WINTER WEATHER PAYMENTS:
The Impact of Iowa's Winter Utility Shutoff Moratorium
On Utility Bill Payments by Low-Income Customers

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This study looks at whether Iowa utility customers protected by a winter shutoff moratorium respond by stopping or substantially reducing the payments which they would otherwise make toward their winter utility bills. The study is based on utility payment records from roughly 3,000 recipients of Low-Income Home Energy Assistance Program (LIHEAP) benefits for 38 months (April 1998 through May 2001). The LIHEAP recipients were served by three separate Community Action Agencies (CAAs) in central and northwest Iowa.[1] The recipients were gas and/or electric customers of Alliant Energy or Mid-American Energy.

THE UNAFFORDABILITY OF IOWA'S WINTER HOME ENERGY BILLS

The observation that Iowa winters present high and unaffordable home energy bills to low-income households comes as no surprise. "Affordability" in this regard is measured by customer home energy burdens. A home energy burden is simply the household's home energy bill divided by household income. A household with an annual home energy bill of $1,500 and an annual income of $6,000 would therefore have a home energy burden of 25% ($1,500 / $6,000 = 0.25).

Data from the U.S. Department of Energy's Residential Energy Consumption Survey (RECS) shows that in the Midwest, while non-low-income residential consumers have home energy burdens of between 2.7% and 3.5%, recipients of benefits from the Low-Income Home Energy Assistance Program (LIHEAP) have home energy burdens from four to five times higher (between 11.7% and 12.3%).

TABLE 1
RESIDENTIAL ENERGY: AVERAGE ANNUAL EXPENDITURES, BY AMOUNT (DOLLARS) AND MEDIAN INDIVIDUAL BURDEN (PERCENT) FOR MIDWEST CENSUS REGION (1999)

	All Fuels		Natural Gas		Electricity	
	Dollars	Percent	Dollars	Percent	Dollars	Percent
All households	$1,286	3.5%	$1,310	3.4%	$1,079	3.4%
Non-low-income households	$1,354	2.7%	$1,373	2.7%	$1,192	2.2%
Low-income households	$1,125	8.0%	$1,151	8.1%	$893	7.4%
LIHEAP recipient households	$1,125	11.9%	$1,236	12.3%	$856	11.7%

These, of course, are *average annual* burdens. Many households at lower income levels have burdens in the 40+% range. Moreover, winter home bills as a percent of winter income impose much higher burdens as well.

One impact of the unaffordability of home energy service is the nonpayment of bills. Previous research by the Iowa Department of Human Rights (DHR), however, which is the agency administering LIHEAP in Iowa, found that bill nonpayment is perhaps not

[1] Accordingly, subsequent references in this analysis to "Iowa LIHEAP recipients" are to the recipients served by these three CAAs.

even the most significant of the adverse impacts of unaffordable winter home energy bills. A DHR study of Iowa LIHEAP recipients found that:[2]

- Over 12 percent of Iowa LIHEAP recipients went without food to pay their home heating bill. Projected to the total participating LIHEAP population, that meant that about 7,600 low-income households (representing 20,000 Iowa citizens) went without food at times as a result of unaffordable home heating bills.

- More than one-in-five went without medical care to pay for heating bills. This included not seeking medical assistance when it was needed, not filling prescriptions for medicine when a doctor had prescribed it, and/or not taking prescription medicines in the dosage ordered by the doctor.

- Almost 30 percent reported that they did not pay other bills, but did not elaborate as to which bills were not paid. In addition to not paying other bills, many low-income households incurred debt in order to pay both their home heating bills and other basic necessities. They borrowed from friends and/or neighbors, used credit cards to pay for food and other necessities, or did not pay the heating bill.

Recognizing the dangers of the lack of home energy during cold weather months, Iowa legislators mandated adoption of a winter shutoff moratorium. Section 476.20 of the Iowa Code provides that a household certified to be eligible for benefits from either the federal Low-Income Home Energy Assistance Program (LIHEAP) or the federal Weatherization Assistance Program (WAP) shall not be subject to the disconnection of service between the dates of November 1 and April 1 of each winter heating season.[3]

From the inception of the Iowa winter shutoff moratorium, as well as in discussions regarding winter shutoff protections in other states, arguments have been raised that the blanket prohibition on the termination of service during the winter season would result in customers deciding to stop making payments toward their home utility bills. In the absence of the potential use of service termination as a collection tool, the reasoning goes, customers will stop paying their bills in order to, in effect, take a "loan" from the utility throughout the moratorium period. The "loan" would be paid when Spring weather brought an end to the prohibition on service terminations.

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[2] Joyce Mercier, Cletus Mercier and Susan Collins (June 2000). ***Iowa's Cold Winters: LIHEAP Recipient Perspective***, Iowa Department of Human Rights: Des Moines (IA).

[3] The Iowa Utilities Board has incorporated this winter shutoff moratorium into its administrative rules. 199 IAC §19.4(17) and 199 IAC § 20.4(17). In response to the high gas costs and cold weather during the 2000/2001 winter heating season, the Iowa Utilities Board administratively extended the winter shutoff moratorium to May 1, 2001.

The purpose of the analysis below is to empirically examine one large group of LIHEAP recipients protected by the Iowa winter moratorium to determine whether the concerns over winter bill nonpayment have any empirical basis.

THE DATA ANALYSIS

An examination of the monthly arrears of Iowa's LIHEAP recipients might at first blush appear to support the conclusion that these low-income customers substantially curtail their payments during winter months when utilities are constrained by the state's winter shutoff moratorium. Table 1 compares, in three different years, the arrears of LIHEAP customers[4] in the four month period representing the winter heating seasons with the four month period immediately preceding the heating season. The winter months of January 1999 through April 1999, for example, were compared to the months of September through December 1998.[5] Average arrears were calculated by dividing the sum of all arrears appearing on bills by the total number of bills rendered.

TABLE 1
ARREARS FROM FOUR WINTER HEATING MONTHS
COMPARED TO ARREARS IN FOUR MONTHS IMMEDIATELY PRECEDING WINTER

	1998 - 1999		1999 - 2000		2000 – 2001	
Non-Htg/Htg Months	Preceding Months	Heating Months	Preceding Months	Heating Months	Preceding Months	Heating Months
Sep/Jan	$58	$69	$89	$17	$65	$46
Oct/Feb	$50	$71	$86	$44	$75	$121
Nov/Mar	$61	$95	$53	$70	$73	$117
Dec/Apr	$92	$118	$34	$77	$36	$58
4-Month Average	$65.25	$88.25	$65.50	$52.00	$62.25	$85.50

Heating months are January – April
Preceding months are September – December preceding the winter heating season.

This data would at first make it appear that customers pay less during the winter months than they do during the months immediately preceding the winter. The average arrears for the four-month winter period is higher than the corresponding non-winter months in two of the three years.[6] The average arrears for the four-month winter period January – April 1999 was 33% higher than the corresponding four-month non-winter period ($65.25 vs. $88.25). The average arrears for the four-month winter period January – April 2001 was 37% higher than the corresponding four-month non-winter period ($62.25 vs.

4 The arrears were calculated by taking the balance on the account at the time of a monthly bill and subtracting the monthly bill rendered for current usage. The monthly bill for current usage is subtracted because, while "due" at the time it is rendered, the bill is not "overdue" until some point in the future.

5 Because the study considers arrears, bills are lagged by one month. The arrears appearing on a bill in April, in other words, represent unpaid bills from March. The arrears appearing on a bill in December represent unpaid bills from November.

6 The substantial influx of LIHEAP dollars during December 1999 reduced the January 2000 arrears and somewhat skewed the four month average.

$85.50). In eight of the 12 winter heating months over three years, the arrears appearing on the bill during the month were higher than the average arrears for the four month period immediately preceding the winter period.

A closer examination of the Iowa data, however, reveals that this conclusion as to increased payment trouble during the winter moratorium months is in error.

PAYMENT OUTCOMES

The analysis of the payment impacts of the Iowa winter moratorium considers a range of metrics testing whether utility bill payments are made in a full and timely fashion. This section of the moratorium evaluation examines billing and payment data to determine the extent to which full and timely payments have been made. Payment outcomes have been measured using the following metrics:

- **Complete payment:** If the customer is billed $100, the company wants to collect $100.
- **Prompt payment:** If the customer receives a bill that is due on the 20th of the month, the company wants its payment no later than the 20th of the month.
- **Regular payment:** If the customer receives 12 bills in a year, the company wants 12 payments in a year, one in response to each bill.

Metrics have been developed to measure each of these payment outcomes.

Weighted Arrears

The use of "weighted arrears" as a mechanism to assess payment outcomes is based on a foundation first provided by the Bureau of Consumer Services (BCS) of the Pennsylvania Public Utilities Commission. According to a 1983 BCS analysis, contrary to the argument by that state's utility companies, the Pennsylvania winter shutoff moratorium did not result in an increase in the number of unpaid bills, or the amount of unpaid bills, that would have existed in the absence of a moratorium. The BCS study reported that:

> Average overdue bills are at a low in November and rise to a high point in March or April. The apparent relationship of this pattern to Public Utility Commission regulations is obvious. That is, arrears are greatest at the end of the Commission's winter termination restrictions (December 1 to March 31 of the following year) and have been reduced to their lowest point immediately prior to the introduction of those restrictions for the following year. This pattern is consistent with the assertion put forward by utilities

> that they would be able to control arrearages if there were no winter termination restraints. However, the seasonal fluctuations are substantial only for heating accounts. Arrearages for non-heating accounts show only minor seasonal fluctuations. A comparison of [the data] suggests a simple explanation for this difference, that is, that the size of arrearages is related to the size of monthly bills. Heating customers' bills grow radically in the winter and so do their arrearages. Non-heating customers' bills change very little seasonally and their arrearages follow suit. In other words, if the assertion that winter termination restraints invite nonpayment were correct, then non-heating arrearages should show the same seasonal pattern of variations as do heating arrearages. That they do not casts substantial doubt on the assertion that PUC winter termination restraints are responsible for willful non-payment and consequent collection problems.[7]

This Pennsylvania report introduces the notion that any assessment of arrears must control for the impact of monthly bills. The BCS report is consistent with the BCS recommendation, often stated, to use a "weighted arrears" or "bills behind" statistic to factor out the impact of increased arrears caused by factors other than nonpayment.

BCS explains that its "bills behind" statistic "permits comparisons to be drawn between companies by eliminating the effects of different customer bills on arrearages." Without such a measure, "the interpretation of average arrearages, either over time or in comparison between companies, presents some difficulties."[8]

A similar analysis was performed for this Iowa evaluation. Figure 1 shows the number of average "bills behind" by month starting with June of a year and continuing through May of the following year. The time periods studied, therefore, included the following: (1) June 1998 through May 1999; (2) June 1999 through May 2000; and (3) June 2000 through May 2001. These periods were selected to ensure that the winter heating season, the four months immediately preceding the winter heating season, and the two months immediately succeeding the winter heating season were in the same data set.

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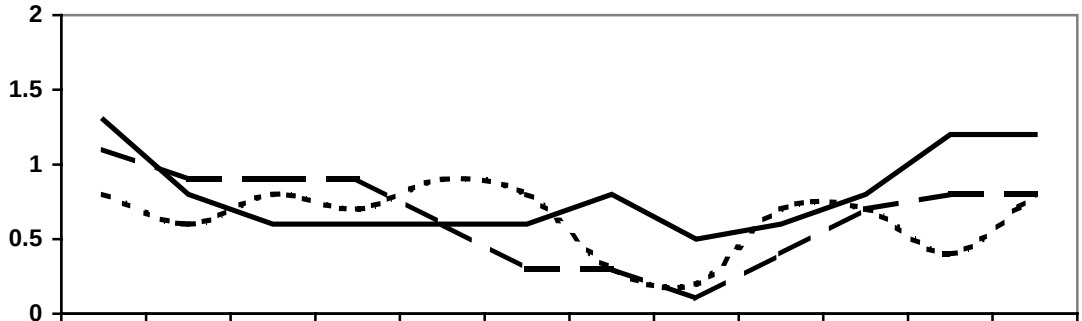
[7] Joseph Farrell (1983). ***Utility Payment Problems: The Measurement and Evaluation of Responses to Customer Nonpayment***, at 19, Pennsylvania Public Utility Commission: Harrisburg, PA

[8] *Id.*

"Bills Behind" by Month for Iowa LIHEAP Recipients



	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
98-99	1.3	0.8	0.6	0.6	0.6	0.6	0.8	0.5	0.6	0.8	1.2	1.2
99-00	1.1	0.9	0.9	0.9	0.6	0.3	0.3	0.1	0.4	0.7	0.8	0.8
00-01	0.8	0.6	0.8	0.7	0.9	0.8	0.3	0.2	0.7	0.7	0.4	0.8

Figure 1

As this data shows, the number of bills behind that Iowa LIHEAP recipients incur fluctuates within a very narrow band over the course of the year. While arrears unquestionably go up during the high cost winter months, the increase is not substantial. In the June 1998 – May 1999 period, the "bills behind" in January through March were virtually identical to the "bills behind" in July through October. During the June 1999 - May 2000 and the June 2000 – May 2001 periods, the "bills behind" during the winter months were actually *lower* than the bills behind for the corresponding non-heating/non-moratorium months.

No-one suggests, however, that low-income arrears do not increase in the high cost winter months. Instead, the most significant observation in Figure 1 is that rather than experiencing a *dramatic* increase in the number of bills behind during the winter moratorium months, resulting from a decrease in the amount and/or frequency of payments, the normalized weighted arrears for Iowa LIHEAP customers fluctuates within a very narrow band.

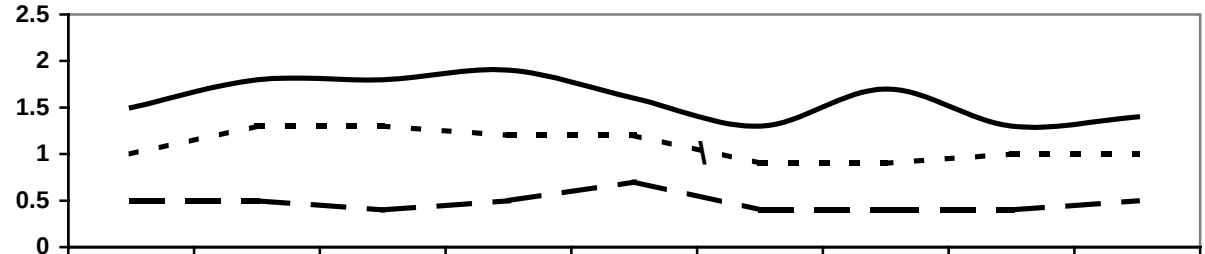
Just as found by the Pennsylvania BCS in 1983, in Iowa, while the dollar level of arrears tends to be higher during the winter moratorium months, this results from the fact that bills are higher, not from the fact that a greater number of bills remain unpaid.

Payments Resulting in $0 Balances to Total Number of Payments

Despite the contribution of LIHEAP benefits to help pay winter home energy bills, a relatively small number of LIHEAP recipients were consistently able to make monthly

payments that reduced their account balance to zero dollars, even when monthly payments were made. Figure 2 shows an index of the number of accounts on which monthly payments were made to the number of accounts on which such payments reduced the account balance to $0. If the index is 1.0, 100% of the payments reduced the balance to $0. If the index is 0.5, 50% of the payments reduced the account balance to $0. Accounts on which no payments were made in a month are not included in this analysis. A $0 balance includes those accounts having credit balances.

Index: Payments Yielding $0 Balance to Total Payments



	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
00-01	0.5	0.5	0.5	0.7	0.4	0.4	0.8	0.3	0.4
99-00	0.5	0.8	0.9	0.7	0.5	0.5	0.5	0.6	0.5
98-99	0.5	0.5	0.4	0.5	0.7	0.4	0.4	0.4	0.5

Figure 2

Several important observations march forward from Figure 2. First, the data clearly indicate that the winter moratorium does not result in a substantial change in winter payment patterns by low-income customers. The numbers of payments in January through April which reduce the account balance to $0 do not substantively differ from the numbers of such payments reducing account balances to $0 in the non-moratorium months.

In addition, Figure 2 shows that the failure of LIHEAP recipients to bring their accounts current through a monthly payment in a particular month is not even necessarily bad news from the perspective of a utility. The Iowa LIHEAP recipients demonstrate that they will make "some" payment on their accounts, even if the payment is only in partial satisfaction of their total outstanding arrears.

If the index of payments resulting in a $0 balance is 0.4, in other words, what this means is that while 40% of the payments made reduced account balances to $0, 60% of the households making payments made their payments even though the account still had a

balance remaining after the payment.[9] The *total* number of payments made is discussed separately below.

Finally, it is interesting to see how the LIHEAP benefits flow through this data. The jump in payments resulting in a $0 balance in December and January might at first seem counter-intuitive. It would not be immediately evident, in other words, why the number of customer payments resulting in a $0 balance would actually *increase* when the higher-cost cold weather months came around. The explanation lies with LIHEAP. LIHEAP payments made in November and December reduce total balances for recipients to the point where an increased number of those recipients can zero out their account balance in that month or in the ensuing month.

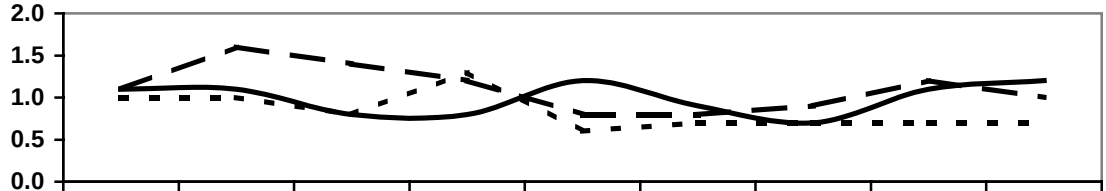
Dollars of Monthly Payments to Dollars of Monthly Bills for Current Usage

If a LIHEAP recipient is not generating a $0 balance in a particular month, the next logical question is whether the customer is at least "catching up," or whether that customer is falling further behind. In order to maintain the status quo relative to outstanding arrears, the customer must at least make payments equal to the total bill for current usage. Irrespective of whether a customer makes a payment towards his or her arrears, if the January bill for current usage is paid in January, the customer, at the least, has fallen no further behind.

In Figure 3 below, customer bills for current usage are indexed to customer payments. If the index is 1.0, the total dollars in payments exactly equaled the total dollars in bills for current usage. If the index is 0.5, the payments equaled 50% of the bills, while if the index is 1.2, the payments equaled 120% of the bills for current usage. A payment of more than 100% of the bill indicates that the customer not only paid the entire current bill, but made some payment towards arrears as well.

[9] The amount due for budget billing customers is the budget billing amount, not the bill for current usage.

Total Dollars of Payments in Month to Total Dollars of Bills for Current Usage in Month



	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
98-99	1.1	1.1	0.8	0.8	1.2	0.9	0.7	1.1	1.2
99-00	1.1	1.6	1.4	1.2	0.8	0.8	0.9	1.2	1.0
00-01	1.0	1.0	0.8	1.3	0.6	0.7	0.7	0.7	0.7

Figure 3

The Iowa LIHEAP recipients as a group consistently made their payments throughout both the winter moratorium season and the non-heating season as shown in Figure 3. While payments did not equal current bills in the winter heating season, the dip in payments in relation to current bills does not support the conclusion that low-income customers protected by the winter moratorium consistently, let alone systematically, substantively reduced the payments being made.

Indeed, the apparent dip in payments made during the period January through March can, in part, be attributed to the receipt of LIHEAP assistance in the preceding month. In December 2000, for example, payment of LIHEAP benefits resulted in a ratio of 1.3, to be followed by a ratio of only 0.6 in January. The cause for the January dip is, however, in substantial part, attributable to the fact that part of the January bill had been *pre*paid by the December LIHEAP payment.

That this, in fact, is the case can be seen by comparing the aggregate dollars of payments to the aggregate dollars of bills for current use. In the aggregate, Iowa LIHEAP recipients were billed $1,718,872 in the four months of the 1999/2000 winter heating season and made $1,554,780 in payments. Iowa utilities collected 90% of the revenue billed during the winter months through winter month payments. Even in the high cost 2000/2001 winter heating season, Iowa LIHEAP recipients were billed $2,739,608 and made $2,407,071 in payments (87.9% of billed heating season revenue paid through heating season month payments). While a substantial part of those payments clearly represented the LIHEAP benefits provided, nonetheless, this data does not support the conclusion that Iowa's low-income customers stop making their winter bill payments when protected by the winter shutoff moratorium.

TABLE 2
BILLS AND PAYMENTS BY IOWA LIHEAP RECIPIENTS
IN 4-MONTH WINTER HEATING SEASON[10]

	Bills			Payments			Percentage Payments of Bills		
	98-99	99-00	00-01	98-99	99-00	00-01	98-99	99-00	00-01
Jan	$411,328	$481,374	$898,275	$509,812	$383,076	$520,103			
Feb	$333,945	$478,432	$665,278	$300,209	$404,739	$492,136			
Mar	$340,969	$426,826	$590,502	$251,082	$380,488	$985,000			
Apr	$280,440	$332,240	$585,553	$294,841	$386,477	$409,832			
4-Month Total	$1,366,682	$1,718,872	$2,739,608	$1,355,944	$1,554,780	$2,407,071	99.2%	90.5%	87.9%

Total Number of Payments vs. Total Number of Bills

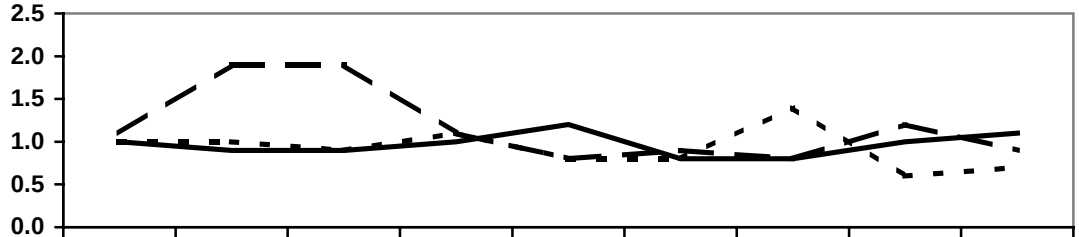
The regularity of payments can be measured by indexing the total number payments to the total number of bills rendered each month. If "some" payment is made on an account in any given month, there is an increased likelihood that the customer will be able to make a future payment sufficient to reduce the account balance to $0. The July bill is easier to pay in full, in other words, if the customer has made *some* payment toward the June bill, even if the June payment is only a partial payment.

Figure 4 shows that Iowa LIHEAP recipients tend to make almost one payment for each bill they receive for home energy service. These payments may not reduce the total balance to $0. Neither may the payments cover the entire bill for current usage. The winter moratorium, however, does not result in LIHEAP recipients deciding to *stop* making payments on a widespread, let alone universal, basis. While the number of payments is reduced during the winter heating season, Iowa utilities tend to receive roughly eight payments for every ten bills tendered during these months.

Taking out the seemingly anomalous number of payments in October and November of 1999 (a time when supplemental LIHEAP payments were made which were small relative to the typical annual benefit and were insufficient to pay entire bills), the index of payments made to bills rendered tends to fluctuate in a narrow band of between 0.8 and 1.1 each month.

[10] The four months presented are January through April. January bills and payments are for December usage, while April bills and payments are for March usage.

Index: Total Number of Payments in Month to Total Number of Bills in Same Month



	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
98-99	1.0	0.9	0.9	1.0	1.2	0.8	0.8	1.0	1.1
99-00	1.1	1.9	1.9	1.1	0.8	0.9	0.8	1.2	0.9
00-01	1.0	1.0	0.9	1.1	0.8	0.8	1.4	0.6	0.7

Figure 4

The annual dips in the number of payments made by LIHEAP recipients in January and February do not necessarily reflect nonpayment toward outstanding accounts. Instead, as discussed elsewhere, the annual LIHEAP payments that are made in December and January often leave credit balances on customer accounts. These credit balances do not call for a customer payment in order for the customer to remain current on his or her account.

While a LIHEAP recipient may be well-served (as a matter of sound money management) to make a payment of *any* amount even in those winter months when LIHEAP has left a credit balance on the account –this means that a lower dollar payment will be required on some future bill when there is no LIHEAP offset—this rarely occurs. Accordingly, the LIHEAP payment has the impact of completely paying one month's bill for winter heating consumption while leaving future bills to be absorbed completely out of the recipient's monthly income at that time.

SUMMARY AND CONCLUSIONS

It is often taken as "conventional wisdom" that adoption of a winter moratorium on the termination of utility service will result in a wholesale increase in winter nonpayment. Under this reasoning, consumers who are not subject to the disconnection of service in response to their nonpayment have no incentive to make their payments. Implicit within this argument is the assertion that the *only* incentive for making full and timely payments on a household utility bill is the threat that service will be disconnected in the face of nonpayment.

A review of the payment patterns of Iowa LIHEAP recipients served by three Community Action Agencies in central and northwest Iowa, as well as a review of payment outcomes for those same LIHEAP recipients,[11] does not support the conclusion that the existence of a winter utility shutoff moratorium results in a substantive change in payment practices. The review of this Iowa data finds that:

- Iowa's LIHEAP recipients do not experience an increase in the number of weighted "bills behind" they incur during the winter shutoff moratorium period. While average arrears increase during the winter, this increase is a reflection of the fact that winter bills are higher, not of the fact that LIHEAP recipients are a larger number of months behind in their payments.

- Iowa's LIHEAP recipients do not reduce the number of payments made each month resulting in a $0 balance during the shutoff moratorium period.

- Iowa's LIHEAP recipients continue to make payments each month during the winter moratorium period even when such payments do not reduce the account balance to $0. Partial payments continue to be made both toward bills for current usage and toward arrears.

- Iowa's LIHEAP recipients do not reduce the total dollars paid each month relative to the total bills for current usage rendered each month during the shutoff moratorium period.

- Iowa's LIHEAP recipients continue to make winter month payments equal to 90+% of the winter month bills despite the presence of the winter shutoff moratorium.

- Iowa's LIHEAP recipients do not reduce the number of total payments they make relative to the number of bills they receive during the shutoff moratorium period.

Iowa's winter shutoff moratorium is an important health and safety protection for Iowa's low-income customers who frequently find that they face high home energy bills that are simply not affordable. The moratorium has been implemented without creating substantive nonpayment problems for Iowa's utilities.

[11] Iowa's winter shutoff moratorium extends only to households certified to be eligible for LIHEAP and/or WAP.