

Honeywell

Applied Public Policy Research
APPRISE
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How Energy Efficiency Can Reduce Bill Subsidization

Affordable Comfort, April 2008

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Introduction

Purpose – to examine the impact of Energy Efficiency work on usage / subsidy costs

Method - compare several current program models

- compare results
- examine interactions of structure and result
- conclusions

Session Outline

1. Introduction
2. Affordability Program Types
3. Fixed Credit Program
4. Fixed Payment Program
5. Discount Program
6. Impacts on Energy Usage and Bill Subsidies
7. Conclusion

AFFORDABILITY PROGRAM TYPES

Affordability Program Types

1. Fixed Payment

- Customer has a fixed monthly bill

2. Fixed Credit

- Customer receives a fixed monthly subsidy

3. Discount

- Customer receives a % discount on the bill

Period 1 - January

		Fixed Payment	Fixed Credit	Discount
		\$75/Month	\$150/Month	50%
Salary	\$100			
LIHEAP	\$450			
Energy Bill	\$300			
Subsidy		\$225	\$150	\$150
Discounted Bill		\$75	\$150	\$150
Bill Credit		\$0	\$300	\$300
Cash on Hand		\$25	\$100	\$100

Period 2 - February



		Fixed Payment	Fixed Credit	Discount
		\$75/Month	\$150/Month	50%
Salary	\$100			
Bill Credit		\$0	\$300	\$300
Cash on Hand		\$125	\$200	\$200
Energy Bill	\$400			
Subsidy		\$325	\$150	\$200
Discounted Bill		\$75	\$250	\$200
Bill Credit		\$0	\$50	\$100
Cash on Hand		\$50	\$200	\$200

Period 3 - March

		Fixed Payment	Fixed Credit	Discount
		\$75/Month	\$150/Month	50%
Salary	\$100			
Bill Credit		\$0	\$50	\$100
Cash on Hand		\$150	\$100	\$100
Energy Bill	\$400			
Subsidy		\$325	\$150	\$200
Discounted Bill		\$75	\$250	\$200



Affordability Program Types

- Fixed Payment

- Annual income: \$10,000
- Payment set at 9% of income
- Annual payment: \$900
- Monthly payment: $\$900/12 = \75
- Winter bill: \$300  subsidy = $\$300 - \$75 = \$225$
- Summer bill: \$25  subsidy = $\$25 - \$75 = -\$50$

Affordability Program Types

- Fixed Payment

- Ratepayers bear all the risk because when bill changes, customer payment is fixed
- Every month the customer is charged \$75
- Winter bill: \$300  subsidy= $\$300 - \$75 = \$225$
- Prices increase by 20%
- Winter bill: \$360  subsidy= $\$360 - \$75 = \$285$
- Ratepayer subsidy increases by $\$285 - \$225 = \$60$
- No bill increase for the customer

Affordability Program Types

- Fixed Payment

- If bill declines due to usage reduction program, all benefits go to the ratepayers
- Annual payment: \$900
- Annual bill: \$1400
 - ➡ subsidy: $\$1400 - \$900 = \$500$
- After usage reduction, annual bill: \$1200
 - ➡ subsidy: $\$1200 - \$900 = \$300$
- Ratepayer subsidy declines by $\$500 - \$300 = \$200$
- No bill reduction for the customer

Affordability Program Types

- Fixed Credit

- Annual income: \$10,000
- Burden targeted at 9% of income
- Annual payment: \$900
- Estimated bill: \$1400
- Annual subsidy: $\$1400 - \$900 = \$500$
- Monthly credit: $\$500/12 = \42

Affordability Program Types

- Fixed Credit

- Customer bears all of the risk, because when bill changes the subsidy is fixed

- Every month the customer is credited \$42

- Winter bill: \$300

- ➔ Customer responsibility = $\$300 - \$42 = \$258$

- Prices increase by 20%

- Winter bill: \$360

- ➔ Customer responsibility = $\$360 - \$42 = \$318$

- Ratepayer subsidy is unchanged

- Customer's responsibility increases by $\$318 - \$258 = \$60$

Affordability Program Types

- Fixed Credit

- If bill declines due to usage reduction program, all benefits go to the customers


- Annual charges: \$1400

- Annual subsidy: \$500

- Net annual bill: \$900

- After usage reduction, annual bill: \$1200

- Annual subsidy is unchanged

 net annual bill: $\$1200 - \$500 = \$700$

- Ratepayer subsidy is unchanged

- Customer's responsibility declines by $\$900 - \$700 = \$200$

Affordability Program Types

- Discount

- Rate discount of 60%

- Winter bill: \$300

- customer pays $\$300 * 40\% = \120

- subsidy $\$300 * 60\% = \180

- Summer bill: \$25

- customer pays $\$25 * 40\% = \10

- subsidy $\$25 * 60\% = \15

Affordability Program Types

- Discount

- Ratepayers and customers share the risk because when bills increase both the subsidy and the customer bill increase

- Winter bill: \$300

- customer pays $\$300 * 40\% = \120

- subsidy $\$300 * 60\% = \180

- Prices increase by 20%

- Winter bill: \$360

- customer pays $\$360 * 40\% = \144

- subsidy $\$360 * 60\% = \216

- Ratepayer subsidy increases by $\$216 - \$180 = \$36$

- Customer responsibility increases by $\$144 - \$120 = \$24$

Affordability Program Types

- Discount

- If bill declines due to usage reduction program, benefits go to ratepayers and customers

- Annual bill: \$1400

- customer pays $\$1400 * 40\% = \560

- subsidy $\$1400 * 60\% = \840

- After usage reduction, annual bill: \$1200

- customer pays $\$1200 * 40\% = \480

- subsidy $\$1200 * 60\% = \720

- Ratepayer subsidy decreases by $\$840 - \$720 = \$120$

- Customer responsibility decreases by $\$560 - \$480 = \$80$

Affordability Program Types

	Gross Bill	Fixed Payment		Fixed Credit		Discount	
		$\$10,000 \text{ income}$ $9\% = \$900/12 = \75		$\$10,000 \text{ income}$ $9\% = \$900$ $\$1400 \text{ estimated bill}$ $\$1400 - \$900 = \$500$ $\$500/12 = \42		$60\% \text{ discount}$	
		Bill	Subsidy	Bill	Subsidy	Bill	Subsidy
Initial	\$300	\$75	\$225	\$258	\$42	\$120	\$180
Rate Increase	\$360	\$75	\$285	\$318	\$42	\$144	\$216
Usage Reduction	\$240	\$75	\$165	\$198	\$42	\$96	\$144

FIXED CREDIT EXAMPLE

FIXED CREDIT EXAMPLE

NJ USF/COMFORT PARTNERS

- NJ Universal Service Fund
 - Fixed Credit discount program
 - Customers with income below 175% of poverty
 - Credits pay for electric & gas service
 - Application automatic with LIHEAP
 - Credit based on 3% of income for electric & 3% of income for gas (or 6% if elec heat)
 - Approximately 150,000 participants in 2005

FIXED CREDIT EXAMPLE

NJ USF/COMFORT PARTNERS

- NJ Comfort Partners Program
 - Usage reduction program
 - Customers with income below 175% of poverty
 - Targets high usage USF participants – not limited to USF
 - Acceptance of treatment voluntary
 - Acceptance of individual measures voluntary

FIXED CREDIT EXAMPLE

NJ USF/COMFORT PARTNERS

- NJ Comfort Partners Program
 - Significant funds for H&S related work
 - Provides education and comprehensive energy efficiency measures to reduce electric & gas usage
 - Per site spending tied to pre-treatment usage
 - Measure specific protocols (with some latitude)
 - Over 7,000 customers treated in 2005 & 2006

FIXED CREDIT EXAMPLE

NJ USF/COMFORT PARTNERS

- Program Interactions
 - Utilities send the contractor lists of USF participants who are high usage
 - Contractors prioritize participants by usage
 - Customers are also referred by the call center that handles at risk customers
 - Approximately 70% are USF participants

FIXED PAYMENT EXAMPLES

FIXED PAYMENT EXAMPLE

PGW CRP/CWP

- PGW Customer Responsibility Program
 - Fixed payment program
 - Customers with income below 150% of poverty
 - Gas payment equal to 8%, 9% or 10% of income, depending on FPL
 - Application must be directly in PGW office
 - Approximately 60,000 participants in 2005

FIXED PAYMENT EXAMPLE

PGW CRP/CWP

- PGW Conservation Works Program
 - Targeted usage reduction program
 - CRP participants only
 - Provides education and limited energy efficiency measures to reduce gas usage only
 - Tiered level of treatment based on usage
 - Measures based on straight payback
 - Over 2,500 customers treated in 2005

FIXED PAYMENT EXAMPLE

PGW CRP/CWP

- Program Interactions
 - PGW sends the contractor lists of CRP recipients
 - Contractors prioritize by usage
 - 100% are CRP recipients
 - Acceptance of treatment mandatory
 - Acceptance of individual measures voluntary

FIXED PAYMENT EXAMPLE

OHIO PIPP/EPP

- Ohio Percentage of Income Payment Plan
 - Customers with income below 150% of poverty
 - During the heating season, customers pay 10% of their income for natural gas and 5% for electricity, or 15% of income for electricity if they are a total electric home
 - Customers who receive emergency HEAP are targeted for PIPP
 - 215,000 PIPP participants in 2007. This is a 16% increase from 2006
 - The actual cost of PIPP for 2006 was \$86,350,679.

FIXED PAYMENT EXAMPLE

OHIO PIPP/EPP

- Ohio Electric Partnership Program
 - Provides energy education and electric baseload measures and also weatherizes electrically heated homes.
 - Targets PIPP customers whose electric usage is over 4000 kWh/year
 - 40,000 customers have been served since program began in 2001 (13,000 in 2005 PY).

FIXED PAYMENT EXAMPLE

OHIO PIPP/EPP

- Program interaction
 - EPP was designed to reduce the cost of PIPP program
 - Local Utilities provide usage data for PIPP customers to OCS which transmits it to OEE
 - Database is filtered to eliminate prior EPP customers, customers with low usage, and those without enough usage data
 - Remaining customers are sorted and sent electronically to appropriate local provider
 - Local providers do outreach to schedule appointments for EPP services, do audits and refer customers for additional assistance

DISCOUNT EXAMPLE

DISCOUNT EXAMPLE

PECO CAP/LIURP

- PECO Customer Assistance Program
 - Rate discount program
 - Customers with income below 150% of poverty
 - 25%, 50%, 75%, or 85% electric rate discount, depending on poverty level
 - Approximately 100,000 participants in 2005

DISCOUNT EXAMPLE

PECO CAP/LIURP

- PECO Low Income Usage Reduction Program
 - Usage reduction program
 - Customers with income below 200% of poverty
 - Provides education and energy efficiency measures to reduce electric and gas usage
 - Over 7,000 customers treated in 2005

DISCOUNT EXAMPLE

PECO CAP/LIURP

- Program Interactions
 - PECO sends the contractor lists of customers who are high usage and low income
 - Customers are also referred by the call center that handles CAP customers
 - Approximately 70% are CAP customers
 - Prevent other low-income from needing CAP

IMPACTS

IMPACTS ON ENERGY USAGE AND BILL SUBSIDY

NJ Comfort Partners (2002 Participants)		
	Gas	Electric Baseload
Δ Usage ¹	7%	12%
Δ Bill ²	-\$87	-\$147
Customer Reduction	-\$234	

IMPACTS ON ENERGY USAGE AND BILL SUBSIDY

Philadelphia Gas Works (2003 Participants)	
Δ Usage ¹	9%
Δ Bill	-\$257
Δ Subsidy	-\$193
Δ Customer charge	-\$64
Fixed payment program, but some customers exit the CRP.	

¹Blasnik

IMPACTS ON ENERGY USAGE AND BILL SUBSIDY

Ohio Electric Partnership Program (2002 High Usage Participants)	
Δ Usage ¹	12%
Δ Bill	-\$161
Δ Subsidy	-\$95
Δ Customer charge	-\$66
Fixed payment program, but customers pay actual bill in the summer.	

IMPACTS ON ENERGY USAGE AND BILL SUBSIDY

PECO LIURP (2004 Participants)		
	Baseload	Electric Heat
Δ Usage ¹	10%	10%
Average Subsidy ²	25%	
Δ Bill (estimated)	-\$231	-\$417
Δ Subsidy (estimated)	-\$58	-\$104
Δ Customer charge	-\$173	-\$313

IMPACTS ON ENERGY USAGE AND BILL SUBSIDY

	NJ	PGW	Ohio	PECO
Δ Usage	7% gas 12% baseload	9% gas	12% baseload	10% baseload
Δ Bill	-\$234	-\$257	-\$161	-\$231
Δ Customer	-\$234	-\$64	-\$66	-\$173
Δ Subsidy	\$0	-\$193	-\$95	-\$58

CONCLUSION

Conclusion

- Real cost effective impacts can be obtained
- Results are affected by several factors
 - Affordability payment assistance structure
 - Structure of Energy Efficiency Program
 - Level of commitment required
- Benefits are in the eye of the beholder