



State of Michigan
Jennifer M. Granholm, Governor

Michigan Public Service Commission
J. Peter Lark, Chairman
Laura Chappelle, Commissioner
Monica Martinez, Commissioner

MEMORANDUM

Date: January 31, 2006

To: Chairman J. Peter Lark
Commissioner Laura Chappelle
Commissioner Monica Martinez

From: Gary Kitts

Subject: Staff Report on Energy Efficiency

Attached is the Staff Report on Energy Efficiency prepared in response to your Order of October 18, 2005, in Case No. U-14667. In that Order, you directed the Staff to review energy efficiency programs and to “recommend alternatives designed to improve energy efficiency, make energy utility services more affordable to Michigan ratepayers, and enhance the State’s economy.”

As you know, subsequent to your Order, the Staff issued a report in the Capacity Need Forum on January 3, 2006. That report concluded that there will likely be a need for additional electric capacity in the future, and, in the short-term, recommended a portfolio of low-cost options, particularly enhanced energy efficiency measures, as a means to partially address that need. As a follow-up to the Capacity Need Forum, the attached report contains specific recommendations designed to delay the construction of additional power plants and also to put downward pressure on natural gas prices by reducing the demand for that fuel.

Your Order directed the Staff to consider both what could be done under the Commission’s existing authority and what might require new legislation. Our review of prior Commission orders indicates that the Commission has authority over ratemaking, but that the decision to offer energy efficiency services is a management decision of the utility. Hence, we believe that there will be no need for new legislation if the utilities are willing to voluntarily offer energy efficiency services to their customers. To that end, we have offered two recommendations designed to remove existing disincentives and encourage utilities to aggressively pursue cost-effective energy efficiency measures.

First, we recommend that offering an energy efficiency program be a condition for including fixed charges in a utility’s rate design. The current rate design process does not take into account what, if anything, the utility is doing in this regard. Consequently, many utilities are reluctant to assist their customers in using energy more efficiently, because to do so will lower the company’s earnings – an action counter to the utility’s fiduciary responsibility to its shareholders.

Second, we recommend that the ratemaking treatment for energy efficiency programs be the same as for any other utility function. Utility energy efficiency expenditures would be capitalized and their reasonableness and prudence would be considered in a traditional rate case. The past ratemaking approach created a mismatch between energy efficiency and other utility functions that resulted in unfair treatment of energy efficiency measures.

Under our proposal, a utility would not be required to seek Commission approval before offering a program, but could do so if it wished. Although the Commission would not design the programs, we recommend that you set basic standards for them. We suggest the following: (1) programs should be available to all customer classes and be reasonably proportionate to the size of the classes, (2) programs should be efficient from an energy savings perspective, (3) programs should be efficient from an administrative perspective, (4) programs should be designed to provide efficiency measures targeted to appropriate customer groups, and (5) programs should be designed to be continuing in nature rather than “start and stop” affairs.

We have discussed these recommendations with utilities and other stakeholders and have generally received positive feedback. In accordance with your order, a public meeting will be held at 9:00 a.m. on March 7, 2006, to receive comments from interested parties. I understand that at that meeting you also wish to receive feedback on the third report of the PAYS® collaborative in Case No. U-13808, which is discussed in the attached report.

Finally, I wish to thank Tom Stanton, Sharon Theroux, Margaret VanHaften, and Sheila Aleshire for their assistance in preparing this report.

MICHIGAN PUBLIC SERVICE COMMISSION

STAFF REPORT

ENERGY EFFICIENCY PROGRAMS

January 31, 2006

ANALYSIS AND RECOMMENDATIONS

On October 18, 2005, the Commission issued an order in Case No. U-14667 initiating this study on energy efficiency in Michigan. That order recognized the dramatic increase in energy prices that had occurred and indicated that Michigan remains vulnerable to increases in energy costs. The order directed the Staff to “recommend alternatives designed to improve energy efficiency, make energy utility services more affordable to Michigan ratepayers, and enhance the State’s economy.”¹

In January 2006, the Staff issued a report in the Capacity Need Forum, which concluded that peak electric demand is expected to increase by 2.1% annually and recommended “commencing a program to build one or two additional base load coal generating plants in Michigan on a staggered basis, with the first becoming operational about 2011 or shortly thereafter.”² Of particular interest to the subject of energy efficiency was the following recommendation:

In the short-term, we recommend a portfolio of low-cost options that can be implemented within the next five years, including: (1) enhanced energy efficiency, (2) additional renewable resources, (3) additional transmission capacity, (4) combustion turbines for peaking, and (5) load management. These options (particularly energy efficiency, renewable resources, and transmission enhancements) will have beneficial effects for the Michigan economy in both the short- and long-run.³

The Capacity Need Forum embraces the concept of a portfolio of options (including energy efficiency) to meet Michigan’s energy needs, with power plant construction being the back-stop for those requirements exceeding the portfolio’s

¹ Commission order dated October 18, 2005, in Case No. U-14667, p. 5.

² “Michigan Capacity Need Forum: Staff Report to the Public Service Commission” Cover Memo, p. 2.

³ Ibid. pp. 1-2.

capacity. The concept of meeting power needs by energy efficiency in lieu of building power plants is neither new nor novel. More than a quarter of a century ago, the Commission said:

The Commission firmly believes that it is time to present a challenge to the management of Applicant, and that challenge is to develop a plan which will use cost-effective load management and conservation tools as an alternative to power plant construction.

* * *

Applicant can no longer rely on the past pattern of business as usual in the construction of power plants. The fact is, as this case demonstrates, that building a new power plant is expensive and its costs end up being paid by the consumer.

It seems clear that the financial, environmental and social constraints surrounding power plant construction have increased while, at the same time, the cost, technological sophistication and social acceptance for load management and conservation have become ever more favorable.⁴

The combination of a need for additional power and high energy prices (especially for natural gas) has created the proverbial “perfect storm” demonstrating the need for energy efficiency programs. A recent study concluded that energy efficiency programs can dramatically reduce the price of natural gas by dampening the demand for the fuel.⁵

The Commission order directed the Staff to consider both what could be done under the Commission’s existing authority and what might require new legislation. Our understanding of the Commission’s jurisdiction is that there is a distinction between the regulatory decisions of the Commission and management decisions of the utility. A

⁴ Commission order dated August 8, 1980, in Case No. U-5979. pp. 146-7.

⁵ “Natural Gas Price Effects of Energy Efficiency and Renewable Energy Practices and Policies” American Council for an Energy-Efficient Economy, December 2003.

decision to offer a new service is a management decision of the utility. If a utility offers the service, then the ratemaking treatment is a regulatory decision of the Commission.⁶

With this background, we have approached the issue by asking if utilities would voluntarily offer energy efficiency services to their customers. It is clear that utility executives view their role as providing service to their customers while fulfilling their fiduciary responsibilities to their shareholders. One recent example is the following excerpt from an interview with John Russell, President and Chief Operating Officer of Consumers Energy Company, in a publication for the company's employees:

[Interviewer]: What's your leadership approach to achieving these goals?

[Russell]: It's about achieving the proper business balance. We cannot neglect one goal for the sake of another. Improving safety, efficiently complying with Michigan laws and regulations, improving customer value, achieving our authorized return on equity (ROE), improving cash flow, growing the business while minimizing risks – these are interrelated. To be successful, we must find ways to constantly balance the needs of all stakeholders. Finding the right balance is a key to success.

* * *

[Interviewer]: A few years ago, we took great pride in a high natural gas customer rating from J.D. Power. Are we still ranked near the top?

[Russell]: I continue to be pleased with our customer satisfaction scores. We are ranked in the top quartile in the nation by our large industrial customers. We rank in the second quartile for our gas and electric residential customers. In fact, in the recent J.D. Power survey for gas customers, we improved by four points, which places us very close to the top quartile.

Customer satisfaction is driven by many factors, including reliability, responsiveness, price and service. Communication with our customers and keeping our commitments are also key drivers of satisfaction.

I keep a note in my office from Ken Whipple [Chairman of CMS Energy Corporation] reminding me that customer satisfaction involves more than

⁶ Commission order of August 17, 1999, in Case No. U-11290 et al, pp. 26-8.

just winning awards. Customers are at the center of everything we do. Without them, we're out of business.⁷

Based upon our discussions, it appears that the sentiments expressed in this interview are the norm. Utilities in Michigan indicated they want to provide service to their customers, including assisting their customers in using energy more efficiently, and are eager to do so provided they continue to meet their fiduciary responsibilities to their shareholders. It is in this light that the Staff has two recommendations that we believe will make energy efficiency attractive for both utilities and their customers.

Recommendation One -

Fixed Cost Coverage

An excellent explanation of this issue is provided in the following “Joint Statement of the American Gas Association and the Natural Resources Defense Council” submitted to the National Association of Regulatory Commissioners in July 2004:

The Energy Efficiency Problem: Regulated Natural Gas Utilities are Penalized for Aggressively Promoting Energy Efficiency

Local natural gas distribution companies (gas utilities) have very high fixed costs. These fixed costs include the costs of maintaining system safety and reliability throughout the year, staffing customer service telephone lines 24 hours a day and doing what it takes each day of the year to ensure the safe and reliable delivery of natural gas to homes, schools, hospitals, retailers, factories and other customers.

Natural gas utilities typically purchase natural gas on behalf of their customers, and pass through the cost without markup. This means that natural gas utilities do not profit from their acquisitions of natural gas to serve customer needs. The profit (authorized level of rate of return) comes from the rates utilities charge for transporting the natural gas to customers' homes and businesses.

⁷ “inFocus: For Employees of CMS Energy Companies” October 17, 2005, p. 2. As this report was being finalized, Mr. Russell gave the following testimony to the House Energy and Technology Committee: “High natural gas prices are here for the long term and we need to work together to help customers deal with higher bills. The best way for customers to deal with today’s high natural gas prices is to conserve energy and to call us if they are going to have trouble paying their bill.”

The vast majority of the non-commodity costs of running a gas distribution utility are fixed and do not vary significantly from month to month. However, traditional utility rates do not reflect this reality. Traditional utility rates are designed to capture most of approved revenue requirements for fixed costs through volumetric retail sales of natural gas, so that a utility can recover these costs fully only if its customers consume a certain minimum amount of natural gas (these amounts are normally calculated in rate case and generally are based on what customers consumed in the past). Thus, many states' rate structures offer – quite unintentionally – a significant financial disincentive for natural gas utilities to aggressively encourage their customers to use less natural gas, such as by providing financial incentives and education to promote energy-efficiency and conservation techniques.

When customers use less natural gas, utility profitability almost always suffers, because recovery of fixed costs is reduced in proportion to the reduction in sales. Thus, conservation may prevent the utility from recovering its authorized fixed costs and earning its state-allowed rate of return. In this important respect, traditional utility rate practices fail to align the interests of utility shareholders with those of utility customers and society as a whole.⁸

The problem highlighted in this statement applies equally well to both gas and electric utilities in Michigan. Pursuant to 1982 Public Act 304, gas utilities recover their gas supply costs through a Gas Cost Recovery process and electric utilities recover their fuel and purchased power costs through a Power Supply Cost Recovery process. Both processes provide for a dollar-for-dollar pass-through of prudently incurred costs. The utility's remaining costs ("non-304 costs") are collected through a combination of fixed and variable components in the utility tariff. The higher the proportion of non-304 costs that are collected through a fixed cost component in the tariff, the less the utility is impacted by reduced sales. Thus, a high fixed cost component should more closely align the interests of utility shareholders and customers with respect to energy efficiency.

⁸ "Joint Statement of the American Gas Association and the Natural Resources Defense Council" July 2004, pp. 1-2. Emphasis in the original.

The Staff has calculated the fixed cost component as a percentage of non-304 costs for each gas and electric utility in Michigan. For residential customers, an average of 28.4% of non-304 costs are covered by a fixed cost component.⁹ For business customers, the fixed cost coverage is 15.4%. However, these averages do not reflect the very wide divergence in coverage, which varies from a low of zero to a high of slightly more than 80%. The table below shows the number of utilities (for residential customers) or service categories (for business customers) for various levels of fixed cost coverage.¹⁰

Percentage of Fixed Cost Coverage	Residential Customers	Business Customers
None	2	18
0.1 % to 9.9 %	0	41
10.0 % to 19.9 %	6	9
20.0 % to 29.9 %	5	5
30.0 % to 39.9 %	8	6
40.0 % to 49.9 %	4	3
50.0 % and above	2	11

There appears to be no obvious reason for the wide diversity in fixed cost coverage that is apparent in the table above. Natural gas utilities tend to have higher coverage ratios – the average residential ratio is 35.5% for gas utilities and 25.8% for electric. However, electric ratios tend to be more widespread – the four largest residential coverage ratios are all electric utilities. It does not appear that the pattern of coverage ratios is part of a planned program.

We recommend that a utility’s fixed cost coverage be considered in association with its energy efficiency efforts. If the utility has a substantial program to assist its

⁹ It should be noted that this is a simple average. If a weighted average is used, the result would be almost completely determined by the two largest utilities in the state.

¹⁰ For example, there are six utilities that have a residential fixed cost coverage between 10.0% and 19.9%. In this table, the gas and electric services of a combined utility are counted separately.

customers to use energy more efficiently, then a relatively high fixed cost coverage would be appropriate to assure that the utility is not disadvantaged.¹¹ Conversely, if the utility does not have a program or if its program is minor, then little or no fixed cost coverage would be justified. We are not recommending any particular formula, but suggest that the determination should be made during each utility's rate case.

Recommendation Two -

Ratemaking Treatment

Our second recommendation deals with the ratemaking treatment of energy efficiency programs. In the past, a utility would normally file for approval of a program, the Commission would approve the filed or modified plan, and a surcharge would be determined to pay for the program. Normally, there would be a later reconciliation of program expenses with the surcharge revenues. In some cases, a bonus or incentive would be paid to encourage the utility to participate. The Commission was normally heavily involved in the design, scope, and administration of the program.

Contrast that approach with the one used for almost any other utility activity – in our example, buying a truck. If a utility decides it needs a truck to serve its customers, it does not come in and request Commission approval of a proposed truck acquisition program – it simply goes out and buys the truck. There is no surcharge – the cost of the truck is capitalized (i.e., included in the utility's rate base) and is depreciated over the life of the truck. At the time of the utility's next rate case, any party can contest the reasonableness and prudence of the utility's decision; however, if the Commission

¹¹ We recognize that having a higher portion of the bill covered by a fixed charge could reduce the incentive for customers to conserve, but we believe that customers have a great desire to conserve given the current high cost of energy. The overwhelming response to the Save Energy with Ease program provides a classic example.

determines that it was reasonable and prudent, then the cost of the truck is included in the utility's rate base and it earns a return of and on its investment. No bonus is ever paid to encourage a utility to buy a needed truck – the ability to earn its authorized rate of return is intended to be sufficient incentive for efficient management. Utility management is expected to prudently manage the utility's business to ensure that customer needs are met.¹²

We recommend that the ratemaking treatment afforded energy efficiency programs be equivalent to that afforded the truck purchase in the example above. The utility would determine if it wished to offer a program to assist its customers to use energy more efficiently. If so, the utility decides on the nature and design of the program and has the responsibility to prudently administer the program. No prior Commission approval would be required, but the utility could seek such approval if it desired.¹³

Money spent on the energy efficiency program would be capitalized and amortized over the life of the efficiency measures. Capitalization is appropriate because energy efficiency measures are long-lived assets that provide benefits over time. The past practice of expensing energy efficiency costs creates a mismatch between energy efficiency and other options, which can distort the decision-making process.

At the time of the utility's rate case, parties can address reasonableness and prudence of the company's energy efficiency program.¹⁴ We intend that the ratemaking

¹² Of course there is always the added implication that a lower rate of return could be authorized if a utility fails to provide safe, adequate, and reliable service to its customers.

¹³ The utility may need to apply for specific accounting approvals. We also suspect that the utility would be well-advised to seek input from various stakeholders in the design of the program, but that is a decision for utility management.

¹⁴ Issues regarding rate design and fixed cost recovery previously discussed would also be considered at this time.

standards applied to energy efficiency would be the same as for any other utility investment.

Program Design

The specific design of the program should be the responsibility of utility management. This is because program design is a management function rather than a regulatory function. However, the Commission has a responsibility to ensure that such programs are in the public interest if the costs are to be included in setting utility rates. To that end, we recommend the following five factors for consideration in determining whether the public interest is being served.

First, programs should be available to all customer classes and be reasonably proportionate to the size of the classes. A portion of the benefits of energy efficiency programs accrue to all customers of the utility – i.e., the delay or reduction in need to build new generating plants in the case of electricity, and the reduction in demand and concomitant reduction in market price for natural gas.¹⁵ It is reasonable to expect that since all customers benefit generally from the program and are expected to pay for it, then all customers should have a reasonable opportunity to participate.

Second, programs should be efficient from an energy savings perspective. It probably goes without saying, but nonetheless needs to be said: programs should produce energy savings commensurate with their costs. We do not suggest measuring program quantity by the amount of money spent, but rather by the amount of energy saved.

¹⁵ Electric efficiency programs would also have beneficial effects in reducing the market price of electricity now that a wholesale power market exists, but we have addressed the issue primarily as a means of minimizing the need for construction of new generation.

Third, programs should be efficient from an administrative perspective. One of the concerns with prior programs was that the programs became top-heavy with administrative costs and ceased to function effectively. We anticipate programs designed to effectively deliver energy efficiency services at reasonable cost.

Fourth, programs should be designed to provide efficiency measures targeted to the specific needs of appropriate customer groups. Many energy efficiency measures are not generic in nature and are only suitable for certain applications.

Fifth, programs should be designed to be continuing in nature rather than “start and stop” affairs. As previously mentioned, benefits from energy efficiency accrue over the long term. In order to maximize these benefits, programs should be designed to operate efficiently over the long term, although some expansions or contractions could be expected as energy markets change.

The Staff has discussed this program in general terms with utilities and other stakeholders. Based on these discussions, we believe that most utilities are interested in carrying out programs of this type to assist their customers in using energy more efficiently.

HISTORY OF ENERGY EFFICIENCY

AT

MICHIGAN PUBLIC SERVICE COMMISSION

As even a quick glance at Appendix A will demonstrate, the Commission has a long and extensive involvement in energy efficiency.¹⁶ During the last 33 years, over 100 cases have been conducted by the Commission that developed or implemented various types of energy efficiency programs.¹⁷ This chapter will summarize the basic types of programs that have been used and will follow the historical progression of these programs.

Home Insulation Financing (mid-1970s)

On August 21, 1973, Michigan Consolidated Gas Company filed an application for authorization of a program for the conservation of natural gas by promoting insulation of residences.¹⁸ As explained by the Commission, the program would function as follows:

The program will provide three insulation options to residents within the applicant's service area. First, Michigan Consolidated will advertise the merits of insulation as a do-it-yourself project and in its booklet explain in simple terms how to install ceiling insulation as well as caulking, weather

¹⁶ Throughout this report, the term "energy efficiency" is taken to be synonymous with other alternatives, such as "energy conservation" or "demand-side management" (DSM). While we recognize that these terms can have different nuances in meaning, in practice they have generally been used to refer to the same types of measures.

¹⁷ This does not include programs designed to reduce the use of fossil fuels by substituting another alternative, such as the Michigan Renewable Energy Program or the Solar Tax Credit Program.

¹⁸ Although it may be apocryphal, legend has it that the genesis of the home insulation program occurred during the prior winter when the then-Chairman of the Commission was shoveling snow off his driveway in East Lansing. He noticed that the neighbor's roof was covered with snow, while his roof was snow-free. The Chairman then suggested that his neighbor get a better furnace to get rid of all that snow. The neighbor, who was an engineering professor at Michigan State University, pointed out that snow melting on the roof was not the sign of a good furnace, but rather an indication that heat was being wasted as it escaped up through the Chairman's attic, which lacked insulation.

stripping, plastic storm windows and the like. Second, Michigan Consolidated will urge those who are willing or unable to undertake the work themselves to contact a contractor of their choice and arrange for the desired installation.

Third, Michigan Consolidated would participate in the installation of ceiling insulation for its residential heating customers. At the request of a qualified heating customer who owns the premises to which the residential heating service is rendered, Michigan Consolidated will install ceiling insulation and include the cost in the customer's gas bill. The definition of ownership of the premises will include possession under a land contract not in default. The only other requirement will be that the customer is not in arrears in the payment of his gas bill. The insulation would be furnished and installed by an insulation contractor acting as a subcontractor to Michigan Consolidated.

After a down payment of 20 percent at the time of contracting with Michigan Consolidated for installation of insulation, the Customer will have the option to pay the balance in one installment or three monthly installments, in which case there will be no interest or carrying charges, or he can finance the balance for a period of 36 months, in which case Michigan Consolidated will charge interest at the rate of 1 percent per month on the unpaid balance. The applicant proposes that all payments for insulation become part of its charge for gas service. Since Michigan Consolidated will add no markup to the price charged by its insulation subcontractor, the program from the applicant's standpoint would be a non-profit operation.¹⁹

In approving the program, the Commission opined that the public interest required utilities to incur costs of service and investments that conserve, as well as distribute, existing supplies of natural gas. Accordingly, the Commission found "that efforts to promote conservation of natural gas constitute a proper utility function for a gas distribution utility."²⁰

The Michigan Consolidated home insulation financing program occurred in the context of the 1973 Arab Oil Embargo. At that time, natural gas was in short supply and

¹⁹ Commission order of October 5, 1973, in Case No. U-4404, pp. 4-5.

²⁰ Ibid, p. 9.

curtailments of supply were common in the industry.²¹ Energy Efficiency was a priority and, in short order, the Commission approved similar programs for Consumers Power Company, Michigan Gas Utilities Company, Southeastern Michigan Gas Company, and Michigan Power Company. Although the focus was on natural gas, the Commission later also approved similar programs for electric utilities, such as The Detroit Edison Company.

Expanded Gas Conservation Programs (late 1970s – early and mid-1980s)

In 1977, Michigan Consolidated (in Case No. U-5451) and Consumers Power (in Case No. U-5510) independently proposed expanded gas conservation programs, incorporating three significant additions to the existing programs: (1) new measures designed to improve energy efficiency, (2) provision of zero-interest loans, and (3) funding of the programs through a surcharge on gas usage.

While these application were being considered, the Legislature passed 1978 PA 211 (MCL 460.6c). That act authorized the Commission to approve specific energy conservation programs for residential customers, required that the costs of those programs be included as a uniform charge per unit of gas or electricity consumed, and prohibited loans under those programs after a period of five years.

The expanded gas conservation programs were considered during a period of rapidly increasing natural gas costs, which occurred after the passage of the Natural Gas Policy Act of 1978. The Commission approved those programs and they continued until 1987, when they were terminated because the loan authorization under 1978 PA 211 had expired.

²¹ The Commission order notes that “gas from new sources such as Arctic fields or coal gasification” could reach \$1.50 per Mcf for incremental supplies! (The decimal point is not misplaced.)

Residential Conservation Service Program (1980s)

The National Energy Conservation Policy Act of 1978 required the adoption of a state plan, which became the Michigan Residential Conservation Service (MRCS) program. The major elements of the MRCS Program were: “home energy audits; arrangement services for the installation and financing of conservation measures; promotional advertising for the program; post-installation inspections; development of a master list of installers, lenders and suppliers; accounting for and recovery of program costs; qualification and training of auditors and inspectors; and a complaint processing procedure.”²²

The MRCS was applicable to Consumers Power Company, The Detroit Edison Company, Indiana & Michigan Electric Company, Michigan Consolidated Gas Company, Michigan Gas Utilities Company, Michigan Power Company and Southeastern Michigan Gas Company. The Commission approved individualized plans for each of these utilities and regularly conducted reconciliations of revenues and expenses for each throughout the 1980s. In addition to the regulated utilities, Battle Creek Gas Company and Lansing Board of Water & Light were required to participate because they met the statutory size provision. Finally, Lake Superior District Power Company, Wisconsin Electric Power Company, and Wisconsin Public Service Corporation were required to comply with the Wisconsin plan for their service territories in Michigan.

²² Commission order of December 30, 1980, in Case No. U-6700, p. 5.

Biennial Energy Conservation Report (late 1980s – early 1990s)

Throughout the 1980s, a variety of energy efficiency programs²³ were approved. The Commission conducted an overall review of these programs in Case No. U-8528. The order in that case effectively transferred all programs into a new biennial energy conservation report. Although labeled a report, this was actually a process for developing, approving and implementing a three-year energy conservation plan on a two-year cycle, to wit:

The report shall include a description of the utility's existing energy conservation programs; the latest 12-month data concerning costs and benefits of the programs; proposed changes to existing programs, if any; and a 3-year plan for the implementation of existing and new energy conservation programs, including a target for demand reduction, a projected budget, staffing levels and program activities.²⁴

The biennial energy conservation process was continued for several cycles until concerns with cost-effectiveness caused termination of the programs in the mid-1990s.

Rate Case Process (early to mid-1990s)

Energy efficiency became a highly contested issue in Consumers Power Company's 1991 electric rate case (Case No. U-9346). In its order in that case, the Commission included \$63 million for a 2-year demand-side management program in calculating the utility's revenue requirement.²⁵

In a subsequent Detroit Edison rate case (Case No. U-10102), the utility proposed a similar but smaller 5-year \$54.8 million program. In its order in that proceeding, the Commission approved a 3-year \$41.5 million program.

²³ In addition to the MRCS, these contained differing provisions and went by a variety of names: Business Energy Efficiency Program, Energy Conservation Financing Plan, Energy Assistance, Insulation Outreach, etc.

²⁴ Commission order of June 28, 1988, in Case No. U-8528, p. 23.

²⁵ For comparison, Consumers' biennial energy conservation amount was \$7 million for a comparable time period.

Special Contracts (last ten years)

Probably the most aggressive energy efficiency program was that contained in the special contracts that Detroit Edison and Consumers Energy entered into with General Motors, Ford, and Chrysler corporations. These contracts provided that the utilities would provide, at no additional charge, employees or contract personnel to the auto manufacturers in order to identify, implement and monitor energy savings opportunities.

The specific number of personnel provided was as follows:

Contract Year	Detroit Edison and General Motors	Detroit Edison and Ford	Detroit Edison and Chrysler	Consumers and General Motors	Total
1	4	6	3	6	19
2	8	11	6	11	36
3 - 10	13	16	9	17	55

Thus, during the last eight years of these 10-year contracts, the utilities provided 55 engineers or other personnel to assist with energy savings measures at no additional charge to the auto manufacturers. The cost of this program is unknown, but it could easily have exceeded \$5 million annually.

Cost-Effectiveness Concerns (mid-1990s)

As information from the biennial energy conservation reports and rate case demand-side management programs became available in the mid-1990s, the Commission became “concerned that certain of the proposed energy conservation programs have dubious economic value.”²⁶ For example, the Commission noted that one Michigan Gas

²⁶ Commission order of August 14, 1995, in Case No. U-10848, p. 2.

Company program cost \$3,525 per home but resulted in only \$3,000 in savings over the lifetime of the measures, while another cost \$2,497 per housing unit but produced savings of only \$2,016.²⁷

The reduced cost-effectiveness of energy efficiency options was due in part (perhaps in large part) to the cost of energy. Energy costs were stable, and in many cases declining, during mid- and late-1990s. These cost changes caused reconsideration of the value of energy efficiency, both in Michigan and throughout the country, so that by the end of the decade, many of the programs had been cancelled.

Low-Income and Energy Efficiency Fund

Public Act 141 of 2000 created a fund administered by the Commission “to provide shut-off and other protection for low-income customers and to promote energy efficiency by all customer classes.”²⁸ Approximately \$40 million annually for the fund was generated by savings from securitization. The Commission continued the fund in the most recent rate cases for Detroit Edison and Consumers Energy.²⁹ To date, the Commission has distributed approximately \$38 million in low-income energy efficiency grants and \$18 million in energy efficiency grants to benefit all customer classes.³⁰

Pay As You Save (PAYS®)

PAYS® is a financing mechanism designed to encourage the installation of energy efficient measures by using a portion of the savings to pay for the financing cost, thus avoiding up-front capital expenditures by the customer. In Case No. U-13808, the

²⁷ Ibid, p. 2.

²⁸ MCL 460.10d(6).

²⁹ Commission orders of November 23, 2004 in Case No. U-13808 and December 22, 2005 in Case No. U-14347.

³⁰ Commission orders of July 23, 2002, August 20, 2002, September 16, 2002, October 14, 2003, October 22, 2004, February 24, 2005, June 30, 2005, and December 20, 2005 in Case No. U-13129.

Commission directed The Detroit Edison Company to convene a collaborative to consider the concept.³¹ Subsequently, the Commission also directed Consumers Energy Company to meet with interested parties to consider the matter.³²

On December 2, 2005, the parties to the Detroit Edison collaborative submitted their third report. That report indicated that the participants had reached a consensus on a general framework for a two-year enrollment pilot. However, in order to proceed, the report indicates that it “is requesting the Commission to provide guidance regarding how to address the issues of: (1) requiring the payment obligation to be tied to the service location and not the customer; and (2) using the utility bill to present the PAYS® pilot program charge to the customer, with the expectation that the utility will follow its normal procedures, including disconnection, in the event of non-payment of the charge.”³³

Save Energy with Ease

On January 18, 2006, Governor Granholm announced the Save Energy with Ease program, which is a partnership among The Detroit Edison Company, Consumers Energy Company, Indiana Michigan Power Company, SEMCO Energy Gas Company, the Michigan Department of Human Services, the Michigan Community Action Agency Association, local community action agencies, the Michigan Electric and Gas Association, and the Commission. The utilities donated \$276,000 to provide free programmable thermostats, home energy conservation kits, and consumer education workshops to Michigan residents. The home energy conservation kits available to workshop participants contained numerous items to help make a home more energy

³¹ Commission order of November 23, 2004 in Case No. U-13808, p. 128.

³² Commission order of December 22, 2005 in Case No. U-14347, pp. 91-2.

³³ Third Report dated December 2, 2005, in Case No. U-13808, p. 5.

efficient, including a caulk gun and clear caulk, three compact fluorescent light bulbs, a plastic window insulation kit for up to five windows, foam inserts for eight electrical outlets and four switches, spray foam, a bathroom faucet aerator, a kitchen faucet aerator, a hot water temperature testing card, door weather-stripping, a refrigerator coil cleaning brush, and a programmable thermostat. The program was fully subscribed within a day and a half after it was announced.

UTILITY ENERGY EFFICIENCY PROGRAMS

Although utility energy efficiency programs began in the 1970s, no systematic national information was kept on these programs until 1989, when the Energy Information Administration (EIA) began to do so (and then only for electric programs). According to the EIA, the amount spent nation-wide on demand-side management (DSM) programs and the estimated savings are as follows:

Year	Costs	Energy Savings
1989	\$ 873 million	14,672 million kilowatt-hours
1990	\$ 1,177 million	20,458 million kilowatt-hours
1991	\$ 1,804 million	24,848 million kilowatt-hours
1992	\$ 2,348 million	35,563 million kilowatt-hours
1993	\$ 2,744 million	45,294 million kilowatt-hours
1994	\$ 2,716 million	52,483 million kilowatt-hours
1995	\$ 2,421 million	57,421 million kilowatt-hours
1996	\$ 1,902 million	61,842 million kilowatt-hours
1997	\$ 1,636 million	56,406 million kilowatt-hours
1998	\$ 1,421 million	49,167 million kilowatt-hours
1999	\$ 1,424 million	50,563 million kilowatt-hours
2000	\$ 1,565 million	53,701 million kilowatt-hours
2001	\$ 1,630 million	54,762 million kilowatt-hours
2002	\$ 1,626 million	54,075 million kilowatt-hours
2003	\$ 1,297 million	50,265 million kilowatt-hours
2004	\$ 1,557 million	54,710 million kilowatt-hours

This data³⁴ clearly indicates a significant decline in spending for demand-side management programs in the late 1990s. The funding for such programs declined 48% between the peak in 1993 and 1998. The savings peak occurred later (in 1996) and the

³⁴ “Annual Energy Review 2004” Energy Information Administration, p. 269 and “Electric Power Annual 2004” Energy Information Administration, p. 57.

decline appears less precipitous because the energy efficiency measures are normally long-lived assets and the benefits accrue over time. Between 1993 and 1998, national energy efficiency program spending as a percentage of revenues and per capita changed as follows:

Category³⁵	Year 1993	Year 1998	Change
Spending as Percent of Revenues	0.83	0.42	49% Reduction
Spending per Capita	\$ 6.41	\$ 3.38	47% Reduction

The decline in support for these programs can be attributed to three factors: (1) the large supply and concomitant low prices for fossil fuels during this period, which reduced the cost-effectiveness of energy efficiency; (2) restructuring of the electric industry to promote competition, which was widely expected³⁶ to eliminate the need for such programs; and (3) the perceived (whether real or not) deficiencies of the programs in existence at that time. An example of the third reason follows:

First, DSM was often simplified and the difficulties of proper coordination and implementation greatly underestimated.

Second, the energy savings were often grossly exaggerated, both before and after the fact. This was easy to do: Just how much does adding insulation and weather-stripping to an average home save? That is not easy to estimate under the best of circumstances, and nearly impossible to generalize over a large population. Yet many proponents of DSM, along with politicians, wanted to hear nothing about problems and were too willing to listen to simplified predictions of great savings.

Third, there was more than a bit of pure chicanery. Exaggerated promises were sometimes made by unprincipled “DSM consultants” in order to get contracts from utilities for consultation and implementation services. In some cases, later on, the amount of energy savings was overestimated by factors of more than three to one, sometimes because everyone involved

³⁵ “State Scorecard on Utility Energy Efficiency Programs” American Council for an Energy-Efficient Economy, pp. 23-4.

³⁶ This expectation was based on the anticipated reduction in energy costs that restructuring would bring and on the belief that alternative suppliers would provide combined packages of supply and efficiency products. Neither expectation has borne fruit.

had a stake in seeing that the energy savings looked good, but also because it is very difficult to determine how much energy was not used.

Fourth, consumers did not respond to mass market programs mandated for utilities. They were not that interested, despite studies and predictions that they should be. Often the savings were not that great in their eyes. Or the inconveniences larger than the utility and PUC had anticipated. Perhaps the biggest flaw in regulatory-mandated DSM programs in the 1980s was that they tried to apply rather uniform types of DSM values to all of a utility's customers: DSM was applied based on assessment of its value to utility and society, not its value to consumers.³⁷

We quote this rather harsh indictment, not because we entirely agree with it, but rather because it presents a viewpoint that was prominent several years ago and presents issues that need to be, and are, addressed in the Staff's recommendations.

Before leaving the EIA data, there are three pieces of information regarding these programs that are worth noting.

First, although the programs included by the EIA utilize both energy efficiency and load management measures, the relative importance of energy efficiency in achieving peak load reductions has increased over time. The EIA defines these terms as follows:

“Energy Efficiency” refers to programs that are aimed at reducing energy use by specific end-use devices and systems, typically without affecting the services provided. These programs reduce overall electricity consumption, often without explicit consideration for the timing of program-induced savings. Such savings are generally achieved by substituting technically more advanced equipment to produce the same level of end-use services (e.g., lighting, heating, motor drive) with less electricity. Examples include high-efficiency appliances, efficient lighting programs, high-efficiency heating, ventilating, and air conditioning systems or control modifications, efficient building design, advanced electric motor drives, and heat recovery systems.

“Load Management” includes programs such as “Direct Load Control,” “Interruptible Load Control,” and “Other Types” of DSM programs. “Direct Load Control” refers to program activities that can interrupt consumer load at the time of annual peak load by direct control of the utility system operator by interrupting power supply to individual

³⁷ “Understanding Electric Utilities and De-Regulation” by Lorrin Philipson and H. Lee Willis (2000), p. 91. Willis is a nationally recognized electrical engineer currently serving as the power systems expert on the U.S. National Research Council.

appliances or equipment on consumer premises. This type of control usually involves residential consumers. “Interruptible Load Control” refers to program activities that, in accordance with contractual arrangements, can interrupt consumer load at times of seasonal peak load by direct control of the utility system operator or by action of the consumer at the direct request of the system operator. It usually involves commercial or industrial customers. In some instances, the load reduction may be affected by direct action of the system operator (remote tripping) after notice to the customer in accordance with contractual provisions. “Other types” are programs that limit or shift peak loads from on-peak to off-peak time periods, such as space heating and water heating storage systems.³⁸

Most of the spending reductions have been in energy efficiency programs rather than in load management programs. From 1993 to 2004, utility spending for energy efficiency declined by 43%, while spending for load management declined by only 24%.³⁹ Consequently, one would expect that load management would play a proportionately greater role in utility peak load reductions, but the actual national data show just the opposite.

Year⁴⁰	Total Actual Peak Load Reductions	Energy Efficiency	Load Management
1993	23,069	10,368	12,701
1994	25,001	11,662	13,340
1995	29,561	13,212	16,347
1996	29,893	14,243	15,650
1997	25,284	13,326	11,958
1998	27,331	13,591	13,640
1999	26,455	13,452	13,003
2000	24,955	13,027	11,928
2001	24,955	13,027	11,928
2002	22,936	13,420	11,928
2003	22,904	13,581	9,323
2004	23,532	14,272	9,260

³⁸ Op cit, Energy Information Administration, p. 269.

³⁹ Data from “Electric Power Annual 2004” p. 57.

⁴⁰ Ibid, p. 54. Data in megawatts.

As the information in this table demonstrates, the nation-wide peak load reduction in 1993 from energy efficiency was 20% less than from load management. But by 2004, energy efficiency contributed 50% more peak load reduction than did load management despite the fact that spending cuts for energy efficiency had been far greater. We believe that this seemingly counter-intuitive result is due to the fact energy efficiency measures tend to be long-lived capital assets and continue to contribute benefits long after the measures are installed, while load management programs are generally short-term. In Staff's view, the important lesson here is that the benefits of energy efficiency grow over time and that energy efficiency programs should be designed to be stable in the long-run in order to maximize the benefits derived from them.

Second, the indirect costs of programs have declined over time relative to the direct costs of the programs, as shown in the table below.

Year⁴¹	Direct Cost	Indirect Cost	Indirect Cost Percentage
1993	\$ 2,289,267	\$ 454,266	19.8 %
1994	\$ 2,254,059	\$ 461,657	20.5 %
1995	\$ 2,004,942	\$ 416,342	20.8 %
1996	\$ 1,623,588	\$ 278,609	17.2 %
1997	\$ 1,347,245	\$ 288,775	21.4 %
1998	\$ 1,233,018	\$ 187,902	15.2 %
1999	\$ 1,250,689	\$ 172,955	13.8 %
2000	\$ 1,384,232	\$ 180,669	13.1 %
2001	\$ 1,455,602	\$ 174,684	12.0 %
2002	\$ 1,420,937	\$ 204,600	14.4 %
2003	\$ 1,159,540	\$ 137,670	11.9 %
2004	\$ 1,425,172	\$ 132,294	9.3 %

As this table demonstrates, nation-wide indirect costs (often referred to as overhead) were approximately 20% of direct costs in the mid-1990s, but have now

⁴¹ Ibid, p. 57. Data in thousand dollars.

declined to less than 10%. All other things being equal, programs with low overhead costs provide “more bang for the buck” because more dollars devoted to the program are utilized to provide actual energy efficiency measures that contribute to results. Indeed, the EIA data suggest that energy efficiency programs are becoming increasingly effective in reducing utility peak demand. The following table shows the direct cost of energy efficiency and a pro rata share of the indirect cost calculated by allocating the indirect costs between energy efficiency and load management programs in proportion to the direct costs of each.

Energy Efficiency Spending⁴²	Year 1995	Year 2004
Direct Costs	\$ 1,408,542	\$ 910,115
Pro Rata Share of Indirect Costs	\$ 292,495	\$ 84,483
Total Costs	\$ 1,701,037	\$ 994,598

This data indicates that total energy efficiency program spending in 2004 was 42% less than in 1995.⁴³ Compare that with the following table, which shows the incremental peak load reduction from energy efficiency programs in the same years.

Incremental Actual Peak Load Reductions⁴⁴	Year 1995	Year 2004
Large Utility Energy Efficiency Programs	1561	1521
Small Utility Energy Efficiency Programs	7	204
Total for all Utilities	1568	1725

As this table shows, the incremental effects of the energy efficiency programs in 2004 produced 10% more peak load reduction than in 1995, even though the spending was 42% less.

⁴² Ibid. p. 57. Data in thousand dollars.

⁴³ Since the data are in nominal rather than in constant dollars, the reduction would be even greater if the effects of inflation were taken into account.

⁴⁴ Ibid. p. 54. Data are in megawatts. Note the different definition of large and small utility for the two years, so that only the total peak load reduction is meaningful.

Third, the EIA data show that energy efficiency programs are proving increasingly beneficial to businesses. The following table shows the energy savings from programs by customer class.

Energy Savings⁴⁵	Residential	Commercial	Industrial
1993	19,241	16,567	8,644
2004	17,763	24,624	12,273

The following table provides the same information as a percentage of total savings.

Percentage of Total Savings	Residential	Commercial	Industrial
1993	43.3 %	37.3 %	19.4 %
2004	32.5 %	45.0 %	22.5 %

As this table shows, since 1993 there has been a significant shift of program emphasis from residential customers to commercial and industrial customers. Although data is not available, we believe that this shift has been going on for an extended period because the original programs in the 1970s were almost exclusively aimed at residential customers.

Another perhaps more helpful way of measuring the shift in emphasis is the following table which portrays energy program savings as a percentage of total sales for each customer class.⁴⁶

⁴⁵ Ibid. p. 55. Data are in thousand megawatt-hours. Note that savings by customer class are only available for large utilities. This should not significantly affect the conclusions because total energy savings from small utility programs are less than 4% of the total for large utilities.

⁴⁶ As noted in the prior footnote, the percentage savings is slightly understated because savings by customer class is not available for small utilities.

Energy Program Savings⁴⁷	Residential	Commercial	Industrial
1993	1.93 %	2.09 %	0.88 %
2004	1.37 %	2.00 %	1.20 %

This table indicates that today residential customers are receiving significantly fewer benefits from energy efficiency programs than they were in the past, commercial customers are receiving about the same, and industrial customers are receiving significantly more benefits despite the decline in total program spending.

Finally, the following table compares the proportion of energy program savings for each customer class with the proportion of utility revenues contributed by the class.

Savings and Revenue⁴⁸	Residential	Commercial	Industrial
Energy Program Savings	32.5 %	45.0 %	22.5 %
Utility Revenue	45.4 %	35.3 %	19.4 %

It is clear that commercial and industrial customers receive more benefits from energy efficiency than they contribute to utility revenues.

Although utility energy efficiency programs did decline during the restructuring era, a 2003 study, which examined six different categories of state efficiency policies found that more states adopted utility programs than any of category.

⁴⁷ Ibid. pp. 40, 55.

⁴⁸ Ibid. p. 42. We recognize that program spending (rather than savings) might be a better comparison, but data on spending by customer class is not available.

Policy Category⁴⁹	Number of States
Appliance Standards	9
Building Codes	6
Combined Heat/Power	8
State Facilities	13
Tax Incentives	6
Transportation	13
Utility Programs ⁵⁰	26

A subsequent report concluded that, in 2004, 18 of 26 states that had undertaken electric restructuring had energy efficiency programs in operation. The conclusion reached by that study was:

The data indicate that current annual spending across the 18 states currently fielding programs is over \$900 million. Annual savings in just the 12 states reporting evaluation data are nearly 2.8 million MWh and 1,060 MW (MW savings data reported by only 8 states). We were able to obtain cost-effectiveness estimates from nine of the most active states, and the results show these public benefits energy efficiency programs to be very cost-effective. Estimated benefit-cost ratios range from 1.0 to 4.3, and estimates of the cost of conserved energy range from \$0.023 to \$0.044/kWh.⁵¹

Although electric programs have dominated most of the energy efficiency programs nationwide, more attention is being given to natural gas programs because of the significant rise in cost of that fuel. One study analyzed the effects of energy efficiency measures on the wholesale price of natural gas, concluding as follows:

This analysis found that modestly reducing both natural gas and electricity consumption, and increasing the installation of renewable energy

⁴⁹ “Energy Efficiency’s Next Generation: Innovation at the State Level” American Council for an Energy-Efficient Economy. November 2003.

⁵⁰ Arkansas, Arizona, California, District of Columbia, Delaware, Illinois, Indiana, Massachusetts, Maryland, Maine, Michigan, Minnesota, Montana, New Hampshire, New Jersey, New Mexico, Nevada, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Texas, Utah, Vermont, and Wisconsin.

⁵¹ “Five Years In: An Examination of the First Half-Decade of Public Benefits Energy Efficiency Policies” American Council for an Energy-Efficient Economy. April 2004.

generation could dramatically affect natural gas price and availability. In just 12 months, nationwide efforts to expand energy efficiency and renewable energy could reduce wholesale natural gas prices by 20% and save consumers \$15 billion/year in retail gas and electric power costs. Efforts to increase energy efficiency and renewable energy in just one state or region are also found to have significant effects on natural gas prices both regionally and nationally.⁵²

The report estimated that in five years a natural gas efficiency program could save 5.2% for residential customers, 4.6% for commercial customers, and 3.46% for industrial customers.⁵³ An electric efficiency program in Michigan could save 5.7% for residential customers, 6.7% for commercial customers, and 4.23% for industrial customers.⁵⁴

A follow-up report focusing on the Midwest states estimated that, by 2015, a natural gas efficiency program would save 7.2% for residential customers, 6.3% for commercial customers, and 6.0% for industrial customers.⁵⁵ For an electric efficiency program, the savings in 2015 are estimated to be 8.4% for residential customers, 7.6% for commercial customers, and 7.4% for industrial customers.⁵⁶ The report estimates that the total dollar savings to Michigan citizens and businesses would exceed \$1.2 billion in 2015, as follows:

Savings Category	Savings (in \$ Millions)
Natural Gas Efficiency Savings	\$ 227
Electric Efficiency Savings	\$ 532
Reduction in Gas Price	\$ 307
Electric Generation Savings from Gas Price Reduction	\$ 145
Total	\$ 1,211

⁵² “Natural Gas Price Effects of Energy Efficiency and Renewable Energy Practices and Policies” American Council for an Energy-Efficient Economy, December 2003. Reference to a figure in the report removed. Note that this report was issued prior to the most-recent significant increases in natural gas prices. If done today, the savings would undoubtedly be much greater.

⁵³ Ibid., pp. 17,22.

⁵⁴ Ibid., pp. 18,22.

⁵⁵ “Examining the Potential for Energy Efficiency To Help Address the Natural Gas Crises in the Midwest” American Council for an Energy-Efficient Economy, January 2005, p. 18. Similar information is available in the report for other years.

⁵⁶ Ibid., p. 20.

In order to achieve these savings, the report estimates that annual expenditures of \$59 million for natural gas programs and \$109 million for electric efficiency programs would be required.⁵⁷ The report concludes that:

The results of this study are very encouraging. The data suggest that a modestly aggressive, but pragmatically achievable, energy efficiency campaign (achieving on the order of a 5 percent reduction in both electricity and natural gas customer use over 5 years) could produce tens of billions of dollars in net cost savings for residential, commercial, and industrial customers in the Midwest. Moreover, we estimate that such an effort would produce over 30,000 net new jobs and \$750 million in net additional employee compensation over that time period.

Achieving these results would require a significant effort in terms of new policies and additional funding for energy efficiency programs, but the economic benefits to the states and to the region would be several times larger than the costs. Moreover, the price of doing nothing in the face of this crisis will be enormous, both in terms of the overall economy and the quality of life in the region.⁵⁸

Because the one of the recommendations in this report is that utilities should be responsible for the design of their energy efficiency programs, we have not focused a great deal on design issues. However, over the 30+ years that energy efficiency programs have been implemented, a number of studies have been done to explore the best practices shown by such programs. Two recent examples are a national study of exemplary low-income energy efficiency programs⁵⁹ and another of natural gas efficiency programs done to support a regional study promoting efficiency to address the problem of high natural gas prices.⁶⁰ In addition, there are many studies of the potential measures that can be adopted to use energy more efficiently. For example, a recent study of manufacturing plants performed for the U.S. Department of Energy concluded that: “Overall, **about 32**

⁵⁷ Ibid., p. 35.

⁵⁸ Ibid., p. 37. Note that the report is from January 2005 and the crisis referred to is before that resulting from the Gulf Coast hurricanes.

⁵⁹ “Meeting Essential Needs: The Results of a National Search for Exemplary Utility-Funded Low-Income Energy Efficiency Programs” American Council for an Energy Efficiency Economy, September 2005.

⁶⁰ “Examining the Potential for Energy Efficiency To Help Address the Natural Gas Crisis in the Midwest” American Council for an Energy-Efficiency Economy, January 2005.

percent of the energy input to plants is lost inside the plant boundary, prior to use in the intended process.”⁶¹ That report examines twenty opportunities to use energy more efficiently in manufacturing facilities and concludes that over \$19 billion annually can be saved nationally (see Appendix B).

Finally, we note that utilities serving customers in Michigan have experience with energy efficiency programs in other states that can be profitably applied here. For example, We Energies is a Wisconsin gas and electric utility that provides electric service to customers in the Upper Peninsula. In Wisconsin, it operates energy efficiency programs for both – a one-year \$6 million natural gas program designed to save 1.5 million therms and a 5-year, \$43 million electric program designed to cut load by 55 megawatts by 2008.

The electric program has two components: (1) Focus on Energy, which is an umbrella program for the statewide effort to enhance energy efficiency in Wisconsin homes and businesses; and (2) Energy Incentives, which is an electrical demand reduction program targeting the utility’s commercial, government, industrial, and institutional customers via three distinct incentive programs: prescriptive, customer, and request for proposals. The prescriptive program is based on readily accepted and recognized technologies with rewards to eligible customers replacing less efficient equipment with pre-approved energy efficient technologies on a one-for-one basis. The customer program is targeted toward more complicated projects or those incorporating alternate technologies. It includes an incentive equal to the smallest of: (a) \$200 per peak kW saved and \$0.08 per kWh saved for a year, (b) \$480 per peak kWh saved, or (c) 30% of project cost. The request for proposal program is designed for projects that are

⁶¹ “Energy Use, Loss and Opportunities Analysis” prepared by Energetics, Incorporated and E3M, Incorporated for the U.S. Department of Energy, December 2004. Emphasis in the original.

greater than 100 kW and implement new technologies or more complex/comprehensive measures. The table below shows the breakdown of the various components of these programs, with the expected savings and costs by 2008.

Program Component	Annual MWh Savings	Peak KW Savings	Program Cost
Lighting and Appliances	24,076	4,043	\$ 3,597,880
Low-Income Lighting	5,298	319	\$ 331,625
Low Income Pilot	68	12	\$ 386,986
Energy Partners	20	5,105	\$ 2,106,697
Farms	19,885	2,110	\$ 1,259,000
Small Customers	25,543	5,122	\$ 6,300,000
Prescriptive Rebate	48,158	7,994	\$ 6,000,000
Custom Incentive	29,173	7,404	\$ 6,000,000
Large Customer	38,870	7,554	\$ 5,000,000
New Construction	34,560	6,241	\$ 5,000,000
Best Practices	5,000	875	\$ 500,000
Interruptible Load	NA	9,000	NA
Administration	NA	NA	\$ 6,384,383
Total	228,621	55,777	\$ 42,869,617

APPENDIX A

MICHIGAN PUBLIC SERVICE COMMISSION

ORDERS⁶²

REGARDING ENERGY EFFICIENCY

1. Case No. U-4404: On October 5, 1973, the Commission issued an order authorizing a home insulation program by Michigan Consolidated Gas Company for the conservation of natural gas.

2. Case No. U-4416: On November 9, 1973, the Commission issued an order authorizing a home insulation program by Consumers Power Company (now known as Consumers Energy Company) for the conservation of natural gas.

3. Case No. U-4421: On December 17, 1973, the Commission issued an order authorizing a home insulation program by Michigan Gas Utilities Company for the conservation of natural gas.

4. Case No. U-4463: On October 21, 1974, the Commission issued an order authorizing a home insulation program by Southeastern Michigan Gas Company for the conservation of natural gas.

5. Case No. U-4484: On October 21, 1974, the Commission issued an order authorizing a home insulation program by Michigan Power Company for the conservation of natural gas.

6. Case No. U-4701: On November 19, 1974, the Commission issued an order commencing a generic proceeding to explore means of improving the conservation of natural gas.

7. Case No. U-5174: On December 6, 1976, the Commission issued an order approving The Detroit Edison Company's Home Insulation Finance Plan.

⁶² This compilation only includes substantive orders and does not normally include those that deal primarily with procedural matters or that reconfirm prior decisions (e.g. orders rejecting rehearing requests).

8. Case No. U-5369: On June 24, 1980, the Commission issued an order approving Michigan Power Company's program for home insulation.
9. Case No. U-5510: On April 21, 1981, the Commission issued an order approving a Consumers Power Company proposal for an Expanded Gas Conservation program, including zero-interest conservation loans.
10. Case No. U-5510-R: On April 27, 1982, October 26, 1982, March 26, 1985, and September 9, 1986, the Commission issued orders reconciling revenues and expenses under Consumers Power Company's Expanded Gas Conservation program.
11. Case No. U-5272: On December 22, 1976, the Commission issued an order and notice of a generic hearing on a staff proposal relating to the conservation of natural gas.
12. Case No. U-5411: On September 11, 1978, the Commission issued an order approving Indiana & Michigan Electric Company's program for home insulation.
13. Case No. U-5451: On May 27, 1981, the Commission issued an order adopting an expanded gas conservation program for Michigan Consolidated Gas Company
14. Case No. U-5451-R: On November 16, 1982, December 6, 1983, March 5, 1985, January 7, 1986, December 17, 1986, March 29, 1988, January 19, 1989, September 25, 1991, June 12, 1992, and June 5, 1995, the Commission issued orders reconciling revenues and expenses under Michigan Consolidated Gas Company's expanded gas conservation program.
15. Case No. U-5900: On July 17, 1979, the Commission issued an order formally adopting administrative rules regarding Residential Conservation Services Program Standards.
16. Case No. U-5979: On August 8, 1980, the Commission issued an order, in Consumers Power Company's electric rate case, directing the utility to file a load management and conservation program.

17. Case No. U-6633: On October 16, 1981, the Commission issued an order authorizing The Detroit Edison Company's proposed Residential Conservation Services Program.

18. Case No. U-6633-R: On June 13, 1984, May 21, 1985, May 20, 1986, June 26, 1986, August 12, 1986, and August 15, 1989, the Commission issued orders reconciling revenues and expenses under The Detroit Edison Company's Residential Conservation Services Program.

19. Case No. U-6700: On December 30, 1980, the Commission issued an order adopting the Michigan Residential Conservation Services Plan "to encourage energy conservation and use of renewable resources in existing dwellings in Michigan. The program was applicable to: Consumers Power Company, The Detroit Edison Company, Indiana & Michigan Electric Company, Michigan Gas Utilities Company, Michigan Power Company, and Southeastern Michigan Gas Company.

20. Case No. U-6743: On October 16, 1981, the Commission issued an order authorizing Michigan Consolidated Gas Company's Residential Conservation Services Program.

21. Case No. U-6743-R: On November 11, 1982, December 6, 1983, March 5, 1985, January 7, 1986, December 17, 1986, March 29, 1988, January 19, 1989, and June 12, 1992, the Commission issued orders reconciling revenues and expenses in Michigan Consolidated Gas Company's Residential Conservation Services Program.

22. Case No. U-6787: On June 2, 1981, the Commission issued an order authorizing Michigan Gas Utilities Company's Residential Conservation Services Program.

23. Case No. U-6787-R: On August 23, 1983, April 9, 1985, September 22, 1988, and August 30, 1990, the Commission issued orders reconciling revenues and expenses under Michigan Gas Utilities Company's Residential Conservation Services Program.

24. Case No. U-6797: On September 15, 1981, the Commission issued an order authorizing Consumers Power Company's Residential Conservation Services Program.

25. Case No. U-6797-R: On September 8, 1986, the Commission issued an order reconciling revenues and expenses under Consumers Power Company's Residential Conservation Services Program and Business Energy Efficiency Program.

26. Case No. U-6813: On June 2, 1981, the Commission issued an order authorizing Indiana & Michigan Electric Company's Residential Conservation Services Program.
27. Case No. U-6813-R: On February 23, 1983, December 20, 1983, January 15, 1985, December 17, 1985, December 17, 1986, June 28, 1988, and April 20, 1989, the Commission issued orders reconciling revenues and expenses under Indiana & Michigan Electric Company's Residential Conservation Services Program.
28. Case No. U-6819: On October 16, 1981, the Commission issued an order authorizing Michigan Power Company's gas Residential Services Conservation Program.
29. Case No. U-6819-R: On September 26, 1984, February 19, 1986, August 18, 1987, and May 23, 1989, the Commission issued orders reconciling revenues and expenses under Michigan Power Company's Residential Services Conservation Program.
30. Case No. U-6820: On December 22, 1981, the Commission issued an order authorizing Michigan Power Company's electric Residential Services Conservation Program.
31. Case No. U-6820-R: On September 26, 1984, February 19, 1986, August 18, 1987, and April 20, 1989, the Commission issued orders reconciling revenues and expenses under Michigan Power Company's electric Residential Conservation Services Program.
32. Case No. U-6871: On June 29, 1982, the Commission approved an Insulation Outreach Program for low-income customers proposed by The Detroit Edison Company, Consumers Power Company, and Michigan Consolidated Gas Company.
33. Case No. U-6871-R: On June 20, 1985, May 20, 1986, and March 29, 1988, the Commission issued orders reconciling revenues and expenses under the Insulation Outreach Program of The Detroit Edison Company, Consumers Power Company, and Michigan Consolidated Gas Company.
34. Case No. U-6877: On September 9, 1981, the Commission issued an order authorizing Southeastern Michigan Gas Company's Residential Conservation Services Program.

35. Case No. U-6877-R: On November 22, 1983, February 20, 1985, January 27, 1987, and September 13, 1988, the Commission issued orders reconciling revenues and expenses under Southeastern Michigan Gas Company's Residential Services Conservation Program.
36. Case No. U-7215: On October 26, 1982, the Commission issued an order adopting a revised Michigan Residential Conservation Services Plan and indicating that Battle Creek Gas Company and Lansing Board of Water & Light would be participating in the plan.
37. Case No. U-7303: On April 19, 1983, the Commission issued an order dismissing Michigan Consolidated Gas Company's application for a Conservation Pilot Program.
38. Case No. U-7900: On August 7, 1984, the Commission issued an order adopting the Michigan Business Energy Efficiency Program "to provide information and motivate non-residential customers to reduce energy costs and improve energy efficiency in their facilities." The program was applicable to: Indiana & Michigan Electric Company, Michigan Power Company, Southeastern Michigan Gas Company, Consumers Power Company, The Detroit Edison Company, Michigan Consolidated Gas Company, and Michigan Gas Utilities Company.
39. Case No. U-8231: On September 15, 1987, the Commission issued an order terminating zero-interest conservation loan programs by Consumers Energy Company and Michigan Consolidated Gas Company, in accordance with the statutory provision contained in MCL 460.6c(6).
40. Case No. U-8528: On June 28, 1988, the Commission issued an order directing electric and gas utilities operating Michigan Residential Conservation Services programs to a file biennial energy conservation reports.
41. Case No. U-8610: On May 14, 1987, the Commission issued an order reconciling revenues and expenses under Consumers Power Company's Energy Conservation Financing Plan and Residential Conservation Services Program.
42. Case No. U-8761: On April 4, 1988, the Commission issued an order modifying The Detroit Edison Company's Home Insulation Financing Program.

43. Case No. U-8928: On August 11, 1988, the Commission issued an order reconciling revenues and expenses under Consumers Power Company's Energy Conservation Financing Plan and Residential Conservation Services Program.
44. Case No. U-9261: On March 13, 1990, the Commission issued an order reconciling revenues and expenses under Consumers Power Company's Energy Conservation Financing Plan and Residential Conservation Services Program.
45. Case No. U-9346: On May 7, 1991, the Commission issued an order in Consumers Power Company's electric rate case that: (a) reconciled revenues and expenses in the utility's Energy Assistance, Residential Conservation Services, and Michigan Business Energy Efficiency Programs; (b) rejected a proposed demand-side management research program; and (c) adopted a comprehensive demand-side management program.
46. Case No. U-9467: On October 24, 1989, the Commission issued an order approving Michigan Gas Company's biennial energy conservation plan.
47. Case No. U-9467-R: On July 22, 1992, the Commission issued an order reconciling revenues and expenses under Michigan Gas Company's energy conservation programs.
48. Case No. U-9469: On September 9, 1986, the Commission issued an order approving Michigan Consolidated Gas Company's Three-Year Conservation Plan.
49. Case No. U-9469-R: On June 12, 1992, the Commission issued an order reconciling revenues and expenses under Michigan Consolidated Gas Company's Three-Year Conservation Plan.
50. Case No. U-9479: On January 9, 1990, the Commission issued an order approving Southeastern Michigan Gas Company's biennial energy conservation program.
51. Case No. U-0479-R: On June 12, 1992, the Commission issued an order reconciling revenues and expenses under Southeastern Michigan Gas Company's biennial energy conservation plan.

52. Case No. U-9483: On January 9, 1990, the Commission issued an order approving Indiana Michigan Power Company's biennial energy conservation plan.
53. Case No. U-9483-R: On August 25, 1992, the Commission issued an order reconciling revenues and expenses under Indiana Michigan Power Company's biennial energy conservation plan.
54. Case No. U-9485: On January 9, 1990, the Commission issued an order approving Michigan Power Company's biennial energy conservation plan.
55. Case No. U-9486: On January 9, 1990, the Commission issued an order approving Michigan Gas Utilities Company's biennial energy conservation plan.
56. Case No. U-9486-R: On February 8, 1993, the Commission issued an order reconciling revenues and expenses under Michigan Gas Utilities Company's biennial energy conservation plan.
57. Case No. U-9492: On December 21, 1989, the Commission issued an order approving The Detroit Edison Company's biennial energy conservation plan.
58. Case No. U-9492-R: On January 28, 1993, the Commission issued an order reconciling revenues and expenses under The Detroit Edison Company's biennial energy conservation plan.
59. Case No. U-9494: On March 29, 1990, the Commission issued an order approving Michigan Gas Utilities Company's energy conservation program for positive billing clients.
60. Case No. U-9494-R: On October 2, 1992, the Commission issued an order reconciling revenues and expenses under Michigan Gas Utilities Company's energy conservation program for positive billing clients.
61. Case No. U-9496: On March 13, 1990, the Commission issued an order effectively ending the operations of Consumers Energy Company's Residential Conservation Services and Michigan Business Energy Efficiency Programs by transferring those functions to a biennial energy conservation program.

62. Case No. U-9496-R: On September 11, 1992, January 7, 1994, and June 30, 1994, the Commission issued orders reconciling revenues and expenses under Consumers Power Company's biennial energy conservation program.

63. Case No. U-9556: On February 22, 1991, the Commission issued an order approving gas and electric surcharges to implement Consumers Power Company's Energy Assistance Program.

64. Case No. U-9556-R: On April 22, 1993, the Commission issued an order reconciling revenues and expenses under Consumers Power Company's Energy Assistance Program.

65. Case No. U-9790: On June 19, 1991, the Commission issued an order reconciling revenues and expenses under Consumers Power Company's Energy Conservation Financing Plan.

66. Case No. U-10013: On May 6, 1992, the Commission issued an order approving Michigan Consolidated Gas Company's biennial energy conservation plan.

67. Case No. U-10013: On June 5, 1995 and March 27, 1997, the Commission issued orders reconciling revenues and expenses under Michigan Consolidated Gas Company's energy conservation plans.

68. Case No. U-10018: On February 12, 1992, the Commission issued an order approving funding for conservation programs under Michigan Consolidated Gas Company's Heating Assistance Program.

69. Case No. U-10041: On September 11, 1992, the Commission issued an order approving accounting for Consumers Power Company's demand-side management programs.

70. Case No. U-10042: On May 21, 1992, the Commission issued an order approving The Detroit Edison Company's biennial demand and energy management plan.

71. Case No. U-10043: On December 22, 1992, the Commission issued an order reconciling revenues and expenses under Michigan Gas Company's energy conservation programs.
72. Case No. U-10094: On May 11, 1993, the Commission issued an order authorizing Upper Peninsula Power Company's demand-side management pilot program.
73. Case No. U-10102: On January 21, 1994, the Commission issued an order in The Detroit Edison Company's rate case that adopted a comprehensive demand-side management program.
74. Case No. U-10111: On December 22, 1992, the Commission issued an order approving Michigan Gas Utilities Company's biennial energy conservation plan.
75. Case No. U-10111-R: On February 8, 1995, the Commission issued an order reconciling revenues and expenses under Michigan Gas Utilities Company's biennial energy conservation plan.
76. Case No. U-10237: On February 8, 1993, the Commission issued an order approving Southeastern Michigan Gas Company's biennial energy conservation plan.
77. Case No. U-10244: On June 11, 1993, the Commission issued an order approving Consumers Power Company's natural gas and electric biennial conservation plan.
78. Case No. U-10244-R: On January 11, 1996, June 5, 1997, and January 8, 1998, the Commission issued orders reconciling revenues and expenses under Consumers Power Company's biennial conservation plan.
79. Case No. U-10300: On September 8, 1993, the Commission issued an order approving Indiana Michigan Power Company's modified energy conservation program.
80. Case No. U-10300-R: On September 8, 1994 and September 12, 1996, the Commission issued orders reconciling revenues and expenses under Indiana Michigan Power Company's modified energy conservation program.

81. Case No. U-10554: On June 19, 1995, the Commission issued an order reconciling revenues and expenses under Consumers Power Company's demand-side management program and directing that future funding for new demand-side management spending should cease.
82. Case No. U-10574: On October 12, 1994, the Commission issued a generic order finding that new standards relating to investments in electric conservation and demand-side management should not be adopted.
83. Case No. U-10589: On October 12, 1994, the Commission issued a generic order finding that new standards relating to investments in natural gas conservation and demand-side management should not be adopted.
84. Case No. U-10595: On September 27, 1994, the Commission issued an order reconciling revenues and expenses under Southeastern Michigan Gas Company's biennial energy conservation plan.
85. Case No. U-10631: On November 11, 1994, the Commission issued an order reconciling revenues and expenses under Michigan Gas Company's energy conservation programs.
86. Case No. U-10646: On March 23, 1995, the Commission issued an order approving three 10-year special contracts between The Detroit Edison Company and General Motors Corporation, Ford Motor Company and Chrysler Corporation. All three contracts⁶³ state that "both the Company and the Customer desire to initiate a plan to identify how the Customer can use electricity more efficiently in its manufacturing operations" and contain provisions directed toward that end.

The General Motors contract contains the following provisions:

18 Demand and Energy Conservation Program

18.1 The Company will provide the number of personnel (either employees or contractors) listed below to assist the Customer in identifying, implementing and monitoring demand and energy savings for the Customer's Locations (selected by the Customer) taking service under this Contract, at no additional charge.

⁶³ Because the contracts were not attached to the orders and are thus not available electronically on the Commission's website, the relevant text is noted herein. It should be pointed out that the Staff has not reviewed the provisions of all special contracts for this report and the listing may be incomplete.

Contract Year	Number
1	4
2	8
3-10	13

18.2 The number of personnel will be reduced by the same percentage that the Customer reduces its purchases pursuant to Section 4.

18.3 The Customer will cooperate with Company to identify and implement energy savings programs but the Customer will decide as to whether any energy savings by the Company will be implemented. The cost of implementation of any energy savings projects will be paid for by the Customer.

18.4 All energy savings activities carried out by the Company shall be performed in accordance with all applicable laws, regulations, and ordinances including, but not limited to, occupational health and safety laws and regulations, and all of the Customer's policies, procedures, rules and regulations applicable to the Customer's property.

The Ford and Chrysler contracts contain virtually identical provisions, except for the number of employees, which are 6 in the first year, 11 in the second and 16 thereafter in the Ford contract, and 3 in the first year, 6 in the second, and 9 thereafter in the Chrysler contract.

87. Case No. U-10671: On July 31, 1995, the Commission issued an order approving a demand-side management surcharge for The Detroit Edison Company.

88. Case No. U-10671-R: On December 20, 1996, the Commission issued an order reconciling revenues and expenses under The Detroit Edison's demand-side management programs.

89. Case No. U-10744: On November 8, 1995, the Commission issued an order denying Michigan Consolidated Gas Company's application for approval of a surcharge for demand-side management activities.

90. Case No. U-10829: On April 27, 1995, the Commission issued an order reducing Upper Peninsula Power Company's rates to reflect cancellation of its demand-side management pilot program.

91. Case No. U-10847: On August 14, 1995, the Commission issued an order rejecting Southeastern Michigan Gas Company's proposed energy conservation plan.
92. Case No. U-10848: On August 14, 1995, the Commission issued an order rejecting Michigan Gas Company's proposed energy conservation plan.
93. Case No. U-10867: On December 20, 1996, the Commission issued an order reconciling revenues and expenses under The Detroit Edison Company's demand-side management program.
94. Case No. U-10876: On October 25, 1995 and May 10, 1996, the Commission issued orders rejecting Consumers Power Company's proposed energy efficiency plan because of deficiencies in the cost-benefit analysis.
95. Case No. U-10932: On September 12, 1996, the Commission issued an order directing that The Detroit Edison Company's demand-side management surcharge should be set to zero.
96. Case No. U-10961: On October 25, 1995, the Commission issued an order approving a 10-year special contract between Consumers Power Company and General Motors Corporation. That contract contains the following provisions:

7. Demand and Energy Conservation

Each year during the Contract Consumers shall provide its personnel (or contractors) to help GM to identify, select, implement and monitor demand, energy savings and use for Facilities taking service under the Contract at no additional charge, subject to these conditions:

(a) The total number of full time or full time equivalent personnel shall not be less than 17, broken down as follows: 6 in year one, 11 in year 2, and 17 in year 3 and following years. If GM exercises its option to add Delphi Saginaw Steering Systems to the Contract, the number of personnel above will be increased by 1 in year 3. However, upon mutual agreement of Consumers and GM the total number of personnel may be further increased. Consumers may reduce this number by one (1) for each Facility which is removed from service under this Contract.

(b) Consumers will cooperate with GM in identifying and implementing energy savings programs, but it shall be GM's decision as to which energy savings proposals will be implemented. The cost of implementation of any energy savings programs will be paid for by GM

(c) GM shall invite Consumers to bid on any energy efficiency programs at any of GM's Facilities in Consumer's service territory for which Consumers, in GM's judgment, is qualified. This includes new projects known to the GM Worldwide Facilities Group.

(d) All energy savings programs carried out by Consumers shall be in accordance with GM's policies, procedures, rules and regulations and in compliance with all applicable laws, regulations and ordinances. Consumers' activities will not disrupt or interfere with GM's activities.

97. Case No. U-11022: On March 26, 1996, the Commission issued an order approving Michigan Gas Company's request to terminate conservation surcharges.

98. Case No. U-11023: On March 26, 1996, the Commission issued an order approving Southeastern Michigan Gas Company's request to terminate conservation surcharges.

99. Case No. U-11070: On June 26, 1996, the Commission issued an order terminating the surcharge for Michigan Gas Utilities Company's biennial energy conservation plan.

100. Case No. U-11070-R: On March 10, 1997, the Commission issued an order reconciling revenues and expenses under Michigan Gas Utilities Company's biennial energy conservation plan.

101. Case No. U-11146: On January 28, 1997, the Commission issued an order reconciling revenues and expenses under Southeastern Michigan Gas Company's energy conservation program.

102. Case No. U-11147: On January 28, 1997, the Commission issued an order reconciling revenues and expenses under Michigan Gas Company's energy conservation program.

103. Case No. U-11243: On December 20, 1996, the Commission issued an order approving Indiana Michigan Power Company's request to discontinue its residential insulation financing program.

104. Case No. U-11270: On December 20, 1996, the Commission issued an order approving a 10-year special contract between The Detroit Edison Company and McDonalds Corporation. That contract contains the following provisions:

18 Energy Audits

18.1 The Company will provide an energy audit at three Qualified Locations in accordance with the following.

18.2 The energy audit will evaluate the condition of the building envelope, indoor and outdoor lighting, HVAC, cooking equipment, refrigeration and energy use patterns. A report on the energy audit will be provided to the Franchisor. The report will outline energy efficiency improvements together with estimates of costs and projections of pay back periods. The Customer will be solely responsible for implementation of any improvements.

18.3 Within 30 days of the Effective Date, the Franchisor will provide the Company with a list of three Qualified Locations in each of the following categories by year of original construction: (i) pre 1982; (ii) 1982-1986; and (iii) 1987-1991. The Company will select one Qualified Location from each group at which to conduct an energy audit. The audits will be conducted at a mutually agreeable time.

18.4 The energy audits will be performed by a firm selected by the Company acceptable to the Customer.

18.5 The cost of each energy audit to the Company shall not exceed \$2,000. If the energy audits can not be performed for such an amount then: (i) the Customer will pay the excess over \$2,000; or (ii) the Company will be relieved of its obligation to perform such audits.

* * *

19 Energy Efficient Prototype Facility

19.1 The Company will contribute up to \$80,000 in upgrades and up to \$20,000 in monitoring and evaluation costs to assist the Franchisor in the design and development of a new, energy efficient Qualified Location in accordance with the following.

19.2 Within 30 days of the Effective Date, the Franchisor will provide the Company with a complete set of architectural and construction plans for the Franchisor's current 1511 design with playplace.

19.3 Within 30 days of the Company's receipt of the plans, the Company will propose energy efficiency upgrades to the Franchisor. The decision as to whether to accept the proposal will be made by the Franchisor.

19.4 If the Franchisor accepts the proposal, upon completion of the new Qualified Location, the Company will reimburse the Franchisor up to \$80,000 for the cost increase of the energy efficient upgrades over the franchisor's standard design.

19.5 During, and after, construction of the new Qualified Location, the Franchisor will assist the Company in the installation of monitoring equipment. The Company will incur up to \$20,000 of out of pocket expense to monitor the operation of the Qualified Location during its first year of operation and prepare and provide a report to the Franchisor within 90 days after the end of the first year of operation.

19.6 At the conclusion of the first years operation the monitoring equipment will be removed by the Company unless otherwise agreed.

105. Case No. U-11342: On April 19, 1997, the Commission issued an order approving a special contract between The Detroit Edison Company and American Axle & Manufacturing, Inc. That contract contained the following provision:

16 Energy Services

16.1 The Customer will invite the Company to bid on any energy efficiency programs at any of the Customer's Locations in the Company's service territory for which the Company is qualified (in the sole judgment of the Customer), and if the Company's bid is the best, as determined by established Customer's criteria, and the Customer proceeds with the project, the Company will be awarded the contract. The Company shall be responsible for marketing these services to the Customer's Locations.

16.2 The Customer may provide the Company with a reasonable opportunity to demonstrate its energy services capabilities in one or more of its Locations; provided that, such demonstrations shall not have an adverse effect on the Customer's operations.

106. Case U-13129: On November 20, 2001, the Commission issued an order establishing a procedural framework for the administration and operation of the Low Income Energy Efficiency Fund established by 2000 PA 141. On August 20, 2002, September 16, 2002, October 14, 2003, October 22, 2004, February 24, 2005, and December 20, 2006, the Commission issued orders distributing approximately \$38 million in low-income energy efficiency grants. On July 23, 2002 and June 30, 2005, the Commission issued orders distributing approximately \$18 million in energy efficiency grants to benefit all customer classes.

107. Case No. U-13808: On November 23, 2004, the Commission issued an order, in The Detroit Edison Company's rate case, establishing a funding mechanism for the Low-Income and Energy Efficiency Fund and requiring that the utility convene a collaborative to consider the Pay As You Save ® concept.

108. Case No. U-14347: On December 22, 2005, the Commission issued an order, in Consumers Energy Company's electric rate case, establishing a funding mechanism for the Low-Income and Energy Efficiency Fund and requiring the utility to meet with interested parties to consider the Pay As You Save ® concept.

APPENDIX B

ENERGY SAVINGS OPPORTUNITIES

	Opportunity	Cost Savings (millions)
1	Waste Heat Recovery From Gases and Liquids in Chemicals, Petroleum, and Forest Products	\$ 2,154
2	Combined Heat and Power	\$ 2,000
3	Advanced Industrial Boilers	\$ 1,090
4	Heat Recovery From Drying Processes	\$ 1,240
5	Steam Best Practices	\$ 850
6	Pump System Optimization	\$ 2,000
7	Energy Systems Integration	\$ 860
8	Improved Process Heating/Heat Transfer Systems in Non-Metals Industries	\$ 860
9	Energy Efficient Motors and Rewind Practices	\$ 1,175
10	Waste Heat Recovery From Gases in Metals and Non-Metallic Minerals Manufacture	\$ 1,230
11	Energy Source Flexibility	\$ 655
12	Improved Sensors, Controls, and Automation	\$ 630
13	Improved Process Heating/Heat Transfer for Metals Melting, Heating and Annealing	\$ 915
14	Compressed Air Systems Optimization	\$ 740
15	Optimized Materials Processing	\$ 660
16	Energy Recovery From Byproduct Gases	\$ 750
17	Energy Export and Co-Location	\$ 580
18	Waste Heat Recovery From Calcining	\$ 159
19	Heat Recovery From Metal Quenching/Cooling	\$ 275
20	Advanced Process Cooling and Refrigeration	\$ 212
	Total Opportunities	\$ 19,035

Source: “Energy Use, Loss and Opportunities Analysis: U.S. Manufacturing and Mining” prepared by Energetics, Incorporated and E3M, Incorporated for the U.S. Department of Energy. December 2004.