks the determination of utility allowances (which pass utility operating subsidies from the Local Housing authority or LHA, to tenants) from the determination of Performance Funding System (PFS) allocations (which pass utility operating subsidies from HUD to individual local housing authorities, before being passed on to tenants). While utility allowances are deregulated from actual consumption data or historic averaging periods, the PFS determination⁷ remains:

- o Determined exclusively by federal procedures.
- o Linked to a 3-year calculation based on actual consumption experience.
- o Determined on a 3-year PFS calculation period which always reflects an historic period at least 2 to 5 years in the past.
- o Determined exclusively at the federal level.

The delinking of utility allowances and PFS creates a regulatory void. In this void, a creative LHA can implement a strategy to capture greater cash subsidies from HUD and improve the energy efficiency of LHA dwellings and appliances at little or no cost to itself or its tenants. Sequentially, a creative LHA can, through careful planning and execution, implement a strategy which captures HUD PFS cash flow to finance updating the efficiency of LHA dwellings and appliances. The steps a LHA executes are:

1. The LHA conducts an energy audit, identifies cost-justified energy efficiency investments, and devises a master plan for their implementation.

2. The LHA obtains creative financing to cover the initial capital costs of the selected efficiency investments and installs these measures.

3. Lower energy consumption resulting from the efficiency investments is not included in the PFS calculation for more than one (and as many as three) year(s) after the LHA begins realizing dollar savings from lower annual energy expenditures. When lower

annual consumption is finally reflected in the PFS calculation, it is averaged with two other prior years' consumption data still reflecting higher pre-improvement consumption.⁸

4. PFS funding from HUD, after a lag of several years, gradually declines to reflect the immediately lower energy costs realized by the LHA; the PFS system continues to overfund actual LHA energy operating expenses for a period of 2-5 years after the energy efficiency benefits begin.

5. The LHA pursuant to HUD regulations keeps 50% of the difference between the PFS funding it receives and the actual expenses it is billed for the lower consumption of energy.⁹

6. The LHA utilizes the full PFS funding during the fiscal year and earns interest on the entire overfunding until it is "trued up" at year end.

CROSSING THE VOID: CASHFLOW, SAVINGS AND BENEFITS FOR A LHA

The principles, operation and results of this regulatory strategy are best illustrated by example. According to public housing reports, a package of energy efficiency investments for the building shell, heating system and major appliances properly sized and installed in public housing projects should achieve savings as follows:

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Building shell and heating system:	30%
Greater appliance efficiency:	<u>12%</u> ¹³
Total savings	42%

Some public housing energy retrofit projects achieve lesser results because they do not replace household appliances with more efficient models and do not maintain quality control. To save a combined 42% of existing energy consumption, a package of investments (exclusive of appliance efficiency procurement expenses covered by HUD) is projected to cost the LHA \$1,000 per unit in a multi-family project where economies of scale in efficiency improvements are possible.¹² The average LHA unit in 1980 used \$673 in household energy expenses.¹³ This represents approximately \$900 per unit in 1986 household energy costs.

For purposes of illustration, I assume a prototype LHA project with 200 units. Total 1986 project energy costs are estimated to be \$180,000 annually. At an estimated cost of \$1,000 per unit, retrofitting heating efficiency investments to all 200 units will cost \$200,000. The \$200,000 up-front cost of these improvements to the building shell and heating system can be financed half as a grant and half as zero-interest creative financing. The costs of more efficient appliances are financed entirely by HUD under existing regulatory provisions, not by the

LHA. Therefore, the LHA must repay half the up-front cost of the heating energy improvements, represented by the zero-interest loan, or \$100,000.

Assuming that the improvements are implemented in early 1987, Table 1 illustrates the cash flow impact on the LHA of this strategy.

TABLE 1:
REGULATORY STRATEGY:
CASHFLOW, EXPENSES AND RETAINED BENEFITS

----- (in \$ 1,000s)-----

(1) Year	(2) PFS Base Yrs Calculation	(3) PFS Amt Revd	(4) Utility Expenses	(5) Savings (3)-(4)	(6) 50% Savings Kept by LHA
1986	1982-84 Improvements Implemented	180.0	180.0	0	0
1987	1983-85	180.0	104.4	75.6	37.8
1988	1984-86	180.0	104.4	75.6	37.8
1989	1985-87	154.8	104.4	50.4	25.2
1990	1986-88	129.6	104.4	25.2	12.6
1991	1987-89	104.4	104.4	0	0
Totals 1987-1991		748.8	522.0	226.8	113.4

Under this example, the LHA over four years captures and retains \$113,400. HUD also saves \$113,400. Tenants have more comfortable and efficient dwellings. The \$113,400 retained by the LHA repays more than the cost of the \$100,000 which the LHA owes. Any cash flow beyond that needed to repay the initial financing can be used for rebates to conserving tenants, a revolving fund to capitalize additional efficiency investments in other LHA buildings, or for other purposes. If all public housing were able to achieve just a 30% improvement in average building energy efficiency, it would save \$325 million annually -- half of which would be retained by the LHA and half of which would benefit HUD.

Stated another way, in climates with significant winter heating requirements, energy operating expenses typically consume 40% of the annual LHA operating budget.¹⁴ In some projects, utility expenses consume 50% or more of annual operating budgets.¹⁵ If a typical LHA cuts its energy expenses by 42% under this strategy, capturing half the savings for itself and its tenants, it increases its non-utility operating budget by 14% in the first year. If the LHA cuts its energy expenses by 50% under this strategy and if energy constitutes 50% of its annual operating budget, retaining half the savings, it increases its non-utility operating budget by 25% in the first year alone. per year. Only an investment in energy efficiency, will generate these benefits under this strategy.

CREATIVE FINANCING FOR PUBLIC HOUSING EFFICIENCY

Financing is the key to implementing energy efficiency measures in public housing authorities. If a package of energy efficiency measures is cost-justified, the initial up-front financing is often the critical missing link. Once the measures are installed, energy operating savings provide the means to repay any initial financing.

Since LHAs split any savings with HUD, until the PFS system eventually catches up with lower utility operating expenses, a LHA may require preferential financing to realize sufficient economic incentives. There are a variety of creative financing techniques which can be leveraged to the benefit of public housing energy efficiency investments. To maximize the benefits to the LHA, there is a preferred hierarchy of funding for public housing energy efficiency financing: (1) HUD Funds, (2) grant funds, (3) third party financing, and (4) preferential financing

HUD Financing

There are three primary sources of HUD-generated financing for the capital costs of public housing energy efficiency improvements: CIAP funds, Development funds and operating reserves. In addition, HUD meter conversion rebates may be available in certain limited circumstances to finance efficiency investments.

1. HUD Comprehensive Improvement Assistance Program (CIAP)

Created in FY 1968, CIAP funds were appropriated by the Congress for upgrading the quality of older public housing stock.¹⁶ When used for energy efficiency investments, CIAP funds must be used in conformance with HUD standards on energy conservation and modernization.¹⁷ Beginning in FY 1977, at least 75% of the CIAP funds were directed by HUD to be used for four priority work categories, which included energy efficiency investments. As of 1985, energy efficiency investments were dropped from the priority list of CIAP projects.

Consequently, only 10% of each HUD region's CIAP funds can be allocated to "special projects," which include energy efficiency investments. Energy efficiency investments can still be funded if sandwiched in among elements of a CIAP application which contemplates substantial modernization. There is no obligation for the LHA to repay CIAP grants. Tenant participation is required before the award of funds.¹⁸

2. Development Funds

Development funds awarded by HUD are used by a LHA for comprehensive redevelopment of a project, which often includes a

host of energy efficiency improvements. Any improvements made must reflect HUD Minimum Property Standards or HUD Minimum Design Standards for Rehabilitation for Residential Properties,²⁰ and cannot exceed HUD prototype cost. Every comprehensive development application must demonstrate that "the best utility combination is being proposed, based on initial installation costs and long term operation and maintenance costs, energy conservation, and evidence that the selected utilities will be available for the proposed project."²¹

3. Operating Reserves

In addition, LHAs can use their own operating reserves, to the extent that they exist in ample amount, to fund energy efficiency capital improvements. Operating reserves are residual net income remaining in the LHA treasury at the end of a fiscal year. Several LHAs have operating reserves in such excess that their unexpended carryover reduces the next year's PFS funding. There is no HUD recapture of (non utility) operating reserves at year end. Because operating surpluses are already in hand at the LHA, this financing route can be one of the most expeditious.

4. HUD Meter Conversion Rebates

The final Court order in Massachusetts Union of Public Housing Tenants v. Pierce,²² provides restitution of overcharges where LHA utility meters were illegally converted to individual metering after April 1981, and utility allowances subsequently were lowered for tenants. The exact mechanisms for restitution are still under negotiation between attorneys for HUD and for plaintiffs, however rebates to some tenants appear in order. By creatively working with tenants, it may be possible to use some of these rebates to finance efficiency improvements to tenant units. Most obviously, this might be fashioned where tenants entitled to rebates can not be located.

GRANT FINANCING

1. Solar Energy and Energy Conservation Bank

Contrary to popular misconception, the Solar Energy and Energy Conservation Bank (the "Bank") is not terminated. The successful result of litigation in Dabney v. Reagan requires that all unexpended prior fiscal year appropriations for the Bank be recycled to future fiscal years. As this paper goes to press, there are still at least \$10 million of unexpended Bank funds out of about \$85 million appropriated to date, regardless of any future appropriations.

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Financing originates from annual federal appropriations. The appropriations subsidize the cost of financing energy efficiency measures and solar energy improvements. As operated

between 1983-1984, the operating regulations did not allow public housing authorities to receive Bank funds. In 1984, the regulations were amended to allow specifically that public housing authorities may receive Bank subsidies.²⁴

The Board of the Bank awards funds to the states on a competitive and/or formula basis via occasional funding cycles. Public housing tenants and LHAs qualify for the deepest subsidies. Therefore, public housing tenants may receive direct grants up to 20% of the investment cost of energy efficiency in high-rise structures and public housing owners or tenants may receive direct grants up to 50% of the cost in 1-4 family LHA units. In the alternative, these subsidies may be taken as loan interest or principal subsidies, with the same percentage differentials based on the multifamily nature of design. The financing can be provided directly to tenants or collectively on behalf of tenants to LHAs.²⁵

2. CDBG and UDAG Funds

The Community Development Block Grant (CDBG) and Urban Development Action Grant (UDAG) programs administered by HUD can be used to finance energy efficiency investments in public housing, although they have not been used in significant measure for public housing historically. The Housing Act and Community Development Amendments of 1980 specifically authorized CDBG funds to be used for loans to finance energy conservation improvements in rehabilitation housing.²⁶ UDAGs are designed to leverage private investment to assist distressed urban areas. HUD approved demonstration projects in six cities to subsidize interest rates on private loans for energy conservation in distressed areas. Under this program, in Springfield, Massachusetts, the LHA and private lenders worked together to finance energy efficiency investments.

3. Weatherization Assistance Program

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The Weatherization Assistance Program (WAP) is the primary federal response for financing energy efficiency in low-income housing.²⁸ WAP provides funds to the states based on a formula which considers the number of low-income dwellings and the heating and cooling variables of the state's climate.²⁹ Between 1975 and 1982, the program weatherized an estimated 1.2 low income households investing between \$400-1,600 per unit. These federal and state funds can provide free basic weatherization to public housing units. The recipient owner, including LHAs, must agree not to raise rents due to the weatherization. Since LHA rents are determined as a function of tenant income, this requirement poses no problems.

4. Oil Overcharge Refunds

Consent decrees entered in several oil overcharge prosecutions provide for certain portions of the restitution and any unclaimed amounts to be entrusted to the U.S. Department of Energy for distribution. As of July 1985, the DOE escrow accounts contained 30 \$887 million in escrow from consent decree settlements earning daily additional interest, \$300 million in additional funds from already settled consent decrees not yet received at DOE, plus 224 remaining overcharge cases in various stages of prosecution in the courts, amounting to alleged violations totaling \$2.65 billion.

The court cases prosecuted to final judgment resulted in large judgments against the defendant oil companies.³¹ The Federal Office of Management and Budget estimates that \$5-6 billion in total still awaits restitution.³²

DOE accomplished indirect restitution over the past three years by returning to state governments several hundred million dollars from the remainder of funds from specific overcharge settlements.³³ The states then expend funds on a variety of energy projects for the general benefit of overcharged consumers within the state. LHA energy efficiency investments are an ideal and allowable use of indirect restitution through the states.

For example, since refunds can be layered with other sources of financing without sacrificing eligibility, they are ideally suited to use in conjunction with other federal financing tools. Refunds could be used to match the 50% conservation grant that public housing owners and tenants can receive from the Solar and Conservation Bank.

Energy Services For Public Housing

Energy service company services have become popular in the commercial and government building sectors of the economy to shift the responsibility for energy efficiency to third-party specialists. In concept, an energy service company offers significant advantages to an LHA seeking to finance energy efficiency investments.

Any large multifamily building not subject to HUD regulation should fare well in an energy service relationship with a competent energy service company. However, HUD public housing regulation spoils the advantages of the energy service concept for the LHA. Public housing must split any energy savings over the initial years with HUD; after four or five years HUD recaptures 100% of energy savings under the PFS system. If the LHA must give half the energy savings to HUD and the rest to the energy service company with whom it contracts, there is nothing left -- and no incentive -- for the LHA.

The only solution is for special exemptions from HUD regulations for LHAs implementing an energy service concept. Problems are created also by the reluctance of HUD to allow any kind of security interest or chattel mortgage placed against the efficiency improvements installed under an energy service agreement. Successful efforts are underway in Massachusetts to obtain an exemption from HUD to override the regulatory requirement to share efficiency savings with HUD. Exemption from this requirement is key to successful use of energy service concepts in public housing.

Preferential Financing

Conventional debt financing is difficult for many low-income persons to use. LHAs, as nontaxable entities, cannot use tax deductions applicable to interest payments made on conventional debt. Therefore, conventional debt often is not the most advantageous for public housing. Some creatively structured debt financing programs are specifically applicable to, although rarely used in, public housing.

1. Utility Financing

In the last five years, electric utilities initiated various types of innovative utility-financed energy efficiency programs.³⁴ These programs supply ratepayer capital for investments in conservation, renewable energy equipment or more efficient appliances on the customers' sides of utility meters. California utilities financed energy efficiency measures in California LHAs.³⁵

There are a variety of forms in which utilities deliver subsidized incentives for conservation investments, including cash incentives at time of purchase, cash rebates after proof of purchase and installation, bill credits for purchasers, subsidized loans, free services or measures, and shared savings arrangements.

In all, at least three dozen utilities in more than a dozen states offer some form of subsidized utility financing of residential conservation measures. Utilities in many states provide free conservation services to the poor. An analysis indicated that it was less expensive for Pacific Gas & Electric Company to pay the entire costs of installing conservation measures in low-income homes, rather than attempt to administer a zero-interest loan program for these customers.³⁶ Utilities in Michigan³⁷ and Wisconsin³⁸ directly finance energy efficiency services for their low-income customers.

2. Payments in lieu of Taxes

LHAs typically make payments in lieu of taxes (PILOTs) to their local host communities. Whether or not the LHA actually pays the PILOT, it calculates the PILOT as an allowed PFS operating expense for the upcoming prospective fiscal year. If in fact, the payment is not made by the LHA during the fiscal year, it is not recaptured by HUD.³⁹

Some LHAs have used a deferred payment of the PILOT as a means to provide initial capital for financing energy efficiency investments.⁴⁰ The savings in energy are used over the next several years to repay the deferred PILOT to the host community. Both the LHA and its host community benefit.

NOTES

1. 49 C.F.R. 31399 et seq. (August 7, 1984).
2. For a full discussion of this regulatory strategy, See, Steven Ferrey, "Cold Power: Energy and Public Housing," in the Harvard Journal on Legislation, Volume 23, No. 1, Winter 1986; Steven Ferrey, Energy Conservation Strategies for California Public Housing: Creative Use of Regulatory Discretion, prepared for the California Energy Commission, April 1985.
3. 24 C.F.R. 965.476(d)(7).
4. 24 C.F.R. 965.476(c)(1).
5. 49 Fed. Reg. 31, 401-402.
6. 24 C.F.R. 965.473, 965.476(a).
7. 24 C.F.R. 990.101-.116.
8. 24 C.F.R. 990.107(c)(1); 48 Fed. Reg. 38,228 (August 23, 1983).
9. 24 C.F.R. 990.107(f).
10. For heating energy in public housing, a report commissioned by HUD estimates that 30%-60% savings are possible from efficiency investments. Perkins & Will, "Energy Conservation for Housing: A Workbook," HUD Contract No. H-2850, 1982, at 1-1; New Jersey public housing data indicate that heating system savings approaching 50% are possible in elderly housing. C. Gold, "The Page Homes Demonstration Energy Conservation Computer System," ACEEE Summer Study Papers, 1982.
11. Units equipped with efficient major appliances should save an additional 12%-30% of energy consumption. D. Goldstein, "Efficient Refrigerators: Market Availability and Potential Savings," ACEEE Summer Study, 1982; M. Jaske, "Trends in Residential Appliance Efficiency Choice," ACEEE Summer Study, 1984.
12. Perkins & Will, *supra* note 10, at 1-6.
13. Id., at 1-5.
14. Council of Large Public Housing Authorities, "CLPHA Survey of Energy Consumption in Public Housing Authorities: 1978-1981," 1982, at Appendix.
15. Id.
16. 24 C.F.R. 968; 47 Fed. Reg. 22,315 (May 21, 1982); redesignated at 49 Fed. Reg. 6714 (February 23, 1984).
17. 24 C.F.R. 968.18(c)-(d); HUD 7485.1 Rev-2; HUD 7485.2-7485.3.
18. 24 C.F.R. 968.7.
19. 24 C.F.R. 941.
20. 24 C.F.R. 941.203(a).
21. 24 C.F.R. 941.404(h).
22. Massachusetts Union of Public Housing Tenants, et al v. Pierce, et al, No. 78-1895 (D.D.C. May 20, 1983, slip opinion, as modified August 3, 1982, slip opinion.

23. 12 U.S.C. 3601 et seq.
24. 49 Fed. Reg. 9865 (March 16, 1984).
25. For a complete treatment of the legal and administrative issues concerning the Solar Bank, see Steven Ferrey, "Solar Banking: New Solutions to the Urban Energy Crisis," in Harvard Journal on Legislation, Vol. 18, No. 3, Summer 1981.
26. Housing and Community Development Act of 1974, Title I, Section 105(a)(4), as amended by the Housing and Community Development Act of 1980.
27. Energy Production and Conservation Act, 42 U.S.C. 6861(b).
28. For a complete treatment of the Weatherization Assistance Program, see Steven Ferrey, et al, Energy Conservation and the Poor: A Report in Two Parts Sponsored by the Ford Foundation, 1984; Steven Ferrey and Joy Gordon, "Filling the Cracks in Federal Weatherization: The Implications of Conflicting Policy Objectives," in papers of the American Council for an Energy Efficient Economy Summer Study, 1982.
29. 42 U.S.C. 6865(b).
30. Letter from R. Klurfeld, Assistant Director, Office of Hearings and Appeals, U.S. Dept. of Energy, to David Finnegan, Office of Congressman Dingell, May 22, 1985.
31. In the first, U.S. v. Exxon, Civ. Action No. 78-1035 (D.D.C. March 25, 1985), the Exxon company was ordered to reconstitute an amount standing in July 1985 at 1.9 billion plus interest for all days after July until actual repayment. The judge in the Exxon case is going to employ the distribution mechanism of the Warner Amendment. In the second case, In Re: The Department of Energy Stripper Well Exemption Litigation, MDL-378 (D.Kansas, September 13, 1983), an amount standing in July 1985 at \$1.2 billion plus accruing daily interest potentially will be reconstituted. The exact restitution mechanism is not yet determined in this litigation.
32. Supra, note 30.
33. For example, in its continuing resolution passed in December 1982, the Congress dictated that \$200 million of DOE escrow funds must be reconstituted to the states, as representatives of the class of consumers overcharged by refiners. Congressional Record, vol 128, No. 153, S. 15701 et seq, December 20, 1982; 48 Fed. Reg. 5293 et seq. This was the so-called Warner Amendment. The states were required by Congress to use the funds for one of five specified purposes: Energy Assistance, Weatherization Assistance, schools and hospitals conservation, the Energy Extension Service or state energy planning.
34. See Steven Ferrey, Local Government Financing: Innovative Strategies for Local Government, Utilities and Nonprofit Organizations, A guidebook on Energy Investments for the Pacific Northwest, Produced for the Bonneville Power Administration, 1984, at Chapter VII. Electric Power Research Institute, "1980 Survey and Evaluation of Utility Conservation, Load Management, and Solar End-Use Projects," EPRI EM 2193, Vol. I-III.
35. C. Goldman, R. Ritschard & R. Atkielski, "Energy Conservation in Public Housing: The San Francisco Experience," in ACEEE, Doing Better: Setting an Agenda for the Second Decade, 1984, at H-48.

36. R. Heath & Associates, Inc., Phase I Zero Interest Program Low-Income Outreach Demonstration Project, 1982 (Performed under contract to P.G.& E.). Consequently, the California P.U.C. ordered P.G.&E. to initiate a conservation grant program for low-income customers. Other California electric utilities have also initiated direct free weatherization programs for the poor in their service territories.

37. Michigan P.S.C., Case No. U-6871, Order, June 29, 1982. The average per unit expenditure of Detroit Edison is reported as \$500 to provide free attic insulation to the poor.

38. Wisconsin P.S.C., Case No. 05-UI-12, Order, April 20, 1982, Appendix B, at iv. Utilities were required to devote 0.2% of gross revenues to provide weatherization services to low-income customers.

39. 24 C.F.R. 990.105(a).

40. The Alternative Energy Corporation in North Carolina is assisting North Carolina LHAs to employ deferred PILOTS to finance public housing energy efficiency investments.