HOME ENERGY AFFORDABILITY IN MANITOBA:

A Low-Income Affordability Program for Manitoba Hydro

Prepared for:

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"We, in conjunction with utilities, and social service agencies, have all worked hard to devise ways to [e]nsure that low-income Pennsylvanians have utility services which really are necessities of life as the tragic fire deaths associated with the loss of utility service underlined. . .

"However, for the poorest households with income considerably below the poverty line, existing initiatives do not enable these customers to pay their bills in full and to keep their service. . .Consequently, to address realistically these customers' problems and to stop repeating a wasteful cycle of consecutive, unrealistic payment agreements that cannot be kept, despite the best of intentions, followed by service termination, then restoration, and then more unrealistic agreements, we believe that new approaches like PECO's CAP program and the OCA's proposed EAP program should be tried."

Pennsylvania Public Utility Commission

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PART 1:
HOME ENERGY AFFORDABILITY IN MANITOBA

Manitoba Hydro has a large and growing home energy affordability problem facing its low-income households. Available resources are insufficient to address this affordability problem. The discussion below documents the unaffordability of energy on the Manitoba Hydro system. The data and analysis below shows how the unaffordability of home energy presents itself as not only a social problem for the residents of Manitoba, but also as a significant business problem for Manitoba Hydro.

This paper proposes a modest but meaningful program through which Manitoba Hydro, as a utility, can address affordability issues based on sound regulatory principles and consistent with its obligations as a public utility.

THE UNAFFORDABILITY OF HOME ENERGY IN MANITOBA

Energy bills impose a substantial burden on low-income households in the service territory of Manitoba Hydro[1] today. Current home heating, cooling and electric bills in Manitoba have driven the home energy burdens for households living with incomes at or below 125% of the Low-Income Cutoff (LICO) to crushing levels. Home energy burdens represent energy bills as a percentage of household income.

[1] Hereafter, the service territory of Manitoba Hydro will be referenced as "Manitoba" unless the context clearly indicates otherwise.

The Extent of Energy Unaffordability in Manitoba

The level of home energy burdens in Manitoba today, as well as the number of households facing these energy burdens, is staggering. Table 1 shows typical home energy burdens at differing income levels along with the number of Manitoba Hydro customers on whom these burdens are placed:

- More than 8,500 Manitoba Hydro customers live with income at or below $10,000 and thus face a potential home energy burden of more than 60%.

- 37,000 additional Manitoba households live with incomes between $10,000 and $20,000 and thus face a potential home energy burden of 10% or more.

- 23,000 *more* Manitoba households live with incomes between $20,000 and $30,000 and thus face a potential home energy burden of 6% or more.

Home energy burdens should be of concern to a public utility when they exceed 6% of household income. An affordable home energy burden is 6% of income.[2] This affordable home energy burden is to be distinguished from a "severe" energy burden of 15%.

Table 1: Manitoba Hydro Electric Heating Burdens at Average Electric Heating Bill for Households with Income Less than 125% LICO /a/

Income	Income Mid-Point	Manitoba Hydro Customers		Electric Bill	Electric Burden
		Number /b/	Percentage		
Under $5,000	$2,500	8,508	9%	$1,517	61%
$5,000 - $9,999	$7,500			$1,517	20%
$10,000 - $19,999	$15,000	36,960	40%	$1,517	10%
$20,000 - $29,999	$25,000	23,210	25%	$1,517	6%
$30,000 - $39,999	$35,000	12,242	13%	$1,517	4%
$40,000 - $49,999	$45,000	8,856	10%	$1,517	3%
$50,000 or more	$50,000	3,421	4%	$1,517	3%
Total	---	93,197	100%	---	---

NOTES:

/a/ Manitoba Hydro refused to release the calculations, the data, or the source documents leading to its conclusion that home energy burdens were not at a "crisis" level for any Manitoba Hydro customers. See, RCM/TREE/MH-I-104(a) (calculations); RCM/TREE/MH-I-104(b) (data); RCM/TREE/MH-I-104(c) (source documents).
/b/ RCM/TREE/MH-I-147.

[2] See generally, Carroll, Colton and Berger (2007). *Ratepayer Funded Low-Income Energy Programs: Performance and Possibilities*, at 16, Apprise Inc.: Princeton (NJ). The 6% threshold is for heating, cooling and baseload electric. To the extent that particular components of home energy are viewed apart, the affordable burden would be lower. An affordable baseload electric burden, for example, is considered to be 3% if the household heats with natural gas.

As Table 1 shows, nearly half (49%) of Manitoba's low-income (below 125% LICO) customers are highly cost-burdened by their energy bills.[3] A full three-quarters of Manitoba Hydro's customers with income at or below 125% of LICO experience energy burdens at or above the maximum affordable level.[4]

Even the energy burdens provided above, however, under-state the magnitude of the home energy affordability problem on the Manitoba Hydro system. Setting aside the fact that the Manitoba Hydro analysis was based on 2003 prices, home energy bills fall at or below the 6% affordability level in Table 1 when income reaches $25,000. This break-point, however, is misleading since it is based on an average electric bill. As Manitoba Hydro reports, "generally, for a fixed income, the energy burden will rise as the family size increases." (PUB/MH-I-213(d)). Electric heating customers with three people in their home have electric bills 40% higher than customers with only one person in the home (and 15% higher than two-person households). This is significant because households at the higher income levels are also disproportionately larger-size households which should have higher-than-average electric bills.

- While 4-person households are only 15% of the total population, they are 41% of the population with income of $30,000 or more.

- While 5-person households are only 7% of the total population, they are 21% of the population with income of $30,000 or more.

- While 6-person households are only 4% of the total population, they are 11% of the population with income of $30,000 or more.

- While 7-person households are only 1% of the total population, they are 3% of the population with income of $30,000 or more.

As can be seen, since higher income households are associated with larger households, and since larger households are associated with larger home energy bills, the energy burdens of the higher income households will be greater than those that are presented in Table 1.[5]

The inadequacy of income for low-income households in Manitoba can further be seen by the comparison that the National Council on Welfare makes annually between welfare income and various poverty measures.[6] The National Council compares welfare income to three different measures of poverty: before-tax LICO; after-tax LICO, and a market-basket measure (MBM). Table 2 sets forth the most recent data.

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[3] A "high cost burden" falls in the middle of a three-step range of home energy burdens: (1) affordable; (2) highly burdened; and (3) severely burdened. Households are considered to be highly cost-burdened if their home energy burdens fall into the 10% to 11% range. Carroll, et al., at 15.

[4] If Manitoba Hydro customers combined gas heating with electric bills, their home energy bills are even greater, and, therefore, their burdens would be higher. See, RCM/TREE/MH-I-150.

[5] The converse will be true as well, of course: households with fewer people will have lower energy burdens. However, even if the energy burden for households with income below $10,000 is lowered by 20%, those burdens will remain at between 15% and 40% of income.

[6] Information for this analysis was taken from the most recent annual report. National Council on Welfare (Winter 2008). *Welfare Incomes: 2006 and 2007*, National Council on Welfare: Ottawa (ONT).

Table 2. Comparison of Welfare Income to Three Measures of Poverty (Manitoba) (2007)

Household type	Welfare Income	LICO, After-Tax		LICO, Before-Tax		Market Basket Measure	
		Welfare Pct of	Deficit /a/	Welfare Pct of	Deficit /a/	Welfare Pct of	Deficit /a/
Single, employable	$5,827	27%	($15,840)	32%	($12,128)	42%	($8,096)
Person with disability	$7,026	42%	($12,640)	50%	($8,928)	65%	($4,897)
Lone parent, one child	$14,664	54%	($12,308)	67%	($7,187)	81%	($3,436)
Couple, two children	$21,177	53%	($19,083)	62%	($12,770)	76%	($6,669)

NOTES:
/a/ Deficit is the dollars required to reach each respective poverty measure from the welfare income.

SOURCE: National Council on Welfare Reports, Welfare Incomes, 2006 and 2007, at 44 (LICO-AT), 45 (LICO-BT), and 49 (MBM) (Winter 2008).

Table 2 shows the financial crisis facing welfare households in Manitoba. While the dollar amounts may differ, the pattern is the same for the After-Tax LICO, Before-Tax LICO, and Market Basket Measure delineations of "poverty." Welfare incomes are a fraction of income compared to each of the three poverty measures. In each case, the lone parent household with one child comes closest to having welfare income equal to the respective poverty measures. The income deficit is still substantial under each measure.

- On an after-tax LICO basis, a lone-parent with a child is in the best position, still falling more than $12,300 short of the funds to reach 100% of after-tax LICO.

- On a pre-tax LICO basis, the welfare income of a lone-parent, single child family comes closer to the poverty measure. Nonetheless, the income deficit is still nearly $7,200.

- When compared to Canada's Market Basket Measure,[7] welfare incomes come closest to fully funding (81%) a minimally adequate income. Nonetheless, the lone-parent with a single child falls more than $3,400 short of the Market Basket Measure of poverty.

In contrast to the lone parent with a single child, a couple with two children have welfare incomes that range from roughly half of the After-Tax LICO (53% with an income deficit of $19,083) to nearly 80% of the Market Basket Measure (76% with an income deficit of $6,669) of the respective poverty measures.

[7] The Market Basket Measure was developed by Human Resources Canada to supplement LICO. The MBM takes into account differences in the cost of living between the provinces. Moreover, the MBM takes into account the differences in cost-of-living for different household and family types.

The Failure of the Manitoba Hydro Income Analysis

The Manitoba Hydro calculations supporting its conclusion that none of its low-income customers live in a "crisis" situation are seriously flawed. In setting forth its Affordable Energy Program (AEP), Manitoba Hydro asserts that "in reviewing the energy burden of Manitoba Hydro's lower income customers, it has been determined that the energy burden is not at a crisis level" (AEP 4). The flaws in the methodology lead to errors in the conclusion.[8]

The Company described the "methodology" upon which it based its "determination" as follows:

> In preparing the Manitoba Hydro Affordable Energy Program, a high level assessment was undertaken on the energy burden within Manitoba. This assessment simply looked at two levels of income and assessed the energy burden based on the average energy cost of customers falling within the LICO x 125% category.

(PUB/MH-213(a)). The Company acknowledged, however, that "the assessment was based on two levels of incomes and average energy costs. Individual customers will have a broad range of energy costs." (PUB/MH-213(a)).[9] Despite its recognition of the existence of this "broad range" of incomes and "broad range" of energy costs, the Company made no effort to incorporate those ranges into assessing whether it conclusion was accurate. The Company made no effort to assess:

- The distribution of customers by a ratio of household income to LICO (RCM/TREE/MH-I-147);
- The average (or median) income of customers with differing ratios of income to LICO (RCM/TREE/MH-I-148);
- A distribution of the LICO x 125% population disaggregated into quintiles of income (RCM/TREE/MH-I-152).

The Company's failure to consider different ranges of income is fatal to its conclusion. While the Company asserts that its AEP is directed toward its "most vulnerable" customers, the Company could not determine whether the two income levels it used in reaching its conclusion that no "crisis level burden" exists on its system placed the customers at those income levels within that "most vulnerable" population. (RCM/TREE/MH-I-157; RCM/TREE/MH-I-158).

[8] The Company refused to release either the data or the calculations used in reaching this conclusion. (RCM/TREE/MH-104). In addition, the Company either could not or would not provide the name of the specific individual who was the lead researcher undertaking the review, the scope of work provided to (or by) that individual, or the level of effort (measured in either time or dollars) devoted to the work. (RCM/TREE/MH-I-107(b)).

[9] Moreover, the Company's analysis was based on 2003 energy prices. (RCM/TREE/MH-I-149; RCM/TREE/MH-I-150).

The failure of Manitoba Hydro to consider anything but average incomes in its assessment of energy needs in the province is in conflict with the generally-accepted approach used in assessing low-income energy needs. Consider, for example, a recent report examining energy poverty prepared by the Environmental Law Centre of the University of Victoria.[10] While the Centre found that British Columbia energy bills represented only 4.49% of income for all BC residents, they represented 13.53% of income for residents in the lowest income quintile. According to the Centre, a "conservative" estimate leads to the conclusion that 60% of BC households (n=195,000) in the lowest income quintile live in energy poverty, while an *additional* 30% of households (n=97,000) in the second lowest income quintile would. Unlike an analysis based on the "average," which would indicate that home energy was "on average" affordable, examining households disaggregated by income quintiles "would make potentially as many as 349,000 households in British Columbia that were unable to meet their energy needs without compromising their access to other essentials in 2007."[11]

The point here is not to determine how many households live in energy poverty in British Columbia. The conclusion to be drawn is that the Manitoba Hydro analysis leading to the conclusion that no low-income household in Manitoba is living in a "crisis" situation, which relies only on an "average" analysis, is so seriously flawed as measured by generally-accepted standards of analysis that it cannot reasonably be used as the basis for decisionmaking.

The Manitoba-specific data presented above presents a far more accurate discussion of home energy affordability needs than does the Manitoba Hydro discussion.

ACTUAL VERSUS AFFORDABLE UTILITY BILLS

A second way to look at the problem of high energy burdens leads to the same results, but focuses on why these low incomes present a business problem to Manitoba Hydro as the local electric utility. Actual average 2009 baseload electric bills reached $88.25 per month.[12] In contrast, in order for monthly electric bills to be affordable for the specific sub-populations at the average incomes identified in Table 2 above, electric base load (i.e., non-heating) bills would need to reach the following levels (defining an affordable electric baseload bill to be 3% of household income):

- Single employable: $14.56
- Person with a disability: $22.04
- Lone parent, one child: $35.66
- Couple, two children: $52.74

[10] Maine McEachern and Jill Vivian (April 2010). *Conserving the Planet without Hurting Low-Income Families: Options for Fair Energy Efficiency Programs for Low-Income Households, A Report for the Energy Poverty Initiative of the Climate Justice Project,* University of Victoria Environmental Law Centre.
[11] Conserving the Planet, at 20 – 21.
[12] The average annual residential bill was $1,059. (RCM/TREE/MH-I-48). The average monthly bills would thus be $88.25 ($1,059 / 12 = $88.25).

The Manitoba Hydro average residential electric bill, in other words, ranges from nearly 1.7 times ($88.25 / $52.74 = 1.7x) to more than six times ($88.25 / $14.56 = 6.1x) higher than that which is affordable to the Company's low-income customers.

In contrast, the Company reports that actual 2009 average space heating bills reached $122.41 per month.[13] In contrast, in order for bills to be affordable at the average incomes identified above for the populations identified in Table 2, space heating bills would need to reach the following levels (defining affordable as being 6% of household income):

- Single employable: $29.11
- Person with a disability: $44.07
- Lone parent, one child: $71.31
- Couple, two children: $105.48

As with the residential baseload electric bill in 2009, the Company's electric heating bill ranged from nearly 1.2 times ($122.41 / $105.48 = 1.2x) to more than four times ($122.41 / $29.11 = 4.2x) higher than that which is affordable to the Company's low-income customers.

As can be seen, delivering electricity at an affordable home energy burden cannot happen without additional assistance from Manitoba Hydro. For Manitoba Hydro, as the vendor of the unaffordable services, to argue that "the problem" is exclusively a social problem of inadequate income refuses to acknowledge the impacts which this unaffordability generates for the utility as a utility.

Moreover, the use of LICO as a definition of "low-income" status tends to over-state the income of low-income households in Manitoba. As recently as 2007, income for female lone-parent families on average fell $7,700 short of LICO; the income of two-parent families in 2007 fell $10,500 short of LICO.[14] The unaffordability of electricity, therefore, is not a household budgeting issue. Increased money management by low-income households will not eliminate the shortfall between available resources and necessary resources. The gap between actual income and reaching the Low-Income Cutoff is substantial.

THE SOCIAL PROBLEMS OF HOME ENERGY UNAFFORDABILITY

As a result of the mismatch between energy bills and the resources needed to pay them in Manitoba, many low-income households incur unpaid bills and experience the termination of service associated with those arrears. In addition, the paid-but-unaffordable bill is a real phenomenon in Manitoba. Even when low-income households pay their bills in a full and timely manner, they will often suffer significant adverse hunger, education, employment, health and

[13] The average annual electric space heating bill was $1,469. (RCM/TREE/MH-I-153). The average monthly electric space heating bill would thus be $122.41 ($1,469 / 12 = $122.41).
[14] Statistics Canada, *Income trends in Canada 1976 – 2007*, Table 802 and 804.

housing consequences in order to make such payments.[15] These consequences generate adverse impacts not only for low-income customers and the utilities that serve them, but they also generate adverse impacts on the competitiveness of business and industry that are members of the broader Manitoba community. The discussion below considers an array of consequences arising from unaffordable home energy.

The findings of the unaffordability of home energy in Manitoba are sobering from a social perspective. The unaffordability of energy manifests itself in more than simply unpaid bills. While researchers have not studied the issue specifically in Manitoba, U.S. research is informative. According to a series of survey studies published by the National Energy Assistance Directors Association (NEADA),[16] "despite. . .significant residential energy expenses, most low-income households pay their energy bills regularly. But at what cost?". The NEA survey found that "LIHEAP recipients faced life-threatening challenges."[17]

- 17% of the national respondents had their heating disconnected or discontinued because of an inability to pay.
- 8% had their electricity (as opposed to heating) disconnected due to an inability to pay.
- 38% went without medical or dental care in order to have money to pay their home energy bill;
- 30% went without filling a prescription or taking the full dose of a prescribed medicine.
- 22% went without food for at least one day.

Low-income customers frequently have little incentive, and even fewer choices, to pursue constructive responses to their energy poverty. All too frequently, the customer is faced with an immediate need (*e.g.*, bill payment by a date certain) with the available constructive responses to an inability-to-pay unable to deliver assistance either in the form, the time period, or the magnitude necessary to meet that need. Given the immediate consequences of failing to address the short-term nonpayment crisis, the customer is presented with a choice between untenable alternatives.

Public Health Implications

The disconnection of electricity and/or natural gas service represents a distinct public health threat, particularly to aging households and to low-income households with children. The impact of service disconnections on the public's health and safety can hardly be debated in light of

[15] See generally, Ford and Harris (2003). *Acceptable Living Levels: Manitoba*, Winnipeg Harvest and the Social Planning Council of Winnipeg, Winnipeg (MAN); Hajer (November 2009). *The View from Here: How a Living Wage can Reduce Poverty in Manitoba*, Canada Centre for Policy Alternatives: Ottawa (ONT).
[16] Apprise, Inc. (April 2005). *National Energy Assistance Survey Report*, National Energy Assistance Directors Association: Washington D.C. Similar survey studies, with similar results, have been published in 2003, 2008 and 2009.
[17] LIHEAP is the Low-Income Home Energy Assistance Program, the federally-funded fuel assistance program in the United States.

recent research. According to the 2005 NEADA survey, the loss (and threatened loss) of home heating service has significant health consequences to low-income households with children. NEADA found that survey respondents reported becoming ill because their home was too cold in the winter heating months. Nearly 1-in-6 of all energy assistance recipients reported that someone in the home became sick because the home was too cold in the past five years.

These illnesses were frequently severe enough to require medical treatment. In both 2003 and 2005, 11% of the surveyed energy assistance recipients reported that someone in the home had become ill enough to require going to a doctor or hospital because the home was too cold in the past five years.

A variety of reasons contribute to the overall rate of illness, as well as to the rate at which illnesses required medical treatment within the low-income energy assistance recipient population.[18] The primary contributing factor to the adverse health outcomes involves the tendency of low-income households to keep their homes at unsafe or unhealthy temperatures, given the unaffordability of home energy to the household. Of the households with children under age 18, between 20% and 25% kept their homes at "unsafe or unhealthy temperatures" because they did not have enough money to pay their home heating bills. Aside from households with children, the adverse health impacts of cold temperatures within a home are particularly acute for elderly households.[19]

Nutrition Implications

Unaffordable home energy has a substantial impact on the nutrition of low-income households. According to the Congressionally-funded NEADA study, one-in-five low-income energy assistance recipients went without food for at least one day due to energy bills in the past five years. Renters experience food deprivation more frequently than do homeowners. While 10% of elderly homeowners went without food because of the need to pay home energy bills, 17% of elderly renters did. While 24% of non-elderly owners went without food due to energy bills, 28% of non-elderly renters did.

The impact of unaffordable home energy bills on nutrition was a phenomenon in all parts of the United States and across all climate regions. While the highest penetration of households going without food was in the West (31%), the existence of food deprivation attributable to the need to pay home energy bills was consistent throughout the remaining regions, including the Northeast (20%), Midwest (17%), and South (19%). There is no reason to believe, therefore, that the data presented in the NEADA survey is not transferable to Manitoba.

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[18] See generally, Wilkins et al (2001). *Cold Comfort: The Social and Environmental Determinants of Excess Winter Death in England 1986 – 1996*. The Policy Press: Bristol; Maheswaran et al. (2004). Socio-economic deprivation and excess winter mortality and emergency hospital admissions in South Yorkshire Coalfields Health Action Zone, UK. *Public Health* 118. 167 – 176.

[19] Brennan et al. (1982). Seasonal variation in arterial blood pressure, *British Medical Journal*. 285. 919 – 923; Wilkinson et al. (2004). Vulnerability to winter mortality in elderly people in Britain: population based study. *British Medical Journal* 329. 647 – 652; Collins (1986). Low indoor temperatures and morbidity in the elderly. *Age and Aging* 15(4):212-20.

The conclusions of the NEADA survey are bolstered by significant academic research documenting a relationship between unaffordable home energy bills and nutritional deficiencies. One November 2006 article published in *Pediatrics*, the journal of the American Academy of Pediatrics, reports that "convergent evidence suggests that the periodic stress of home heating and cooling costs may adversely impact the health and nutritional status of children and other vulnerable populations."[20] According to this *Pediatrics* article, a study of children 6 to 24 months of age in Boston (MA) found higher proportions of children with weight-for-age below the 5th percentile in the three months after the coldest months, compared with all of the other months of the year.

The article reported further that:

> there is also evidence that hunger and food insecurity are associated with high utility costs and cold weather. In the United States, data show that families reporting unheated days or threats of utility turnoff are more likely to report that their children were hungry or at risk for hunger than families without either experience. In addition, national data collected from 1995 to 2001 as part of the Current Population Survey Food Security Supplement suggest that rates of food insecurity with hunger increased during the winter and early spring among low-income families in areas with high winter heating costs and during summer in regions with high summer cooling costs.[21]

Other research on food insecurity has shown that food budgets are those most often sacrificed to meet other survival needs in low-income families.[22]

The nutrition threats are not limited simply to children. A November 2006 article in *The Journal of Nutrition* examined the association between household food insecurity and seasonally high heating and cooling costs for low-income elderly.[23] The study "examined the extent to which greater proportions of poor households, especially poor elderly households, experienced very low food security (the more severe range of food insecurity) during times of the year when home heating and cooling costs were high, controlling for important covariates." "Very low food security" is a severe range of food insecurity, which the U.S. Department of Agriculture referred to as "food insecurity with hunger" in its pre-2006 reports. The study found that "the odds of

[20] Frank, D., Neault, N., Skalicky, A., Cook, J., Wilson, J., Levenson, S., Meyers, A., Heeren, T., Cutts, D., Casey, P., Black, M., and Berkowitz, C. (2006). Heat or Eat: Low Income Home Energy Assistance Program and Nutritional Risk Among Children Under 3 Years Old. *Pediatrics*.

[21] Heat or Eat, supra.

[22] See generally, Frank DA, Roos N, Meyers AF, et al., Seasonal variation in weight-for-age in a pediatric emergency room. *Public Health Reports*, 1996; 111:366-371; Bhattacharya J, DeLeire T, and Currie J. Heat or eat? Cold-weather shocks and nutrition in poor American families. *Am. J. Public Health*. 2003; 93:1149-1154; Frank et al. (2006). *Unhealthy Consequences: Energy Costs and Child Health: A Child Health Impact Assessment of Energy Costs and the Low-Income Home Energy Assistance Program*, Child Health Impact Working Group: Boston Medical Center: Boston (MA); Colton (2008). *Public Health Outcomes Associated with Energy Poverty: An Analysis of 2007 Behavioral Risk Factor Surveillance System (BRFSS) Data from Iowa*, Iowa Department of Human Rights: Des Moines (IA).

[23] Mark Nord and Linda Kantor. Seasonal Variation in Food Insecurity is Associated with Heating and Cooling Costs Among Low-Income Elderly Americans. *Journal of Nutrition*. 2006; 136:2939-2944.

very low food security were 27% higher in the summer than in the winter in a high-cooling state. In a high-heating state, the odds of very low food security were 43% lower in the summer than in the winter. . ."

The study found that there was a direct relationship between unaffordable home energy bills and the nutrition deficiencies that were documented. It concluded that "the association of interest appears, therefore, to represent a causal effect of home heating and cooling costs and not to be a spurious artifact caused by other seasonally variable economic factors. If anything, the effects of seasonally high home heating and cooling costs on food insecurity may be somewhat ameliorated by seasonal differences in economic factors." The authors concluded that "our analysis shows that in high-heating states, households with incomes below the poverty line were substantially more vulnerable to very low food security during the winter than during the summer, whereas the opposite was true in high-cooling states."

Public Safety Implications

In addition to these public health and nutrition issues, the unaffordability of home heating service represents a distinct public ***safety*** threat as well. According to the Canadian Housing and Rental Association, energy poverty can cause households to turn to unsafe heating practices, including heating their home with an open oven door or faulty electric heater. Supplemental heaters cause 120,000 residential fires and 600 deaths annually in the United States.[24]

The loss of ***electric*** service (not merely heating service) poses a particular threat to the health and safety of low-income Manitoba households with children. The home electric service that is being disconnected to low-income households is frequently essential to the operation of some medically-necessary equipment in the home. A full 25% of all energy assistance recipients surveyed for the NEADA study, that had children under the age of 18, reported that a member of the household used medical equipment that requires electricity. A full 6% of all energy assistance recipients surveyed by NEADA reported that the equipment using electricity was used to treat asthma. Nearly as many (4%) said that someone in the household was taking medication that required refrigeration.

The move to auxiliary heating sources when primary heating fuels are disconnected opens up the possibility of an associated fire risk for low-income households. While home heating equipment is no longer the ***single*** most substantial cause of home fires,[25] it remains ***one*** of the leading factors contributing to fires, as well as to fire-related injuries and deaths. In particular, portable and fixed space heaters present a risk of harm. While portable space heaters are not the major cause of home heating fires, they play a much more substantial role in deaths and injuries. Portable and fixed space heaters (and their related equipment such as fireplaces, chimneys and chimney collectors) accounted for roughly two of every three (65%) home heating fires in 1998

[24] Canadian Housing and Rental Association (February 2005). *Affordable & Efficient: Towards a National Energy Efficiency Strategy for Low-Income Canadians.*

[25] The term "`homes' refers to one- and two-family dwellings (which includes manufactured homes) and apartments. . ." The share of fires involving heating equipment, the National Fire Prevention Association (NFPA) says, "is quite different for the two types of homes." While heating equipment is the second leading cause of fires in one- and two-family dwellings, it was only the seventh highest cause of fires in apartments.

and three of every four (76%) associated deaths.[26] Each of these devices has a higher death rate per million households using them than do the various types of central heating units or water heaters.

The National Fire Protection Association (NFPA) reports data confirming these data and conclusions. According to the NFPA, "not being able to afford utilities" is one of the "major factors of increased fire risks" for low-income households. "In poor homes, small portable heaters or space heaters may be used to heat areas much too large for their capacity, and some households supplement heating equipment by turning on their ovens and leaving the door open."[27]

The Competitiveness of Business and Industry

Not all impacts arising from unaffordable home energy affect only the individual (or household) experiencing the unaffordable bill. An increasing body of research has documented how the problems associated with inability-to-pay affect the competitiveness of local business and industry as well.

This conclusion is neither profound nor much disputed by researchers that consider the impacts of programs such as home energy affordability subsidies on private employers. One comprehensive study published in 2004 concluded:

> [E]mployers have good reason to be concerned that large numbers of working people with low family incomes do not take advantage of the public benefits intended to help them and their families achieve economic sufficiency -- benefits that also help employers by contributing to the economic stability of their workforces. These public benefits bolster the ability of low-income workers to meet their basic needs, in effect providing a wage supplement to employers.[28]

This joint study, performed in collaboration with the Center for Workforce Preparation of the U.S. Chamber of Commerce and the Center for Workforce Success of the National Association of Manufacturers, reports that many low wage workers fail to access public benefits.

> This not only hurts the workers who miss out on income and benefits; it also hurts their employers through higher turnover and increased absenteeism. Unreliable transportation, inadequate child care, and poor health are leading contributors to absenteeism, tardiness, and turnover among low-income workers. An evaluation of [households leaving the TANF program][29] in New Jersey by Mathematica

[26] Marty Ahrens (June 2001). *The U.S. Fire Problem Overview Report: Leading Causes and Other Patterns and Trends*, at 55, National Fire Protection Association: Quincy (MA).
[27] "Burning Issues," *NFPA Journal*, at 104 (January/February 1996).
[28] Geri Scott (2004). *Private Employers and Public Benefits*, Workforce Innovation Networks (WINS): Boston (MA) and Washington D.C. WINS is a collaboration of Jobs for the Future, the Center for Workforce Preparation of the U.S. Chamber of Commerce, and the Center for Workforce Success, The Manufacturing Institute of the National Association of Manufacturers.
[29] TANF is the Temporary Aid for Needy Families program, that program generally considered to be "welfare" in the United States.

> Policy Research reported that 52 percent had been fired as a result of frequent tardiness or absenteeism related to child care or health problems. In the words of a call center manager who has hired many entry-level workers through the Annie E. Casey Foundation's Jobs Initiative, "these peoples' lives are in chaos. They have so many problems they cannot pay attention to work."
>
> An unpublished survey conducted by ASE in Detroit, Michigan, highlights workplace problems that employers can experience when employees' non-work needs are not addressed. ASE asked entry-level workers and their supervisors in five companies about barriers to employee advancement. After "caring for a dependent," "money problems" were reported more frequently than 19 other potential problems ranging from "understanding work assignments" to "getting along with colleagues." "Financial worry about making ends meet" appears to contribute to absenteeism, distraction on the job, strained relations with supervisors and co-workers, and a number of other factors that reduce productivity.[30]

Affordable home energy can be analogized to other public goods that have been found to provide direct benefits to businesses. The Committee on Economic Development[31] has quantified the beneficial impacts to business from reducing the causes of employee absenteeism and employee turnover associated with unaffordable child care. According to the Committee:

> Studies have found that employee turnover produces disruption and inefficiency in the work environment and that the cost of replacing employees is high. For example, Merck & Co., Inc. found that it costs. . . about 75 percent of salary to replace a clerical or technical employee. It also found that it may take considerable time to fill a vacant position and an average of 12.5 months for a new employee to become adjusted to the job.[32]

Other research confirms these findings. One professor at Johns Hopkins University considered the extent to which increased low-income status results in increased overall costs to business. She found a variety of costs to business, reporting:

> Poverty. . .produces ill-prepared workers whose lives are easily disrupted by small catastrophes. If the car breaks down, if the kid gets sick, it suddenly becomes impossible to be a reliable worker. Poverty also generates poor

[30] "Private Employers and Public Benefits," at 5.

[31] CED is a national business-academic partnership. One objective of CED is "to unite business judgment and experience with scholarship in analyzing the issues and develop recommendations to resolve the economic problems that constantly arise in a dynamic and democratic society." *Objectives of the Committee for Economic Development.* The Research and Policy Committee of the CED is directed under the organization's bylaws to "initiate studies into the principles of business policy and of public policy which will foster the full contribution by industry and commerce to the attainment and maintenance" of the objectives of the organization.

[32] Research and Policy Committee (1993). *Why Child Care Matters: Preparing Young Children for a More Productive America, A Statement by the Research and Policy Committee of the Committee for Economic Development*, at 1, Committee for Economic Development: New York.

> health among workers, making them less reliable still and raising the cost of employing them.[33]

Understanding the impact of poverty generally, and unaffordable home energy more specifically, on the competitiveness of business is important for Manitoba Hydro. Almost 70% of poor children in Manitoba live in families where members together worked the equivalent of one full time full-year position.[34] In fact, 10.2% of all children in Manitoba who lived in families where family members worked the equivalent of one full time, full-year position were poor. Manitoba was the second worst province in this regard.[35] In 2009, a parent with two children working at the minimum wage would have had to work more than 70 hours per week just to meet the LICO (before tax) for a three-person household in Winnipeg.[36]

The conclusion from this multitude of research is that the unaffordability of home energy impedes the competitiveness, productivity and profitability of business. With low-wage employees, in particular, unaffordable home energy directly contributes to lowered productivity related to the unaffordability of home energy. Increased personal illness, increased employee turnover, and increased family care responsibilities are but three of the factors contributing to lower employee productivity.

Summary

The unaffordability of home energy facing low-income Manitoba residents has severe social, economic, and business consequences that ramify throughout all sectors of the province. From a social perspective, unaffordable home energy not only threatens the ability of low-income customers to maintain access to their utility service, but also imposes a range of adverse consequences threatening the health, housing, and general welfare of those households. The paid-but-unaffordable home energy bill is a real phenomenon in Manitoba. Paying an unaffordable home energy bill means that low-income Manitoba residents will go without food, medical care, and other life necessities.

In addition, research has found that the prevalence of money problems (such as unaffordable home energy bills) has a direct and substantial impact on the ability of business and industry to remain competitive.

In short, unaffordable home energy has an adverse impact not only on low-income households, but also on Manitoba Hydro as the local utility serving those households and on the Manitoba economy generally.

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[33] Erica Schoenberger (1999). *The Living Wage in Baltimore: Impacts and Reflections*, John Hopkins University Department of Geography and Environmental Engineering: Baltimore (MD).
[34] Social Planning Council of Winnipeg (November 2009). *2009 Manitoba Child and Family Poverty Report Card*, at 7.
[35] Winnipeg Harvest (January 2009). *Winnipeg Facts 2009*, at 2, citing Social Planning Council of Winnipeg, *Child and Family Poverty Report Card* (2008).
[36] 2009 Report Card, at 8.

WHY THE "SOCIAL PROBLEM" OF ENERGY UNAFFORDABILITY IS ALSO A UTILITY PROBLEM.

Quite aside from the impacts that unaffordable home energy has on individual low-income households and local businesses, the unaffordability of home energy has substantial adverse financial and economic impacts on the utility itself. As the public utility charged with serving these low-income customers who cannot afford to pay their bills, Manitoba Hydro incurs the expenses associated with non-payment, including collection expenses, working capital, and uncollectibles.

Unaffordability as an Energy, Not an Income, Problem

An extensive body of research finds that the unaffordability of energy, and the problems resulting from that unaffordability, are issues specifically associated with energy bills as they relate to low-income status, and are not simply associated with the poverty status of low-income households. One tool that is used in the United States to comprehensively measure the impact of energy unaffordability on household well-being is the Home Energy Insecurity Scale. The Home Energy Insecurity Scale was developed for the U.S. Department of Health and Human Services (HHS) to take into account the multiple aspects of energy unaffordability.[37] When households face unaffordable home energy bills, they can engage in different types of behavior. They might pay their energy bills while experiencing deprivation in other household necessities. They might not pay their energy bills, while maintaining their other necessities. Or they might engage in a reduction in energy use, beyond mere conservation, and face household deprivation in those respects.

A study of "energy poverty" in Missouri, performed for the National Low-Income Energy Consortium (NLIEC)[38] in 2004, found that home energy insecurity was not simply a function of poverty and/or income but rather a function of energy burdens.[39] "Energy burden" is a household's home energy bill as a percentage of income. Households with lower energy burdens tended to have higher home energy security in Missouri.[40] Twice as many households with energy burdens of 6% or less had Home Energy Insecurity thresholds of Stable or higher as compared to households with energy burdens in excess of 12%. In addition, households with higher energy burdens (i.e., their home energy bills took increasingly larger portions of their income) had progressively lower Home Energy Insecurity ratings.

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[37] Colton (2003). *Measuring the Outcomes of Low-Income Energy Assistance Programs through a Home Energy Insecurity Scale*, LIHEAP Committee on Managing for Results, U.S. Department of Health and Human Services.

[38] NLIEC is a public-private partnership, governed by a board of organizations representing the full spectrum of perspectives in the low income energy community.

[39] Colton (2004). *Paid but Unaffordable: The Consequences of Energy Poverty in Missouri*, National Low-Income Home Energy Consortium: Washington D.C..

[40] "Energy insecurity" is a comprehensive measurement of the impacts of home energy affordability developed for the U.S. Department of Health and Human Services (HHS), the federal agency that administers the federal fuel assistance program in the United States. The Home Energy Insecurity Scale, modeled after the U.S. Department of Agriculture's "food security" scale, places households in one of five levels of "energy security," depending upon their ability to pay their home energy bills. The lowest level of energy security is "in-crisis" while the highest level is "thriving." The middle levels in order from top to bottom are "capable," "stable" and "vulnerable."

Other research confirms these findings. The 2006 evaluation of the New Jersey Universal Service Fund (USF) left little question but that energy unaffordability problems were a function of energy burdens rather than simply being a function of income and/or poverty. The USF Evaluation expressly found that increasing the percentage of income burdens charged to USF participants had an adverse impact on the ability of USF participants to maintain payment compliance under the program. The New Jersey evaluation reported:

- "More than 80% of households with an effective [energy burden] below 3 percent covered 100 percent or more of their annual bill. Less than 60 percent of households with a [net energy burden] at or above 8 percent covered 100 percent of their annual bill."

- While 26% of the participants with net energy burdens exceeding 8% of income paid between 50% and 90% of their bill, only 6% of households with energy burdens of between 2% and 3% had coverage rates that low.

The USF evaluation reported the same types of results for gas/electric combination USF participants.

- While nearly 80% of participants with burdens of less than 4% paid 100% or more of their bills, only 43% of participants with burdens exceeding 12% did.

- While 31% of USF participants with burdens exceeding 12% paid between 50% and 90% of their bills, only 9.0% of participants with burdens less than 4% had bill coverage rates that low.

The New Jersey USF evaluation documents quite clearly that as percentage of income payment responsibilities increase, payment compliance decreases. Recognizing that high energy burdens are directly related to nonpayment, the payment and collection data for Manitoba Hydro is examined below.

Utility Arrears

Manitoba Hydro has a significant problem with residential arrears on its system. Table 3 presents the arrears data that Manitoba Hydro maintains by aging bucket.[41] The arrearage problem faced by Manitoba Hydro manifests itself in several ways in Table 3. First, the proportion of residential accounts with long-term arrears is substantial. In any given month, the Company has five percent (5%) or more of its residential accounts 90 or more days in arrears. The 90+ day arrears held by Manitoba Hydro represent very long-term arrears. As Table 3 shows, those customers falling in the 90+ day arrears bucket are, in fact, more than 12 months behind on their Manitoba Hydro bill. The Table incorporates a "bills behind" analysis.[42]

[41] Manitoba Hydro reports that it does not retain arrearage data prior to February 2009.

[42] "Bills behind" is a weighted arrearage statistic that allows comparisons to be made between billing periods and between companies. It divides the outstanding arrears by an average bill to determine how many months behind a customer is in payments. 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

In addition to the size of the long-term arrears, the long-term arrears experienced by Manitoba Hydro do not demonstrate the variability that the Company's short-term arrears do. Two particular observations stand out in an examination of Table 3.

- Most Manitoba Hydro customers who fall into short-term arrears do not allow their arrears to ripen into long-term payment troubles. The highest level of 30-day arrears ($13.7 million in February 2009) had been reduced to $5.1 million by September 2009, a reduction of 63%. The highest level of 60-day arrears ($6.8 million in March 2009) had been reduced to $2.0 million by October 2009, a reduction of 70%.

- The level of the reduction in short-term dollars of arrears is far greater than the level of reduction in the number of accounts in arrears. While the dollar reduction in 30-day arrears from February to September was 63%, the reduction in the number of accounts 30-days in arrears in that same time frame was only 20%. While the dollar reduction in 60-day arrears from March to October was 70%, the reduction of accounts 60-days in arrears during that same time frame was only 26%.

Both of these observations support the conclusion that some base proportion of the Company's accounts are chronically in arrears. While the Company faces a sub-population of residential customers that fall into short-term arrears that are retired in short order, the Company faces a separate population that cannot retire their arrears in the same fashion.

This conclusion, that Manitoba Hydro has a population of customers that cannot retire their arrears, is reinforced by the data regarding the 90+ day arrears. This aging bucket does not exhibit the same variability that the short-term arrears do. The dollars of 90+ day arrears vary only between a low of $20.0 million (December 2009) and a high of $25.3 million (July 2009);

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.

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

the number of accounts with 90+ day arrears varies only between a low of 21,821 accounts (December 2009) and a high of 24,964 accounts (June 2009). Unlike the 60% to 70% reductions in short-term arrears over the course of a year, the long-term arrears remain relatively constant (both in terms of dollars of arrears and in terms of accounts in arrears).

Table 3. Manitoba Hydro Arrears by Aging Buckets (Feb – December 2009)

	Residential Customers	Dollars /a/			Accounts /b/			90-Day "Bills Behind"
		30 Days	60 Days	> 90 Days	30 Days	60 Days	> 90 Days	
Feb-09	460,615	$13,673,000	$5,354,000	$23,326,000	38,374	19,886	22,677	
Mar-09	460,804	$12,053,000	$6,759,000	$24,070,000	35,348	20,426	22,546	
Apr-09	461,075	$11,661,000	$6,080,000	$24,603,000	34,035	18,341	23,833	
May-09	461,315	$11,809,000	$6,060,000	$25,061,000	37,532	18,919	24,572	
Jun-09	461,599	$9,241,000	$6,299,000	$25,067,000	34,677	20,605	24,964	
Jul-09	461,969	$7,469,000	$4,263,000	$25,342,000	32,861	16,735	24,123	
Aug-09	462,310	$7,063,000	$3,995,000	$24,151,000	34,573	17,108	24,717	
Sep-09	462,776	$5,107,000	$3,280,000	$23,387,000	30,622	15,980	24,609	
Oct-09	463,392	$6,579,000	$2,046,000	$22,112,000	31,457	15,237	23,664	
Nov-09	463,860	$7,637,000	$2,735,000	$20,372,000	36,028	15,073	22,890	
Dec-09	464,305	$7,906,000	$4,018,000	$20,005,000	33,302	16,956	21,821	
Average	462,184	$9,108,909	$4,626,273	$23,408,727	34,437	17,751	23,674	12.2 bills behind

SOURCES:

/a/ RCM/TREE/MH-I-40(a).
/b/ RCM/TREE/MH-I-40(b).

One problem faced by Manitoba Hydro customers who carry arrears is the higher bills for current usage that those customers face each month. Table 4 compares the bills for current consumption incurred by all Manitoba Hydro residential customers against the bills for current consumption incurred by the Company's residential accounts in arrears. On average, Manitoba Hydro residential customers in arrears experienced bills for current consumption 70% higher than the average residential customer. While the average bill for current consumption for the Company's residential accounts in arrears was $135 in the 11 month period for which Manitoba Hydro could provide data, the average monthly bill for current consumption was only $81. Throughout the year, bills for residential accounts in arrears were significantly greater than bills for the average residential customer.

Table 4. Bills for Current Usage (Residential Accounts in Arrears vs. All Residential)

	Bills for Current Consumption		Amount by which Bills for Accts in Arrears Exceed All Residential Accounts	
	All Residential Accounts	Residential Accounts in Arrears	Dollar Difference	Percentage Difference
Feb-09	$116	$161	$45	39%
Mar-09	$108	$181	$73	68%
Apr-09	$103	$161	$58	57%
May-09	$71	$130	$59	84%
Jun-09	$65	$115	$50	76%
Jul-09	$60	$81	$21	35%
Aug-09	$57	$114	$57	100%
Sep-09	$59	$111	$52	89%
Oct-09	$76	$127	$51	67%
Nov-09	$78	$158	$80	102%
Dec-09	$101	$142	$41	40%
Average	$81	$135	$53	69%

Utility Collection Activity

Manitoba Hydro's substantial collection problems result in the need for the Company to devote a significant portion of its work activities to the collection process. The data is presented in Table 5.

- The Company engages in between 21,000 and more than 33,000 collection calls each month, more than 300,000 for the year (recognizing that only eleven months of data are presented).

- The Company disconnected more than 9,650 accounts in the eleven month period, more than 2% of its total residential customer base.

- The Company delivered 1.6 field notices of disconnection for every disconnection that it performed (15,185 notices leading to 9,653 disconnections).

This collection activity has both a direct cost to the Company and an opportunity cost. Not only does the collection activity have a direct cost allocated to it,[43] but if Company staff were ***not*** engaged in these collection activities, they would be able to engage in other work that the Company needs to have done. (RCM/TREE/MH-I-72(d)).

[43] These direct costs exist even though Manitoba Hydro does not separately track its collection costs. RCM/TREE/MH-I-50, RCM/TREE/MH-I-51, RCM-TREE/MH-I-52; RCM/TREE/MH-I-53 ("residential collection activities. . .are not budgeted for separately").

Table 5. Manitoba Hydro Collection Activities (2009)

	Customers in Arrears /a/	Outbound Collection Calls	Inbound Collection Calls	Payment Arrangements	Collection Notices Delivered	Disconnects	Reconnects
Feb-09 /b/	22,677	9,639	11,398	5,992	915	277	163
Mar-09	22,546	12,606	14,236	9,029	1,335	340	235
Apr-09	23,833	15,022	17,115	11,421	1,320	523	368
May-09	24,572	19,396	13,662	11,976	1,467	1,202	719
Jun-09	24,964	15,173	17,319	9,609	1,763	1,947	1,367
Jul-09	24,123	16,471	16,738	9,808	1,970	1,874	1,534
Aug-09	24,717	13,007	14,171	7,947	1,561	1,361	1,060
Sep-09	24,609	13,455	12,700	7,077	1,541	1,215	1,142
Oct-09	23,664	13,251	11,928	6,810	1,200	456	642
Nov-09	22,890	13,464	11,449	6,946	1,381	332	427
Dec-09	21,821	12,042	9,479	5,561	732	126	194

SOURCE: RCM/TREE/MH-I-70

NOTES:

/a/ While Manitoba Hydro reports this data for "accounts in arrears," other data reported by the Company indicates that these figures are the figures for accounts falling in the 90+ day aging bucket. See, RCM/TREE/MH-I-40(b).
/b/ Since the Company did not archive data on the number of accounts in arrears prior to February 2009, January 2009 is excluded.

The Company is not particularly successful in generating payments through its collection processes. As Table 6 shows, in the average month in 2009, fewer than 80% of residential bills were paid on or before the due date. (RCM/TREE/MH-I-42). More than six percent (6%) of its accounts were 60 or more days in arrears. (RCM/TREE/MH-I-42). Despite handling, on average, more than one call for every account 90 or more days in arrears, the Company averages only 35 payments arrangements for every 100 accounts 90 or more days in arrears. The Company fails to collect past-due amounts through its normal collection process, being forced to disconnect nearly four accounts for every 100 accounts that fall into arrears. And, customers whose service is disconnected for nonpayment frequently never return as customers. Only 80% of Company accounts disconnected for nonpayment are reconnected (7,851 reconnections compared to 9,653 disconnections in the 11-month study period).

Table 6. Credit and Collection Metrics (Manitoba Hydro 2009)

	Collection Calls per Account in Arrears	Payment Arrangements per Account in Arrears	Collection Notices per 100 Accounts in Arrears	Disconnections per 100 Accounts in Arrears	Reconnections per Disconnection	Collection Calls per $1,000 Arrears Reduction /b/	Collection Calls per 1.0 Paid Account /b/
Feb-09 /a/	0.9	0.3	4.0	1.2	0.6	---	---
Mar-09	1.2	0.4	5.9	1.5	0.7	1.4	1.2
Apr-09	1.3	0.5	5.5	2.2	0.7	4.5	1.6
May-09	1.3	0.5	6.0	4.9	0.6	5.7	2.1
Jun-09	1.3	0.4	7.1	7.8	0.7	6.0	2.0
Jul-09	1.4	0.4	8.2	7.8	0.8	6.5	1.8
Aug-09	1.1	0.3	6.3	5.5	0.8	9.6	2.1
Sep-09	1.1	0.3	6.3	4.9	0.9	7.2	1.5
Oct-09	1.1	0.3	5.1	1.9	1.4	8.5	1.7
Nov-09	1.1	0.3	6.0	1.5	1.3	6.6	1.5
Dec-09	1.0	0.3	3.4	0.6	1.5	6.9	1.3

NOTES:

/a/ Since the Company did not archive data on the number of accounts in arrears prior to February 2009, January 2009 is excluded.
/b/ Measured in terms of reduction of arrears, and reduction of accounts in arrears, from 30-days to 60-days.

The impact of inability to pay on collection processes is evident from the Company data as well. The Company reports that "Manitoba Hydro attempts to work with customers continuously throughout the year, providing information regarding the customer's bill, payments, and encouraging mutually acceptable arrangements to address any outstanding arrears, not just during the months of peak service disconnection." (RCM/TREE/MH-I-72(d)). Despite this work "continuously throughout the year," the number of payment arrangements in the high-cost months of December and February (January data was not reported) were at a level half of the level achieved in the peak disconnection months of April through July. The Company does not maintain data on the success of its payment arrangements. (RCM/TREE/MH-I-69, RCM/TREE/MH-I-70). Despite Manitoba Hydro's work "continuously throughout the year," the rate at which disconnected accounts are reconnected during the months of February through June is half of the rate at which disconnected accounts are reconnected in October through December.

The relative inefficiency of the Company's collection processes is further shown by the level of activity that it undertakes to achieve a reduction both in dollars of arrears and in the number of accounts in arrears. Looking at the payment patterns between 30-day arrears to 60-day arrears, Table 6 shows that Manitoba Hydro must generally handle between five and ten collection calls for every $1,000 reduction in arrears. The Company must handle between 1.3 and 2.1 collection calls for every single account that has a 30-day arrears which is paid to prevent it from becoming a 60-day arrears.

SUMMARY

Indisputably, the unaffordability of home energy creates a range of social problems as discussed above. Equally indisputable, however, is the observation that the unaffordability of home energy manifests itself in a series of business problems presented to the utility. Just as it would be inappropriate to focus on the social problems to the exclusion of the utility problems, it would be equally inappropriate to focus on the positive impacts generated by addressing the social problems to the exclusion of also considering the positive utility impacts by addressing the inability to pay.

Addressing the unaffordability of low-income home energy will generate positive social benefits. It will improve public health and safety and bolster the competitiveness of local business and industry. Addressing the unaffordability of low-income home energy, however, will also generate positive utility benefits. It will reduce the costs of nonpayment and improve the efficiency and effectiveness of utility collection efforts. It would be inappropriate to view low-income unaffordability simply as a non-utility "social" problem.

PART 2:
THE INADEQUACY OF THE PROPOSED MANITOBA HYDRO RESPONSE

Manitoba Hydro proposes a three-part "low-income" program to address the inability-to-pay problems on its system. The proposed low-income program involves:

- A crisis intervention component;
- Providing "payment alternatives"; and
- Providing energy efficiency improvements.

Both the basis for the Company's response and the extent of the Company's response show the inadequacy of Company effort in this regard. The discussion below explains why and how the Company's proposed low-income initiative should not be accepted as the basis for a low-income affordability program in Manitoba.

THE CONCEPTUAL FAILINGS OF THE MANITOBA HYDRO RESPONSE

Manitoba Hydro's Affordable Energy Program (AEP) lacks a sound conceptual basis. The Company states that its program incorporates three "disciplines": (1) demand side management; (2) bill management; and (3) emergency financial services. The program's "key focus," however, is on demand side management through energy efficiency measures and customer education. (AEP 6). The Company also proposes to provide "emergency assistance funding" to customers who are in a "state of energy financial hardship and who display genuine difficulty in paying their utility bills." (AEP 5).

The Conceptual Basis for the Manitoba Hydro Affordable Energy Program

Manitoba Hydro sets forth three conceptual bases for its low-income program proposal. First, the Company urges that its program will be targeted to those most in need. Second, the Company urges that its program will maximize its "return on investment." Finally, the Company rejects the option of providing rate relief because discounted rates do not cover the full cost of energy and provide inappropriate price signals.

The three conceptual bases advanced by Manitoba Hydro offer little upon which to base a response to low-income home energy unaffordability. The discussion below identifies each of the three conceptual bases advanced by Manitoba Hydro and then considers the shortcomings of each.

The "Targeting" Proposed by Manitoba Hydro

The argument advanced by Manitoba Hydro: Manitoba Hydro urges in its AEP that "assistance should be targeted to those most in need and who genuinely cannot pay their bill." (AEP 5). Manitoba Hydro urges that an adequate low-income assistance program should be based on the principle that "eligibility for the program must be clearly defined with emphasis on providing funding assistance to vulnerable customers that genuinely cannot pay their energy bill." (AEP 26). This "clear definition" of eligibility, according to Manitoba Hydro, is to be applied on a case-by-case approach, since the circumstances facing each individual are "unique." (RCM/TREE/MH-I-130(a); RCM/TREE/MH-I-121(b)). The Company argues that "by more clearly defining eligibility, Manitoba Hydro can begin more aggressively targeting those customers through their data bases or by partnering with other organizations to identify the customers. . ." (AEP 28).

In proposing this case-by-case approach, Manitoba Hydro proposes several limitations on who can access assistance through its program. None of these limitations, however, meet the Company's own criterion of establishing a "clear definition" of eligibility. The Company states that the assistance provided through its proposed low-income program would be directed to:

- Customers who are not simply "unable to pay their energy bill" (AEP 4), but whose inability-to-pay is "due to personal hardship or crisis." (AEP 4).
- Customers who are "most in need." (AEP 4, 28).
- Customers who "genuinely cannot pay their bill." (AEP 4, 5, 27).
- Customers who "***genuinely*** (emphasis in original) find it difficult to pay their utility bills." (AEP 26).
- Customers who are "in a state of financial hardship." (AEP 5).
- Customers who are "lower income *and* who find themselves in an emergency financial situation." (AEP 12) (emphasis added).

<u>The failings of that argument</u>: Despite its statements regarding the need to "clearly define" eligibility, Manitoba Hydro has no indication of how to define its various eligibility criteria, let alone how to implement a program that might incorporate these limitations. Manitoba Hydro concedes the following:

- "Manitoba Hydro does not have a specific definition of customers 'most in need', or [of] those who 'genuinely cannot pay their bill.'" (RCM/TREE/MH-I-111(c)). The Company has no metrics to use to distinguish customers "most in need" (RCM/TREE/MH-I-111(b)). Nor does it have any specific data elements that it proposes to use to distinguish those "most in need" from those not "most in need." (RCM/TREE/MH-I-111(c)).

- Manitoba Hydro cannot define the term "genuinely cannot pay their bill." (RCM/TREE/MH-I-111(d)). The Company has no metrics it proposes to use to determine who "genuinely cannot pay their bill." (RCM/TREE/MH-I-111(e)). Nor does it have any data elements it proposes to use to determine who "genuinely cannot pay their bill." (RCM/TREE/MH-I-111(f)).

- Manitoba Hydro cannot define "energy financial hardship." (RCM-TREE/MH-I-121). However, the Company does concede that "if an individual is experiencing financial hardship, the individual will be experiencing financial hardship with the various components of the individual's financial obligations which would include energy bills, provided the customer is using and obligated to pay for the energy use." (RCM/TREE/MH-I-122(a)).

- Manitoba Hydro has no way to determine how a person who is displaying a "difficulty in paying their utility bills" is also displaying a "***genuine*** difficulty."[44] Manitoba Hydro has no way to determine whether a customer in a "state of energy financial hardship" is displaying a "genuine difficulty in paying their utility bills." (RCM/TREE/MH-I-123).

- The Company has neither identified nor defined either metrics (RCM/TREE/MH-I-123(d)) or data elements (RCM/TREE/MH-123(e)) by which to determine whether someone is in a "state of energy financial hardship."

- Manitoba Hydro has no definition for deciding, nor does it have either metrics or data elements to use in identifying, whether a customer's inability to pay is due to "personal hardship." (RCM/TREE/MH-133). Nor does Manitoba Hydro have a definition for, or metrics or data elements to use to determine, whether a customer is facing an "emergency situation." (RCM/TREE/MH-134).

[44] Note that the Company's AEP program proposal, itself, added the emphasis to the word "genuine" (AEP 26), thereby distinguishing "difficulty in payment" from "genuine difficulty in payment." In the minds of the author of the AEP, the concept of "***<u>genuine</u>*** difficulty" in paying bills had some import, even though the Company cannot define what it means by the term and does not know what information could be used to distinguish persons with a "genuine difficulty" from persons without a "genuine difficulty."

Despite the Company's statements that an appropriate low-income program depends for its legitimacy on "clear definitions" of eligibility requirements, the Company's own program proposal is singularly lacking in such definitions of the oft-repeated limitations it proposes to place on program participation.

The "Return on Investment" Proposed by Manitoba Hydro

The argument advanced by Manitoba Hydro: The Company argues as one basic premise for its program proposal that the "key learnings from other programs include [that] bill assistance programs should focus on demand side management as it offers the best return on investment for the customers of the utility." (AEP 4). The Company urges further that placing the "most emphasis on demand side management initiatives" provides "the most sustainable return on investment." (AEP 24). The Company thus makes two claims about the use of energy efficiency investments regarding low-income affordability:

(1) that it offers the highest ("best") return on investment; and

(2) that it offers the "most sustainable" return on investment.

Each of these claims should be dismissed.

The failings of that argument: The Manitoba Hydro low-income affordability program lacks any basis grounded in an argument that its program proposal offers a superior "return on investment." While urging that it seeks to receive the "best" and the "most sustainable" return on investment makes for great political rhetoric, to impose such a requirement for its low-income program:

- Has been done in no other jurisdiction identified by the Company; and
- Is based on no recognized methodology or empirical results available to the Company.

Moreover, Manitoba Hydro imposes a return on investment requirement on none of its other major credit and collection activities directed toward low-income customers. For example, Manitoba Hydro does not calculate a "return on investment" for:

- The dollars spent on the disconnection of service for nonpayment; (RCM/TREE/MH-I-118(a));
- The dollars spent on deferred payment plans as a method to retire arrears (RCM/TREE/MH-I-118(c));
- The dollars spent on load limiters (RCM/TREE/MH-I-118(e));
- The dollars spent on offering budget billing (RCM/TREE/MH-118(g)).

The Company has never assessed the extent to which its existing collection mechanisms reduce either residential bad debt (RCM/TREE/MH-I-66) or residential arrears (RCM/TREE/MH-I-67), let alone calculated a return on investment for these activities. The Company cannot provide even a methodology for calculating a return on investment for its existing collection activities. (RCM/TREE/MH-I-118(b), (d), (f), (h)), let alone having used such a methodology in practice.[45]

It is not clear upon what Manitoba Hydro relied when it asserts that "key learnings from other programs include [that] bill assistance programs should focus on demand side management as it offers the best return on investment for the customers and the utility." (AEP 4). Manitoba Hydro could identify no program evaluation ever making such a finding, let alone provide a copy of such an evaluation making such a finding or provide a page citation to such a finding. (RCM/TREE/MH-I-112).[46]

Moreover, it is not clear upon what Manitoba Hydro relied when it asserts that "key learnings from other programs" include that demand side management offers a ***better*** return on investment to both customers and the utility than do programs such as low-income arrearage forgiveness, rate discounts, crisis intervention, or percentage of income programs. The Company could provide no document that set forth even a ***methodology*** for calculating a return on investment (from the perspective of either the customer or the utility) for an arrearage forgiveness program (RCM/TREE/MH-I-113); a crisis intervention program (RCM/TREE/MH-I-114); a rate discount program (RCM/TREE-I-115); or a percentage of income program (RCM/TREE/MH-I-116), let alone any results, analysis or conclusions based on the use of such a methodology.

Indeed, the Company could not identify a single rate assistance program for which a "return on investment" was calculated (RCM/TREE/MH-I-117), let alone identify what the return on investment was (RCM/TREE/MH-I-117), or provide a copy of any document in which a return on investment was reported (RCM/TREE/MH-I-117).

Finally, the Company had reviewed ***none*** of the empirical ex post program evaluations which considered the costs and benefits of programs involving arrearage forgiveness, rate discounts, or percentage of income programs (RCM/TREE/MH-I-171). Nor, in choosing utilities to "study" for its low-income research with the exception of Public Service Electric and Gas (PSEG) (New Jersey), did Manitoba Hydro choose to examine a utility in one of the various jurisdictions that have arrearage forgiveness and percentage of income programs. (RCM/TREE/MH-170). Even with PSEG, the Company chose not to read the program evaluation of the New Jersey low-income Universal Service Fund (USF), a percentage of income program setting low-income rates equal to an affordable burden of 6% of income. (RCM/TREE/MH-I-171(h)). The Company

[45] The Company does not track when or whether it is cost-effective to disconnect service for nonpayment. (RCM/TREE/MH-I-73; RCM/TREE/MH-I-74). Nor has the Company established any criteria by which to measure the effectiveness of its existing credit and collection activities (RCM/TREE/MH-I-59), and has never evaluated the effectiveness of those activities. (RCM/TREE/MH-I-60).

[46] The incomplete nature of the Company's review was conceded in discovery. When asked to identify a copy of evaluations of actual low-income programs it had reviewed in preparation of its AEP, the Company acknowledged that its conclusions were based on "reviewing ***some*** reports" and "included discussions with ***several*** utilities." (RCM/TREE/MH-I-119) (emphasis added).

failed to report that of the ten utilities that it seeks to emulate for its AEP due to their "holistic" approach to low-income services, seven offer substantial rate discounts to their low-income customers. (RCM/TREE/MH-I-126). Indeed, of the seven utilities offering discounts, three participate in percentage of income programs.

In sum, Manitoba Hydro presents no information to support its assertion that a low-income affordability program should focus on demand side management because the "lessons learned" from programs in other jurisdictions counsel that demand side management generates a greater return on investment to both customers and the utility. No empirical study comparing the return on investment has been identified, let alone cited or reviewed by the Company. No methodology for calculating a return on investment has been presented (or even identified). Moreover, to impose a return on investment test on low-income programs would impose on those programs a test that Manitoba Hydro does not impose on any other major credit and collection activity directed toward low-income customers.

The Need to Provide "Price Signals" Proposed by Manitoba Hydro

The argument advanced by Manitoba Hydro: Manitoba Hydro finally expresses concern about whether the offer of discounted rates to low-income customers would "distort" price signals to those customers. (RCM/TREE/MH-I-159). The Company selectively cites the comments of various stakeholders opposed to low-income rates. The thrust of the comments, however, is the assertion that "assistance should not distort price signals to consumers. The commodity price should continue to reflect the true cost of energy used by low-income energy consumers. . ." (RCM/TREE/MH-I-159).

The failings of that argument: Energy bills represent an ineffective means to send price signals to low-income customers. The notion of sending a "price signal" assumes that the customer has the ability to *receive and act upon* the signal. When a customer has an inability-to-pay, however, that inability-to-pay distorts the price signal far more than a rate discount would. Low-income customers, particularly customers with energy burdens exceeding a prescribed level, pay less than their entire bill. Under such circumstances, it is the unaffordability of the bill that distorts the price signal.

A low-income discount program that reduces bills to an affordable level actually *improves* the price signaling of utility rates rather than distorting that price signaling function. This is particularly true if the low-income program is appropriately designed.

For example, analysis presented in this paper recommends a percentage of income "fixed credit" mechanism for delivering low-income discounts in Manitoba. Under a fixed credit program, low-income customers receive a fixed dollar credit applied to their bills at standard residential rates. To the extent that a customer's bill changes, whether due to changes in price or due to changes in consumption, the customer's payment obligation either increases or decreases accordingly. Reduced bills attributable to energy conservation, just like increased bills due to higher consumption, are immediately reflected in the low-income customer's payment obligation.

This immediate change in the customer's affordable bill presents a far more cogent "price signal" than the customer would receive without the fixed credit program. Without the program, the impact to the customer might well be only whether the customer has an arrears of $800 or an arrears of $900,[47] hardly a compelling price signal mechanism in that both mean that the bill for current usage will not likely be paid in a full and timely fashion.

Despite the theoretical concern expressed by Manitoba Hydro about a low-income rate affordability program distorting price signals, the reality is that a low-income rate affordability program improves rather than distorts the price signaling function of utility bills.[48] From an empirical basis, despite the operation of low-income discount programs in the United States for more than 20 years, and repeated impact evaluations of those programs by numerous different evaluators,[49] *not one impact evaluation has found that the rate discount resulted in a systematic increase in consumption*.

Quite aside from the fact that neither economic theory nor empirical evaluations support the concern that Manitoba Hydro has expressed about how low-income discounts would "distort" price signals, the Company has not expressed similar concerns with respect to other billing programs that primarily benefit customers other than low-income customers. For example, the Company does not express concern about whether, or how, its Levelized Budget Billing program distorts price signals.

Table 7 provides basic information about the Equal Payment Plan program offered by Manitoba Hydro.[50] Roughly 20% of the Company's total residential customer base was in the levelized budget billing program in 2009. Participation ranged from 90,000 to 100,000 residential customers.[51] By its nature, levelized budget billing is intended to cost-shift utility bills so customers do not see the full impact of their consumption decisions in their monthly bills. As a result, by design, levelized budget billing distorts the "price signals" to residential customers, especially in the high costs months when consumption decisions would have the biggest impact on usage and bills. Indeed, as Table 7 shows, in the high cost months of January through March, between 65% and 90% of residential customers on the levelized budget billing plan are not billed the full cost of their monthly consumption. Given an average residential bill of more than $80, the budget billing customers are being billed somewhere between 30% and 75% less than their

[47] The average residential arrears of an account with an arrears 60-days old or older is $900. RCM/TREE/MH-I-155.
[48] From an economic theory perspective, it is easy to understand this result. From a price theory perspective, price signals "work" only if there is adequate information about price and quality. The inability-to-pay, and the resulting arrears, impedes this information process. By improving this information process, while maintaining the task of reflecting increases and decreases in a bill, the rate affordability program improves rather than distorts the price signal. See generally, R.Colton (1990). "Customer Consumption Patterns within an Income-Based Energy Assistance Program." 24 *Journal of Economic Issues* 1079.
[49] See the various reports presented to, but not reviewed by Manitoba Hydro. (RCM/TREE/MH-I-171).
[50] An Equal Payment Plan program does not provide substantive affordability benefits to low-income customers with high energy burdens. High energy burdens are calculated on an annual basis. No matter how a home energy burden is spread over a year, a burden of more than 6% will still be unaffordable. Equal Payment Plans are designed to help customers whose bills may be affordable on an annual basis, but whose monthly variability in the billing pushes any particular month into an unaffordable range for that month.
[51] For administrative reasons, customers are removed from budget billing in the settlement month (August) and re-enrolled the following month. Participation rates in August and September thus do not reflect the annual rate.

actual usage in those high cost months. Nonetheless, Manitoba Hydro does not express concern about any resulting distortion of price signals for these budget billing customers.

Table 7. Manitoba Hydro Levelized Budget Billing Plan (2009)

	Residential Customers	Average Monthly Bill	Levelized Budget Billing Plan Participants				
			No. of LPP Participants	Percent of Total Residential	No. with Credit Balance	No. with Debit Balance	Pct with Debit Balance
January	460,269	$140	89,057	19%	14,533	78,297	88%
February	460,615	$116	90,043	20%	27,538	57,587	64%
March	460,804	$108	90,422	20%	35,633	58,159	64%
April	461,075	$103	90,557	20%	40,419	44,197	49%
May	461,315	$71	90,505	20%	80,610	13,013	14%
June	461,599	$65	90,421	20%	72,769	11,858	13%
July	461,969	$60	90,189	20%	69,759	23,435	26%
August /a/	462,310	$57	4,619	1%	43,934	45,891	994%
September	462,776	$59	83,625	18%	66,747	23,685	28%
October	463,392	$76	97,904	21%	75,682	22,481	23%
November	463,860	$78	99,729	21%	86,994	17,836	18%
December	464,305	$101	101,064	22%	49,929	46,166	46%

SOURCE: RCM/TREE/MH-I-57

NOTES:

/a/ For program administration purposes, customers are removed from the Equal Payment Plan in the balancing month (August) and re-enrolled the following billing month.

When coupled with the failure of Manitoba Hydro to perform any "return on investment" for its budget billing program, or to assess the extent to which, if at all, budget billing helps to reduce either bad debt or residential arrears, the added failure of Manitoba Hydro to evidence concern about the price distortion of levelized budget billing makes the concern that Manitoba Hydro now expresses about the impact that a low-income discount might have on "price signals" ring hollow.

THE PROGRAMMATIC FAILINGS OF THE MANITOBA HYDRO RESPONSE

Manitoba Hydro fails to support its proposed low-income program proposal on a programmatic basis. The Company's program fails when considered from a needs basis and from an administrative basis. The problems with the energy efficiency, crisis intervention and payment management components will be separately reviewed below.

The Lack of a Grounding in a Needs-Determination

The Manitoba Hydro low-income program proposal fails to meet the affordability needs of its low-income population in any reasonable fashion. The AEP proposal advanced by Manitoba Hydro does not, in any objective way, even begin to address the low-income needs identified by the Company's own data.

The Energy Efficiency Program

The Company's Low-Income Energy Efficiency Program (LIEEP) does not begin to address the efficiency needs of Manitoba Hydro's low-income population. Manitoba Hydro touts its low-income efficiency program as being "recognized as one of the leading DSM programs in Canada." (AEP 15). The program includes "basic energy efficiency items such as compact fluorescent lights and low flow showerheads, air sealing materials, insulation measures, and the replacement of standard efficiency furnaces with high efficiency furnaces." (AEP 15).

Table 8 presents the number of lower income customers from all fuel sources that have received LIEEP assistance by year.[52] Over the four years of program data, 513 low-income customers have been served by LIEEP. Over the most recent three years, the Company has treated an average of 161 lower income homes per year.

Table 8. LIEEP Program Participation by Year (Manitoba Hydro)

	2006 - 2007	2007 - 2008	2008 - 2009	2009 – 2010 (YTD)	Total
LIEEP	31	108	143	231	513

SOURCE: RCM/TREE/MH-I-166.

Despite Manitoba Hydro's comments about the advantages of having a multi-pronged approach to serving low-income customers, only one (1) customer received both LIEEP and crisis assistance in 2008/2009; only three (3) customers received both LIEEP and crisis assistance in the first three quarters of 2009/2010. (RCM/TREE/MH-I-166(c)). No other customers (other than these four) have participated in both LIEEP and the Company's crisis intervention program. (RCM/TREE/MH-I-166(e)).

Despite the Company's emphasis on an individualized case-by-case determination of what interventions are appropriately to be directed toward low-income customers that have a "genuine difficulty" in paying their bills, of the 1,285 combined participants in the NHN and LIEEP programs (RCM/TREE/MH-I-166(d)), only four (4) (0.3%) have been found to merit receiving both crisis assistance to pay arrears and efficiency assistance to reduce future bills. After making an individualized case-by-case determination of need, only four (4) low-income customers have

[52] According to the Company: "please note that this is based on participation which is defined as homes that have completed all the LIEEP program recommendations and completed an ecoENRGY E evaluation, or comparable verification. In addition to those participants below, many additional LIEEP customers had some measures implemented, however, not all work has been completed (e.g., furnaces may have been installed but insulation was not completed." (RCM/TREE/MH-I-166).

received both crisis assistance and energy efficiency assistance despite the fact that low-income customers in arrears have bills that are, on average, nearly 70% higher than average residential customers bills.

The problem, of course, is that despite Manitoba Hydro's representations to the contrary, the Company does not really seek to deliver holistic assistance to address nonpayment and its underlying causes.[53] The purpose of the Manitoba Hydro program is to resolve the immediate payment crisis, not to holistically address the inability to pay problem. The offer of energy efficiency assistance cannot help a customer make a payment by a date certain in response to a notice of an impending disconnection of service for nonpayment and is thus not offered.

Moreover, in contrast to the LIEEP participation above, Table 9 presents Manitoba Hydro's low-income population disaggregated by billing bands. As Table 9 shows, nearly 37,500 low-income customers experience home energy bills at or above the Company's residential average (13,447 above electric heating average of $1,517; 24,000 above natural gas heating average of $1,753). More than 26,000 low-income customers experience bills that are 125% or more of the Company's residential average. Given the three-year average production level for LIEEP (161 homes per year), Manitoba Hydro would be able to treat all low-income customers with bills at the average or above within the next 233 years (assuming no growth in the number of low-income customers and assuming that no home would need to be re-treated in that time frame). Given the three year average production level for LIEEP, Manitoba Hydro would be able to treat all low-income customers at or above 125% of the average bill within the next 163 years.

Table 9 further shows the fallacy of relying on demand side management as the "focus" of a rate affordability initiative. If the Company were to treat all low-income customers with bills in excess of $3,000, it would undertake to treat 2,249 homes (5.4% of the total). At the three-year average production rate, this would be a 14-year effort. Even after this 14-year effort, if the Company were to achieve an average bill reduction of 25%:[54]

- the resulting bills (electric heating) would still range between 160% and 240% higher than the Company's residential average.

- the resulting bills (gas heating) would range between 160% and 190% of the Company residential average.

For these bills to be affordable at 6% of income:

- electric heating customers would need to have income between $38,883 ($2,333 / 0.06 = $38,883) and $58,350 ($3,501 / .06 = $58,350), well above the incomes of the Company's low-income customers.

- natural gas heating customers would need to have income between $38,983 and $47,333.

[53] A further discussion of this conclusion is presented in the "administrative" section below.
[54] In order to achieve a bill reduction of 25%, the usage reduction would need to be more than 25% given that a portion of the bill involves a fixed monthly charge.

Even after a 14-year effort, and a successful bill reduction of 25%, the Company still would not have achieved the goal of affordable home energy for these customers. The program may well have been a very successful usage reduction effort. It simply would not be a successful energy affordability initiative.

Table 9. Low-Income Customers By Bill Range (Electric Heating and Gas Heating)
(Manitoba Hydro)

	Electric Heating			Gas Heating		
	Number /a/	Avg. Bill /b/	25% Reduction	Number /c/	Avg. Bill /d/	25% Reduction
<$250	219	$222	$167	4,515	$230	$173
$251 - $500	2,137	$414	$311	8,084	$328	$246
$501-$750	2,960	$606	$455	2,707	$599	$449
$751 - $1,000	2,623	$868	$651	1,814	$903	$677
$1,001 - $1,250	3,955	$1,127	$845	3,117	$1,156	$867
$1,251 - $1,500	4,770	$1,375	$1,031	7,152	$1,374	$1,031
$1,501 - $1,750	4,446	$1,625	$1,219	11,696	$1,627	$1,220
$1,751 - $2,000	3,315	$1,849	$1,387	10,370	$1,872	$1,404
$2,001 - $2,250	2,244	$2,129	$1,597	5,937	$2,105	$1,579
$2,251 - $2,500	1,121	$2,399	$1,799	3,794	$2,351	$1,763
$2,501 - $2,750	622	$2,624	$1,968	2,061	$2,613	$1,960
$2,751 - $3,000	583	$2,819	$2,114	705	$2,840	$2,130
$3,001 - $3,250	554	$3,111	$2,333	460	$3,118	$2,339
$3,251 - $3,500	187	$3,415	$2,561	362	$3,381	$2,536
$3,501 or more	375	$4,668	$3,501	311	$3,786	$2,840

SOURCES:

/a/ RCM/TREE/MH-I-153(a).
/b/ RCM/TREE/MH-I-153(b).
/c/ RCM/TREE/MH-I-154(a).
/d/ RCM/TREE/MH-I-154(b).

Table 10 presents the problem from the converse perspective. Table 10 assumes a low-income household with an income of $17,000.[55] For a bill to be affordable at a 6% energy burden given this income, a home energy bill would need to be no greater than $1,020 ($17,000 x 0.06 = $1,020). Table 10 shows the bill reductions that the Company's LIEEP initiative would need to generate in order to achieve an affordable bill.

[55] While this income is not accepted as appropriately or reasonably representing the income of a Manitoba Hydro low-income customer, it is the income used by the Company in its low-income program proposal.

Table 10. Bill Reduction Needed to Achieve Affordable Bill at Different Bill Levels (Manitoba Hydro)

6% burden	Electric heating				Gas Heating			
	Number	Affordable Bill	Average Bill	Reduction Needed	Number	Affordable Bill	Average Bill	Reduction Needed
<$250	219	$1,020	$222	0%	4,515	$1,020	$230	0%
$251 - $500	2,137	$1,020	$414	0%	8,084	$1,020	$328	0%
$501-$750	2,960	$1,020	$606	0%	2,707	$1,020	$599	0%
$751 - $1,000	2,623	$1,020	$868	0%	1,814	$1,020	$903	0%
$1,001 - $1,250	3,955	$1,020	$1,127	9%	3,117	$1,020	$1,156	12%
$1,251 - $1,500	4,770	$1,020	$1,375	26%	7,152	$1,020	$1,374	26%
$1,501 - $1,750	4,446	$1,020	$1,625	37%	11,696	$1,020	$1,627	37%
$1,751 - $2,000	3,315	$1,020	$1,849	45%	10,370	$1,020	$1,872	46%
$2,001 - $2,250	2,244	$1,020	$2,129	52%	5,937	$1,020	$2,105	52%
$2,251 - $2,500	1,121	$1,020	$2,399	57%	3,794	$1,020	$2,351	57%
$2,501 - $2,750	622	$1,020	$2,624	61%	2,061	$1,020	$2,613	61%
$2,751 - $3,000	583	$1,020	$2,819	64%	705	$1,020	$2,840	64%
$3,001 - $3,250	554	$1,020	$3,111	67%	460	$1,020	$3,118	67%
$3,251 - $3,500	187	$1,020	$3,415	70%	362	$1,020	$3,381	70%
$3,501 or more	375	$1,020	$4,668	78%	311	$1,020	$3,786	73%

Table 10 shows that the bill reductions that the Company's LIEEP initiative would need to generate in order to achieve affordability at a 6% home energy burden are beyond those that are reasonably to be expected from LIEEP. The inability of LIEEP to achieve the bill reductions required to achieve an affordable burden is not limited to the highest bill levels. For electric heating, more than 9,000 customers would require bill reductions of 45% or more to achieve affordability at 6%; for gas heating customers, 24,000 customers would require bill reductions of 45% or more. A program such as LIEEP could not be expected to generate such usage reduction results.

The Crisis Intervention Program

The Company's crisis intervention program (Neighbors Helping Neighbors: NHN) does not begin to address the crisis needs of Manitoba Hydro's low-income population. NHN can neither serve the number of low-income customers needing assistance, nor provide the depth of assistance that is necessary to resolve payment crises.

Manitoba Hydro's crisis intervention relies on the Salvation Army to deliver assistance to customers "who are unable to pay their energy bills due to personal hardship or crisis." (AEP 12). While the Company defines neither term ("personal hardship" or "crisis"), broadly, the Company refers "customers who are struggling to pay their energy bill and facing disconnection" to NHN. (RCM/TREE/MH-I-135). In 2008/2009, NHN delivered assistance to 472 customers. (AEP 12).

The Company does not know either the level of arrears carried by customers receiving NHN assistance (RCM/TREE/MH-I-135(a)) or the age of arrears (RCM/TREE/MH-135(b)). The Company speculates that the average arrears of NHN recipients is $900, which is the average arrears of all customers having arrears greater than 60-days old. (RCM/TREE/MH-I-155). The Company "has not made an effort to estimate the targeted market for NHN." (RCM/TREE/MH-I-156).

Table 11 sets forth a table of accounts in arrears by the level of arrears. Table 11 shows the inadequacy of the Company's proposed crisis intervention program. If one engages in the conservative assumption that low-income customers are in arrears at the same rate as their incidence in the residential population as a whole (20.2% for Manitoba Hydro),[56] the Company experiences between 14,000 (October) and 16,500 (May) low-income accounts in arrears each month on average.[57] Of the low-income accounts in arrears greater than $100:

- Nearly 30% (2,194) have arrears of greater than $500;[58]
- Nearly 15% (1,073) have arrears greater than $1,000; and
- More than 5% (434) have arrears greater than $2,000.

The Company's treatment of fewer than 500 low-income customers per year falls well short of the need for arrearage assistance at these higher levels of arrears. Moreover, expanding the participation level to 708 customers (RCM/TREE/MH-I-156) does not remedy this shortcoming.

[56] In fact, the incidence of low-income arrears in the population of customers having arrears is higher than the incidence of low-income customers in the residential population.
[57] The variability in 30-day arrears documents that these are different accounts.
[58] The maximum NHN grant is $450. (RCM/TREE/MH-I-167).

Table 11. Accounts in Arrears by Month and Level of Arrears – 2009
(Total Residential and Low-Income) /a/

Residential	Feb.	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
$0 - $100	36,273	34,659	34,661	38,190	40,832	39,730	42,880	40,307	40,846	40,920	38,805
$101 – 200	14,451	13,524	12,929	14,235	14,291	13,129	13,688	12,832	13,074	14,866	13,882
$201 - $300	7,525	7,673	6,947	7,447	6,537	5,661	5,630	5,205	5,028	6,116	6,190
$301 - $500	8,094	7,720	7,337	7,170	6,354	5,218	4,879	4,534	4,195	4,782	5,471
$501 - $750	5,233	5,043	4,624	4,504	3,786	3,142	2,815	2,581	2,222	2,337	2,756
$751 - $1,000	2,994	2,988	2,787	2,553	2,141	1,750	1,639	1,370	1,219	1,235	1,324
$1,001 - $2,000	4,200	4,390	4,454	4,333	3,606	2,883	2,694	2,380	1,997	1,969	1,915
$2,001 or more	2,162	2,322	2,470	2,587	2,425	2,207	2,166	1,997	1,777	1,764	1,734
Totals	80,932	78,319	76,209	81,019	79,972	73,719	76,391	71,206	70,358	73,989	72,077
Low-Income	Feb.	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
$0 - $100	7,327	7,001	7,002	7,714	8,248	8,025	8,662	8,142	8,251	8,266	7,839
$101 – 200	2,919	2,732	2,612	2,875	2,887	2,652	2,765	2,592	2,641	3,003	2,804
$201 - $300	1,520	1,550	1,403	1,504	1,320	1,144	1,137	1,051	1,016	1,235	1,250
$301 - $500	1,635	1,559	1,482	1,448	1,284	1,054	986	916	847	966	1,105
$501 - $750	1,057	1,019	934	910	765	635	569	521	449	472	557
$751 - $1,000	605	604	563	516	432	354	331	277	246	249	267
$1,001 - $2,000	848	887	900	875	728	582	544	481	403	398	387
$2,001 or more	437	469	499	523	490	446	438	403	359	356	350
Totals	16,348	15,820	15,394	16,366	16,154	14,891	15,431	14,384	14,212	14,946	14,560

SOURCE: RCM/TREE/MH-I-49

NOTES:

/a/ Assumes incidence of low-income in same proportion as incidence of low-income in total Manitoba Hydro residential population (20.2%).

One further problem with the NHN program is that while it may address, in some limited fashion, a portion of the arrearage problem faced by low-income customers –the Company provides a grant of not more than $450 applied against an ***average*** arrears of $900, with the distribution of arrears shown above indicating frequent arrears much greater than $900—it does not address the underlying ***cause*** of the arrearage problem. NHN grants do not exceed the value of a customer's arrears. (RCM/TREE/MH-I-167). If the cause of the arrears is the underlying unaffordability as documented above, while NHN may temporarily retire the arrears, it is reasonable to expect that customer to fall into arrears once again. The presence of arrears, in other words, is the indicator of the problem; it is not the problem itself.

As a result of this failure to address the underlying cause of the arrears facing a low-income customer, the Company cannot provide information on the outcomes generated by the grants

provided through NHN. While the Company receives a formal annual report from the Salvation Army each year, that report does not provide information on the outcomes generated by NHN grants. (RCM/TREE/MH-I-136, 137(a)). Indeed, the Company has never proposed or assessed, let alone decided upon, a set of outcome measures for its NHN program. (RCM/TREE/MH-I-137(b)).

Manitoba Hydro has no basis upon which to assess the effectiveness of its NHN in addressing either the prevention of utility arrears and collections, or the underlying unaffordability that leads to such arrears and collections. The Company can report how much money it spends on NHN and the number of customers receiving grants. (RCM/TREE/MH-I-136(b)). However, the Company can ***not*** provide information on basic outcome measures such as:

- Either the level of arrears (RCM/TREE/MH-I-135(d)) or the age of arrears (RCM/TREE/MH-I-135(e)) that NHN recipients have six months ***after*** receiving their NHN grant; or

- The number of disconnections experienced by NHN recipients in the 12 months ***after*** receiving their NHN grant (RCM/TREE/MH-I-135(f)); or

- The number of disconnect notices received by NHN recipients in the 12 months ***after*** receiving their NHN grant (RCM/TREE/MH-I-135(g)).

The Company cannot even report whether, six months after providing the crisis intervention assistance, the level of arrears on the account of an NHN recipient is lower than, greater than, or about the same as the level of arrears at the time the customer received the NHN grant. (RCM/TREE/MH-I-135(h)). Despite the money spent on its NHN program, the Company has no basis to assess whether those expenditures are having any impact on addressing the affordability of home energy bills or the payment problems that arise because of that unaffordability.

The "Payment Management" Program Option

The "payment management" program option that Manitoba Hydro advances for its low-income customers is an inadequate response to low-income inability to pay. Manitoba Hydro lists the following as the components of its "payment management" program: (1) "alternative payment methods"; (2) "payment locations"; and (3) "bill messaging." (AEP 8).

Manitoba Hydro could offer no support for its assertion that the offer of these "payment management" options would assist low-income customers facing an inability to pay. Despite asserting that its proposal was "based on the [referenced] research," Manitoba Hydro could not:

- Identify one single "bill assistance report and consultation paper" that identified "bill messaging" as a key component to a comprehensive bill affordability program. (RCM/TREE/MH-I-129(b));

- Identify one single program evaluation of a rate affordability program using “bill messaging” as a key component (RCM/TREE/MH-I-129(c));

- Identify one single “bill assistance report and consultation paper” that identified “alternative payment methods” as a key component to a comprehensive rate affordability program (RCM/TREE/MH-I-129(e));

- Identify one single program evaluation of a rate affordability program using “alternative payment methods” as a key component of the rate affordability program. (RCM/TREE/MH-I-129(f)).

- Identify one single “bill assistance report and consultation paper” that identified “payment locations” as a key component to a comprehensive rate affordability program (RCM/TREE/MH-I-129(h));

- Identify one single program evaluation of a rate affordability program using “payment locations” as a key component of the rate affordability program. (RCM/TREE/MH-I-129(i)).

One problem with these “payment management” options is that Manitoba Hydro views low-income inability to pay as a budget problem (i.e., “payment management”) rather than as an affordability problem. As Manitoba Hydro quite openly states: the “concept of energy burdens is not used in the design or assessment of Manitoba Hydro’s affordable energy programs.” (PUB/MH-I-213).

While Manitoba Hydro concedes that there will be customers who “require more assistance than Manitoba Hydro can offer,” (AEP 11), the Company has not:

- Identified any metrics to employ to make that determination (RCM/TREE/MH-I-132(a));

- Identified any data elements that would be used to identify such customers (RCM/TREE/MH-I-132(b));

- Established any policies or procedures for staff to use in making such a determination (RCM/TREE/MH-I-132(e)); or

- Created any training materials, or provided training to any call center or field office staff, on how to make such a determination. (RCM/TREE/MH-I-132(f)).

The ineffectiveness of the “payment management” options that Manitoba Hydro references can be seen in the case studies of an ""“acceptable living level” for Manitoba. No matter how well a low-income household “manages” its budget, it is simply not possible to stretch an income of

$7,011.96 to cover expenses of $36,912.[59] No matter how well a low-income household "manages" its payments, it is not possible to stretch an income of $8,888.16 to cover expenses of $15,382.31.[60]

Ultimately, the "payment management" options that Manitoba Hydro offers will be ineffective because they do not address the underlying unaffordability. Manitoba Hydro, however, does not offer these program options because they will be effective. Rather, the Company offers these program options because of its stated philosophy that "the issue of whether energy is affordable is outside the scope of Manitoba Hydro's mandate. . ." (RCM/TREE/MH-I-94).

The Administrative Program Shortcomings

The low-income program proposed by Manitoba Hydro has substantial administrative shortcomings. Many of those shortcomings have been addressed above. There is no definition of key elements of the eligibility requirements imposed by the Company, let alone an articulation of specific metrics or data elements to be used in the application of those eligibility requirements. There is no ability to determine even short-term outcomes from the application of NHN grants, including the prevention of arrears, the prevention of disconnect notices, and the prevention of service disconnections for nonpayment.

One other administrative shortcoming, however, is the considerable administrative expense that underlies the NHN program. In 2008/2009, the last year for which there is data, the Manitoba Hydro NHN initiative budgeted to spend 37% of its total program costs on program administration (RCM/TREE/MH-I-138), with an additional 2.7% budgeted to support the "marketing" of the NHN program (RCM/TREE/MH-I-139). Of the $217,172 budget, in other words, $87,308 was budgeted to support administration and marketing.

In the 2008/2009 fiscal year, for each average grant of $254 provided by NHN, Manitoba Hydro spent $166 on administration and marketing. (RCM/TREE/MH-I-141, RCM/TREE/MH-I-142). More efficient ways exist through which the Company can appropriately address low-income inability-to-pay.

In addition to the costs of the Manitoba Hydro crisis intervention program, however, is the inability of Manitoba Hydro to coordinate the services that it provides with the crisis intervention program. The failure of the Company to coordinate the NHN crisis intervention with the Company's energy efficiency program has been previously discussed. This failure is not coincidental. It is inherent within the program structure. The Company has no information upon which to offer the integrated services that it discusses. Instead, it refers customers to the Salvation Army and relies upon the Salvation Army to "assess client needs and situations." (RCM/TREE/MH-I-133). The Company does not receive, nor could it provide, any information on the client "needs and situations" as determined by the Salvation Army. (RCM/TREE/MH-I-134). With such a lack of information, it is not possible to determine the integrated services (e.g., efficiency, crisis intervention) that would benefit each client.

[59] Ford and Harris (2003). *Acceptable Living Level: Manitoba*, at 49, Winnipeg Harvest and the Social Planning Council of Winnipeg, Winnipeg (MAN).
[60] Id., at 50.

SUMMARY

The Affordable Energy Program proposed by Manitoba Hydro has within it inherent and irresolvable difficulties. The Company proposes to provide individualized assistance to customers who have a "genuine difficulty" in paying their home energy bills. Despite this individualized assistance, the Company proposes to have a "clear definition" of eligibility. Manitoba Hydro cannot, however, even define who is and who is not eligible for assistance, let alone identify what information will be used to distinguish who will receive assistance and who will not.

The Company further proposes to focus its Affordable Energy Program on delivering energy efficiency investments. The energy efficiency needs of the Company's low-income customers, however, far outstrip the ability of the Company to deliver. On the one hand, the number of low-income customers with bills sufficiently high to indicate the probable need for efficiency investments is so large as to be beyond the reach of the Company in a reasonable time frame. On the other hand, a substantial number of low-income customers have bills that, even with reasonably expected bill reductions accruing from efficiency investments, could not be reduced to an affordable level.

Finally, while the Company proposes a program that it asserts will deliver a higher "return on investment" than any alternative, it further proposes to rely on a program that for every average grant of $254, it has historically spent $166 on administrative and marketing costs.

An alternative programmatic approach and delivery system for addressing the social and utility problems presented by the unaffordability of home energy to Manitoba Hydro's low-income customers is presented in the next section.

PART 3:
A LOW-INCOME AFFORDABILITY PROGRAM FOR MANITOBA HYDRO

In response to the affordability problems documented above, and the broad range of utility, social, and business competitiveness impacts arising because of these problems, this report outlines the essential components comprising an effective and efficient low-income affordability program for Manitoba Hydro. These components include:

- A rate affordability component;
- An arrearage management component;
- A crisis intervention component; and
- An energy efficiency component.

THE RATE AFFORDABILITY COMPONENT

The first critical component of a low-income affordability program is a rate affordability program. Through the rate affordability program component, the price of home energy is set at 6% of income, a level that will generate an enhanced ability of low-income customers to make actual payments. Within the context of Manitoba Hydro's electric rates, this paper considers an electric program.

An Overview and Summary.

Building a rate affordability program consists of the following basic steps:[61]

1. **Eligibility:** Defining the eligibility for the rate affordability program should allow the program to be *open to enrollment* by any low-income consumer. For purposes of this program, a "low-income consumer" is any consumer with gross household income at or below 125% of the Low-Income Cutoff (LICO).

2. **Outreach:** Informing low-income customers of the availability of the rate affordability program involves both education about the *existence* of the program and education about *how to enroll* in the program. The most effective forms of outreach for ratepayer-funded programs have been found to involve the use of community-based organizations as well as organizations that deliver social assistance benefits to the same households that are eligible to receive rate affordability benefits. Outreach should also occur through the local utility channeling customers to the program when, based on utility records, those customers are found to be payment-troubled.

3. **Intake:** Enrolling customers in the rate affordability program involves making customers into program participants. The primary intake should occur by contracting with relevant federal and provincial agencies to "match" electronic lists of residential customers with lists of social assistance program participants. This income verification is effective and inexpensive. In addition, consumers should be given the opportunity to complete an in-person application through a community-based site whether or not they participate in a social assistance program.

4. **Collections:** Enforcing customer payment obligations after a customer receives a rate affordability benefit should occur through the same credit and collection activities directed toward any residential customer. If a customer receiving service through an affordable rate does not make appropriate payments, that customer enters the collection cycle with the same rights and responsibilities as any other customer. In this fashion, no new or special administrative process is created for the rate affordability participants.

5. **Recertification:** Recertifying income for customers whose income cannot reasonably be determined to be non-variable over the long-term should occur on an annual basis. Most participants will have their income recertified automatically through a contract with the appropriate social assistance agency. For those customers whose income cannot be recertified in this fashion, the customer will be notified at an appropriate time before his or her anniversary date of the need for recertification.

Having provided this summary, the remainder of this section will address the structural and operational issues of rate affordability assistance in more detail.

[61] *See generally*, Roger Colton (2007). *Best Practices: Low-Income Affordability Programs, Articulating and Applying Rating Criteria*, prepared for Hydro-Quebec, Fisher, Sheehan & Colton: Belmont (MA).

Proposed Structure for a Manitoba Rate Affordability Program.

Rate affordability assistance for Manitoba Hydro customers should be tied to the most recently available LICO. The proposal here is to set eligibility equal to 125% of LICO. For a household with three persons, the maximum eligibility[62] under this guideline would be $42,416 for a community with a population of 500,000 or more.[63]

Table 12. Low-Income Cutoffs for 2008 (before tax) (1.25x)

		Urban Areas			
Family Size	Rural	Less than 30,000	30,000 – 99,999	100,000 – 499,999	500,000 or more
1	$19,078	$21,705	$23,720	$23,868	$27,714
2	$23,750	$27,019	$29,529	$29,711	$34,501
3	$29,198	$33,216	$36,301	$36,528	$42,416
4	$35,451	$40,330	$44,076	$44,350	$51,498
5	$40,206	$45,743	$49,990	$50,299	$58,409
6	$45,348	$51,590	$56,381	$56,731	$65,874
7 or more	$50,488	$57,438	$62,773	$63,161	$73,341

SOURCE: Based on: Low-income Cut-offs and Low-Income Measures for 2007 and 2008 (June 2009).

It should be recognized that under a rate affordability program that is based on affordable home energy burdens, if, because of relatively higher income or relatively lower home energy bills, the pre-determined percent of a household's income will exceed their annual electric bill, the household will receive no benefit. In those instances, the home energy bill is deemed "affordable" and the local utility will collect the entire bill calculated at standard residential rates. Only in those instances where the household, due to low incomes or high bills, faces a utility bill that exceeds the designated percentage of its income, is the bill deemed to be “unaffordable” and the rate is offered to reduce the burden to an affordable level.[64]

[62] The fact that the maximum eligibility is set at $42,416 does not mean that the average income for eligible customers will be at this income level. The average income will be much lower.

[63] With a population in Winnipeg of roughly 675,000, the figure for 500,000 or more seems to present the best comparison.

[64] To illustrate, assume a household has an annual income of $25,000, an annual energy bill of $1,200, and is asked to pay six percent (6%) of her income toward her energy bill in an income-based program. This customer's income-based energy bill payment would be $1,500 ($25,000 x .06 = $1,500). Hence, this customer would decide *not* to participate in the income-based rate, since her bill at standard residential rates is *less* than the bill rendered under the rate affordability program.

Rate affordability assistance in Manitoba should be distributed on a percentage of income basis. Using a percentage of income approach to targeting provides a more efficient use of scarce rate affordability resources. This can be demonstrated by comparing an across-the-board discount to a percentage of income approach. While a percentage of income approach delivers those benefits, but only those benefits, needed to bring low-income bills into an affordable range, an across-the-board discount does not. Using an across-the-board discount, the universal service program would pay some customers *more* than is necessary to bring bills into an affordable range while paying other customers *less* than is necessary to bring bills into an affordable range. Accordingly, it is most appropriate to base the rate affordability component of the Universal Service Program on a percentage of income targeting mechanism.[65]

Although a variety of percentage-of-income based approaches exist, delivery of rate affordability assistance using a fixed credit approach is most appropriate. The fixed credit approach begins as an income-based approach. In order to be eligible for the rate, a household must meet *both* eligibility criteria: (1) that the household income is at or below 125% of the Low-Income Cutoff (LICO) for Manitoba; and (2) that the household energy burden exceeds the burden deemed to be affordable.[66]

The fixed credit approach next calculates what bill credit would need to be provided to the household in order to reduce the household's energy bill to a designated percent of income. To calculate the fixed credit involves three steps: (1) calculating a burden-based payment; (2) calculating an annual bill; and (3) calculating the fixed credit necessary to reduce the annual bill to the burden-based payment. Each step is explained below.

1. **Burden-based payment:** The first step in the fixed credit model is to calculate a burden-based payment. Assume -- simply for the sake of illustration here -- that the household has an annual income of $8,000 and is required to pay six percent (6%) for its home energy bill. The required household payment is thus $480. This is determined as follows: $8,000 x 6% = $480.

   Distinctions in the percentage of income payment are made based upon whether the customer is a heating or non-heating customer. The payment is split evenly between the heating and non-heating component of the utility bill. Under a 6% scenario, a natural gas heating customer would be asked to pay three percent (3%) of the household's income toward her home heating bill, and another three percent (3%) toward her electric bill. An all electric customer would pay six percent (6%) toward her electric bill. Other percentage burdens would be similarly split half-and-half (8% converts to 4% toward each fuel; 10% converts to 5% for each fuel).

   The energy burden represented by a combined heating and non-heating energy bill should not generally exceed six percent (6%) of income. It is generally accepted that a household's "shelter burden" (rent/mortgage plus taxes plus utilities) should not exceed

[65] Two states in the United States have adopted a "tiered discount" program to serve as an alternative to an across-the-board discount (New Hampshire and Indiana).

[66] A customer may still participate in the arrearage management program component even if he or she does not participate in the rate affordability component.

30% of income. In addition, a household's home utility bill should not exceed 20% of the household's shelter costs. Combining those two yields an affordable home energy burden of six percent (6%).[67] Clearly, however, the reasonableness of an energy burden is a range and not a point. Ultimately, whether an affordable burden should be set as 6% or as 8% (or some other figure) is a policy decision. The percentage of income burden that triggers significant payment-troubles (*e.g.*, service disconnections) appears to be in the range of 10% to 12% of annual income.[68]

2. **Projected annual bill:** The second step is to calculate a projected annual household energy bill. This calculation is to be made using whatever method the local utility *currently* uses to estimate annual bills for other purposes. A utility, for example, will likely have an established procedure for estimating an annual bill for purposes of placing residential customers (low-income or not) on a levelized Budget Billing Plan (where bills are paid in equal installments over 12 months). That same process can be used to estimate an annual bill for purposes of calculating the needed fixed credit.

3. **Fixed credit determination:** The final step is to calculate the necessary fixed credit to bring the annual bill down to the burden-based payment. Given an annual bill projection of $1,200 and a burden-based payment of $480, the annual fixed credit would need to be $720 ($1,200 - $480 = $720). The household's *monthly* fixed credit would be $60 ($720 / 12 = $60).

In addition to various administrative benefits from the use of a fixed credit, the fixed credit also offers the advantage of providing a strong conservation incentive to the low-income customer. Under the fixed credit model, the local utility provides a $60 fixed credit to the low-income household irrespective of the household's actual bill. If the household increases its consumption, and thus has a higher bill, the household pays the amount of the increase. If, in contrast, the household conserves energy and thus lowers its bill, the household pockets the savings.

The administrative advantages of the fixed credit program are two-fold. First, use of fixed credits as a benefit distribution mechanism allows the program to work within a fixed operating budget. Once a low-income customer is enrolled in the universal service program, the maximum possible financial exposure for the time of the enrollment is established. At no time, can the maximum financial exposure exceed the budgeted program revenues. Systems can be easily designed to track funds that are obligated and expended to ensure that the budget is not exceeded. In contrast, benefit expenditures through either a straight percentage of income program or a percentage of bill program may vary based upon changes in consumption.

In addition to this budgeting advantage, the fixed credit approach makes the billing less complicated as well. Using the same process that currently exists to establish a levelized budget-billing plan, fixed credits can be subtracted from a customer's levelized annual bill.[69] The

[67] This report sets aside for the moment the inclusion of water and sewer utility bills in this six percent.
[68] "Affordability" concerns are triggered at much lower percentage of income burdens. Affordability concerns, involving household budget trade-offs and payment troubles less intense than the loss of service appear to be triggered at the 6% to 8% percentage of income burden levels.
[69] The fixed credit is, in essence, booked as a "payment" on the account.

monthly bill is then rendered based upon this one-time annual adjustment. The utility does not need to make monthly billing adjustments as is the case with either the straight percentage of income, or with the percentage of bill, approach.

In sum, the following critical components of the proposed rate affordability component of a rate affordability program are proposed above:

- Eligibility is set at 1.25 x the Low-Income Cutoff (LICO);
- Enrollment should be, to the maximum extent feasible, implemented through an automated data exchange with social assistance agencies;
- Rate affordability benefits are to be delivered through a fixed credit approach;
- The level of "affordability" should be set at 6% of household income. This affordability factor should be split evenly between baseload electric usage (3%) and space heating (3%). An all electric household should pay the full 6%.[70]

An Alternative Structure for a Manitoba Rate Affordability Program.

Not all electric and/or natural gas utilities have the financial wherewithal to adopt the fixed credit rate affordability described above. For small utilities in particular – Manitoba Hydro would not qualify as a "small" utility --[71] a rate affordability alternative is available. The substantive benefits of a rate affordability program can be generated without incurring the administrative costs of implementing a fixed credit program.

The alternative to a fixed credit program involves the adoption of a tiered discount program. As with the fixed credit program, a tiered discount program is tied to an affordable energy burden. The tools this alternative uses to reach the affordability objectives, however, are somewhat blunter and less-well tailored to assure that all customers achieve affordability. Instead of the targeted affordability benefits, a tiered discount program is aimed at ensuring affordability on average.

The purpose of a rate affordability program is to promote the supply of affordable home energy service to low-income customers. As described above, energy burdens are the generally-accepted mechanism by which to measure "affordability." The fixed credit approach to distributing home energy affordability benefits, as described above, explicitly reduces low-income electric bills to a point where those bills present an affordable burden. The fixed credit is based on a household's actual annual income and actual home energy bills (with some exceptions). The fixed credit defrays the cost of bills that exceed the affordable burden.

[70] As discussed in more detail above, however, the affordable burden is a range and not a point. Total energy burdens of up to as high as 10% could be determined, by policy, to be within a range of reasonableness.

[71] The Belmont Electric Light Department, a municipal utility serving 10,000 residential customers, adopted a "small utility" rate affordability alternative effective January 2006. One alternative to defining "small utility" by policy is to establish the "small utility" alternative and require a utility to petition regulators for the option of adopting the small utility alternative.

In contrast to the fixed credit approach, a tiered discount approach can only approximate an affordable burden. A tiered discount approach to distributing benefits is designed to reduce a bill to an affordable percentage of income (with the percentage differing depending on whether the customer is a base load customer or a space heating customer) *assuming that the household consumes at the average level of consumption*. To the extent that a household consumes more or less than average, the household will bear a burden either higher or lower (respectively) than the affordable burden.

To calculate a tiered discount, all low-income customers are placed into buckets demarcated by annual income levels. Buckets used to develop a tiered discount can be disaggregated into as large (or small) of a range as desired. Using the mid-point of each income bucket, an affordable bill can be calculated by applying the electric burden determined to be "affordable." A program having seven "buckets" has been examined for Manitoba Hydro; the buckets largely correspond to the income buckets for which the Company collects information. An affordable home energy burden is set at 6% of income for electric heating and 3% of income for electric base load consumption associated with natural gas heating customers.[72]

Table 13. Affordable Bills by Electric Heating and Electric Baseload (gas heating)

	Electric Heating			Electric Baseload		
Annual Income	Mid-point	Affordable Burden	Affordable Bill	Mid-point	Affordable Burden	Affordable Bill
< $10,000	$5,000	6%	$300	$5,000	3%	$150
$10 - $19,999	$15,000	6%	$900	$15,000	3%	$450
$20 - $29,999	$25,000	6%	$1,500	$25,000	3%	$750
$30 - $39,999	$35,000	6%	$2,100	$35,000	3%	$1,050
$40 - $49,999	$45,000	6%	$2,700	$45,000	3%	$1,350
$50 - $59,999	$55,000	6%	$3,300	$55,000	3%	$1,650
$60,000 or more	$70,000	6%	$3,900	$70,000	3%	$1,950

By taking the mid-point of each bucket, the affordable burden is exactly accurate only for those persons exactly at that mid-point. Customers with incomes in the half of each bucket below the mid-point will pay somewhat more than an affordable burden, while customers with incomes in the half of the bucket above each mid-point will pay somewhat less than an affordable burden.

Households in each income bucket are next assigned the average annual expenditure for electricity irrespective of income. According to Manitoba Hydro, "there is no direct correlation between energy consumption and income."[73]

[72] A further refinement of the tiered discount approach is to base the discounts on a tiered energy burden. This approach quite reasonably is based on the observation that 3% of income is "more important" to households in the lowest income tiers than it is to households in the higher income tiers. This refinement, however, is set aside for now.

[73] Manitoba Hydro Affordable Energy Program, at 4 (November 10, 2009).

Table 14. Affordable Bills by Electric Heating and Electric Baseload (gas heating)

	Electric Heating			Electric Baseload		
Annual Income	Affordable Bill	Average Bill /a/	Avg Deficit	Affordable Bill	Average Bill /b/	Avg Deficit
< $10,000	$300	$1,800	$1,500	$150	$710	$560
$10 - $19,999	$900	$1,800	$900	$450	$710	$260
$20 - $29,999	$1,500	$1,800	$300	$750	$710	$0
$30 - $39,999	$2,100	$1,800	$0	$1,050	$710	$0
$40 - $49,999	$2,700	$1,800	$0	$1,350	$710	$0
$50 - $59,999	$3,300	$1,800	$0	$1,650	$710	$0
$60,000 or more	$3,900	$1,800	$0	$1,950	$710	$0

NOTES:

/a/ Based on information provided in response to RCM/TREE/MH-I-149.
/b/ Based on information provided in response to RCM/TREE/MH-I-150.

The *difference* between the average bill and the affordable bill is determined. For example, the amount by which the actual average bill exceeds the affordable bill for a household in the bucket with less than $10,000 of income (mid-point of $5,000) is $1,500 for electric heating customers ($1,800 - $300 = $1,500) and $560 for electric baseload customers ($710 - $150 = $560).

This difference is the benefit that a tiered discount is designed to deliver. So long as a customer has annual expenditures that are equal to the company's residential average, application of a tiered discount will reduce that customer's annual electric bill to the burden determined to be affordable. Converting the data above into discounts would result in the discounts proposed in Table 15.

Table 15. Affordable Bills by Electric Heating and Electric Baseload (gas heating)

	Electric Heating			Electric Baseload		
Annual Income	Average Bill	Average Deficit	Discount	Average Bill	Average Deficit	Discount
< $10,000	$1,800	$1,500	80%	$710	$560	80%
$10 - $19,999	$1,800	$900	50%	$710	$260	37%
$20 - $29,999	$1,800	$300	15%	$710	$0	15%
$30 - $39,999	$1,800	$0	CCW	$710	$0	CCW
$40 - $49,999	$1,800	$0	CCW	$710	$0	CCW
$50 - $59,999	$1,800	$0	CCW	$710	$0	CCW
$60,000 or more	$1,800	$0	CCW	$710	$0	CCW

NOTES:

CCW = 100% Customer charge waiver. The percentage discounts are otherwise applied to the customer charge.

Table 15 demonstrates that a six percent (6%) energy burden is achieved for a household with an annual income at the mid-point between $10,000 and $19,999 ($15,000) by providing a 50% discount to an $1,800 home energy bill. An affordable burden (6%) is achieved for a household with an annual income at the mid-point between $20,000 and $29,999 ($25,000) by providing a discount of 15%.

The discount is "tiered" because, as incomes decrease, it takes a deeper discount to deliver a benefit equal to the difference between an affordable bill and the average bill. The more levels of discount that exist (i.e., the more "tiers"), the more highly targeted the discount will be. Manitoba regulators need to determine, by policy, how many tiers they wish should they choose to adopt a tiered discount program.

In all matters other than benefit level, a tiered discount affordable rate should deliver the same program components (e.g., arrearage management, crisis assistance, availability to energy efficiency) to all tiers.

The Policy Choices between the Two Alternative Rate Affordability Programs.

A decision on whether to implement a fixed credit program or implement a tiered discount alternative for Manitoba Hydro presents two primary issues. The issues are of two kinds:

- A policy issue, and
- A program issue

The policy issue: The first issue is one of policy. On the one hand, the fixed credit program clearly better targets benefits to low-income customers. A customer would consume at a utility's average residential consumption only by happen chance. Because discounts are based on average consumption, in nearly every case, low-income customers will receive either more benefits than are needed to reduce their expenditure to an affordable burden or fewer benefits than are needed.

And this result does not even consider the fact that average consumption is combined with the use of the mid-point of the income range. Even if a customer consumes exactly at a company's average, unless that customer *also* has annual income exactly at the mid-point of the income bracket for which the discount is established, a tiered discount will give the customer either "too much" or "too little."

The response to this is that, setting aside whether the tiered discount is *exactly* correct in its reduction of energy burdens to an affordable level, in *every* case, the customer is *better off* than had the customer received no discount at all. The adage that it is better to be approximately correct than precisely wrong informs this observation. Even if the lowest income customers do not have their electric burdens reduced to exactly six percent (6%), paying eight percent (8%) with the discount leaves the customer better off than paying 40% without the discount.

The fixed credit, on the other hand, precisely targets benefits. The issue of whether some customers receive "too much" and others receive "too little" does not arise. This precision in targeting, however, comes with a cost. Some utilities argue that the cost of setting-up and administering a fixed credit program is much higher than the cost of setting-up and administering a tiered discount program. The significance of the higher set-up and administrative costs is that every dollar that goes for set-up and administration is a dollar that is *not* going to pay energy assistance benefits. No utility with a fixed credit program approaches the administrative cost level of nearly 40% incurred by Manitoba Hydro's existing NHN program.

The program issue: The program issue is raised by the fact that a fixed credit is "fixed." Once determined at the beginning of the program year, the risk that bills will change (based either on weather or on price) lies with the customer. If the customer has a lower bill, he or she pockets the difference. If the customer has a higher bill, he or she bears the burden of the increase.

In addition to creating a conservation incentive, this approach provides operational benefits. The maximum program expenditure is established at the time a customer enters the program. Changes in weather or price will not drive program costs up. In contrast, with a tiered discount, program costs will fluctuate based on both weather and price. If there is a very cold winter (or a very hot summer), with correspondingly higher bills, the program must bear the cost of the higher discounts that will be provided.

Summary

Outside of these two major issues, the fixed credit and tiered discount programs should operate in much the same fashion. No inherent differences exist. The tiered discount and the fixed

credit are simply alternative ways of delivering benefits. The programs remain basically constant. The fixed credit program assures that all rate affordability assistance is precisely targeted; this assurance comes with a somewhat more involved administrative structure. The tiered discount program has a somewhat less involved administrative structure; this simplicity comes with an inherent level of mis-targeting, with some customers receiving "too little" and other customers receiving "too much."

For a utility the size of Manitoba Hydro, the advantages of the fixed credit program outweigh the disadvantages. Manitoba Hydro should adopt a percentage of income fixed credit program.

THE ARREARAGE MANAGEMENT COMPONENT.

The second critical component to a low-income affordability program involves arrearage management. An arrearage management program component is designed to reduce pre-program arrears to a manageable level over an extended period of time. Through an arrearage management program, a customer earns credits toward his or her preprogram arrears over a period of time, so long as the customer remains on the affordable rate. By the end of the time period, the household's preprogram arrears will be reduced to $0.

The Need for an Arrearage Management Program Component

An arrearage management program component is necessary to help get low-income customers "even" so they have a chance at future success in making payments. It makes no difference to have *current* bills be affordable if the total bill is unaffordable due to payment obligations required to retire *past due* bills incurred before the program began (known as preprogram arrears).

The 2006 evaluation of the New Jersey Universal Service Fund (USF) left little question but that that program's arrearage management provisions (called the "Fresh Start program") were necessary to help USF program participants successfully comply with the payment terms of USF bills.[74] In the absence of Fresh Start, USF program participants would be responsible for complete payment of their pre-program arrears. These arrearage payments would be above and beyond the percentage of income burdens found to be affordable.

The New Jersey evaluation expressly found that increasing the percentage of income burdens charged to USF participants had an adverse impact on the ability of USF participants to maintain payment compliance under the program. As the evaluation noted, "more than 80% of households with a [net energy burden] below 3 percent covered 100 percent or more of their annual bill. Less than 60 percent of households with a [net energy burden] at or above 8 percent covered 100 percent of their annual bill." Indeed, while 25.6% of the participants with net energy burdens exceeding 8% of income paid between 50% and 90% of their bill, only 6.0% of households with energy burdens of between 2% and 3% had coverage rates that low.

[74] Apprise, Inc. (2006). *Impact Evaluation and Concurrent Process Evaluation of the New Jersey Universal Service Fund*, prepared for the New Jersey Board of Public Utilities, Apprise, Inc.: Princeton (NJ).

Table 16. Distribution of Effective Coverage Rate by Net Energy Burden
New Jersey Universal Service Fund (USF)

Net Energy Burden	Coverage Rate			
	<50%	50% - <90%	90% - <100%	100% or more
Less than 2%	0.0%	2.7%	5.3%	92.0%
2% - 3%	0.0%	6.0%	11.5%	82.5%
3% - 4%	0.0%	10.0%	13.2%	76.9%
4% - 6%	0.0%	11.6%	16.6%	71.6%
6% - 8%	0.4%	16.6%	17.4%	65.5%
Over 8%	1.0%	25.6%	16.1%	57.4%

The New Jersey evaluation reported the same types of results for gas/electric combination USF participants. While nearly 80% of participants with burdens of less than 4% paid 100% or more of their bills, only 43% of participants with burdens exceeding 12% did. While 31.1% of USF participants with burdens exceeding 12% paid between 50% and 90% of their bills, only 9.0% of participants with burdens less than 4% had bill coverage rates that low. The New Jersey USF evaluation documents quite clearly the need for an arrearage management program component in a low-income affordability program. As percentage of income payment responsibilities increase, payment compliance decreases.

The Operation of an Arrearage Management Program Component

While some utilities simply forgive all arrears brought into a low-income program at the time the program begins, most utilities provide arrearage management over an extended period of time. In the latter situations, the time period over which to provide preprogram arrears credits needs to stay within the reasonable planning horizon of the customer.[75] The program design recommended for Manitoba Hydro involves an arrearage management period of three years. Arrearage credits are earned on a monthly basis.[76]

No prerequisite is proposed for the offer of arrearage management credits. While at first blush, it may seem desirable to make the grant of credits toward preprogram arrears contingent upon full and timely payment of current bills, there are both policy and operational reasons not to do this.

First, there are the operational issues. To implement such a contingent credit, the local utility would need to develop an information system process that determines, on a monthly basis, not only whether the full bill has been paid, but whether it has been paid on a timely basis. Depending on the answer to those inquiries, different bills will be generated by the utility (either

[75] To suggest, for example, that arrears will be reduced to $0 over a period of four or more years is outside the horizon within which low-income households do their planning.
[76] While arrearage credits are to be ***earned*** on a monthly basis, they can be ***credited*** to the account (or "posted" to the account) on a quarterly or semi-annual basis. The point at which earned preprogram arrears credits are actually credited is often a matter of billing system programming rather than a program policy question.

one reflecting an arrears credit or one not reflecting such a credit). Layering a process for "curing" missed payments adds further administrative complexity.

Second, from a policy perspective, program administrators have learned that creating layer upon layer of "incentives" for payments clouds the fundamental underlying proposition. That proposition posits that, in recognition of the underlying unaffordable burden posed by utility bills at fully-embedded rates, the low-income customer is allowed to take service under the low-income program. Given that response to unaffordability, customers then have the responsibility to make full and timely payment of their bills irrespective of any further "incentive."

Accordingly, nonpayment for service provided under the affordable low-income rate will be met by placing the customer into the same collection process as that which would be faced by any other customer. Nonpayment does not result in suspension from the program. Instead, while the customer would continue to take service under the low-income rate, nonpayment under the low-income rate will place the program participant in the collection process.

The program proposal recommended for Manitoba Hydro involves low-income customers making a monthly co-payment toward preprogram arrears. In this fashion, customers with minimum levels of payment troubles will not receive credits toward their arrears. In addition, in this fashion, low-income customers will bear some responsibility for their preprogram debt.[77]

The requirement of a customer copayment toward a preprogram arrears, however, should not interfere with the underlying affordability goals of the affordable rate. Accordingly, this proposal recommends setting the customer copayment level equal to $5 per month. Over the three-year arrearage management period, low-income customers will pay $180 toward their pre-existing arrearages ($5/month x 12 months/year x 3 years = $180). Only if customers have a pre-existing arrearage greater than $180 will the arrearage management component of the program create a program cost.

In sum, the following critical elements of the proposed arrearage management component of a low-income affordability program are proposed above:

- Arrears are to be retired over a three-year period;
- Customers are to make copayments toward their arrears;
- Copayments are to be set equal to $5 per month ($60 per year);
- No pre-condition is established for the grant of arrearage management credits; and
- The appropriate response to nonpayment is to place the program participant in the same collection process as any other residential customer.

[77] However, some utilities have decided that the cost of developing a billing capacity for the customer copayment is not merited by the amount of revenue produced by the copayment process. These utilities provide credits toward 100% of the preprogram arrears.

THE CRISIS INTERVENTION COMPONENT.

The third critical component of a low-income affordability program involves crisis intervention. The need for a crisis intervention program arises from three different attributes of low-income households.

- First, one attribute of low-income households is their lack of cash assets to allow them to weather the storm of unexpected expenses or unexpected loss of income. Low-income households do not have the ability to withstand a significant expense associated with a family emergency, or the loss of income associated with such an emergency. Given such exigencies, there is a likelihood that some proportion of customers taking service under the low-income program will have occasional exigencies that can be met through a crisis intervention program.

- Second, one attribute of a low-income household is that low wage workers tend to be hourly wage workers. The overwhelming majority of these workers lack paid leave. The need for either medical leave, or family care leave, in other words, leads directly to lost income when paid leave is not provided. The lack of paid leave time may directly affect the ability of a working poor customer to maintain payments on their monthly utility bill. A person working 35 hours a week on hourly wages may lose three days of work simply due to a sick child missing school and requiring care. If no paid leave time exists for that employee, the sick child translates into permanently lost wages.

- Third, low wage workers tend to have lower quality jobs, often marked by considerable income fluctuations due to the number of hours they are called upon to work. The number of lost hours, and thus the amount of lost wages, is referred to as involuntary part-time employment. This fact of unstable income presents no commentary on the working poor individuals themselves. Rather it reflects the nature of work in which the working poor find themselves.

Given these attributes of the target population, the crisis component of the low-income program represents a budget from which to provide crisis intervention assistance on an as-needed basis.

Crisis intervention assistance should not be based on income eligibility such as that established for the rate affordability assistance. Crisis intervention is frequently triggered by unusual expenses rather than by persistently low-income. A senior citizen facing medical expenses, as well as a working poor household facing substantial automobile repair expenses, may be marginally capable of paying their monthly bills but for their unusual expenses. The agency or community-based organization administering crisis interventions should be provided the flexibility to distribute crisis intervention funding on an as-needed basis rather than be bound by income limitations.

Given this, assistance provided through the crisis intervention component should be on a limited-time basis. The crisis intervention is intended to help meet financial exigencies rather than to provide monthly rate affordability assistance to customers.

In sum, the following critical elements of the crisis intervention component of a low-income program are proposed above:

- The crisis intervention component should not be based on income-eligibility;
- The crisis intervention component should provide administering agencies with the flexibility to distribute assistance on an as-needed emergency basis;
- The crisis intervention component should be on a limited-time basis; and
- The crisis funding should be distributed through existing crisis intervention programs.

COST RECOVERY FOR NON-EFFICIENCY PROGRAM COMPONENTS

This proposal recommends the recovery of costs primarily (but not exclusively) through a fixed meters charge. The use of a meters charge minimizes differences in intra-class burdens that might arise if cost recovery is undertaken on a volumetric basis. A meters charge cost recovery structure imposes a fixed charge on customers varying by customer class. The fee within any given class, however, does not vary between customers. A residential customer using 600 kWh each month pays the same fee that a residential customer using 1,500 kWh pays.

The Estimated Cost of the Proposed Manitoba Hydro Program

The estimated annual cost of the proposed Manitoba Hydro program is $15.50 million. The program cost is divided into four sections: (1) rate discount; (2) arrearage management; (3) crisis intervention; and (4) administration.

The Cost of the Rate Discount

The total cost of the rate discount program is estimated to be $10.8 million. This cost is based on a 40% participation rate and average 2009 residential bills. (RCM/TREE/MH-I-48(a)). The program cost is based on a 6% affordable energy burden for electric heating customers and a 3% affordable energy burden (electricity) for natural gas heating customers.

The Cost of the Arrearage Management

The cost of the arrearage management program is estimated to be $2.7 million. This cost is based on the following observations about low-income participation in affordability programs:

- 40% of eligible customers will participate in the program;
- 30% of program participants will enter the program with pre-existing arrears;[78]

[78] Manitoba Hydro does not have information on the penetration of arrears within its low-income population. RCM/TREE/MH-I-48(f).

- The Company estimates that the level of low-income pre-existing arrears is equal to $900,[79] which will be reduced by the customer copayment of $180. The resulting balance is amortized over three years.

The impact of these program characteristics yields an annual arrearage management cost of $2.7 million (93,000 low-income customers x 40% participation rate x 30% arrearage penetration x annual cost of $240).

The Cost of the Crisis Intervention

The cost of the crisis intervention program should be set equal to a reasonable percentage of the sum of the rate discount and arrearage management. A crisis intervention program funded at 5% of the costs of these two program components is not unreasonable. The annual cost of the crisis intervention would thus be $671,000.

The Cost of Program Administration

The cost of program administration is set equal to 10% of total program costs. A 10% administrative cost is a generally accepted costing methodology. At a 10% cost, the annual cost of the administration of the program recommended above would be $1,400,000.

Total Program Costs

The total cost of the proposed low-income affordability program is $15.50 million. The derivation of this total cost is set forth in Table 17.

Table 17. Total Costs of Proposed Manitoba Hydro Low-Income Affordability Program (mm$)

Rate discount	$10.8
Arrearage management	$2.7
Crisis intervention	$0.67
Administration	$1.4
Total	$15.50

[79] Manitoba Hydro does not have information about the average level of arrears within its low-income population. RCM/TREE/MH-I-48(e), (g).

The Structure of Cost Recovery

The costs of the proposed low-income affordability program are proposed to be recovered through a two-part structure. First, a portion of residential late fee revenue should be devoted to the program. The remainder of the program should be recovered as an addition to the meters charge of each customer class.

The Meters Charge Revenue

A meters charge is structured to obtain a customer class payment from each customer class, while at the same time protecting high use customers within any given class from bearing a disproportionate burden of the program costs. Within the residential class, in particular, significantly more than half of the monthly residential bills rendered in 2009 would have experienced an increase of 2% or less. (RCM/TREE/MH-I-83; RCM/TREE/MH-84).[80]

Table 18. Distribution of Low-Income Affordability Program Costs through Meters Charge (Manitoba)

	Number of Customers	Months In Year	Monthly Meters Charge	Annual Meters Charge	Total Revenue
Residential /a/	466,951	12	$1.00	$12.00	$5,603,412
General Service (small) /a/	52,241	12	$2.00	$24.00	$1,253,784
General Service (small) (51 kV.A and up)	22,774	12	$15.00	$180	$4,099,320
General Service (medium)	3,712	12	$50.00	$600	$2,227,200
General Service (large)	303	12	$200.00	$2,400	$727,200
Total revenue					$13,910,916
Total program cost					$15,494,337
Late fee revenue					$1,583,421

NOTES:

/a/ Includes seasonal customers. While seasonal customers are billed twice a year, monthly revenue is assigned to each account. (RCM/TREE/MH-I-65(a)).

The Late Fee Revenue

To supplement the meters charge revenue proposed above, cost recovery should be paid, in part, from residential late fee revenue collected by Manitoba Hydro. In 2009, Manitoba Hydro billed $3.8 million in residential late fees. (RCM/TREE/MH-I-43). An average of more than 84,000 residential customers each month were billed a late fee in 2009. (RCM/TREE/MH-I-44). Manitoba Hydro imposes a late fee of 1.25% per month. (RCM/TREE/MH-I-76(a)).

[80] In fact, however, the rate increases will be much lower. This calculation of a percentage increase does not account for any decreases in normal operating costs caused by the low-income rate.

It is appropriate to use a portion of the late fee revenue to support the low-income affordability initiative. The late fee is not imposed as a cost-justified charge. (RCM/TREE/MH-I-45). Manitoba Hydro does not submit its late charge for review and approval by the Manitoba Public Utilities Board. (RCM/TREE/MH-I-47). The revenues from late fees are not allocated to any particular customer class; rather, they are considered miscellaneous revenues to the utility that are "taken into consideration" in deciding whether to seek rate increases at any particular time. (RCM/TREE/MH-I-77).

Not only does the Manitoba Hydro late fee lack a cost basis,[81] it lacks any basis as an incentive to make payment either for residential customers in general (RCM/TREE/MH-I-54) or for low-income residential customers in particular (RCM/TREE/MH-I-55). The most that Manitoba Hydro could say about what effect its late fees have on customer payments is that such fees are "relevant and comparable" to the fees charged by other utilities. (RCM/TREE/MH-I-54). Nonetheless, the Company concedes that it "has not conducted a formal study, nor is it aware of any external studies, specifically documenting the effectiveness of late payment charges as an incentive for residential customers to pay." (RCM/TREE/MH-I-54, RCM/TREE/MH-I-55 [identical statement for low-income customers]). In contrast, rate affordability programs (combined with arrears management) have repeatedly been found to improve low-income customer payment patterns.

Capturing $1.6 million in late fee revenue for the low-income affordability program devotes the late payment revenue to purposes similar to those for which the revenue is collected. The use of $1.6 million of late fee revenue roughly offsets the administrative costs of the low-income program. When measured by the Company's own standard for imposition of the late charge ("relevant and comparable"), this use of late charge revenue is more reasonable than treating such dollars as miscellaneous revenues.

Summary of Cost Recovery

A Manitoba Hydro low-income rate affordability program does not impose unreasonable costs on the Company or its ratepayers. Structured as a fixed credit program, the proposed rate offers substantial discounts to customers with the highest home energy burdens (where the highest arrears are likely to be), with more modest discounts to customers with burdens that are lower, but nonetheless still more than 6% of income. Cost recovery is proposed on a per meter basis. Recovering the program costs through a meters charge minimizes intra-class rate impact differentials. Large users do not pay a correspondingly higher proportion of program costs.

In addition to the recovery of program costs through a meters charge, the cost recovery mechanism proposes to offset a portion of program costs through application of a portion of residential late charge revenues. Through this process, late charge revenues, likely to be paid in large part by the very persons for whose benefit the low-income affordability program is being delivered, are used for the purposes for which they are imposed with which to begin.

[81] In addition to the fact that Manitoba Hydro submits no cost justification for its late fees, the late fee can not be viewed as a mechanism for recovering "collection costs." Collection costs are not separately budgeted by Manitoba Hydro. (RCM/TREE/MH-I-52). Moreover, when Company staff are not engaged in collection activities, they are engaged in other non-collection activities. (RCM/TREE/MH-I-72(d)).

A bill comparison with and without the proposed meters charge demonstrates that the bill impact of the proposed rate affordability program will be minimal. Even without taking into account the cost reductions generated by the rate affordability program, residential bills will increase by less than 2% per year for substantially more than half of all customers. The bill impact would be even less to the extent that the Company takes into account the resulting expense reductions generated by the program.

LOW-INCOME ENERGY EFFICIENCY FOR MANITOBA

In contrast to rate affordability assistance, energy efficiency programs targeted to the poor reduce bills and promote affordability by reducing consumption. Efficiency investments can be an effective tool to use in reducing low-income energy needs for some, but not all, households.

Energy efficiency investments are an effective supplement to the distribution of fuel assistance to address low-income energy needs over the long term. Energy efficiency provides continuing benefits year-in and year-out. Investments in residential energy efficiency help deliver efficient end-uses to consumers. In both the medium- and long-term, energy efficiency will reduce the costs of the rate affordability program.

The effectiveness of the role that energy efficiency can play in addressing home energy affordability, however, is limited by several considerations:

- For many low-income customers, energy efficiency cannot deliver affordable home energy service because unaffordability is driven by income rather than consumption. Even an extremely low consumption level yields a bill that imposes an unaffordable home energy burden on the household.

- For many low-income customers, energy efficiency cannot deliver affordable home energy service because consumption is driven by factors that are beyond the ability of efficiency investments to control. Even a substantial reduction in energy consumption leaves annual usage at high levels.

- The need for affordability assistance in Manitoba extends to tens of thousands of low-income households per year, a number significantly beyond the ability of the utility to treat through efficiency services.

- For many low-income customers, energy efficiency cannot deliver affordable home energy service because the unaffordability is driven by arrears rather than by current consumption. Even if efficiency services were to reduce future bills for current use to an affordable burden, the asked-to-pay amount of the customer would exceed the ability-to-pay due to the need to retire arrears.

A multi-state study of affordability programs in the United States found that “every state that has adopted a home energy affordability program has incorporated an energy efficiency component into that affordability initiative.” The study found that “these [low-income efficiency] programs

can effectively complement the impacts of affordability programs."[82] The study reported that energy efficiency "programs can have the greatest overall impact if they target lower income households, households with vulnerable household members, and customers that are participating in a ratepayer-funded affordability program."

The Manitoba Hydro program advanced in this paper proposes just that: (1) to use energy efficiency to complement the impacts of the rate discount; and (2) to maximize the "overall impact" of the efficiency investments by targeting those investments to high use program participants.

The conclusion to be drawn from the above discussion is not that the limitations of energy efficiency as an affordability strategy counsel that low-income energy efficiency investments should not be pursued. The limitations simply indicate that an investment in efficiency measures, while necessary and appropriate, cannot be the focus of an affordability program.

Manitoba Hydro should continue to fund the direct participation of low-income customers in energy efficiency programs in response to high and unaffordable home energy bills. This recommendation for continued funding is supported by two observations.

- First, unless specifically funded, low-income consumers are systematically excluded from having access to energy efficiency investments.

- Second, low-income energy efficiency programs reduce the overall expenses of public utilities.

Accordingly, there should be a mandated minimum amount of energy efficiency funding directed toward low-income customers. Each of the reasons supporting this conclusion is reviewed below.

Low-income energy efficiency programs should deliver a full range of efficiency services. These services would include, but not be limited to energy audits and air sealing, weatherization, insulation, heating and cooling system replacement with high efficiency equipment, hot water heater replacement, and appliance upgrades.

Given the positive role that cost-effective energy efficiency can play in reducing utility costs, while at the same time helping to improve the affordability of home energy to low-income customers, the Manitoba Public Utilities Board should continue to require efficiency programs as part of Manitoba Hydro's response to unaffordable home energy.

[82]Carroll, Colton and Berger (2007). *Ratepayer Funded Low-Income Energy Programs: Performance and Possibilities*, at 132, Apprise, Inc.: Princeton (NJ)..

Low-Income Efficiency Programs Help Reduce Overall Utility Expenses.

The delivery of energy efficiency investments to low-income customers not only yields resource conservation and avoided cost benefits to the affected utility, but delivers a broad range of other utility cost reductions as well. Accordingly, low-income energy efficiency programs should be implemented not only as a resource efficiency measure, but also as an important tool in controlling other systemwide utility costs. Avoided costs commonly associated with low-income energy efficiency would include savings such as reduced arrears, reduced working capital, reduced credit and collection expenses, and the like.

In this fashion, low-income energy efficiency programs are closely akin to low-income rate affordability programs in their ability not only to serve the social function of addressing energy unaffordability problems, but also in serving the business purpose of reducing the business costs associated with an inability-to-pay.

The existence of direct financial benefits to utilities arising from energy efficiency programs targeted specifically to low-income households has been recognized for more than 20 years. The presence of such avoided costs was first postulated in 1987. That analysis stated that targeted electric energy efficiency programs had advantages that went beyond the traditional energy and capacity savings associated with energy efficiency measures:

> The cost-effective reduction of system costs is relevant and important in every part of the business operations of the utility, not simply to the power supply function. Accordingly, a utility should be concerned with the problem of nonpayment, overdue payment, and partial payment of utility bills. Bad debt arises when ratepayers demand power from the system and then do not pay for it on a timely basis. . . .[A] new conservation program [can be proposed] that is justified on an avoided cost basis. The proposal rejects the historical view that avoided costs include only an energy and a capacity component. Instead, it introduces the notion of avoided bad debt. As long as the energy efficiency program costs less than the bad debt it will avoid, the program is cost-justified.[83]

In this 1987 article, "bad debt" was defined to include all aspects of costs associated with payment troubles. The term was used to include not only written-off accounts, but credit and collection expenses, working capital expenses, and a host of other expenses related to nonpayment. Since that time, the existence and importance of such expanded avoided costs has become generally-accepted. Analysts have since repeatedly confirmed that low-income energy efficiency generates benefits beyond simply energy and capacity savings.

These benefits are not theoretical. They are both real and substantial. Pennsylvania's natural gas and electric utilities operate what that state's Public Utility Commission (PUC) calls the Low-Income Usage Reduction Program (LIURP). LIURP involves the offer of the following types of usage reduction packages to low-income households: (1) an electric space heating package; (2)

[83] Roger Colton and Michael Sheehan (1987). "A New Basis for Conservation Programs for the Poor: Expanding the Concept of Avoided Costs," 21 *Clearinghouse Review* 135, 139.

an electric water heating package; (3) a baseload electric package; and (4) a natural gas heating package.

Pennsylvania's electric utilities deliver "baseload" electric LIURP services to homes that do not heat with electricity. Since LIURP first began in 1989, baseload electric jobs have represented roughly two-in-five (115,098 of 292,071 total jobs: 39.4%) of all LIURP homes.[84] Over a 20-year period, baseload electric usage reduction jobs have outnumbered every other type of usage reduction treatment, including the treatment of electric space heating homes (n=85,999 jobs).

The objectives established for the Pennsylvania LIURP initiative are similar to the objectives that should underlie a low-income efficiency program in Manitoba Hydro, including:

- To assist low-income residential customers in conserving energy by reducing their energy consumption;
- To assist participating households in reducing their energy bills;
- To decrease the incidence and risk of customer payment delinquencies and the attendant utility costs associated with customer arrearage and uncollectible accounts; and
- To reduce residential demand for electricity and gas, and peak demand for electricity.

According to the January 2009 Penn State University evaluation of the LIURP initiative:

> To meet these goals, LIURP is targeted toward low-income households with the highest energy consumption. Of these households, those with payment problems and high arrearages are targeted. Since the program's inception in 1988 through 2006, the major electric and gas companies required to participate in LIURP have spent over $330 million to provide weatherization treatments to more than 292,071 low-income households in Pennsylvania.

In January 2009, Penn State University released a comprehensive long-term evaluation of the LIURP program. Prepared for the Pennsylvania PUC, the evaluation examined data over the first 18 years of program operation. The evaluation provides important lessons for the offer of electric usage reduction services in Manitoba. The LIURP evaluation reported:

- "LIURP is a cost-effective method of reducing both energy consumption and energy bill arrearages. . .Sixty nine percent of LIURP households reduce their energy consumption following weatherization treatments, with an average reduction of 16.5 percent." Electric baseload jobs generated a usage reduction of 698.2 kWh, or 19.1%.

[84] Customer Services Information System Project, Pennsylvania State University (January 2009). *Long-Term Study of Pennsylvania's Low-Income Usage Reduction Program: Results of Analyses and Discussion*, prepared for Pennsylvania Public Utility Commission, Penn State University: State College (PA).

- "Of those households with energy bill arrearages, 40 percent reduce their arrearage following weatherization services. Thirty-seven percent of electric industry households reduce their arrearages. . ."[85] LIURP was targeted to households with arrears (within the population of high use consumers). The LIURP evaluation found that "by the end of the year following weatherization, 68 percent of the households have an energy bill arrearage, a decrease of 29 percent. . .Although the average number of full payments made does not vary from the pre- to post-period, the percent of households with missed payments decreased and the average number of partial payments increased."[86]

- "The [third] most significant, and most common, variable that is positively related to reductions in energy consumption is the amount of arrearage owed in the pre-period [before usage-reduction treatments are installed], suggesting that households with large arrearages are motivated to make the necessary behavioral changes to contribute toward additional reductions in energy consumption. It therefore makes sense to target households with higher arrearages when prioritizing LIURP jobs."

While low-income energy efficiency investments generate the traditional benefits (i.e., avoided energy and capacity costs) associated with usage-reduction programs, as is evident, the benefits flowing from low-income efficiency extend far beyond those traditional benefits.

In sum, funding for low-income energy efficiency measures should be made available in the amount needed to make efficiency investments fully accessible to low-income residential customers. Where low-income consumers cannot access energy efficiency programs, Manitoba Hydro should spend additional funds to ensure that its programs ***are*** fully accessible.

Determining Eligibility for Low-Income Efficiency Programs

Determining the eligibility for participation in a low-income energy efficiency program has several components to it. On the one hand, eligibility should be determined based on income considerations. In addition, however, low-income efficiency programs should have a ***targeting*** component to them. A utility-funded efficiency program directed toward low-income customers should be explicitly ***targeted*** to help advance the resolution of payment troubles and improve the affordability of home energy in addition to simply reducing home energy usage.

Identifying Basic Income Eligibility.

Basic eligibility for low-income energy efficiency programs funded by Manitoba's electric and natural gas utilities should be set at 125% of LICO. Use of LICO for income eligibility purposes

[85] The LIURP evaluation found that this result was consistent with prior U.S. Department of Energy (DOE) research, which found that "low-income families who receive weatherization have a lower rate of default on their utility bills and require less emergency heating assistance." Bruce Tonn, et al. (2001). "Weatherizing the Home of Low-Income Home Energy Assistance Program Clients: A Programmatic Assessment," U.S. Department of Energy: Washington D.C.

[86] The evaluation noted that participation in LIURP was associated with increased participation in energy assistance programs. It was difficult to distinguish the impact of the two.

was discussed in detail above with respect to the rate affordability program. Wherever an income eligibility line is drawn, however, there will be some households that have incomes marginally in excess of that line. It would thus be appropriate to set-aside a pre-determined proportion of low-income energy efficiency funding for households that have income marginally in excess of the income eligibility standard. For example, Pennsylvania's 20% set-aside has worked well.

Targeting Based on Customer Characteristics.

In addition to defining income eligibility, an equally important task is to define the population to which the low-income energy efficiency programs will be *targeted* even within the total eligible population. Maximizing benefits to all utility customers, whether through reduced traditional avoided costs or through the reduction of costs associated with low-income payment troubles, is dependent upon an appropriate targeting of the low-income program. Two primary alternative decision rules exist to guide targeting a low-income efficiency program:

- To target those with the highest energy usage, believing that these households present the greatest potential for energy savings; or

- To target those with the greatest payment problems, believing: (a) that payment problems and high usage are positively associated; and (b) that these households present the greatest potential for improved energy affordability.

To a certain extent, the difference between the two principles is artificial if one accepts the premise that energy efficiency measures can not only generate traditional avoided costs, but can generate avoided costs associated with a reduction in payment troubles as well. It has become well-established over the years that payment-troubles are often associated with higher than average utility consumption. By targeting customers with payment troubles, in other words, a utility implicitly targets its high use customers as well. As is documented above, this appears to be true for Manitoba Hydro.

The Pennsylvania Public Utility Commission (PUC) has explicitly considered this tie-in between high usage and payment-troubles and the use of each for implementation of the Pennsylvania Low-Income Usage Reduction Program (LIURP). The Pennsylvania PUC found as follows:

> . . .we would like to clarify the distinction between LIURP eligibility criteria and the prioritization criteria for the receipt of program services. LIURP eligibility criteria has evolved into a two-part requirement. First, income must be at or below 150% of the federal poverty guidelines. There is an exception to this rule. Up to 20% of the LIURP budget may be spent on customers with an income level in the range 150% to 200% of the federal poverty level.[87] Second, the LIURP experience over the past nine years has shown that high usage is the strongest predictor of high energy savings. Consequently, each of the major electric companies has established company specific minimum usage requirements for each of the three major job

[87] The Federal Poverty Level is the U.S. equivalent to Canada's LICO.

> types for electric jobs: heating, water heating and baseload. The bottom line is that all income eligible customers do not have a usage profile that warrants the provision of LIURP services.
>
> Prioritization for the receipt of program services is as follows. Most importantly, usage is the driver. Once again, we emphasize that in the actual delivery of LIURP services, each electric company has established minimum usage guidelines for each of the three electric job types. It is only after the usage requirement is met that the prioritization scheme is applied. The prioritization process follows two steps. First, among customers meeting the threshold for usage, participation is further prioritized from highest arrearage to no arrearage. Second, a further prioritization is done to further delineate equal usage and equal arrearage candidates. This is done by prioritizing from lowest to highest income.
>
> * * *
>
> The primary goal of LIURP is to achieve bill reduction through usage reduction. We have elaborated above that high usage is the best indicator for achieving this primary goal of LIURP. Another LIURP goal states that the reduction in energy bills should decrease the incidence and risk of customer payment delinquencies and the attendant utility costs associated with uncollectible accounts expense, collection costs and arrearage carrying costs. In view of this program goal, arrearage prioritization has been appropriately listed as the first prioritization among the highest users.[88]

Manitoba Hydro should use the above-quoted Pennsylvania PUC language to guide its pursuit of low-income energy efficiency. An identical two-step process (involving: (1) eligibility-setting; and (2) priority-setting amongst eligible customers) should be adopted in Manitoba.

- Basic income eligibility should be set at 125 percent of LICO;
- Approval should be given for a modest set aside for customers with income marginally in excess of this income level;
- Prioritization should be directed toward the customers that are the highest users;
- Amongst equally-situated high users, if additional prioritization is necessary and appropriate, priority should be given to high users with the highest arrears. This second prioritization, however, should only be implemented given equally high usage.

[88] Pennsylvania Public Utility Commission, Re Guidelines for Universal Service and Energy Conservation Programs, No. M-00960890, 178 P.U.R.4 508 (July 11, 1997).

Establishing Funding Targets for Low-Income Energy Efficiency

One of the key questions, perhaps *the* key question that Manitoba Hydro must resolve in considering energy efficiency programs is the proper funding of the low-income component. Conceptually, funding for low-income efficiency improvements should be the amount that is required to make energy efficiency programs fully accessible to low-income residential consumers. Where low-income consumers cannot access energy efficiency measures, Manitoba Hydro should spend additional funds to ensure that programs are fully accessible.[89]

A direct investment in low-income energy efficiency measures is needed by Manitoba Hydro. In the absence of such a direct investment, low-income investment in energy efficiency, even if cost-effective from the customer's perspective, is not likely to occur.

A variety of barriers impede low-income investment in energy efficiency measures irrespective of whether such investments are cost-effective. Barriers that are either unique to the poor, or that disproportionately impede low-income efficiency investments, include:

- **High initial capital costs**: The barrier posed by high initial capital costs is one of the primary barriers to low-income investment in energy efficiency. The payback period for any particular energy efficiency measure 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 new refrigerator to a more energy efficient new refrigerator. In such a program, if the less efficient refrigerator costs $600 and the more efficient refrigerator costs $700, it may well be cost-effective for the utility to pay the $100 difference to prompt the purchase of the more efficient appliance. This program, however, will automatically exclude households that are not in the market to purchase new refrigerators with which to begin. It is axiomatic to note that not many low-income households recently spent $600 for a new refrigerator.

- **High implicit discount rates/payback periods**: 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.[90] 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 which have a higher hurdle rate. One entire category of excluded households consists of low-income households.

[89] Fully accessible means that no lost opportunities exist for cost-effective energy efficiency investments.
[90] Cambridge Systematics (1988). Hurdle rates for energy efficiency by income, Cambridge Systematics: Cambridge (MA).

- **High proportion of low-income renters**: A disproportionate number of low-income households tend to live in rental dwellings. This observation has significance in two respects for the design of energy efficiency programs. First, tenants have little or no incentive to improve their landlord's property. They do not receive any of the increased value of the property and, in fact, may face rent hikes as a result of the improvements. Second, tenants generally do not have dominion interest over their homes; they do not have the authority to make decisions about major energy-consuming systems. Finally, low-income tenants tend to be more mobile. As a result, even in those instances where a tenant may wish to invest in an energy efficiency measure, and assuming a financial ability (*e.g.*, sufficient liquidity) 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 three-year payback if that household intends to move to a different dwelling after 24 months.

Given these low-income barriers, Manitoba Hydro should establish a long-term objective to be achieved through the expenditure of low-income efficiency funds. Rather than relying on an arbitrary annual budget amount, in other words, the low-income budget should be viewed as a means to an identified end. Establishing the budget in this fashion allows Manitoba Hydro to measure not merely its activities (e.g., how many dollars were spent; how many homes were treated), but also allows the Company to measure its progress toward that objective. After measuring its progress, the Company will further be able to determine what, if any, changes (programmatic or financial) should be made if appropriate progress is not realized.

The Company reports that it had roughly 93,000 low-income customers at the time of its 2003 energy survey. (RCM/TREE/MH-I-153, RCM/TREE/MH-I-154).[91] Of those 93,000 low-income customers, more than 40% (37,447 or 40.2%) had annual electric bills that were greater than the residential average (see, Table 9).[92] Manitoba Hydro should establish a goal of treating the full range of low-income customers with bills above the residential average within a time-span of 10 years. The low-income efficiency budget should be sufficient to achieve this objective.

The proposed decision rule is that funding for low-income energy efficiency improvements should be the amount that is required to treat the full range of customers with consumption at or above the Company average within a ten year time frame. Progress toward that goal should be continuously measured, with program and/or financial adjustments if progress is inadequate.

Summary

In sum, the following critical elements of the utility energy efficiency program are supported by the discussion above:

- Funding for low-income efficiency improvements should be the amount that is required to make energy efficiency programs fully accessible to low-income residential consumers. Where low-income consumers cannot access conservation

[91] By the time of the 2009 survey, the number of low-income customers had increased to more than 105,000.
[92] 13,447 electric heating customers had bills above the residential average of $1,517; 24,000 gas heating customers had bills above the residential average of $1,753. (RCM/TREE/MH-I-149; RCM/TREE/MH-I-150).

techniques, Manitoba Hydro should spend additional funds to ensure that programs are fully accessible. “Accessibility” is to be determined by whether there are lost opportunities for cost-effective measures that can be implemented;

- Program funding should be set so that Manitoba Hydro will treat all low-income customers with bills exceeding the residential average within ten years;

- After eligibility is established, efficiency investments should be targeted not only on the basis of high usage, but on the existence of payment troubles as well;

- A full range of energy efficiency services should be delivered, including but not limited to energy audits and air sealing, weatherization, heating and cooling systems, and appliance upgrades;

- Basic income eligibility should be set at 125 percent of LICO. A designated proportion of total low-income funding should be set aside for households with incomes marginally exceeding the income eligibility guideline.

PART 4:
ASSESSING THE "BUSINESS CASE" OF THE LOW-INCOME PROGRAM

A business case can be made for the low-income program advanced in this paper. This business case approach is at odds with Manitoba Hydro's reasoning for rejecting the promulgation of a meaningful low-income program. On the one hand, the business case supports the conclusion that the utility, as a utility, should be adopting the program proposed herein. On the other hand, the business case is contrary to the conclusion that the affordability program should be pursued exclusively at public expense. No reason exists for the public, through state legislative action, to be the exclusive funder of activities that will generate real and substantial financial benefits to the utility.

Manitoba Hydro objects to providing low-income affordability assistance as a matter of principle. According to Manitoba Hydro, "the issue of whether energy is affordable is outside the scope of Manitoba Hydro's mandate and is a matter of policy for legislators and government agencies responsible for these matters." (RCM/TREE/MH-I-94). The "concept of 'energy burden'," the Company says, "is not used in the design or assessment of Manitoba Hydro's Affordable Energy Program." (PUB/MH-I-213). While Manitoba Hydro asserts in its Affordable Energy Program that existing low-income energy burdens do not place low-income customers at a "crisis level," the Company declines to define what it means by the term "crisis level," (RCM/TREE/MH-I- 105(a) – (b)). Moreover, the Company declines to indicate what level of energy burden *would* place a customer at a "crisis level." (RCM/TREE/MH-I- 105(c), RCM/TREE/MH-I-108).

The Company, as a matter of principle, argues that a low-income discount is in "conflict with" principles of "maintaining social equity for the general body of ratepayers." (RCM/TREE/MH-I-91). The Company argues that "to the extent that it is apparent that these programs represent

cross-subsidies from other ratepayers to low income customers," this conflict exists. (RCM/TREE/MH-I-91).

Manitoba Hydro misses the point when it urges, without a thorough review of the implementation of low-income programs in other jurisdictions, that utility regulation seeking to establish rates that are cost-based, and which do not discriminate between or within customer classes, is in "conflict with" a low-income affordability program. In this chapter, after briefly reviewing the parallels between low-income energy efficiency and low-income affordability programs, the discussion will consider the elements of a "business case" for a low-income affordability program such as has been proposed in this paper. The discussion will further review the regulatory basis for a low-income affordability program as has been adopted in three different jurisdictions. This business case is not presented in lieu of the social benefits discussed above. It is presented to show that addressing the social problems can also be good business.

THE PARALLELS BETWEEN JUSTIFYING LOW-INCOME ENERGY EFFICIENCY AND LOW-INCOME RATE AFFORDABILITY

Manitoba Hydro fails to acknowledge the parallels between the need for special low-income rate programs and the need for special low-income energy efficiency programs. Manitoba Hydro, along with most utilities offering energy efficiency programs directed toward residential customers generally, offers special energy efficiency programs directed specifically toward low-income customers. The offer of these low-income programs is based on a foundation grounded in the following principles:

- Energy efficiency serves not only a business objective in providing least-cost service, but also a social goal. Cost-effectiveness calculations acknowledge these social benefits through the use of methodologies such as the Total Resource Cost (TRC) test.[93] Through these cost-effectiveness calculations, the total range of societal benefits --including utility benefits, environmental benefits, public health and safety benefits and the like -- are considered.

- Without special programs, low-income customers would be systematically excluded from participation in utility energy efficiency programs. Whether due to a lack of liquidity, or due to their frequent mobility, or due to the high hurdle rates that accompany low incomes, without special dispensations, low-income customers would be effectively locked out of efficiency initiatives directed toward residential customers generally. The special dispensations are designed to respond to the specific characteristics of low-income customers.

[93] The Total Resource Cost Test is the primary DSM-program-evaluation tool used in most jurisdictions in North America. It is a test that measures the net cost of a DSM program as a resource option based on the total costs of the program, including both the participant's and the local distribution company's. See, Mark Winfield and Tatiana Koveshnikova (June 2009). *Applying the Total Resource Cost Test to Conservation and Demand Side Management Initiatives of Local Electricity Distribution Companies in Ontario: Assessment and Recommendations for Reform*, York University: Toronto (ONT).

- Despite their exclusion from, and the effective denial of the ability to derive any direct benefits from, energy efficiency programs, low-income customers would pay higher costs because of the programs. Not only would the low-income nonparticipants pay the direct costs of the energy efficiency programs, but they would also pay the higher rates associated with spreading fixed costs over a lower consumption base.

In much the same fashion, affordable rate programs for low-income customers can be based on these same principles.

- Rate discounts serve not only a business function, but serve a social goal as well. The business function includes, but is not limited to, responding to and reducing the costs of nonpayment. It includes also the utility goals of enhancing internal productivity, retaining load, and promoting sales by creating a program that enhances economic development and positively influences locational decisions. The social goals include responding to the health, nutrition, public safety, housing and educational consequences that can be attributed to the unaffordability of home energy.

- Without special programs, low-income customers are systematically excluded from the full range of payment options available to non-low-income customers with affordable bills. Customers in arrears, for example, do not have the same access to levelized budget billing that customers not in arrears have. (TREE/RCM/MH-I-56). Moreover, customers who cannot afford to keep one payment plan are not allowed to continue to participate in the deferred payment plan program. (CAC/MSOS/MH-I-100(e)).

- Despite their effective exclusion from the full range of payment options available to non-low-income customers, low-income customers pay higher costs because of their inability to pay. For example, low-income customers are required to pay the non-cost-based, non-substantively supported, fees which purport to respond to nonpayment (e.g., late fees).

As can be seen, in much the same way, and based on much of the same reasoning, just as special energy efficiency programs are offered to low-income customers, special rate affordability programs can be justified as well.

The parallels identified above can be seen in the May 26, 2010 order of the Manitoba PUB with respect to the Centra Gas Manitoba Furnace Replacement Program (FRP). As the Manitoba PUB notes, the "FRP is a low-income DSM program designed to assist low-income homeowners with the replacement of low efficiency gas furnaces with new high efficiency furnaces."[94] Centra Gas expressed concern about how to continue with its FRP given Natural Resource Canada's March 31, 2010 decision to accept no new applications for the ecoEnergy program.

[94] Centra Gas Manitoba, Inc. 2010/11 Cost of Gas Application and Other Matters, Order 55/10, at 44 (May 26, 2010).

The Manitoba PUB ordered Centra Gas to continue with it FRP investments. Not only is this decision important, but so, too, is the rationale articulated by the PUB in support of its order. The Board said:

> The Board reiterates its position that the societal benefits of the FRP outweigh the costs, and seeks an expanded and extended RFP effort. In addition to the immediate benefits available to the FRP participant (of reduced energy bills, and improved space heating), there are societal benefits which include:
>
> - Increased jobs as community groups and MH require additional home energy auditors and furnace contractors require additional installers;
>
> - Training of the additional home energy auditors and furnace installers;
>
> - Vastly reduced GHG emissions –a high efficiency furnace operates at 90% or more efficiency compared to 60% or less for a conventional furnace;
>
> - Improvement of the housing stock in Manitoba, increasing property values; and
>
> - Improvement to the health and safety of FRP beneficiaries through the replacement of old furnaces that could be leaking carbon monoxide, and by homeowners then able to set their thermostats at a comfortable temperature.
>
> The Board recognizes the validity of Centra's view that the current remaining stock of conventional furnaces are well-past their expected service life and that within ten years most of these furnaces will have to be replaced – the question is how will low-income households replace the furnaces in the absence of fiscal support.[95]

The direct applicability of this PUB reasoning to the analysis presented in this paper is evident. There are clear "societal benefits" of the proposed low-income program that "outweigh the costs" of the program. In addition to the immediate benefits of the low-income affordability program proposed in this paper, and in addition to the societal benefits, there are significant utility benefits as well. The programs proffered by Manitoba Hydro neither serve the need nor are capable of generating the individual, the societal, or the utility benefits. The same query advanced by the PUB with respect to high efficiency furnaces can be advanced in this proceeding: "how will low-income households replace their current non-payment patterns in the absence of fiscal support."

[95] Order 55/10, at 47.

SUPPORT OF AFFORDABILITY ASSISTANCE BASED ON TRADITIONAL REGULATORY PRINCIPLES.

A review of the basis for the adoption of two of the oldest low-income rate assistance programs in the United States reveals that such programs are not grounded simply on the social pressure to help those in need of rate assistance. Rather, low-income rate assistance programs are found to serve fundamental regulatory purposes quite apart from, and in addition to, their social functions. The regulatory foundation for these low-income programs is reviewed below. As will further be shown by an examination of the more recent Indiana low-income programs, that regulatory foundation remains applicable after two decades.

The programs that are reviewed below support the conclusion that, no matter how many times Manitoba Hydro urges that the low-income rate affordability programs are exclusively "social programs" that are, at a minimum, in a tension with regulatory principles, in reality, such programs have sound regulatory foundations grounded in fundamental utility regulatory principles.

Ohio's Percentage of Income Plan (PIP)

The State of Ohio initiated the first straight Percentage of Income Payment Plan (PIPP) in the United States.[96] The Ohio PIPP was developed by the Public Utility Commission of Ohio (PUCO). The PUCO created the Ohio PIPP in 1983 in response to an emergency arising from the inability of low-income Ohio residents to maintain their home energy service.[97] The Commission found that the disconnection of utility service for nonpayment by those who were financially unable to pay constituted an "emergency" as described by Ohio statute.[98]

The Ohio PIPP, as initially conceived by the PUCO, did not represent a discounted rate for low-income customers. Instead, the PIPP was designed to enable low-income customers to retain their utility service by entering into an agreement pursuant to which the customer would make a utility bill payment equal to a prescribed percentage of income. Customers entering into such agreements, however, would not be relieved of paying bills in excess of the percentage of income. Rather, customers would continue to be liable for those arrears. Those accrued arrears would be subject to repayment by the customers when such customers left the PIPP.

In its 1983 decision, the PUCO found that there were both legal and "practical" reasons to adopt the proposed PIPP. According to PUCO, no legal impediment existed to the adoption of PIPP:

> Contrary to the arguments of those who oppose the percentage of income payment plan, the plan adopted by the Commission. . .does not constitute income redistribution, and is reasonable and lawful. This plan does not constitute income redistribution because those customers who qualify for the plan are still liable for any arrearages on their bills. There is no debt forgiveness. The Commission is just

[96] A "straight PIPP" is a rate that bases bills on a percentage of household income for income-qualified customers. It stands in contrast to a "fixed credit" program or a "tiered discount" program, both of which are income-based.
[97] Docket No. 83-303-GE-COI (November 23, 1983).
[98] O.R.C., § 4909.16 (2007).

> foreclosing one method by which a utility may exercise its rights to collect for the debt. The utility still has available to it all of its other remedies at law. Because the customer is still liable for his/her arrearages, the Commission's percentage of income payment plan does not constitute free service or a rebate as charged by opponents to the plan. . .Nor does the plan adopted by the Commission unlawfully discriminate. All residential consumers similarly situated can take advantage of this plan. The policy of this Commission to prevent those without the present ability to pay their utility bills from freezing is a valid state purpose and is the basis upon which the Commission has established this plan. We believe it to be a rational basis.[99]

The PUCO proceeding that gave rise to Ohio's PIPP in 1983 considered a broad range of issues relating to payment plans, deposits, and voluntary fuel check-offs as a means to generate energy assistance funding. Early in the proceeding, the PUCO declared that an "emergency" existed because of the number of residential gas and/or electric customers who were unable to obtain service for the winter heating season because of the disconnection for nonpayment attributable to economic recession, increases in the cost of gas and electric service, and a decrease in the level of governmental assistance. Based on that emergency, PUCO prohibited the disconnection of gas or electric service during the ensuing winter season, and ordered the reconnection of service by customers who paid either one-third of their outstanding balance or $200, whichever was less. Commonly referred to as the Winter Reconnect Order, that Order is still issued annually as an "emergency" measure, though the payment requirement has been changed to $175 with customers using the rule required to enroll in a payment plan; PIPP is one of the optional payment plans.[100]

Consideration of the PIPP arose out of ***utility*** objections to the Commission's "failure to take into consideration a customer's ability to pay before imposing the moratorium. . ." At least in partial response to that objection, the PUCO docketed an investigation into "long-term solutions to the problems arising from the winter emergency situations."

The Commission rejected arguments by Ohio's utilities that proposals such as the PIPP were not "long-term solutions" to winter inability to pay problems. PUCO noted that "the utility position in this proceeding is that the only long-term solution to the problem is economic assistance and that all other proposals, falling short of being long-term solutions, are outside of the scope of this proceeding."

In dismissing that argument, the Commission agreed that "the legislature needs to adequately fund energy assistance and weatherization and conservation programs for low income consumers. That does not mean that such aid is the ***only*** ingredient of a comprehensive solution to the problem, only that it is a necessary ingredient." (emphasis added) Moreover, the PUCO found that the proposed Ohio PIPP best accomplished the goals the Commission sought relative to other available alternatives. The goal, PUCO noted, involves protection of the interests of two disparate groups of ratepayers:

[99] Docket No. 83-303-GE-COI, Opinion and Order, at 14.
[100] Docket No. 06-1075-GE-UNC, Entry (September 6, 2006).)

> We are not willing to stand by while others, too poor to pay for utility service during the winter, freeze. At the same time, we are ever mindful of protecting the vast majority of customers of utilities under our jurisdiction who pay their bills in full from responsibility for greatly increasing uncollectibles.

The proposed PIPP, according to the Commission, best served both of those goals given available alternatives:

> We have in this proceeding looked at such alternatives to the percentage of income plan as maintaining the status quo, extending payment plans from six months to twelve or more months, and having another moratorium. All things considered, the percentage of income plan adopted by the Commission today will do the most to assist those in need to maintain utility service while protecting the companies' remaining ratepayers.

In sum, the PUCO found that "from our perspective, the true long-term solution to the problem is three-fold: adequate tax funded energy assistance programs, adequate tax funded weatherization and conservation programs, and adequate Commission rules. Of those, only the first, energy assistance, is totally outside of this Commission's jurisdiction."

The PUCO's decision to adopt the PIPP for Ohio was affirmed by the state Supreme Court, even though the court originally disapproved the initial cost-recovery mechanism.[101] Despite this disapproval of the PIPP cost recovery,[102] the Supreme Court approved the lawfulness of the underlying PIPP decision. The Court noted:

> Pursuant to its emergency powers under R.C. 4909.16, the PUCO created the PIP plan as a response to growing concern "about the number of residential gas. . .[and] electric customers unable to obtain service as a result of disconnection for nonpayment of bills because of the economic recession, increases in the cost of gas and electric service, and a decrease in the level of governmental assistance . . ." (internal citation omitted). . .[I]t is the opinion of this court that it is clearly within the PUCO's emergency powers under R.C. 4909.16 to fashion such relief as that provided by the PIP plan and we find the plan of the commission to be manifestly fair and reasonable as a solution to the crisis.[103]

In sum, while the Ohio electric PIPP is today embedded in statute, its original development occurred under the general regulatory authority of the Ohio state utility commission. In Ohio,

[101] Montgomery County Board of Commissioners v. Public Utilities Commission of Ohio, 28 Ohio St.3d 171, 503 N.E.2d 167, 171 (Ohio 1986).
[102]The Court informed the PUCO: "while we cannot condone the recovery of arrearages through the EFC rate in light of the specific statutory language of R.C. 4905.01 and 4909.191, we do not express the opinion that the PUCO would be precluded from fashioning an alternative accelerated recovery mechanism which is not contrary to statute, including recovery of arrearages on a more current basis rather than only after a twelve-month delinquency." Id., at fn4. The PUCO quickly approved an alternative cost recovery mechanism. Docket No. 87-244-GE-UNC.
[103] 503 N.E.2d at 170 (internal footnotes omitted).

the commission has authority to take action under circumstances that it deems to be an "emergency." Having declared that emergency, the commission was authorized to develop payment plans responding to that emergency. The Ohio courts declared the Ohio PIP to be "manifestly reasonable."

Pennsylvania's Customer Assistance Program (CAP)

The rate affordability programs operated by Pennsylvania natural gas and electric utilities for their low-income customers began nearly 20 years ago with a small pilot project by Columbia Gas Company.[104] Since that time, the universal service concept has expanded for Pennsylvania's energy utilities so that the companies now devote more than $360 million each year to support their low-income customers.[105] While the genesis of the Pennsylvania universal service programs can be found in the Pennsylvania PUC's generic authority over the operations of energy utilities, the preservation of those programs has since been written into statute.

Two utilities in Pennsylvania pioneered the use of affordable rates as a means to address the payment troubles experienced by low-income customers. Columbia Gas Company responded with a willingness to pursue a program first proposed by the state Office of Consumer Advocate. Equitable Gas Company also proposed an income-based rate for its low-income customer population.

The Columbia Gas of Pennsylvania Energy Assurance Program (EAP)

The Pennsylvania Office of Consumer Advocate (OCA) proposed that Columbia Gas Company adopt an "Energy Assurance Program" (EAP) as part of Columbia's 1990 rate case. According to the OCA, the issue was one of collection efficiency. "The issue in this proceeding," OCA said, "is not to devise a social response to the broad inability to pay problems of low-income households. The issue is one of what is the most cost-effective means of collection. It is the same issue as whether a utility should pursue new central station capacity, cogeneration or conservation. . .The requirement that utilities provide least-cost service should govern utility collection activities too."[106] The OCA continued: "the issue is this: how can Columbia Gas most effectively and least expensively collect as much as possible from households [that] cannot afford to pay?"[107]

The Pennsylvania Commission agreed. The Commission found that "it is incumbent upon us to initiate a pilot project to test empirically some of the claims made by [OCA] for an EAP. Hopefully, the results of the pilot will prove [OCA's] thesis that EAP will enable more customers to avoid termination and collection actions, while also reducing the uncollectible

[104] Pennsylvania Public Utility Commission v. Columbia Gas of Pennsylvania, R-891468, Final Order, at 150 – 160 (September 19, 1990). (hereafter Columbia Gas EAP Order).
[105] Pennsylvania PUC, Bureau of Consumer Service, 2008 Report on Universal Service Programs and Collections Performance of the Pennsylvania Electric Distribution Companies and Natural Gas Distribution Companies, at 48 – 49 (2008). (Electric CAP delivered benefits of $190 million in 2008; natural gas CAP delivered benefits of $175 million in 2008.)
[106] Columbia Gas EAP Order, at 152.
[107] Id., at 153.

expense that can be anticipated if existing approaches remain unchanged."[108] The PUC then articulated its philosophy that would govern Pennsylvania's regulatory policy for the next two decades:

> We, in conjunction with utilities, and social service agencies, have all worked hard to devise ways to [e]nsure that low-income Pennsylvanians have utility services which really are necessities of life as the tragic fire deaths associated with the loss of utility service underlined. . .
>
> However, for the poorest households with income considerably below the poverty line, existing initiatives do not enable these customers to pay their bills in full and to keep their service. . .Consequently, to address realistically these customers' problems and to stop repeating a wasteful cycle of consecutive, unrealistic payment agreements that cannot be kept, despite the best of intentions, followed by service termination, then restoration, and then more unrealistic agreements, we believe that new approaches like PECO's CAP program and the OCA's proposed EAP program should be tried.[109]

Based on this analysis, the Commission directed Columbia Gas to begin a 1,000 customer pilot EAP.

The Equitable Gas Low-Income Rate

Shortly after directing Columbia Gas to implement a pilot low-income rate affordability program, the Pennsylvania commission further approved a proposal by Equitable Gas Company to pursue a similar program.[110] Unlike the Columbia Gas program, which had been proposed by the state Office of Consumer Advocate (and not opposed by the Company), the Equitable Gas program originated with the gas utility, itself.[111] According to the Company, the proposed program was:

> Needed to (1) remove these customers from the discouraging and expensive collection cycle, (2) motivate them to increase conservation, (3) increase their annual participation in available funding assistance programs, and (4) encourage consistent bill-payment efforts.[112]

The Equitable Gas program was, at first, disapproved by the hearing examiner who decided the Equitable rate case. While the program is "an apparently well-intentioned attempt to assist those of Equitable's ratepayers who most need assistance in paying their bills," the hearing examiner "concluded that this Commission is without authority to approve a program such as the EAP."

[108] Id., at 158.
[109] Id., at 159.
[110] Pennsylvania Public Utility Commission v. Equitable Gas Company, Docket No. R-901595, Final Order, at 63 – 74 (November 21, 1990). (hereafter Equitable Order).
[111] Equitable Gas had been working with the state Bureau of Consumer Services (BCS), a bureau of the state utility commission, to develop an appropriate program design. Equitable Order, at 63.
[112] Id., at 63.

The hearing examiner reasoned that if the commission "were to approve the subject [energy affordability] program, our action would be tantamount to authorizing a utility to collect money from one group of ratepayers and to use that money for another group of ratepayers for a reason completely unrelated to the ratemaking process (the subsidization of low-income individuals who are unable to pay their utility bills)."[113] The hearing examiner finally concluded that "neither judicial precedent nor the Public Utility Code discuss our statutory authority for the implementation of utility rates based solely on 'ability to pay.'"[114]

The Pennsylvania commission, however, reversed the hearing examiner's disapproval of the proposed Equitable Gas low-income program. Noting that "we are aware that this Commission's main function in ratemaking is to assure that every rate made, demanded, or received by any public utility shall be just and reasonable," the commission found that the Pennsylvania statute prohibits only ***unreasonable*** preferences or advantages to any person. The statute, the commission said, prohibits any ***unreasonable*** difference as to rates between classes of service.[115] "The relevant question, therefore, is whether or not the funding of Equitable's proposed [energy affordability] program results in the 'unreasonable' rate discrimination prohibited by the Public Utility Code."[116]

According to the Pennsylvania commission, "a mere difference in rates does not violate" the Pennsylvania statute.[117] The commission then found, on a number of bases, that "the record in this proceeding clearly demonstrates that any 'preference' that EAP would yield to program participants is reasonable, and further, the creation of EAP is in the best interest of all Equitable ratepayers, not just program participants."[118]

The commission found that "the company's total costs of service will be less with implementation of [the program] than they would be in the program's absence." While the company currently collects approximately 7.5% of household income of prospective EAP participants, the commission found, the program requires a payment of 8% of income toward their gas bill, thus increasing revenues.[119] In addition, the commission said, the program cost is substantially less than the uncollectible expense associated with the program participants. Customers that are eligible for the Equitable Gas program "who currently have payment arrangements either negotiated by BCS or the Company pay on average little more than 50 percent of the presubscribed amount." In sum, the commission concluded that:

> This analysis suggests that the $1.8 million future test year [program] expenses should result in an overall reduction to the Company's cost of service, through its uncollectible expense and savings in credit and collection expenses.[120]

[113] Id., at 66.
[114] Id.
[115] Id., at 69 (emphasis in original).
[116] Id., at 69.
[117] Id., at 70.
[118] Id., at 70.
[119] Id., at 71.
[120] Id., at 71.

In sum, the commission said that "we commend Equitable for taking the initiative to propose the [energy affordability] pilot. This program could make it one of the leaders among utilities in the uncollectible arena."[121]

The Permanent Pennsylvania Low-Income Affordability Programs

Only two years after initiating the Columbia Gas pilot, the Pennsylvania PUC decided to expand the use of universal service programs to the state's other natural gas and energy utilities.[122] Consistent with its view of the function of such programs as expressed in the early Columbia Gas decision, the policy decision of the Commission was that low-income rate affordability programs were a necessary tool for utilities to use in combating the problem of nonpayment. Indeed, the decision to implement what would become known as Pennsylvania's Customer Assistance Programs (CAPs) arose out of the PUC's investigation into the control of uncollectible accounts.[123] Through that investigation, the Pennsylvania PUC's Bureau of Consumer Services (BCS) had developed recommendations for implementation of CAPs.

> CAPs provide alternatives to traditional collection methods for low-income, payment troubled customers. Generally, customers enrolled in a CAP agree to make monthly payments based on household family size and gross income. These regular monthly payments, which may be for an amount that is less than the current bill, are made in exchange for continued provision of utility service.[124]

The Commission continued:

> As a result of our investigation, the Commission believes that an appropriately designed and well implemented CAP, as an integrated part of a company's rate structure, is in the public interest. To date, few utilities have implemented CAPs. The purpose of this Policy Statement is to encourage expanded use of CAPs and to provide guidelines to be followed by utilities who voluntarily implement CAPs. These guidelines prescribe a model CAP which is designed to be a more cost-effective approach for dealing with issues of customer inability to pay than are traditional collection methods.[125]

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[121] Id., at 73.

[122] The Commission directed that utilities adopt pilot projects. The PUC decision was based on the BCS recommendation that CAP pilots "should be large enough to provide some relief to the low-income, payment-troubled customer problem and at the same time small enough that changes can be made to the programs without incurring major costs." Bureau of Consumer Service, Final Report on the Investigation of Uncollectible Balances, Docket No. I-900002, at 115 (February 1992). (hereafter BCS Uncollectibles Report). The Commission directed that pilot programs were to involve either 1,000 customers or 2% of a company's residential customer base, whichever was greater.

[123] In the Matter of the Investigation into the Control of Uncollectible Accounts, Docket No. I-900002 (initiated October 11, 1990).

[124] Policy Statement on Customer Assistance Programs (CAP), Docket No. M-00920345, at 2 (July 2, 1992).

[125] Id., at 2. This Commission decision was supported by the BCS Final Report, which indicated: "The Bureau's position is that ratepayers are already bearing significant costs attributable to the problems of payment troubled customers and uncollectible balances. Further, BCS believes that incorporating the following recommendations into utility operations will lead to a more rational and cost effective use of existing resources. Over time, proper

In sum, while preservation and expansion of the CAP programs was eventually written into statute as part of the restructuring of the electricity and natural gas industries, the Pennsylvania CAP programs were initiated by the state PUC without explicit statutory authorization. Instead, the PUC found that CAPs should be an "integrated part of a company's rate structure." The purpose of these programs, the Commission found, was not a social purpose. Rather, the CAPs represent "a more cost effective approach for dealing with issues of customer inability to pay than are traditional collection methods."

The focus of the Pennsylvania CAPs as a tool to respond to low-income payment troubles has continued throughout the years. CAPs were considered to be an *alternative* to a way of doing business that simply wasn't working. The objective of CAP was "to stop repeating a wasteful cycle of consecutive, unrealistic payment agreements that cannot be kept, despite the best of intentions, followed by service termination, then restoration, and then more unrealistic agreements. . ."

Indiana's Universal Service Programs (USP)

Two major Indiana natural gas utilities have adopted low-income tiered discount programs in recent years. The two programs reach tens of thousands of low-income Indiana residents each year, distributing millions of dollars of benefits. The Indiana utilities grounded their low-income programs in the flexible regulation provided by statute to the Indiana Utility Regulatory Commission (IURC).[126] The flexible regulation allowed under this Indiana statute permits the Indiana commission to set aside traditional regulation for all or part of a utility's rates or services.

The Indiana Affordability Program Designs

In response to the statute allowing utilities to propose alternative regulatory plans, two Indiana utilities (Citizens Gas & Coke Utility; Vectren Energy) submitted proposals for low-income tiered rate discount affordability programs.

The Citizens/Vectren program design offers income-eligible customers a discount off of the natural gas bill they would otherwise receive from the respective companies. Both companies divide their low-income customer population into three tiers. Customers are placed in each tier based on the "State Benefit Matrix" used in the distribution of federal fuel assistance through the federal Low-Income Home Energy Assistance Program (LIHEAP). Low-income customers must participate in LIHEAP in order to receive the utility discounts. Enrollment in LIHEAP automatically places the customer into the respective utility discount program.

Citizens provides a discount of either 9%, 18% or 24%; Vectren provides a discount of 15%, 26% or 32% applied to their residential gas service bill. When combined with LIHEAP benefits, the combined benefit of the discount tiers and LIHEAP will represent an approximate reduction

implementation of the recommendations may result in a reduction of total utility costs." BCS Uncollectibles Report, at 120

[126] Indiana Code, §§ 8-1-2.5-1, et seq. (2007).

of 27%, 40% or 50% reduction in the overall heating costs to Citizens eligible low-income customers. Vectren's low-income customers will experience a reduction of approximately 35%, 50% or 60%. The highest benefits go to the households with the lowest income. The discount tiers are designed so that, when combined with LIHEAP benefits, the resulting bills to low-income customers will approximate an affordable home energy burden under average incomes and usage levels.

Application of Indiana's Statutory Standards

The two Indiana utilities proposed their respective low-income programs pursuant to the Indiana statute allowing an Indiana energy utility to submit a plan to the state utility commission[127] seeking state regulatory approval of a plan for alternative regulation.[128] In setting forth the framework for flexible regulation, the Indiana legislature "declared" that "the provision of safe, adequate, efficient and economical retail energy services is a continuing goal of the commission in the exercise of its jurisdiction."[129] Moreover, the Indiana legislature said, "the public interest requires the commission to be authorized to issue orders and to formulate and adopt rules and policies. . .giving due regard to the interest of consumers and the public, and to the continued availability of safe, adequate, efficient, and economical energy service."[130]

When an Indiana utility requests approval of its decision to elect to operate under a plan of alternative regulation, the state utility commission must commence a proceeding to determine whether to approve the utility election. The issue in such a proceeding is whether the commission should "decline to exercise, in whole or in part, its jurisdiction over either the energy utility or the retail energy service of the energy utility, or both." In deciding that question, the commission is required to consider four factors, including in relevant part:

- Whether. . .operating conditions. . .render the exercise, in whole or part, of jurisdiction by the commission unnecessary or wasteful;
- Whether the commission's declining to exercise, in whole or in part, its jurisdiction will be beneficial for the energy utility, the energy utility's customers, or the state;
- Whether the commission's declining to exercise, in whole or in part, its jurisdiction will promote energy utility efficiency; and
- Whether the exercise of commission jurisdiction inhibits an energy utility from competing with other providers of functionally similar energy services or equipment.[131]

[127] The Indiana statute provides that the statutory sections on alternative regulation "do not apply to an energy utility unless the energy utility voluntarily submits a verified petition to the commission stating the energy utility's election to become subject to such section or sections." Indiana Code, §8-1-2.5-4 (2007); see also, Indiana Code, §8-1-2.5-8 (2007).
[128] Indiana Code, §8-1-2.5-4 (2007).
[129] Indiana Code, §8-1-2.5-1(1) (2007).
[130] Indiana Code, §8-1-2.5-1(6) (2007).
[131] Indiana Code, §8-1-2.5-5 (2007).

Under the statute, when a utility petitions for an alternative regulatory plan, the state utility commission is explicitly authorized to "establish rates and charges that are in the public interest as determined by consideration of the [statutorily-prescribed] factors. . ."[132]

The Indiana utilities electing to proceed with an alternative regulatory plan for their low-income customers noted a variety of circumstances that justified their proposals under the statute. Primarily, however, according to their petition, the plan was developed "in recognition of the concerns over price volatility resulting from imbalances between gas supply and demand, as well as weather-related price spikes often occurring during the heating season, and the resulting increased financial needs of the[…] low-income customers."[133]

An Alternative to Unnecessary and Wasteful Regulation of Collections

In justifying their low-income rates under the ARP statute, Indiana's utilities discussed the statutory criteria underlying their alternative regulatory plans. First, they noted, that collection responses allowed (or required) by IURC regulation simply don't work for the companies' low-income customers under the identified operating circumstances involving high and volatile natural gas prices. The existing state regulatory regime mandating a series of notices leading up to the disconnection of service, and the offer of payment plans that do not address the underlying affordability of current bills, is ineffective and wasteful. The existing regulatory regime, according to the companies, resulted in the companies continuing to disconnect low-income customers, and writing-off low-income accounts as bad debt, while spending considerable utility money in the pursuit of collection actions that cannot be expected to succeed.

In contrast, the companies said, the alternative regulatory plans proposed by each company would improve collections and reduced unpaid bills. Citizens Gas/Vectren both noted that the proposed alternative regulatory plan would increase the efficiency of their respective utilities by reducing the number of utility terminations and decreasing payment defaults and untimely payments, all of which contribute to higher collection and uncollectible costs to the Company.[134]

Benefits to the Utility, to Customers, and to the State as a Whole

The proposed rate affordability programs, Indiana's utilities asserted, would generate benefits to the utilities, to their customers, and to the state under the alternative regulatory plan statute. One attribute of the public interest that Indiana regulators are required by statute to consider in administering public utility regulation involves public health and safety. Citizens Gas and Vectren both noted that there were public safety issues involved with providing affordable rates to their low-income customers. Reporting that more than 11,000 of their customers received

[132] Indiana Code, §8-1-2.5-6(a)(1) (2007).
[133] Verified Joint Petition of Indiana Gas Company, Inc., Southern Indiana Gas and Electric Company and the Board of Directors for Utilities of the Department of Public Utilities of the City of Indianapolis, as Successor Trustee of a Public Charitable Trust, d/b/a Citizens Gas & Coke Utility, Pursuant to Ind. Code §8-1-2.5, et seq. For Approval of an Alternative Regulatory Plan Which Would Establish a Pilot Universal Service Program, Case No. 42590, Verified Joint Petition, at 4, March 4, 2004. (hereafter 2004 ARP Petition).
[134] 2004 ARP Petition, at 7 – 8.

LIHEAP assistance but nonetheless "still failed to meet one or more payment obligations for gas service during a twelve month period," these two companies asserted that one goal of their program was "to protect the health and safety of Petitioners' low income customers by helping them to maintain affordable natural gas service."[135]

Efficient Utility Operations

Finally, the proposed alternative regulatory plans, according to Indiana's utilities, would not only promote the efficient operation of the utility, as described above, but would also promote the efficient use of energy by low-income customers. When a customer has no hope of being able to pay for their bill in the first place, the utilities posited, that customer loses much of his or her incentive to control the underlying home energy use. In contrast, when a low-income affordability program makes possible the complete payment of bills, the customer can be expected to manage their bills to stay within a payable range. According to Citizens Gas and Vectren, "because the Program envisions participating customers to continue to be responsible for the payment of a significant portion of their gas usage, customers will continue to have an incentive to monitor and control usage, if possible, and better to manage their monthly gas bills."[136]

The Regulatory Program Approvals

In a series of orders from 2004 through 2006, the Indiana Utility Regulatory Commission (IURC) approved the initiation and continuation of the Indiana low-income rate affordability programs. The IURC accepted testimony documenting that the utilities had met the statutory criteria set forth for alternative regulatory plans.

The Indiana utilities argued, and the Indiana commission agreed, the tiered discount programs advanced by Citizens Gas & Coke Utility and Vectren Energy were in compliance with the statutory criteria underlying an alternative regulatory plan.

The companies noted that the current conditions under which they operate (including high and volatile natural gas prices) created the need for the plans. They noted that continuing the traditional collection processes contemplated by the existing regulatory regime is ineffective, inefficient and wasteful. They noted how their respective programs would improve not only the efficiency of their operations, but the efficient use of energy by low-income customers. They documented how the proposed alternative plans would generate health and safety benefits for their customers (and the population as a whole), and would improve the competitive posture of the business and industry in their respective service territories.

POLICY PITFALLS AND PRATFALLS TO AVOID.

In reviewing the empirical analysis of low-income energy assistance programs, several myths should be noted with respect to frequent critiques of "Lifeline" rates. These "myths," while they

[135] 2004 ARP Petition, at 3 – 4.
[136] 2004 ARP Petition, at 8.

have been repeated for more than two decades, are worthy of repetition. With grateful acknowledgement to Professor Michael Hennessy,[137] his observations are presented somewhat condensed, but more or less intact.[138]

The Myth of Complete Knowledge and Perfect Research

> This first myth often translates into a discussion of not how much we know, but how much residual error there remains to be explained. More importantly, the myth of perfect knowledge is often used as an implicit criticism of a particular research effort rather than a measure of our general ignorance. The implication is often given that *other* researchers, *other* data bases, or *other* methodologies would have provided a more accurate, more complete, or more valid set of results. Of course, these alternative researchers, data or methods are never produced, so the actual research is always compared with some idealized concept of the possible – a sort of ideal type research design with no flaws. Given this theoretical comparison, obviously any particular research study can be found seriously defective.
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> * * *
>
> Such techniques of research defamation have two negative consequences. First, they give the misleading impression that unflawed research is possible. McGrath has cogently argued that given the constraints of the research process and the inherently contradictory demands of "good research," it is impossible to maximize all positive features in any single research design. Hence, all research will be flawed. In fact, it is not possible to do an unflawed study. . .The power of the idealized study is contrasted nicely with the flawed (but empirical) method when McCloskey discusses theory testing. He says, "a conceivable but practically impossible test takes over the prestige of the real [but flawed] test, but free of its labor."
>
> The apparent perfection of simulation studies is another case in point here. Of course, in these studies, there are no flaws at all since the studies are not sullied by authentic (but recalcitrant) empirical data. The appeal of simulations is exactly that they remain pristinely abstract and quite amenable to the will of the researcher. McCloskey, however, also points out that the difference between simulations being *amenable* to the will of the researcher and simply *being* the will of the researcher is often vanishingly small. (emphasis added).
>
> However, the Myth of Complete Knowledge and Perfect Prediction is more than just an academic parlor game. If that were all, the myth would be merely amusing rather than pernicious. But if policy makers accept the premise of this myth, their

[137] Through the power of the Internet, even though these comments were authored over 25 years ago, Professor Hennessy was located and interviewed. These comments are presented herein with his permission.
[138] Michael Hennessy. "The Evaluation of Lifeline Electricity Rates: Methods and Myths," 8 *Evaluation Review* 327 (1984).

> reliance on the flawed, incomplete and partial knowledge provided by empirical research will ever decrease. And this will inevitably change the basis of rational decision making over to other even more incomplete, error-filled and partial methods like [special favors based on political connections], special pleading by interest groups, and bureaucratic rationales of system maintenance.

The Myth of Maximum Benefit and Minimum Burden

The second "myth" identified by Professor Hennessy is that sufficiently detailed inquiry will result in the discovery of "a potential policy that benefits all and burdens none." He dismisses the search for such a policy as not only bound to fail, but also as being harmful in the meantime.

> The pervasiveness of this particular myth in the lifeline literature is quite amazing. The review of survey simulations. . .shows that in virtually every case lifeline rates are superior to the alternative rate structure, with greater percentages of targeted households benefiting and lesser proportions of non-targeted households burdened. Yet lifeline rates are routinely criticized (and rejected) for always producing some proportions of the targeted who are burdened and some proportions of the non-targeted who are benefited. As Berg states; "opportunities are missed when our lack of complete understanding causes unnecessary delays. The goal of perfect policies is one of the greatest enemies of the achievement of good policies."[139]

ASSESSING THE BUSINESS CASE FOR AFFORDABLE LOW-INCOME RATES

Assessing the business case for a low-income affordability program involves performing the following steps:

- Articulating the outcomes the program seeks to accomplish;
- Assessing the effectiveness of the program in achieving those outcomes;
- Assessing the productivity of the program in achieving those outcomes;
- Comparing the costs of the low-income program against the costs of alternatives that would achieve the same or comparable outcomes.

[139] Methods and Myths, at 340. Contrast this discussion of "research myths" to the decision of the Minnesota Public Service Commission, which held in approving a Conservation Rate Break for customers consuming less than 300 kWh per month: "There is no question that lifeline is a blunt edged sword in attacking the utility problems faced by low-income users. The Commission readily admits that it will favor some persons who do not need the favor and provide only modest assistance to others who need much more. However, the Commission believes that these infirmities are far outweighed by the overall benefits to the large number of needy persons who are able to conserve energy usage. . .We are not required to choose between issuing an order which reduces all evils or issuing no order at all." Cleveland State University (1980). *Lifeline Electric Rates and Alternative Approaches to the Problems of Low-Income Ratepayers: Ten Case Studies of Implemented Programs*, at 253, National Technical Information Center: Washington D.C.

Each of these steps is examined in greater detail below.

Articulating the Objectives of a Low-Income Program

Articulating the objectives of a low-income program is a necessary first step in assessing the business case for a low-income rate affordability program. Without having first identified the business objectives it seeks to accomplish, a utility cannot hope to assess whether it is spending money wisely or unwisely. Identifying the program objectives helps a utility to determine up-front the extent to which it is committing resources in furtherance of some purpose.

For purposes here, the objectives of a low-income affordability program are limited to those objectives that are exclusively related to the utility as a utility. Without endorsing the notion that any social function is beyond the purview of ratepayer dollars –utilities certainly spend money on such "social" functions as workplace safety, environmental protection (including clean air and water), and workplace diversity—for the purposes of the instant analysis, the social function of providing affordable rates because of the social benefits generated by affordability (e.g., housing, public health and safety, nutrition, business competitiveness) is set aside for the moment.

Having done that, the business objectives of a low-income rate affordability program are two-fold:

- To provide an uninterrupted supply of the products and services the utility seeks to sell; and

- To collect the revenue from those sales in a full and timely fashion.

Effectiveness of an Affordability Program in Achieving Business Outcomes

A business case for a low-income program affordability program must consider the effectiveness of the program in accomplishing the articulated outcomes. No matter what level of cost is being incurred, by the program or by the alternatives against which the program is being compared, to the extent that the business objectives are not being accomplished, a "business case" cannot be made for that activity.[140] With this in mind, assessing the business case of a low-income program first considers whether the identified desired outcomes are being accomplished.

[140] Consider the farmer who is assessing the "business case" for how to keep the grass in his back pasture short. He identifies three alternatives: (1) a push mower (with a low capital investment but high labor costs); (2) a power mower (with a high capital investment but low labor costs); and (3) a herd of sheep. The first question the farmer asks is ***not*** "what is the cost?" The first question must be: is the grass being kept short?

The Effectiveness in Maintaining Uninterrupted Service

A low-income rate affordability program can be a more effective mechanism for providing an uninterrupted supply of the products and services which the utility seeks to sell than existing alternatives. For purposes of this analysis, the "interruption of sales" is measured by the involuntary disconnection of service for nonpayment.[141] In turn, the disconnection of service is measured in two ways: (1) the frequency of disconnections; and (2) the duration of disconnections.

The impact of a low-income affordability program on the disconnection of service was directly studied for the rate affordability programs offered by two Indiana utilities. The evaluation of Indiana's disconnections for nonpayment compared the disconnections without the program to the disconnections with the program. It further compared the rate of disconnections for program participants to the rate of disconnections for the residential customer base as a whole.[142]

The Indiana "Universal Service Program" (USP) was more effective in achieving the outcome of uninterrupted service than was the status quo (i.e., delivering undiscounted bills coupled with collection activity, payment plans, and the like). The empirical evaluation found:

- The USP succeeded in reducing the low-income shutoff rate to virtually the same level as the residential population as a whole. In the "high disconnect" months of April and May,[143] while Vectren Energy disconnected 13 accounts for each 1,000 residential accounts, the Company disconnected between nine (9) and 18 accounts within the low-income population.

- If one limits the comparison to accounts with arrears, the low-income program participants outperformed the residential population as a whole. While Vectren disconnected services for nonpayment to between 13 and 15 of each 100 residential accounts at least 60 days in arrears, the company disconnected service to between 10 and 11 accounts of each 100 low-income program participants who were at least 60 days in arrears.

The improved performance could be attributed to the rate affordability initiatives. In November 2006, the evaluation found, "it is evident that the households who would eventually become program participants were performing less well than the total population. This is true for all three metrics (DNPs[144] to total accounts; DNPs to accounts in arrears; DNPs to accounts 60+ days in arrears). It is not until after the Vectren program delivers its bill payment assistance

[141] A second way to measure service interruptions would involve an examination of "final bills." The level of final billed accounts is a more comprehensive metric in that it picks up the voluntary disconnection of service, including the voluntary disconnection associated with frequent mobility. See generally, Colton (1996). The Road Oft Taken: Forced Mobility and Childhood Education in Missouri, 2 *Journal on Children in Poverty* 23.
[142] Colton (2007). *An Outcome Evaluation of Indiana's Low-Income Rate Affordability Programs,* Citizens Gas and Coke Utility/Vectren Energy Delivery/Northern Indiana Public Service Company. See also, *An Outcome Evaluation of Indiana's Low-Income Rate Affordability Programs: 2008 – 2009 Program Year,* Citizens Gas and Coke Utility/Vectren Energy Delivery/Northern Indiana Public Service Company.
[143] Manitoba Hydro experiences these same high disconnect months.
[144] A "DNP" is "disconnect for nonpayment."

during the winter months that the DNP performance begins to substantially improve." Low-income customers receiving payment assistance experienced a decrease in disconnections, while low-income customers not receiving such assistance continued to see an increase in the number of disconnections they experienced.

The performance of Indiana's rate affordability participants was far superior to the performance of low-income customers statewide in Indiana. The 2006 annual "Billing and Collections Report" reported that, statewide, a low-income account in Indiana receiving a shutoff notice was more likely to move to the actual disconnection of service than was a residential account in general. The rate affordability program reversed that result for program participants.

In addition to reducing the *frequency* of involuntary disconnections for nonpayment, the Indiana USP reduced the *duration* of disconnections as well. The Indiana evaluation found that "Vectren succeeded in lessening the duration of service disconnections for nonpayment when compared to the total residential customer base as a whole."[145] The evaluation reported that "low-income customers consistently outperformed the total residential customer base in having their service quickly reconnected. In no month did the reported proportion of short-term reconnections for low-income program participants fall below the proportion of residential customers generally."

The Effectiveness in Collecting Billed Revenue

In addition to the success in maintaining the uninterrupted supply of product, the Indiana rate affordability program generated positive outcomes regarding the collection of revenue as well. This positive outcome was measured in terms of whether the program generated revenue neutrality. Revenue neutrality examines the extent to which, if at all, a low-income rate affordability program generates the same dollars of revenues to the utility despite the offer of discounted rates or bills. Revenue neutrality occurs when the discounted rates or bills improve payment patterns sufficiently to offset any reduced billings through the offer of the rate discount.

Revenue neutrality for Indiana's rate affordability program was measured by comparing low-income program participants to customers known to be low-income but not participating in the rate affordability program. One impact of the rate affordability program was to significantly increase the rate at which low-income customers paid their Vectren bills. Customers that participated in the Vectren program paid 82% of their Vectren bill, compared to a payment of 50% for Vectren low-income non-participants.

The results of the Citizens Gas and Coke Utility (CGCU) rate affordability program, while not as substantial, nonetheless demonstrated the same outcome. While CGCU participants paid 79% of their current utility bill, non-participants paid only 64%. The Indiana evaluation found: "As can be seen, the [rate affordability program] was better than revenue neutral to Citizens Gas. While [program] participants were billed 90% of what nonparticipants were billed, they paid 111% of what nonparticipants paid."[146] Table 19 presents the results:

[145] 2007 Indiana Outcome Evaluation.
[146] 2007 Indiana Outcome Evaluation.

Table 19. Billings and Revenues Under CGCU Rate Affordability Program			
Population	Billed Revenue	Collected Revenue ($s)	Collected Revenue (%)
Program participants	$273,627	$215,897	79%
Program non-participants	$304,072	$194,577	64%
Ratio: participant : nonparticipant	0.90	1.11	--
NOTES: Based on study sample.			

As the Indiana evaluation found, had the low-income non-participants paid at the same rate as program participants did, they would have paid nearly $46,000 more than they actually paid (on a base billing of $304,000).

Similar results were found in the recent evaluation of the Xcel Pilot Energy Assistance Program (PEAP) operated by Xcel Energy in Colorado. The PEAP evaluation found that program participants paid 67% of their current bills, compared to PEAP non-participant payments of 51%. According to the PEAP evaluation, rather than collecting $533,684 from customers if they had not participated in PEAP, Xcel Energy collected $701,278 from customers enrolled in PEAP, a gain of $167,469 attributable to the program.[147]

Productivity of an Affordability Program in Achieving Business Outcomes

In addition to assessing the effectiveness of a low-income program in accomplishing desired business outcomes (relative to the alternatives), it is necessary to judge the productivity of the program (i.e., the efficient use of company resources) in accomplishing the desired outcomes. Assessing productivity supplements the assessment of "effectiveness" from two different perspectives.

Addressing the productivity of utility efforts helps the utility assess whether there is a proper match between the tool being employed and the type of payment problem that is sought to be remedied. On the one hand, in other words, evaluating the productivity of the program (relative to its alternatives) helps to identify when inappropriately extensive tools are being employed by the utility. An involuntary disconnection of service, for example, is not a collection tool that addresses temporary inability-to-pay. The bill would be paid whether or not the disconnection was employed. In these circumstances, the disconnection serves no business purpose. It is not "productive," in that it generates no additional revenue.

On the other hand, evaluating productivity will help the company evaluate whether it is using a tool that is insufficient given the types of problem extent on the utility's system. Considering productivity, in other words, helps identify when tools are being employed that have no hope for success. A deferred payment plan, for example, is not a tool that addresses chronic inability-to-pay. If a customer could not pay his or her full bill in the past because of a lack of money, it lacks good sense to use a tool that would require that customer to pay the full bill ***plus*** some

[147] Colton (2010). *Interim Report on Xcel Energy's Pilot Energy Assistance Program (PEAP): 2010 Interim Evaluation*, Xcel Energy: Denver (CO).

increment to retire arrears in the future. In these circumstances, the tool is likely to be unsuccessful. It is not "productive," in that it generates no additional revenue.

Productivity implies not only some absolute level of output (i.e., "effectiveness") but some level of output given a designated level of input as well.[148] In order to evaluate productivity, both the input and the output data are needed.

Enhanced Productivity of Individual Collection Activities

The use of a rate affordability program helped the Indiana utilities discussed above to enhance the productivity of their collection efforts. Vectren Energy's rate affordability program, for example, allowed that company to move to an increased reliance on payment plans as a collection device for its low-income program participants rather than relying on the disconnection of service for nonpayment when low-income customers falls into arrears. Table 20 shows that that while the payment plan-to-disconnect ratios are similar for all customers and for low-income customers in the early study months, as the company implemented its rate affordability program, it consistently moved to a greater reliance on payment plans rather than on service disconnections to respond to low-income arrears. In the pre-winter month of November, the ratios of payment plans to service disconnections for nonpayment were virtually identical.[149] The data is disaggregated by the three "tiers" of the rate affordability program (called USP, "Universal Service Program").[150]

- In April, while USP3 customers have 11.1 payment plans for each disconnection for nonpayment, the residential customer base as a whole had only 2.7 payment plans;

- In May, while USP1 customers had 6.9 payment plans for each disconnection, the residential customer base as a whole had only 1.6 payment plans.

[148] If one were to compare the effectiveness of two district offices in collecting bills, the absolute amount of revenue collected would not be the exclusive performance factor to use in the comparison. Even assuming that both offices faced identical numbers of payment-troubled customers with identical payment problems, it would be invalid to say *ipso facto* that one office was more "productive" if it collected 10% more revenue. If the office which collects more had twice the staff, but collected only 10% more revenue, the revenue collection per staff member would be much lower. If the office that collected more had a substantially greater investment in equipment (e.g., auto-dialers), but collected only 10% more revenue, the revenue collection per dollar of capital investment would be much lower.

[149] The Table presents ratios. A ratio of 1.0 means that for every disconnection of service for nonpayment, there is an account on a deferred payment plan. If there were 100 disconnections for nonpayment, in other words, there were also 100 accounts on payment plans. A ratio of 3.0 means that for every one account subject to disconnection, there were three accounts on a deferred payment plan.

[150] The Tiered Rate Discount has three tiers to the Discount. "USP1" includes the low-income program participants in the highest income tier; "USP3" includes the low-income customers in the lowest income tier. "USP" represents Universal Service Program, the name of the Tiered Rate Discount.

Table 20. Ratio of Deferred Payment Arrangements to Disconnections for Nonpayment: Pre- and Post-Winter Heating Season: 2006/2007 (Vectren) /a/

	Nov 2006	April 2007	May 2007
All residential	3.1	2.7	1.6
USP 1	4.4	9.1	7.7
USP 2	3.7	12.1	8.2
USP 3	2.8	11.1	6.0

NOTES:

/a/ Winter months not considered given Indiana's winter shutoff moratorium.

The ability to treat the arrears of its low-income customers in a less intensive fashion is also evident from an examination of the ratio of field collections to the number of other collection activities. Table 21 presents data on the ratio of field collection activities to mail collection activities. If the ratio is 1.0, there is one field collection activity for every 100 mail collection activities. If the ratio is 3.0, there are three field collection activities for every 100 mail collection activities. A higher ratio evidences a greater reliance on the more intensive (and more expensive) field collection activities.

Table 21. Ratio of Field Collection Activities to 100 Mail Collection Activities: Pre- and Post-Winter Heating Season: 2006/2007 (Vectren) /a/

	Nov 2006	April 2007	May 2007
All residential	4.7	6.7	10.0
USP 1	5.3	3.1	3.8
USP 2	7.8	2.4	2.9
USP 3	8.9	2.7	4.2

NOTES:

/a/ Winter months not considered given Indiana's winter shutoff moratorium.

The Vectren rate affordability program allowed it to move to a less intensive collection activity directed toward its low-income customers when compared to its residential customer base as a whole. In the pre-winter/pre-program month of November, the ratio of field collection activities per 100 mail collection activities was similar between the low-income population and the residential population as a whole. If anything, the intensity of collection effort was greater for a significant portion of the low-income population (USP2 and USP3), with noticeably more field collection activities per 100 mail collection activities than for the residential customer base as a whole.

After operating its rate affordability program, however, Vectren could collect its low-income revenue with less intensive collection activities. Contrary to the pre-program results, after the company implemented its rate affordability program for low-income customers, the company was

exerting between two and three times more field collection activities (per 100 mail collection activities) for its residential customer base as a whole than it was for its low-income population.[151]

Enhanced Productivity of Aggregate Collection Activities

In addition to considering the impact of a low-income affordability program on individual collection activities, a productivity analysis should look at the overall collection effort as well. The level of collection effort is an important constraint on any evaluation of revenue collection. Two groups of customers, each of which have paid 80% of their bills for current usage, present substantially different pictures of cost and risk to the utility if one group makes payments with little or no collection effort while the other makes the same dollar payment, but only after the utility exerts considerable collection interventions directed toward the customers.

Improvements in the productivity of collection activities can occur in either of two ways:

- The need for collection interventions can be reduced thus allowing an increased payment per each collection intervention performed; in the first instance, improvement can be seen even if total dollars collected remains the same (but the interventions needed to generate those dollars decreases); or

- The customer response to the collection activity can improve thus allowing an increased payment per each collection intervention performed. In this second instance, improvement can be seen if the total number of collections activities remains the same but the dollars generated by those activities increase.[152]

In essence, this evaluation process considers the effectiveness and efficiency of collection activities from two different but related perspectives. On the one hand, it examines how much revenue is generated by each collection intervention. On the other hand, it examines how many collection activities are associated with the generation of the revenue.

In the discussion below, the effectiveness of collection activities directed toward participants in the Indiana rate affordability program is measured by reference to the average payment per collection activity month.[153] The Indiana utilities exhibited the ability to generate greater payment advantage for its longer-term USP participants. In eleven of the seventeen study months, customers who had participated in USP for both 2007 and 2008 paid more per collection month than did customers who began their USP participation in 2008. This payment productivity increased as the length of participation in the rate affordability program increased. An increase in the average payment per collection month occurs for one or both of two reasons: (1) the

[151] These results are consistent with the "theory" of a low-income program. A low-income program will not likely result in an absolute decrease in the number of collection activities. Instead, a low-income program allows a utility to switch its commitment of collection resources away from low-income customers, where the collection activity is not likely to be effective, to non-low-income customers where the activity is more likely to have a positive effect on revenue collection.

[152] Productivity is measured by the ratio: DC / CE, where "DC" = dollars collected; and "CE" = collection effort. In the first illustration, "CE" (the denominator) is reduced. In the second illustration, "DC" (the numerator) is increased.

[153] A "collection activity month" is a month in which any level of collection activity occurs.

payments made in response to collection activity increases; and/or (2) the number of payments made without need of any collection activity increases. The cumulative average payment of the CGCU USP participant by the end of the study period was $366, compared to $291 for the nonparticipant.[154]

Putting it Together: The Cost-Effectiveness of Achieving Business Outcomes

It is finally possible to dollarize the increase in collections efficiency for purposes of assessing whether the utility delivers benefits to its ratepayers through a low-income program. While such an analysis is not required to build a business case based on the increased effectiveness and productivity of a utility in achieving its business objectives,[155] some decisionmakers expect to see such an approach.

The analysis of benefits should take the following form. The analysis considers the costs of collecting the revenue deficit occurring with and without the rate affordability program. The analysis thus takes into account both of the factors that have been considered above: (1) the effectiveness of the programs in generating payments; and (2) the impact of the programs on the productivity of the collection effort needed. If the rate affordability program is less effective at collecting revenue, the "revenue deficit" increases as does the total cost.[156] In addition, if the rate affordability program is less productive at collecting revenue, the number of "needed collection activity months" will increase as does the total cost.

Finally, through the use of this Effectiveness/Productivity Analysis, the utility can further assess the impact of other utility activities. A utility might, for example, change the parameters of the analysis by adopting a budget-billing plan. Through a budget billing plan, the revenue deficit or the payment per collection activity month might change, thereby changing the relationships in the calculation. Through application of this analysis, however, the utility would be able to determine whether such a supplemental effort enhances or impedes (or has no effect on) the effectiveness and productivity of collections. If the supplemental efforts increase the effectiveness or productivity, the benefits will have been enhanced. If it decreases the effectiveness or productivity, the benefits will have been impeded.

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[154] Vectren experienced a similar improvement.

[155] ". . .many opponents of [cost-benefit analysis], defined as a procedure that seeks to monetize benefits, do not oppose cost effectiveness analysis. . .Cost effectiveness analysis evaluates the costs of different means of achieving a pre-determined goal." Driesen (2005). *Is Cost-Benefit Analysis Neutral*, Syracuse University College of Law. A significant body of literature exists distinguishing a "cost-effectiveness" analysis from a cost-benefit analysis. See generally, Stewart, A New Generation of Environmental Regulation, 29 *Cap.U.L.Rev.* 21, 41 (contrasting cost effectiveness analysis with cost-benefit analysis); Hahn et al., Empirical Analysis: Assessing Regulatory Impact Analysis: The Failure of Agencies to Comply with Executive Order 12866, 23 *Harv.J.L. & Pub.Pol'y* 859, 872-74 (2000) (cost effectiveness analysis does not involve monetization of benefits); Anderson et al, Regulatory Improvement Legislation: Risk Assessment, Cost-Benefit Analysis, and Judicial Review, 11 *Duke Ent'l L. & Pol.* 89, 93 (2000 – 2001) (cost effectiveness analysis is used instead of cost-benefit analysis for many applications in public health and medicine); Posner, Transfer Regulations and Cost-Effectiveness Analysis, 53 *Duke L.J.* 1067, 1069 (2003) (cost effectiveness analysis compares different means of achieving the same regulatory end).

[156] Presumably, if the rate affordability program is less effective at collecting revenue, the productivity (i.e., payment per collection activity) will also decrease.

Table 22. Effectiveness/Productivity Cost-Benefit Ratio
for CGCU Rate Affordability Program (RAP)

	Billed Revenue	Collected Revenue	Payment per Collection Activity Month	Needed Collection Activity Months	Cost per Collection Activity Month /a/	Total Cost
CGCU Initial Collections						
With RAP	$273,627	$215,897	$360	599.7	50	$29,986
No RAP	$304,072	$194,577	$291	668.6	50	$33,432
Sub-total benefit						$3,447
CGCU Deficit Collections						
With RAP	$273,627	$215,897	$57,730	$360	160.4	$50	$8,018
No RAP	$304,072	$194,577	$109,495	$291	376.3	$50	$18,814
Sub-total benefit						$10,796
Total benefit (sum sub-totals)						$14,242
Adjusted benefit /b/						$35,562

NOTES:

/a/ It does not matter what this cost is given that it is a constant.
/b/ The "adjusted benefit" sums the gain or loss in collections due to the increased/decreased collections percentage on the original billed revenue.

Table 22 shows the positive financial benefits generated by the low-income program in two ways. On the one hand, Table 22 shows the positive financial benefits attributed to the increased collection productivity.

- On the initial revenue collection, the Company spent $3,447 less to collect the $215,897 than it did to collect the $194,577;
- On the deficit revenue collection, the Company spent $10,796 less to collect the $57,730 "deficit" than it did to collect the $109,495 "deficit."

Clearly, the rate affordability program presents the more productive and lesser cost approach to collecting low-income revenue. The benefits to Vectren were even greater.

Finally, the "adjusted benefit" in Table 22 further accounts for the gain or loss in revenue from the base billing. Had the original discount resulted in a revenue loss, this loss would be used as an offset to the collections gain. The decreased billing through the rate affordability program, however, resulted in an absolute (and percentage) increase in collected revenue. That increased revenue resulted in an even greater positive financial benefit to CGCU.

As can be seen, the business case to the utility arises through two different benefits:

- On the original billing, the utility offering a rate affordability program can be expected to collect both a higher proportion and a higher absolute dollar amount, while spending fewer dollars on the process of collection.

- On the deficit between the billing and initial collections, the utility can also be expected to spend fewer dollars on the process of collection to eliminate the deficit.[157]

The ultimate conclusion is that a low-income program can be justified through a business case analysis. The low-income programs that have been implemented in other jurisdictions have found that the result is both an improved effectiveness in collecting revenue, and an improved productivity in collecting revenue (both on an individual collection activity basis and an aggregate collection activity basis). In addition, the low-income programs help utilities to achieve their objective of providing an uninterrupted supply of the product that they seek to sell.

Adding in the Indirect Business Benefits of Affordable Low-Income Home Energy

Aside from the direct financial benefits of promoting home energy affordability as discussed above, the provision of affordable rates will generate considerable additional financial benefits to Manitoba Hydro as well. These benefits should be considered by the utility as instrumental uses in furthering business objectives.[158] The extent of these instrumental uses document that the offer of low-income affordability programs can be "grounded in economic rationality and self-interest."[159] In this respect, the consideration of these additional business benefits should be viewed in the same way that the business benefits of Canadian multiculturalism are viewed. As the Department of Canadian Heritage found:

> Another problem that emerges in respect of cross-cutting, strategic policies, such as multiculturalism, is the public nature of the benefits they produce. Expenditures on multicultural policies oftentimes yield non-specific benefits (externalities) that cannot be entirely appropriated by any one agency or department. This is a situation that chronically leads to under-investment, even where there is a business case to be made because overall benefits outweigh costs.[160]

The benefits of providing affordable energy are much akin to the business benefits of providing multiculturalism in these regards. The affordability of home energy yields "non-specific benefits" (e.g., public health, public safety, improved nutrition, improved education) that cannot be entirely

[157] The utility receives further benefit through the collection of additional revenue from nonprogram participants because of the ability of the utility to deploy the resources freed-up by the increased productivity of low-income collections.
[158] See e.g., The Conference Board of Canada (1995). *Dimensions of Diversity in Canadian Business: Building a Business Case for Valuing Ethnocultural Diversity*, The Conference Board of Canada: Ottawa (ONT); see also, Taylor (1995). Building a Business Case for Diversity, *Canadian Business Review*, 22(1):12-14.
[159] Compare, Burstein (2004). *Developing the Business Case for Multiculturalism*, at 9, Outreach and Promotion Directorate, Multiculturalism and Human Rights Branch, Department of Canadian Heritage: Ottawa (ONT); see also, Gandz (2001). *A Business Case for Diversity*, Richard Ivey School of Business, University of Western Ontario.
[160] Business Case for Multiculturalism, at 12.

appropriated by Manitoba Hydro as the utility providing the energy. As a result, the utility traditionally under-invests in affordability programs.

Workforce Impacts/Internal Productivity

Initiatives such as the affordable home energy program proposed herein can deliver business benefits through enhanced staff productivity. The inability (or unwillingness) to effectively manage the growing presence of factors creating conflict creates business costs that impede "desired organization and business outcomes."[161] According to a February 2010 analysis of the costs and benefits of promoting workplace diversity by the U.S. Military Leadership Diversity Commission, "such costs can be direct (i.e., produced by turnover and absenteeism among employees who are the minority in their work group) or indirect (i.e., the result of conflict or reduced communication between employees who are different)."[162]

The provision of affordable low-income rates allows utility customer service representatives to avoid imposing similar direct and indirect productivity costs on the company. The provision of affordable low-income rates provides utility staffpersons greater satisfaction in their jobs. By enhancing home energy affordability on the front-end, utility staff face fewer customer confrontations, have a greater number of options available leading to successful conclusions from the customer/company interaction, generate a higher success rate in obtaining payment, and reduce the daily stress imposed on staff addressing nonpayment situations.

Improving employee satisfaction delivers business benefits to the utility.[163] "[E]mployees with supportive workplaces are the most satisfied with their jobs and the most loyal, which leads to reduced turnover among workers as well as a reduction in the costs related to such turnover."[164] As the Military Leadership Diversity Commission found, "retention and turnover of personnel are fundamental concerns for. . .businesses. There are significant costs associated with recruiting for replacements, and organizations make considerable investments in training each individual."[165] Helping to reduce "avoidable turnover costs" may have "real bottom-line financial implications for firms."[166] Costs are associated with retention, recruitment, training and related employee activities.

[161] Military Leadership Diversity Commission (2010). *Business-Case Arguments for Diversity and Diversity Programs and Their Impact in the Workplace*, 2, Issue Paper #14, Military Leadership Diversity Commission: Arlington (VA).
[162] Id.
[163] Duboff and Heaton (Jan/Feb. 1999). Employee Loyalty: A Key Link to Value Growth, *Planning Review*, 27(1).
[164] Fairfax (2003). The bottom line on board diversity: A cost-benefit analysis of the business rationales for diversity on corporate boards, 2005 *Wisconsin Law Review* 795, 829 (2005); see also, Harter et al. (2002). Business-Unit-Level relationship between employee satisfaction, employee engagement, and business outcomes, *Journal of Applied Psychology, 87*, 268 – 274,
[165] Business-Case Arguments for Diversity, at 3.
[166] McKay et al. (2007). Racial differences in employee retention: Are diversity climate perceptions the key?, *Personnel Psychology*, 60, 35-62; see also, Jackson et al. (1991). Some differences make a difference: Individual dissimilarity and group heterogeneity as correlates of recruitment, promotions and turnover, *Journal of Applied Psychology*, 76, 675-689.

Revenue Impacts: Business Locational Decisions.

Offering affordable rates to low-income customers can be expected to have long-term positive impacts for the utility from the perspective of maintaining and expanding its revenue base. The provision of a strong social safety-net so that individuals and households do not face the deprivation of basic household necessities is a strong and growing factor in businesses making locational decisions. These locational factors are particularly important for high technology firms, which represent a particularly strong future growth potential for the economy. Research for Ontario's Ministry of Enterprise, Opportunity and Innovation, in collaboration with the Institute for Competitiveness and Prosperity, reports that sound economic development policy includes ensuring that "the right social investments are made to ensure social harmony."[167]

These results are confirmed by research looking specifically at the relationship between poverty and business competitiveness. The *Competitive Assessment* of the Indiana economy was prepared by Market Street Services for the Indiana Department of Commerce. According to the final report, released in January 2002, the purpose of that Department of Commerce sponsored study was "to help the State clearly assess its competitive position both in relation to other states and the nation." The Indiana Department of Commerce report said:

> The Corporation for Enterprise Development (CFED) identified several key challenges that must be overcome at the state level in particular, to achieve successful economic development in the near future. The *primary barriers or problems that exist today* include sprawl and unmanaged growth, the negative impacts of globalization, such as fragmenting markets and global competitors, *and income inequality from unequal earnings*.[168]

(emphasis added). The *Indiana Competitive Assessment* reported that "cost of living is a common consideration for employers making expansion and relocation decisions as they attempt to retain and recruit qualified employees." The Department of Commerce's report then found: "Regional meeting participants stated time and again that they feel Indiana is a very affordable place to live *for people of all income levels*. Participants felt that the moderate cost of living *helps their competitive* [posture] with other Midwestern states as well as places around the country." (emphasis added). The report then finally noted that Indiana should: "keep[…] in mind that pockets of poverty –whether the businesses locate there or not—is not a business climate asset overall."

While this assessment was made with respect to telecommunications, it is consistent with the continuing statements made throughout the Indiana *Competitive Assessment* report about the

[167] Gertler (2002). *Competing on Creativity: Placing Ontario's Cities in North American Context*, report produced for the Ontario Ministry of Enterprise, Opportunity and Innovation and the Institute for Competitiveness and Prosperity. In this sense, affordable home energy can be viewed in the same way that health and education are viewed. "There are numerous empirical studies that demonstrate the links between education, health and competitiveness. In particular, both health and education are correlated with superior economic outcomes such as higher productivity, higher per capita incomes, and faster growth." Business Case for Multiculturalism, at 8.
[168] Market Street Services. *Indiana Competitive Assessment*, at 8, Indiana Department of Commerce: Indianapolis (IN).

need, from the perspective of maintaining the competitiveness of Indiana business and industry, to address pockets of poverty to ensure that these pockets are not "left behind."

The observation here is being increasingly recognized as relevant to various services. "It should be noted that businesses focus on quality of life considerations when making location decisions because they are relevant for attracting a high quality workforce."[169]

> Economic developers are increasingly recognizing the importance of quality of life in business location decisions. Quality of life has been deemed particularly influential for companies involved in research and development and high technology, and in enterprises employing highly skilled workers in information or knowledge-based services and production. Evidence of this observation is a study conducted by Love and Crompton in which they surveyed 174 decision makers of businesses that had initiated, expanded or relocated to Colorado in the previous five years. . .quality of life was considered the second most important factor for prompting the business move and not selecting a specific community, as well as the third most important factor in the final selection of a specific community.[170]

The connection between assuring access to basic household necessities and maintaining the competitiveness of the local economy has been recognized throughout Canada.[171] Given the reliance of utility sales, revenues and profit on a strong economy, to the extent that Manitoba Hydro contributes to this local competitiveness, the company will derive benefits as a result. In this regard, as the local utility, Manitoba Hydro is not merely a participant in the local economy, but is a direct and active beneficiary of a thriving local economy.

Reputational Capital.

The adoption of an affordable home energy program will benefit Manitoba Hydro in that it will expand the "reputational capital" of the utility. Adopting a low-income program allows the utility to acknowledge that it is taking proactive efforts to ensure the availability of home energy as a basic human need. Pursuing such programs allows the utility to speak from a position of strength of community involvement. The enhanced ability of the utility to speak with "moral authority" is a business asset that adds value to the corporation.[172]

This notion of "moral authority" is not a theoretical construct that has little practical meaning to the financial performance of the utility.[173] It is associated with "reputational capital," which in turn has

[169] Taylor, et al. (2006). *A Cost-Benefit Analysis of Universally-Accessible Pre-Kindergarten Education in Texas,* Bush School of Government and Public Service, Texas A&M University: College Station (TX).
[170] Id. (citations omitted).
[171] *Improving the Competitiveness and Standard of Living of Canadians: Common Position of Provincial and Territorial Finance Ministers* (December 1999); see also, Human Resources and Skills Development Canada, *Social and Economic Impact of Labor Standards* (March 2008); Pindus et al. (2007). *Place Matters: Employers, Low-Income Workers and Regional Economic Development,* The Urban Institute: Washington D.C. ("racial inclusion and income equality can enhance regional economic growth") (citations omitted).
[172] Business Case for Multiculturalism, at 9.
[173] "A University of Pittsburgh Business School review of 46 studies on the links between [corporate social performance] and [corporate financial performance] found a positive relationship between social and financial

multiple operational (and thus financial) implications. On the one hand, corporations that enhance their reputational capital through programs such as the low-income discount proposed in this paper help to preserve what the Center for Corporate Citizenship refers to as their "license to operate" (sometimes referred to as their "freedom to operate"). "In coming years, it will be important for companies to find ways to prevent or reduce the cost of challenges to their projects and operations. By developing a presence as corporate citizens through positive actions in communities and society, businesses can preserve and enhance their license to operate."[174] Viewed in this way, the business benefits associated with this impact arise with respect to projects ranging from construction/development proposals to acquisition strategies, both of which are particularly applicable to electric utilities. Enhanced reputational capital attributable to social performance has been found, for example, to allow companies to forego and/or minimize costly battles for site placement with communities and/or government officials.[175]

The contribution which an affordable home energy program makes to enhanced reputational capital generates business benefits to Manitoba Hydro in a number of ways.[176] An enhanced reputational capital affects the full-range of stakeholders in the Manitoba Hydro community: customers, employees, regulators, and the broader community. Each of these stakeholders with whom Manitoba Hydro interacts will contribute to the financial benefits derived by the Company.

Economic Development

Low-income rate affordability programs generate substantial economic development impacts in the jurisdictions in which they operate. As a significant contributor to economic development, low-income rate affordability programs provide substantive benefits to the utility as well as to all customer classes. Because rate affordability programs contribute to additional disposable income within the low-income population, it helps drive additional job creation, income generation, and economic activity for local businesses.

A study for Entergy Services Corporation, a major electric utility serving the Middle South, found that a low-income rate affordability program would be a significant generator of jobs, economic activity, and income throughout the region. The report found:

> The distribution of energy assistance first creates economic activity for the Entergy states through the direct delivery of benefit dollars. In addition to the dollars of cash benefits, however, the delivery of energy assistance will also free up

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performance. . .thirty-two studies found a positive relationship between social and financial performance. Five studies found a negative relationship between social and financial performance. Fourteen studies found no effect or an inclusive relationship between social and financial performance." Roman at al. (1999). The Relationship Between Social and Financial Performance. *Business and Society* 38(1).

[174] Determining the Value of Corporate Community Involvement, at 7.

[175] Waddock and Graves (March 1996). Good Management and Good Stakeholder Relations; Are They Synonymous," presented at the Annual IAMBS Annual Meeting.; see also, Waddock and Graves (1997). The Corporate Social Performance-Financial Performance Link, *Strategic Management Journal*, 18(4). 303-319.

[176] Rochlin and Googins (2005). *The Value Proposition for Corporate Citizenship*, at 12, Center for Corporate Citizenship: Boston College, Chestnut Hill (MA); citing Nelson and Bergrem (2003). *Values and Value: Communicating the Strategic Importance of Corporate Citizenship to Investors*, World Economic Forum/International Business Leaders Forum.

> household dollars that would have been devoted to the costs arising from the payment and behavior consequences of energy bill unaffordability. These dollars, too, can then instead be spent (and circulated) in the local economy.
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>
> While the discussion of the economic impacts of energy assistance looks at economic benefits on a statewide basis, in fact, the economic impacts provide particular advantage to low-income communities. Existing research indicates that low-income households tend to shop at local retail establishments. For food in particular, low-income households tend to shop at small, local food stores. Moreover, not only are low-income *households* more likely to shop locally, but the *businesses* serving low-income households are more likely to shop locally as well. It is clear, therefore, that not only will the provision of energy assistance provide income and employment to low-income households, but the earnings and employment that are delivered to such households will likely be spent, retained and re-circulated within the low-income community as well.[177]

Ultimately, the Entergy study found that "Energy assistance serves as an economic stimulant for the economy in three distinct ways. It creates economic activity. It generates additional earnings. It supports jobs."

Summary and Conclusions

The discussion in this section documents how promoting affordable home energy, in addition to generating the "public benefits" (referred to as "social benefits" above), generates an entire range of corresponding business benefits where the Company *does* capture a part of the benefits arising from those social impacts. These business benefits are not merely associated with the positive social impacts, they are inextricably tied to the social impacts.

Simply because these benefits involve "complex, multi-dimensional outcomes" does not mean they should be ignored. As the Center for Corporate Citizenship reports: "current evidence suggests that corporate social performance and corporate financial performance are positively linked, that they can influence one another, and that both directions of causality are statistically significant and positive."[178]

It would be inappropriate, and in error, for Manitoba Hydro to refuse to consider these financial benefits in any assessment of the "business case" for adopting the low-income affordability program proposed in this paper.

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[177] Roger Colton (August 2003). *The Economic Development Impacts of Home Energy Assistance: The Entergy States*. Entergy Services Corp: Little Rock (AR).

[178] Rochlin (2000). *Making the Business Case: Determining the Value of Corporate Community Involvement*, at 2, Center for Corporate Citizenship at Boston College: Chestnut Hill (MA) ("a compelling new argument contends that the traditional view of corporate involvement in social issues –that of being a soft 'add-on' which may distract from core functions—is outmoded. Today, observers from a variety of sectors propose that not only is corporate citizenship consistent with good business practice, it is in fact a business essential." Id., at 4).

SUMMARY

Manitoba Hydro is wrong when it asserts that "the issue of whether energy is affordable is outside the scope of Manitoba Hydro's mandate. . ." (RCM/TREE/MH-I-94). Any number of stakeholders fall within "the scope of Manitoba Hydro's mandate." These stakeholders include customers, employees, suppliers, local economic participants, and the community at-large. In considering the business case for affordable low-income rates, it becomes evident that the impacts of such rates on these various stakeholders all contribute to business benefits for Manitoba Hydro. It would be wrong for Manitoba Hydro to assign the exclusive responsibility for generating those business benefits to "policy for legislators and government. . ."

PART 5:
SUMMARY OF RECOMMENDATIONS FOR MANITOBA HYDRO

The information and analysis discussed above leads to the following recommendations for Manitoba-Hydro. Each of these recommendations was discussed in more detail above:

1. Manitoba Hydro should establish an electric low-income affordability program directed toward households with income at or below 125% of LICO. This program should consist of the following components:

   - A rate affordability component
   - An arrearage management component
   - A crisis intervention component
   - An energy efficiency component

2. Manitoba Hydro should implement a rate affordability program using a Fixed Credit model. The Fixed Credit Program should be directed toward customers with income at or below LICO x 125 percent.

3. Manitoba Hydro should implement an arrearage management program designed to retire pre-existing arrears over no more than a three year period. The Company should impose a customer copayment of $5 per month in support of the arrearage management program.

4. Manitoba Hydro should implement a crisis intervention program. The crisis intervention program should not be income-tested, but should instead be administered by local community-based organizations responsive to individual needs of company customers.

5. Manitoba Hydro should recover the costs of the proposed low-income affordability program through a combination of using a fixed monthly meters charge and an allocation of residential late fee revenue.

6. Manitoba Hydro should expand its Low-Income Energy Efficiency Program (LIEEP). The Company should establish a goal of treating all low-income customers with consumption at or above the Company average residential usage within a ten-year period.

7. In addition to targeting low-income (i.e., LICO x 125%) customers, the Company should set aside a reasonable portion of low-income efficiency budget dollars to direct toward customers moderately in excess of the income guidelines.

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