

**ENERGY EFFICIENT UTILITY ALLOWANCES
AS A USAGE REDUCTION TOOL IN PENNSYLVANIA**

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Energy Efficient Utility Allowances as a Usage Reduction Tool in Pennsylvania

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As Pennsylvania policymakers formulate and implement the state's Act 129 energy efficiency plans, they should pay particular attention to opportunities for pursuing energy efficiency in housing that cuts across traditional notions of what constitutes an "efficiency" program. In particular, Pennsylvania should pursue ways through which to promulgate energy efficient utility allowances for the state's Section 8 housing units.

Section 8 is a federal housing subsidy program. Through the largest component of the program, involving the most units of housing, Section 8 provides housing "vouchers" to participating tenants. Those tenants use their Section 8 vouchers to find housing in the private market. Within certain limits not relevant to this discussion, Section 8 tenants pay 30% of their income toward their contract rent. The difference between their full "contract rent" and this percentage of income payment represents the housing subsidy paid by the Section 8 program. For example, if a tenant's contract rent is \$600 per month, and the percentage of income-based rent is \$250 per month, the property owner receives a \$350 monthly housing subsidy through the Section 8 program.

Local public housing authorities, which administer the Section 8 program, have an allocated number of Section 8 vouchers that they can use to provide low-income housing. As of May 31, 2009, Pennsylvania had 84,339 Section 8 vouchers throughout the state.

AN OVERVIEW OF SECTION 8 UTILITY ALLOWANCES

In addition to the housing subsidy, Section 8 tenants receive what is termed a "utility allowance" each month (assuming the tenant pays his or her own utility costs). The utility allowance is designed to cover the tenant's entire utility bill.¹ Rather than being simply a heating allowance, in other words, a utility allowance is designed to pay for all utilities (energy, water/sewer, trash) except telephone service.² Since by law the tenant's total shelter expenses (which are to include contract rent plus all utilities except telephone) are to be limited to 30% of income, and since the household's contract rent is set *equal* to 30% of income, in order for the Section 8 program to comply with the federal statute, the utility allowance must pay a tenant's entire utility bill to keep total shelter costs under the statutory ceiling.

Utility allowances are promulgated for each specific end-use. Different dollar allowances are, for example, promulgated for space heating, water heating, cooling, refrigerators, lighting and electric appliances. Allowances further vary by fuel. Each local housing authority would, in other words, have a natural gas heating allowance, an electric heating allowance, and a fuel oil heating allowance (assuming the presence of oil heat in the jurisdiction). Utility allowances also vary by the size of the house (measured by number of bedrooms) and type of building structure (e.g., a single-family attached home would have a different utility allowance from a single-family detached home which would have a different allowance from an apartment in a multi-family building).

¹ The law is somewhat more complicated than this. The promulgation of a utility allowance is governed by a variety of standards. It is to cover the utility consumption of an "energy conservative household of modest means." A utility allowance must, however, cover all consumption not within the ability of the tenant to control.

² Utility allowances do not pay for internet service or cable television.

The utility allowance is, in other words, not a single number. They are referred to as utility allowance “schedules” that identify the dollar amount by end-use and fuel.

A Section 8 utility allowance is generally not paid directly to the utility company.³ Instead, utility allowances are paid as a credit against percentage-of-income based contract rents that would otherwise be the out-of-pocket responsibility of the Section 8 tenant. In the example above, if the tenant was entitled to receive a monthly utility allowance of \$150, the percentage of income-based rent for which the tenant bears out-of-pocket responsibility is reduced to \$100 (\$250 percentage of income based rent - \$150 utility allowance) and the housing subsidy to the Section 8 property owner is increased by a corresponding amount (in this case, the property owner receives a \$500 subsidy: \$350 rent subsidy plus \$150 utility allowance). The freed-up money in the household’s budget occasioned by the \$150 reduction in tenant out-of-pocket expenses is assumed to be used to pay the tenant’s actual utility bills.

AN OVERVIEW OF SECTION 8 “VOUCHER” HOUSING IN PENNSYLVANIA

Section 8 housing in Pennsylvania serves some of the lowest income households in the state. Table 1 presents a distribution of Section 8 tenants in Pennsylvania over the various income categorizations that the U.S. Department of Housing and Urban Development (HUD) uses in its housing programs. Under HUD’s system of income categorization:

- “Extremely low-income” refers to households with income at or below 30% of area median income;
- “Very low-income” refers to households with income at or below 50% of area median income;
- “Low-income” refers to households with income at or below 80% of area median income.

Relative Income: Distribution by Congressional District

Table 1 presents information by Congressional district to allow the reader to understand the geographic implications of the data. As can be seen, Section 8 tenants are overwhelmingly extremely low-income (households with income at or below 30% of the area median income). The lowest penetration of extremely low-income Section 8 tenants occurred in Congressional district #9 with 65%, followed closely by Congressional districts #10 and #15 (66%). In contrast, the highest penetration of extremely low-income Section 8 tenants occurred in Congressional district #3, with 89%. In 13 of Pennsylvania’s 21 Congressional districts, the penetration of extremely low-income households within the Section 8 voucher population was between 70% and 80%. In six (6) more Congressional districts, the penetration of very low-income households was between 65% and 70%.

³ The utility allowance differs from LIHEAP in this sense. LIHEAP payments are not paid to the LIHEAP recipient, but are instead directly-vendored to the utility company.

In all 21 Congressional districts, between 95% and 100% of Section 8 tenants were either extremely low-income (at or below 30% of area median income) or very low-income (at or below 50% of area median income but greater than 30%). The most wealthy of Section 8 tenants statewide in Pennsylvania, in other words, nonetheless live with incomes less than half of area median income. This income status is consistent throughout the state, whether rural areas or urban; whether east or west; whether small town or large city.

Table 1. Distribution of Section 8 Tenants by Income Categorization (All Voucher Assisted Units) (Pennsylvania) (as of May 31, 2009)

Congressional District	Income Category					Total /a/
	Extremely Low Income	Very Low Income	Low-Income	Above Low-Income	Unavailable Income	
1	77%	18%	5%	0%	0%	100%
2	80%	19%	2%	0%	0%	101%
3	89%	11%	0%	0%	0%	100%
4	73%	23%	4%	0%	0%	100%
5	68%	29%	3%	0%	0%	100%
6	72%	24%	3%	0%	0%	99%
7	77%	20%	3%	0%	0%	100%
8	74%	23%	3%	0%	0%	100%
9	65%	31%	4%	0%	0%	100%
10	66%	30%	4%	0%	0%	100%
11	68%	28%	3%	0%	0%	99%
12	73%	23%	4%	0%	0%	100%
13	75%	20%	5%	0%	0%	100%
14	69%	26%	5%	0%	0%	100%
15	66%	30%	4%	0%	0%	100%
16	75%	22%	3%	0%	0%	100%
17	75%	22%	3%	0%	0%	100%
18	72%	23%	5%	0%	0%	100%
19	73%	24%	2%	0%	0%	99%
20	73%	26%	2%	0%	0%	101%
21	73%	24%	3%	0%	0%	100%

NOTES:

/a/ Some totals may not add to 100% because of rounding.

The income of Section 8 tenants as a percent of area median income is a relative measure of how poor Section 8 tenants are. It is generally the case that area median income reasonably reflects the cost-of-living in any specified region. Hence, if the cost of living is higher in one area, the

area median income tends to be higher as well. Nonetheless, examining Section 8 income by reference only to median income does not provide insights into the absolute dollar income of these tenants.

Absolute Income: Distribution by Congressional District

Table 2 presents the distribution of income for Pennsylvania's Section 8 tenants (voucher assistance) by dollars, along with average income and average household size.⁴ The average income of Section 8 tenants in Pennsylvania ranged from a low of \$9,954 (Congressional District 3) to a high of \$13,997 (Congressional District 8) (closely followed by Congressional District 13 with an average income of \$13,974). In 15 of Pennsylvania's 21 Congressional Districts, average annual income for Section 8 tenants was less than \$13,000.

In comparison to these average incomes:

- The 2009 Federal Poverty Level for a two-person household is \$14,570;
- The 2009 Federal Poverty Level for a three-person household is \$18,310.

As Table 2 shows, while the bulk of Section 8 tenants have income between \$5,000 and \$10,000 (ranging from 48% in Congressional District 1 and Congressional District 13 up to 70% in Congressional District 9 and 69% in Congressional District 12), in several regions of the state (e.g., Congressional Districts 3 [18%], 14 [20%] and 20 [18%]), roughly 1-of-5 Section 8 tenants have annual incomes of less than \$5,000. In 18 of Pennsylvania's 21 Congressional Districts, roughly ten percent (10%) of Section 8 tenants have annual income of between \$1 and \$5,000 (with the proportion in two of the remaining three closer to 15%).

Several conclusions can be drawn from the income data presented in Table 2:

- Section 8 tenants are amongst the lowest income households in the State of Pennsylvania. On average, Section 8 tenants have annual incomes below 75% of Federal Poverty Level. They frequently have income between 25% and 30% of Federal Poverty Level.
- The low-income status of Section 8 tenants is not confined to large urban areas. Dividing the state into regions by reference to Congressional districts, the low average income, as well as the distribution of income below \$10,000 a year, is consistent throughout the state. No Congressional District has fewer than 40% of its Section 8 tenants with income below \$10,000, while no Congressional District has more than 60% of its Section 8 tenants with income below \$10,000. Of Pennsylvania's 21 Congressional Districts, 16 have between 45% and 55% of their Section 8 tenants with income less than \$10,000.

⁴ The relative low-income status of a household varies by income and household size. A three-person household with an income of \$10,000 is considered to be "poorer" than a two-person household with an income of \$10,000.

Table 2. Distribution of Income by Congressional District
(Pennsylvania Voucher-based Assistance) (as of May 31, 2009)

District	Distribution of Annual Income (percentage)							Total	Avg Annual Income	Avg HH Size
	\$0	\$1 - \$5,000	\$5,001 - \$10,000	\$10,001 - \$15,000	\$15,001 - \$20,000	\$20,001 - \$25,000	Above \$25,000			
1	5%	11%	30%	18%	13%	10%	13%	100%	\$13,654	3.1
2	4%	11%	28%	22%	15%	9%	11%	100%	\$13,026	3.1
3	7%	11%	36%	29%	11%	7%	0%	101%	\$9,954	2.2
4	3%	10%	40%	23%	13%	6%	5%	100%	\$11,440	2.4
5	2%	10%	41%	27%	14%	4%	2%	100%	\$10,872	2.1
6	2%	10%	34%	27%	14%	7%	5%	99%	\$12,048	2.6
7	4%	10%	29%	21%	13%	9%	13%	99%	\$13,529	2.8
8	0%	4%	38%	23%	16%	12%	8%	101%	\$13,997	2.1
9	2%	9%	44%	26%	12%	5%	2%	100%	\$10,586	2.0
10	2%	10%	38%	26%	16%	7%	2%	101%	\$11,521	2.2
11	2%	11%	38%	26%	15%	6%	3%	101%	\$11,210	2.2
12	2%	11%	47%	22%	12%	4%	1%	99%	\$10,312	2.0
13	6%	8%	29%	19%	15%	9%	14%	100%	\$13,974	2.7
14	4%	16%	33%	20%	14%	7%	6%	100%	\$11,462	2.2
15	3%	9%	32%	24%	18%	8%	6%	100%	\$12,723	2.3
16	3%	8%	34%	22%	15%	8%	11%	101%	\$13,363	2.7
17	5%	8%	35%	21%	14%	8%	8%	99%	\$12,558	2.7
18	4%	13%	35%	20%	14%	8%	7%	101%	\$11,697	2.5
19	2%	8%	35%	26%	16%	7%	6%	100%	\$12,280	2.2
20	4%	14%	35%	24%	15%	5%	2%	99%	\$10,742	2.1
21	3%	9%	41%	25%	14%	6%	2%	100%	\$11,067	2.2

The significance of the income status of Section 8 tenants is several-fold. First, by the very nature of their poverty, Section 8 tenants do not have access to high quality housing. While housing units that are subsidized by the federal Section 8 program must comply with certain federally-prescribed minimum Housing Quality Standards (HQSs), the units tend to be older and lower quality units (even if meeting minimum HQSs). They do not represent high quality housing.

Second, despite this lower quality housing, because of the very fact of their poverty, Pennsylvania's Section 8 tenants would be unable to pursue efficiency measures on their own, even should they have the authority to do so in their rental housing. The payback period for any particular energy efficiency measure, of course, becomes irrelevant if the household does not have the investment capital with which to begin. The impact of this market barrier, for example, is often ignored in the reliance on appliance rebate programs. Such a program may pay the incremental cost of moving a customer from the purchase of a less energy efficient air conditioner to a more energy efficient new air conditioner. In such a program, if the less efficient appliance costs \$600 and the more efficient system costs \$800, it may well be cost-effective for the utility to pay the \$200 difference to prompt the purchase of the more efficient system. This program, however, will automatically exclude households that are not in the market to purchase the new appliance with which to begin. It is axiomatic to note that not many low-income households recently spent \$600 for a new appliance (be it air conditioner, refrigerator, dishwasher, or some other appliance).

Low-income households tend to have extremely high implicit discount rates (also sometimes known as hurdle rates or internal rates of return). In a report for the Electric Power Research Institute (EPRI), Cambridge Systematics found that the implicit discount rate for low-income households ranged up to the 80 - 90 percent level. For residential households in general, however, the hurdle rate for energy efficiency investments was 30 percent; that translates into a payback period of roughly three years. To the extent that an efficiency program thus strives to bring an energy efficiency investment only within the 30-percent range, it excludes by implication all households having a higher hurdle rate. One entire category of excluded households consists of Pennsylvania's low-income Section 8 tenants.

Length of Stay: Distribution by Congressional District

In addition to their overall income status, a second attribute of low-income tenants generally that impedes their ability to use energy efficiency as a mechanism to reduce home energy consumption is their tendency to be more mobile. Census data demonstrates quite clearly that, compared to the proportion of the total population that changes residences each year, nearly twice as many low-income households move. As a result, even in those instances where a tenant may have the authority to invest in an energy efficiency measure, and assuming a financial ability to do so, the payback period required to justify such an investment would need to match the household's tenure.

A low-income household, in other words, will not invest in a measure with a two-year payback if that household intends to move to a different dwelling in 12 months. A low-income household will not invest in a measure with a three-year payback if that household does not anticipate remaining in the home for more than two years.

Table 3 documents that Pennsylvania's Section 8 tenants share the frequent mobility attributes of low-income tenants generally. In 16 of Pennsylvania's 21 Congressional Districts, 20% or more of Section 8 tenants have moved within the past year, with the proportion reaching more than 30% in three of those 16 Districts. In three more districts, the one-year mobility rate was greater than 15% (but less than 20%). Similarly, in 15 of Pennsylvania's Congressional Districts, more than 30% of

Section 8 tenants had moved within two years, while in three more, the two-year mobility rate exceeded 25% (but not more than 30%).

Table 3. Distribution of Section 8 Tenants by Length of Stay at Current Unit
(All Voucher-Assisted Units) (Pennsylvania) (as of May 31, 2009)

District	Length of Residency at Current Unit						Total <2 Years
	Moved in Past Year	1+ to 2 Years	2+ to 5 Years	5+ to 10 Years	10+ to 20 Years	Over 20 Years	
1	11%	5%	10%	40%	33%	1%	16%
2	20%	8%	24%	35%	13%	1%	28%
3	82%	4%	14%	0%	0%	0%	86%
4	24%	10%	22%	24%	13%	7%	34%
5	35%	11%	22%	22%	10%	1%	46%
6	24%	12%	25%	30%	8%	2%	36%
7	13%	11%	19%	36%	19%	1%	24%
8	25%	14%	24%	20%	13%	5%	39%
9	27%	20%	22%	21%	8%	2%	47%
10	31%	10%	23%	22%	10%	3%	41%
11	28%	12%	25%	24%	9%	2%	40%
12	23%	13%	20%	24%	15%	4%	36%
13	15%	15%	13%	48%	9%	0%	30%
14	22%	8%	32%	28%	9%	2%	30%
15	20%	10%	21%	30%	16%	4%	30%
16	17%	10%	19%	31%	19%	4%	27%
17	26%	12%	28%	26%	7%	1%	38%
18	15%	9%	27%	31%	14%	3%	24%
19	28%	11%	20%	33%	7%	1%	39%
20	20%	9%	22%	27%	17%	5%	29%
21	25%	11%	24%	33%	6%	2%	36%

NOTES:

/a/ Some totals may not add to 100% because of rounding.

Two conclusions flow from the above data and analysis. First, Section 8 housing units represent a significant population of the lowest income tenants in the State of Pennsylvania. Not only are there more than 80,000 voucher-assisted Section 8 units in Pennsylvania, but the households living in those units have incomes, on average, well below 100% of the Federal Poverty Level. Indeed, a significant proportion of Section 8 tenants live with annual incomes at or below \$5,000.

Second, it is unlikely, at best, that these Section 8 tenants will be able to invest in any significant energy efficiency measures using their own resources. Even setting aside the question of whether a tenant has the authority to invest in energy saving measures such as new appliances (without even questioning the authority to invest in improvements to major housing systems such as heating and hot water), the very poverty of these tenants would deny them the financial capacity to make such investments. Moreover, the frequent mobility of these tenants would deny them the ability to generate the payback needed to prompt an efficiency investment.

ENERGY USAGE CHARACTERISTICS OF ASSISTED HOUSING

No way exists to directly measure the energy efficiency potential in Section 8 housing units. The lack of measured potential is exacerbated by the lack of state-specific information. Still, the U.S. Department of Energy (DOE) Residential Energy Consumption Survey (RECS) reports data a regional level. The RECS breaks the country into four Census Regions (Northeast, South, North Central, West) and nine Census Divisions. Pennsylvania is part of the Mid-Atlantic Division that, in turn, is part of the Northeast Region.

Data on several aspects of “assisted” housing can be obtained from the RECS. The most recent RECS (2005) reports data on:

- The age of the housing unit;
- The age of the heating unit;
- The age of the water heating unit; and
- The age and Energy Star status of the refrigerator(s).

The data for the Northeast Region and Mid-Atlantic Division are reasonably consistent with each other, making it more likely that it accurately portrays assisted housing in Pennsylvania. Table 4 sets forth the data.

The age of housing structures subsidized through an assisted housing program⁵ reveals an older housing stock that might benefit from weatherization. Roughly half of all assisted housing is 60 years old or older, while more than 60% is at least 50 years old. Very few assisted housing units have been built in the past 25 years.

Corresponding to the age of the housing unit is the age of the heating unit. A substantial proportion of assisted housing tenants did not know the age of their heating unit. Of those who did know, the number of heating aged 20 years or older was by far the largest proportion of heating units by age. Indeed, the number of heating units aged 20 years or older was nearly twice the number of heating units aged 10 year or younger.

⁵ The RECS does not reference Section 8 in particular. While Section 8 is, by far, the largest assisted housing program in the country, it is not the only such program.

Similar results exist for domestic hot water heaters. While a sizable proportion of assisted housing tenants (both in the Northeast and in the Mid-Atlantic) do not know the age of their water heater (or do not use a separate water heater for their unit), nearly one-in seven of the total assisted housing tenants report having water heaters age 10-year old or older.

Age of Housing Units										
	Before 1940	1940 - 1949	1950 - 1959	1960 - 1969	1970 - 1979	1980 - 1984	1985 - 1989	1990 - 1994	1995 - 1999	2000 or later
Northeast	32%	17%	12%	6%	8%	15%	2%	---	6%	2%
Mid-Atlantic	32%	21%	12%	5%	4%	19%	---	---	7%	---
Age of Heating Unit										
	<2 years	2 – 4 years	5 – 9 years	10 – 19 years	20 or more years	Don't Know				
Northeast	9%	3%	5%	8%	31%	43%				
Mid-Atlantic	11%	1%	7%	7%	36%	38%				
Age of Domestic Hot Water Heater (DHW)										
	No separate DHW	< 2 years	2 – 4 years	5 – 9 years	10 – 19 years	20 or more years	Don't Know	Don't Use DHW		
Northeast	18%	12%	1%	11%	10%	3%	38%	6%		
Mid-Atlantic	18%	15%	1%	14%	9%	4%	32%	7%		
Whether Refrigerator Energy Star by Age of Refrigerator										
	No	Yes	Don't Know	Too Old to be Energy Star						
Northeast (all ages)	17%	20%	5%	58%						
Less than 2 years old	49%	47%	4%	0%						
2 – 4 years old	25%	51%	24%	0%						
SOURCE: 2005 Residential Energy Consumption Survey (U.S. Department of Energy).										

The lack of attention paid to energy efficiency in assisted housing is evident in the data on appliances as well. As of the 2005 RECS, most refrigerators in the Northeast Region were too old to be Energy Star rated. Even within the population of refrigerators that had been purchased recently enough to potentially be Energy Star, only half were. Roughly half of assisted housing tenants reported having an Energy Star refrigerator when the refrigerator had been purchased within the past four years (and Energy Star units were available).

The potential for energy efficiency investments in the fundamental energy-using systems (e.g., heating, hot water, refrigeration) in Section 8 housing can be expected to be substantial in Pennsylvania. While direct information on the efficiency of existing systems is not available for Section 8 housing, this conclusion can nonetheless be reasonably inferred from the data that is available. In particular, the age of the building structure, the heating system, the hot water system, and the refrigerators used in Section 8 housing make clear the usage reduction potential from a program directed toward such units.

AN ACTION RESPONSE THROUGH PENNSYLVANIA'S ACT 129 PLANS

The analysis presented above supports a two-part response through the development and implementation of Pennsylvania's Act 129 plans.

- First, Pennsylvania's Act 129 plans should include financial incentives for Section 8 property owners to pursue energy efficiency investments.
- Second, Pennsylvania's Act 129 plans should provide technical assistance to the state's local Public Housing Authorities, which administer Section 8 vouchers in the state, to adopt Energy Efficient Utility Allowances (EEUAs) to further promote the pursuit of energy efficiency investments.

Energy efficiency investments in Section 8 housing simultaneously promote several policy objectives:

- Since efficiency investments would not be made unless cost-effective, an energy efficiency initiative aimed at Section 8 housing advances the goal of promoting the delivery of least-cost utility service;
- As Act 129 recognizes, efficiency investments are an important carbon reduction strategy, thus promoting the delivery of environmental benefits;
- Since utility allowance reductions allow Section 8 property owners to capture more of total shelter subsidies to support housing costs, the energy efficiency investment supports the delivery of higher quality low-income housing;
- Since Section 8 tenants are responsible for paying utility bills in excess of utility allowances, the implementation of energy efficiency investments helps protect tenants from excess payments associated with the volatility of energy consumption due to weather. Moreover, since utility allowances are not individually set, to the extent that efficiency investments are directed toward the highest users, tenants will experience out-of-pocket savings as well.

In short, incorporating energy efficiency directed toward Section 8 housing serves multiple important and well-recognized public policy objectives. While not all of these public policies are the specific policies under the auspices of Act 129, neither are these additional policies prohibited by Act 129. To pursue energy efficiency investments that *not only* meet the objectives of Act 129, but *in addition* generate other important public outcomes as well would help break Act 129 energy efficiency investments out of the silo as being seen exclusively as an environmental/utility initiative.

The Energy Efficiency Utility Allowance

An energy efficient utility allowance involves offering a lower utility subsidy paid to Section 8 tenants to reflect the lower utility costs incurred subsequent to the installation of energy efficiency measures. Through California's "Designed for Comfort" Efficient Affordable Housing Program, the California Public Utilities Commission (CPUC) sought to promote the adoption of EEUA's as an energy efficiency strategy directed toward both public and assisted housing.⁶

The DfC Program tries to encourage energy efficiency by introducing the [energy efficiency-based utility allowance]. The EEBUA can be used in buildings that are significantly more energy efficient than average. If their local public housing authority adopts the EEBUA, owners or developers who achieve certain levels of energy efficiency in their new or existing affordable multifamily properties can collect higher rents. These higher rents are possible because the EEBUA has reduced the tenant's utility allowance to correspond with the reduction in utility costs that have been achieved by the energy-efficiency measures installed in the property.⁷

Despite unanticipated challenges in the implementation of the energy efficient utility allowances, discussed further below, the CPUC's Designed for Comfort program met or exceeded its goals in the adoption of such utility allowances. According to the 2006 program evaluation, while the objective was to generate the approval of energy efficient utility allowances by ten (10) local housing authorities, through 2005, nine housing authorities had done so, and two more had committed to adopting the energy efficient utility allowance in 2006.⁸ Efforts to promote the adoption of EEUAs continue in California.

Operation of the Energy Efficient Utility Allowance Program

According to one assessment of the CPUC program,⁹ implementation of the EEUAs, along with energy efficiency measures, in an illustrative 53 unit development would generate benefits for both the property owner and the tenants over a fifteen-year period. The analysis compared rental income on a project with 40 two-bedroom units and 12 three-bedroom units (and one manager unit). All but one of the units were designed to be affordable to low- and very-low income households.

⁶ "Public" housing involves housing owned and operated by local public housing authorities. "Assisted" housing involves housing that, while privately-owned, is nonetheless subsidized through a public program such as Section 8.

⁷ KEMA, Inc. (November 2006). *Evaluation of the 2004-2005 Designed for Comfort: Efficient Affordable Housing Program: Final Report*, at 2-1, KEMA, Inc.: Oakland (CA). (hereafter, *DfC Evaluation*).

⁸ San Diego Housing and Community Development Commission (2004); San Diego Housing Commission (2004); Monterey Housing Authority (2004); Contra Costa Housing Authority (2004); Yolo Housing Authority (2004); Marin County Housing Authority (2005); Community Development Commission of City of Long Beach (2005); San Joaquin County Housing Authority (2006); San Francisco Housing Authority (2006); Glendale Housing Authority (2006-2007); and City of LA Housing Authority (2006-2007).

⁹ Brown and Benfield (July/August 2004). "The Role of Local Governments in Promoting Housing Affordability through Energy Efficiency," *Currents: An Energy Newsletter for Local Governments*.

The result of the EEUA was to generate more than \$11,000 each year in additional return to the property owner without increasing the shelter burden to the tenant. This revenue impact is set forth in Table 5.

Table 5. Illustrative Annual Revenue Impact to Property Owner from Implementation of Energy Efficient Utility Allowance: California Designed for Comfort Efficient Affordable Housing Program (Riverside CA)						
Standard Utility Allowance Schedule						
Unit Type	Bedrooms	No. of Units	Total Cost of Hsg Unit	Monthly Utility Allowance	Monthly Net Rent per Unit	Yearly Gross: All Units
2-bedroom	2	40	\$482	\$169	\$313	\$150,470
3-bedroom	3	12	\$482	\$201	\$281	\$40,533
Total rent per year						\$191,003
Energy Efficient Utility Allowance for New Construction						
Unit Type	Bedrooms	No. of Units	Total Cost of Hsg Unit	Monthly Utility Allowance	Monthly Net Rent per Unit	Yearly Gross: All Units
2-bedroom	2	40	\$482	\$152	\$330	\$158,630
3-bedroom	3	12	\$482	\$181	\$301	\$43,408
Total rent per year						\$202,038
Difference						\$11,035

According to the California assessment, “even with a larger debt service payment for the initial four years (more than enough to cover the additional cost of measures even *without* a utility program incentive), the cumulative residual cash by the 7th year is about \$75,866 greater and approximately \$181,009 after 15 years.”¹⁰

The County of Riverside (CA) explained how it developed its EEUA in implementing the CPUC’s *Designed for Comfort* (DfC) program. Riverside relied on software certified by the California Energy Commission to provide an energy “budget” for three categories of energy use: heating, cooling and hot water.¹¹ That software allowed a comparison between a “standard” building and an energy efficient building. Since CPUC efficiency programs generate 15% reductions in energy use compared to the minimum requirements of existing energy standards, “this would mean that the energy cost estimates for residential properties qualifying for the energy efficient utility allowance could be reduced by 15%.” In fact, Riverside reduced its utility allowances by an average of 11.25% “to (a) provide a safe and prudent margin based on using estimation tools, and (b) so that part of the direct benefit of the energy efficiency improvements would flow to the tenants rather than giving the landlords all of the economic benefits.”¹² The specific adjustment factors used, and the resulting EEUAs, are set forth in Table 6 below:

¹⁰ Id.

¹¹ Maria Razzo (2002). “Establishing and Implementing the Energy Efficiency Utility Allowance Schedule: Housing Authority of the County of Riverside.”

¹² Id.

Fuel/End-Use	Section 8: Two Bedroom Unit		
	Existing Utility Allowance	Adjustment Factor	Energy Efficient Utility Allowance
Electric			
Domestic Hot Water	\$27	0.8875	\$24
Space Heating	\$55	0.9250	\$51
Cooling	\$13	0.8875	\$12
Natural Gas			
Domestic Hot Water	\$8	0.8500	\$7
Space Heating	\$19	0.8875	\$17

Verification of the qualification of the Riverside buildings for the EEUA occurs on three levels:

- Energy efficiency ratings for new construction (including “gut rehabs”) must surpass the existing energy code by 15% as confirmed by an inspection by a HERS Rater,¹³ or
- The energy efficiency rating for an existing building must exceed the existing energy code by at least 10% as confirmed by a HERS Rater; or
- Energy efficiency improvements have been made to an existing building which result either in: (a) exceeding the existing energy code by 10% *or* exceeding the original rating by at least 20% as confirmed by a “before” and “after” inspection by a HERS Rater.

In contrast to this Riverside approach was the approach taken in Ventura County (CA). Under the *Designed for Comfort* program, the CPUC program provided the owner \$100 per unit toward a \$125 per unit efficiency investment. The Energy Efficient Utility Allowance then allowed the owner to recapture 75% of the value of the energy savings. “Allowing the owner to recapture 75% of the value of the energy savings, and allowing the owner a 15% return on investment, the entire investment and interest is earned in three and one half years. A 20% ROI can be earned in just under four years.”¹⁴

Under the Ventura approach, the alternative utility allowance can be in force for four years. “After that, the rents would drop back down to the level they would have been with the standard utility allowance. . .the tenant receives ¼ of the economic benefit for the first four years and all of it for the remainder of the contract. . .The developer receives 75% of the economic benefit for the first four years, usually earning 15-20% on his/her money.”¹⁵

¹³ A HERS Rater is a rater certified to provide Home Energy Rating System (HERS) inspections.

¹⁴ Hescong Mahone Group (May 20020. “A Two-Tiered Utility Allowance: Encouraging Energy Efficient Low-Income Housing Construction,” submitted to Area Housing Authority of Ventura County and Southern California Edison Company (CPUC Designed for Comfort Program).

¹⁵ DfC Evaluation, at 2-1.

Barriers to Adoption of the Energy Efficient Utility Allowance

Despite meeting or exceeding the goal for EEUA adoption by California housing authorities, the CPUC's Designed for Comfort program identified a number of substantial barriers "that made it difficult for the PHAs to adopt" the energy efficient allowance. The barriers that were identified included, but were not limited to:

- "PHAs were too busy or understaffed to even become familiar with the EEBUA concept." According to the DfC evaluation, "one of the program's biggest challenges was simply getting the attention of the PHA so that the educational process could begin."¹⁶
- "Limits on the applicability of the EEBUA concept." As the DfC evaluation found, "there are many types of affordable housing that either cannot benefit from the EEBUA or where benefits would be minimal." Housing units without tenant-paid utilities, or units where rents are limited by other than the total percentage of income, are two such circumstances. In addition, some California localities experience weather too moderate for the change in utility allowances to make a significant difference.¹⁷
- The lack of an explicit HUD endorsement of energy efficient utility allowances. While HUD publications list the promulgation of energy efficient utility allowances as a "best practice" by local housing authorities,¹⁸ no formal directive explicitly approving such allowances has been issued. According to the DfC evaluation, "PHAs are subject to periodic audits from HUD and some are cautious about adopting unendorsed policies for this reason. . . They look to HUD to put it in writing."¹⁹

Finally, one major concern with the concept of the energy efficient utility allowance in California was that the program failed to sufficiently explain how it would benefit the Housing Authority as a Housing Authority. The program placed "too much emphasis on how the program would benefit the developers and did not make the case for benefits to the PHA and its tenants. 'I don't care how it is going to benefit some private developer,' one PHA official remarked."²⁰

¹⁶ The DfC evaluation found, however, that the promotion of the energy efficient utility allowances was occurring at a time when Congress was slashing overall Section 8 budgets. As a result, the DfC program was competing for the attention of housing authority administrators at precisely the time those administrators were laying off staff and reducing services due to budget reductions. The program evaluation quoted one DfC staffperson as saying "All their competing issues were very real and they made our EEBUA look like a luxury item when there were just trying to keep people in homes"; another DfC staffer acknowledged, "it was the center of our universe but not theirs."

¹⁷ *Id.*, at 4-1.

¹⁸ See, e.g., *Public Housing Energy Conservation Clearinghouse News*, "Housing Authority of the City of Riverside (California): A new energy efficient utility allowance schedule takes energy efficient buildings into account." (March-April 2004). Published by HUD's Public Housing Energy Conservation Clearinghouse (PHECC).

¹⁹ *Id.*, at 4-2.

²⁰ *Id.*, at 4-10.

The energy efficient utility allowance is an important, even if not an exclusive, tool to help bring the benefits of energy efficiency to a large segment of Pennsylvania’s low-income rental housing market. While the introduction of energy efficient utility allowances might be easier in Pennsylvania than it was in California –Pennsylvania represents a smaller state with a stronger history and experience with low-income efficiency programs—the lessons of the CPUC’s Designed for Comfort program must not be lost. In particular, the promotion of how a Pennsylvania energy efficient utility allowance benefits the housing authority in addition to benefiting the Section 8 property owner and tenant, would be an important component to a Pennsylvania program modeled after the California initiative.

SUMMARY AND RECOMMENDATIONS

The delivery of low-income energy efficiency measures through Pennsylvania’s Act 129 plans can come in many forms. One historically successful program model in Pennsylvania is the Low-Income Usage Reduction Program (LIURP). Through LIURP, Pennsylvania utilities deliver fully-subsidized, directly-installed, measures.

A second model involves “piggybacking” certain utility-funded energy efficiency measures on the delivery of other programs. The combined delivery of electric baseload measures with the U.S. Department of Energy’s (DOE) Weatherization Assistance Program (WAP) is one such piggyback program.

The discussion above recommends yet a third model for the delivery of low-income efficiency measures. This recommendation involves a combination of several efforts. It involves:

- Marketing and technical assistance to Pennsylvania’s local public housing authorities encouraging them to adopt energy efficient utility allowances;
- Marketing and direct partial subsidies to Section 8 property owners to implement sufficient energy efficiency measures to qualify to use the energy efficient utility allowance;
- The subsidy of the use of Home Energy Raters sufficient to determine a building’s qualification for an energy efficient utility allowance.

This three-part initiative, largely modeled on California’s Designed for Comfort Energy Efficiency-Based Utility Allowance (EEBUA) program, will leverage utility-provided efficiency dollars with property-owner dollars and funding provided through the EEUA. It will not only present a strategy to reach some of the state’s lowest income household, it presents a specific strategy to do so by leveraging the benefits of utility expenditures beyond that which might otherwise be generated through a 100% funded, direct install utility program.