Feeling the Heat:

The Impact of Rising Energy Costs on Colleges & Universities in the Midwest

A report from the Midwestern Higher Education Compact

MHEC

Acknowledgements

This report was written by Chris Rasmussen and Gina Johnson, with technical assistance from Jennifer Dahlquist. The report was designed by Darby Laing. Selected photos are from Ferris State University, which has authorized their use. Please direct any comments about the report or requests for additional information to Chris Rasmussen, MHEC Director of Policy Research, at 612-625-2431 or ChrisR@mhec.org.

About the Midwestern Higher Education Compact

The Midwestern Higher Education Compact (MHEC) is a nonprofit regional organization established by compact statute to assist Midwestern states in advancing higher education through interstate cooperation and resource sharing. Member states are Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, and Wisconsin.

MHEC seeks to fulfill its interstate mission through programs which:

- enhance productivity through reductions in administrative costs
- encourage student access, completion, and affordability
- facilitate public policy analysis and information exchange
- facilitate regional cooperation
- encourage quality higher education programs and services
- encourage innovation in the delivery of educational services

MHEC

May 10, 2006

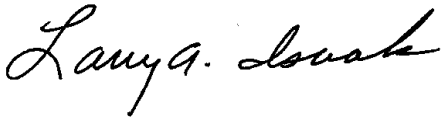
Dear Colleague,

I am pleased to provide you with the report *Feeling the Heat: The Impact of Rising Energy Costs on Colleges and Universities in the Midwest.* This report is the result of a survey conducted in late 2005 of higher education institution chief financial officers throughout the region concerning their plans to manage what was expected to be a substantial increase in the price of energy—in particular natural gas—in advance of the 2005-06 heating season.

Fortunately (except perhaps for winter sports enthusiasts), the region experienced one of its warmest winters on record, and the price of natural gas did not spike as dramatically as many had predicted. Still, few if any college and university financial officers have been able to escape "feeling the heat" as they adjust their institutional budgets to accommodate the increased cost of energy. These costs are already being reflected in institutional leaders' budget requests and tuition proposals for the 2006-07 academic year. Energy prices are expected to remain volatile, straining even the healthiest institutional budgets.

Our objective in conducting this survey was to collect and distribute data on institutional planning and management that could be of use to college and university leaders and administrators responsible for finance, business affairs, purchasing, and physical plant operations. We hope that this report provides you with data and information to assist you in benchmarking your institution's experience with other colleges and universities in the region. This report can also inform conversations and collaborations as energy cost containment and conservation become common agenda items in higher education into the foreseeable future.

Sincerely,



Larry Isaak
President
Midwestern Higher Education Compact

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Introduction

In the weeks leading up to the 2005-06 winter heating season, media reports of natural gas prices increasing by 50 to 300 percent sent shockwaves through both the public and private sectors. When added to the strain placed on personal and corporate finances from gasoline prices that topped $3 per gallon in the weeks following Hurricane Katrina, it was understandable that many consumers, business leaders, and college and university executives would worry about how to make ends meet and how to best respond to this impending, unanticipated budgetary pressure.

In response to these concerns, the Midwestern Higher Education Compact conducted a survey of its member institutions to assess how colleges and universities in the Midwest were managing, or planning to manage, the increased cost of energy. The objective of the survey was to collect and distribute data on institutional planning and management that could be of use to college and university leaders and administrators responsible for finance, business affairs, purchasing, and physical plant operations.

Background

Any home or business owner in the Midwest could tell stories of the dramatically increased price of petroleum, natural gas, heating oil, and other petroleum products during the past winter. According to Oil Energy, a website providing pricing information on various energy sources, the price of heating oil on the New York Mercantile Exchange (NYMEX) went from $1.20 per gallon in January 2005 to $1.80 per gallon in January 2006 – an increase of 50%[1]. Meanwhile, domestic energy company Dominion states that natural gas prices have more than doubled in the past three years[2].

Why the recent increase? A number of factors have contributed to rising prices. From the mid-1980s to the early 2000s, natural gas prices were relatively stable as supply exceeded demand. Because of low prices, customers in all markets increased their use of natural gas. Many homeowners and industrial users also switched from electricity and petroleum products to natural gas as their primary energy source. The appeal of natural gas as a source for electricity generation also increased during the 1990s and early 2000s due to comparatively low prices and the reduced environmental impact resulting from its use compared to dirtier sources such as coal. The greater reliance upon natural gas improved the ability of numerous electricity providers to comply with federal clean air standards.

Eventually the increased demand for natural gas began to put pressure on supply, forcing up prices in the process. The increased use of natural gas for electricity generation exerted a different type of pressure on price[3]. Prior to the increase in use for such purposes, natural gas prices tended to peak during the winter heating season. However, electricity plants peak in production during the summer months in order to supply needed power for residential and business air conditioning. This changed the seasonal pricing structure such that electricity plant operators are now competing with gas utilities for the same supply of natural gas, exerting further pressure on price. While relatively mild winters have helped ease prices, disruptions to the supply chain – caused by such events as Hurricanes Katrina and Rita in the Gulf of Mexico – have exacerbated the problem.

Even with recent increases in exploration and production of natural gas, overall energy prices are expected to remain volatile into the foreseeable future, partly due to continued uncertainty about the supply. Kiplinger forecasts that higher coal prices will result in consumer electric bills climbing through at least 2011, with the brunt of the increase occurring by 2008. Utilities that rely on natural gas as their primary fuel source are expected to raise prices even higher[4].

Survey Process & Demographics

The chief business officers of all public and private, not-for-profit colleges and universities in the 11 MHEC states were invited via electronic mail to complete the on-line Energy Survey. An e-mail invitation was sent successfully to 933 potential survey participants in early November of 2005. Reminder messages were sent in early December and early January. The survey was closed to participants on January 16, 2006.

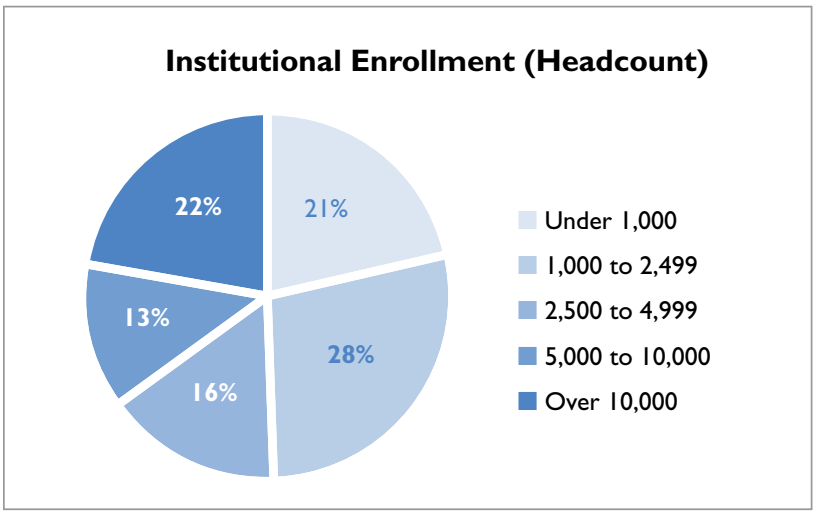
Of the 933 individuals who were sent the survey 190 completed the instrument, for a response rate of just over 20%. Survey respondents were distributed across the 11 MHEC states as follows:

Respondents by State[5]

Illinois	28
Indiana	13
Iowa	14
Kansas	11
Michigan	20
Minnesota	24
Missouri	15
Nebraska	8
North Dakota	11
Ohio	16
Wisconsin	28

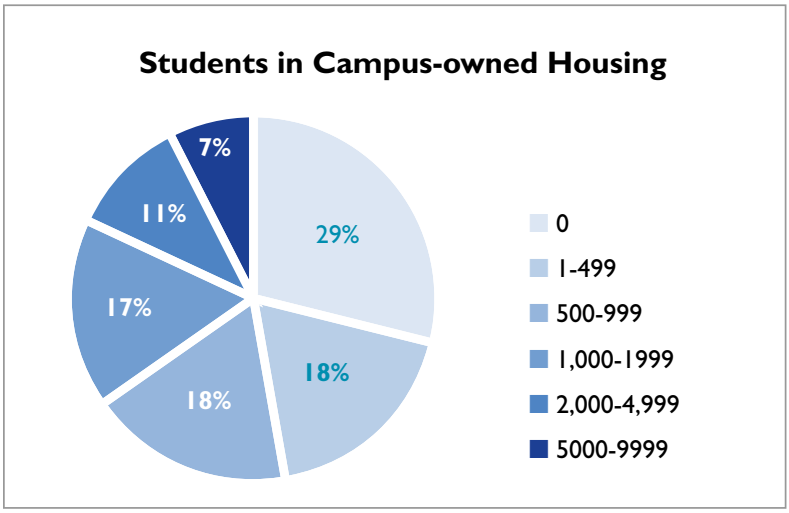
Public institutions accounted for 53.2% of respondents, compared to 46.8% for private colleges and universities. The plurality of respondents represented institutions in rural settings (41.4%), followed by those in urban areas (34.9%) and suburban locales (23.7%). Institutional size, as measured by enrollment, was relatively evenly distributed.

Respondents by Institutional Enrollment



Survey respondents were distributed fairly equally among small, medium, and larger-sized institutions, as measured by student headcount. A nearly equal percentage of colleges with fewer than 1,000 students, and institutions enrolling over 10,000 students, were represented.

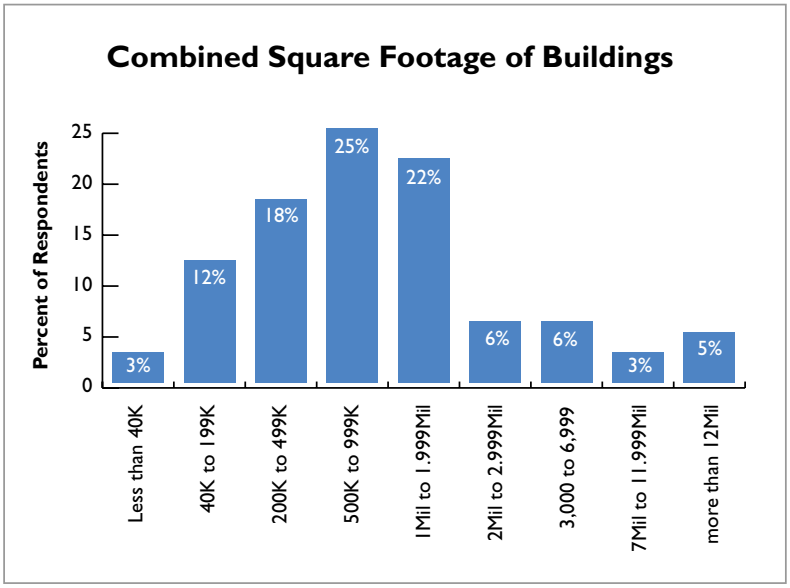
Respondents By Campus Housing Capacity



Survey respondents were also asked to report the number of students housed in any campus-owned facilities. This data was requested given the relatively high energy usage associated with student residence halls and apartments. While many student housing systems function as auxiliary enterprises, reducing the impact of rising energy costs on the general fund, this is not always the case. Small liberal arts colleges in particular, which often house the vast majority of their undergraduate students on campus, can devote a significant proportion of their resources to operating and maintaining student housing.

Of the 179 respondents who provided data for this question, 71% reported housing students on campus. The mean number of students housed by these institutions is 860; the median is 1,894.

Respondents By Gross Square Footage



Institutional size was also assessed by the combined square footage of campus buildings. As expected, the vast majority of institutions are clustered toward the middle of the size distribution, with significantly smaller numbers on either end. Almost two-thirds of institutions possess total building space of between 200,000 and 2 million square feet.

Impact on Budgetary Operations

Estimated Budgetary Impact

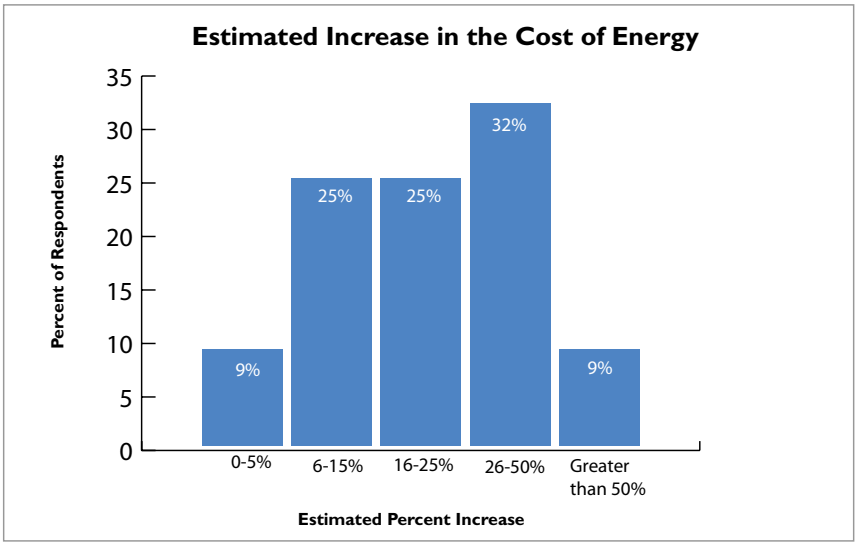
With the combination of rising energy prices and several years of relatively flat or reduced funding for public higher education, colleges and universities could be expected to make significant adjustments to their budgets. Survey respondents were asked to estimate the increases in energy costs they expected for FY06 compared to FY05. The largest number of respondents – nearly one-third of the total – anticipated price increases of between 26 and 50 percent.

Perhaps not surprisingly given the extensive media attention, the vast majority of respondents (91.4%) expected increases in the price of natural gas. Increases in electricity (25.7%) and gasoline (10.5%) prices were expected by a much smaller percentage of respondents. (At the time of survey distribution, gasoline prices had already begun to come down from their post-Katrina peak.)

Respondents were then asked what kind of adjustments they made or anticipated making to their FY06 budgets in response to the anticipated increased cost of energy. The average college or university had originally budgeted 3.85% of its total institutional budget to energy, but expected this total to increase to 4.68% when all was said and done, for a 0.83% difference. The smallest schools by enrollment anticipated a 1.17% difference, while schools with over 10,000 students anticipated only a 0.50% change.

While an average 0.83% difference might not appear on the surface to be all that significant, this represents an $830,000 increase for institutions with operating budgets of $100 million. Using this same figure, universities with operating budgets of $1 billion would expect to see an increase in energy costs of $8.3 million. It should be noted that by the time of the survey many fiscal managers had already taken action to increase their FY06 energy budgets in anticipation of higher costs. If one were to compare anticipated FY06 energy expenses to FY05 actual expenditures, the average increase would likely be significantly greater than 0.82%.

Now that spring has arrived, colleges and universities are beginning to count the actual costs incurred as a result of increased energy prices. For example, the University of Mississippi estimates its utility bills will be $2.2 million more than what was budgeted for FY06 (an amount approximately equal to 0.6% of the institution's operating budget), with some of this increase a direct result of damage and recovery from Hurricane Katrina[6]. The Minnesota State Colleges and Universities (MnSCU) system has reported that energy costs for FY06 are expected to come in $6.7 million (0.5%) over budget; a $10.1 million shortfall is projected for FY07. The University of North Dakota has proposed a 9% tuition increase for the 2006-07 academic year, due in part to an anticipated $1.5 million increase in energy costs, representing approximately 0.5% of the institution's operating budget[8].



ALTERNATIVE FUEL PROFILE

Who: University of Minnesota, Twin Cities

Where: Three sites in Minneapolis and St. Paul, Minnesota

What: The University of Minnesota currently produces approximately 70% of its steam by burning natural gas and the remainder by burning coal. The university recently received approval to burn oat hulls in one of its existing steam plants. The University of Iowa has been burning oat hulls since 2004.

How: Oat hulls would be mixed with coal, which the university uses for steam production during the winter months. The oat hulls that would be burned are a by product of milling grain, primarily in the production of breakfast cereals. The university is also investigating the possible use of seed corn, barley needles, and various forms of wood. The university hopes eventually to generate 25% of its power from bio-fuels.

How Much: Burning oat hulls in place of fossil fuels could reduce the University's $90 million annual energy costs by approximately $3 million per year.

Note: The university waited three years for review and approval of its request to the Minnesota Pollution Control Agency (MPCA) to burn oat hulls in the steam plant, partly due to concern about the increase in certain pollutants in the area. The university now faces a new challenge: lack of supply of oat hulls due to the loss of a potential supplier while the institution awaited approval of its permit application to the MPCA.

Respondents were also asked to estimate the percentage of their FY06 energy budgets they expected to devote to different energy sources. Over 90% of the average institutional energy budget is devoted to the purchase of electricity and natural gas (percentages do not total 100 due to rounding). Heating oil, coal, and gasoline each consume between two and three percent of the average institutional energy budget.

The energy purchasing mix looks somewhat different when comparing institutions by location and by enrollment. Overall institutions expected to devote an average of 49.1% of their FY06 energy budgets to electricity, and 41.8% to natural gas, for a difference of 7.3%. However, urban institutions projected devoting 14.4% more resources to electricity, while the difference for suburban institutions was only 2.1%. Urban institutions expected to use a greater percentage of their energy budgets for heating oil (5.9%) and coal (3.9%) then did other schools. Heating oil purchasing barely registered for rural and suburban institutions, with each expecting to devote less than 1% of their energy budgets toward this resource.

Energy Sources as Projected Percentage of FY06 Budget by Institutional Location

	Rural	Urban	Suburban
#1 Source	Electricity (47.8%)	Electricity (50.9%)	Electricity (49.6%)
#2 Source	Natural Gas (43.4%)	Natural Gas (36.5%)	Natural Gas (47.5%)
#3 Source	Gasoline (3.3%)	Heating Oil (5.9%)	Gasoline (1.5%)
#4 Source	Coal (1.9%)	Coal (3.9%)	Other (0.5%)

Institutional energy budgets differ significantly by enrollment as well. Colleges and universities with enrollments over 10,000 expected to spend almost 20% more of their energy budgets on electricity than on natural gas, while the difference was 11% for the smallest schools. Medium-sized schools actually expected to spend slightly more on natural gas than on electricity. Both heating oil and gasoline registered in amounts over 2% for each of the institutional groupings.

Energy Sources as Percentage of FY06 Budget by Institutional Enrollment (Headcount)

	< 1,000	1,000 - 10,000	> 10,000
#1 Source	Electricity (50.8%)	Natural Gas (47.1%)	Electricity (53.5%%)
#2 Source	Natural Gas (39.8%)	Electricity (45.7%)	Natural Gas (34.1%)
#3 Source	Heating Oil (5.4%)	Gasoline (2.1%)	Coal (4.7%)
#4 Source	Gasoline (3.8%)	Heating Oil (2.0%)	Heating Oil (3.3%)

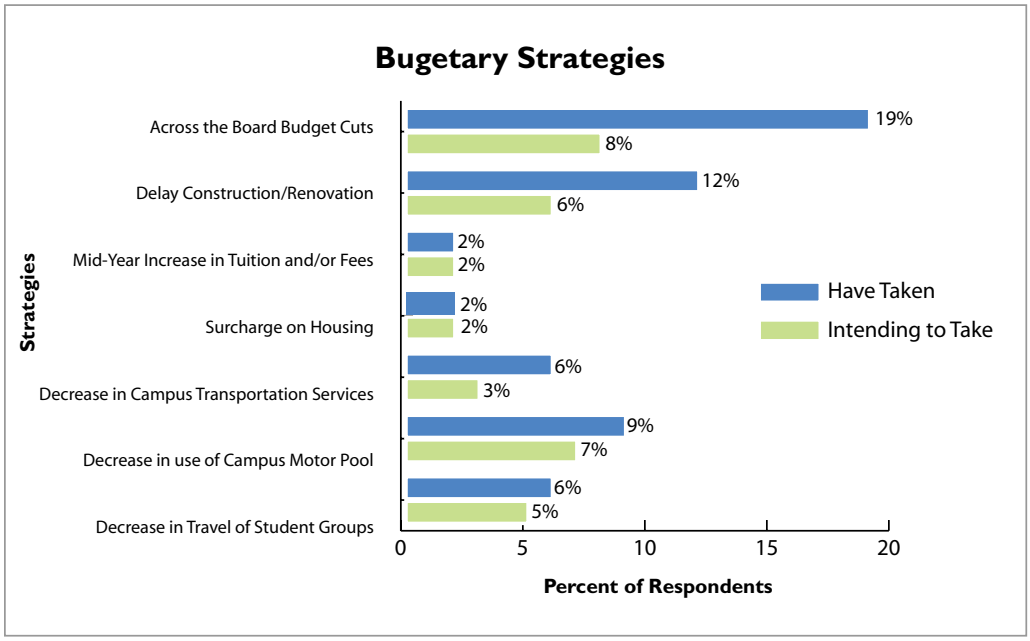
Altering the Mix of Energy Sources Used

Institutions that are able to shift or alter the mix of energy sources they utilize are at an advantage in responding to the changing price of commodities, as they can adjust their use and purchasing actions to reflect the relative prices of natural gas, coal, and petroleum products. Thirty percent of survey respondents indicated that they are able to switch between or among energy sources, leaving 70% of institutions who are more susceptible to the volatility of markets.

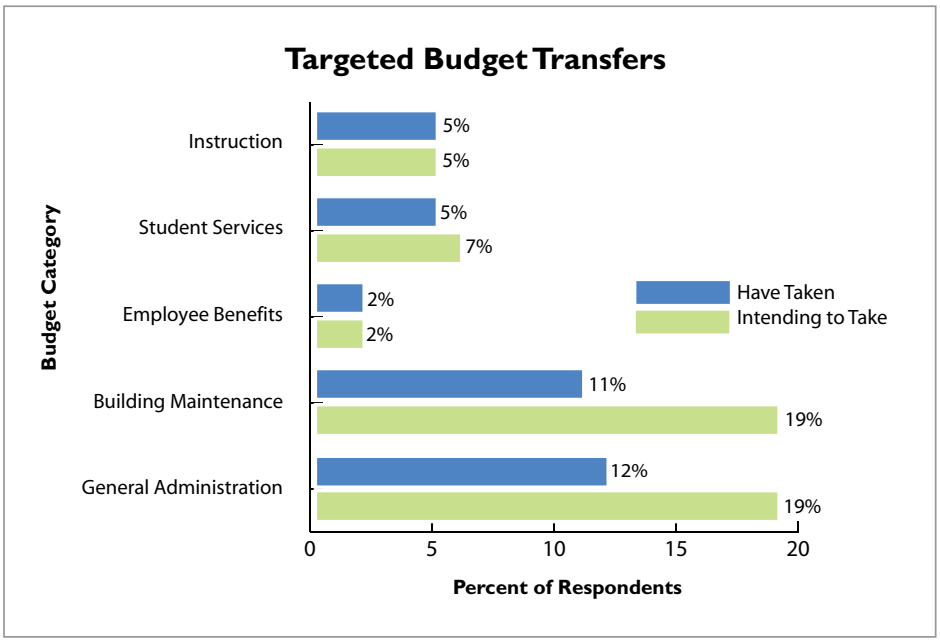
Budgetary Strategies and Adjustments

The survey asked respondents what type of budgetary strategies – including reductions and transfers – their respective institutions had taken, or were intending to take, as a direct result of current and anticipated future energy price increases. More than one-quarter of respondents (27%) indicated their intention to make across-the-board institutional budget cuts in response to the spike in energy prices. Almost one-fifth (18%) had delayed or were intending to delay construction or renovation projects on campus to offset increased energy costs. High gasoline prices were also leading institutions to make cuts in transportation: 16% planned to reduce the use of campus motor pools; 11% were implementing reductions in travel by student groups; and 9% were planning to reduce campus transportation services.

Fewer respondents than anticipated indicated that they had implemented or were planning to assess mid-year surcharges on tuition, fees, or campus housing rates (less than 5% in each case). A slightly greater number (9%) indicated that they were unsure what they would do in regard to student room fees, suggesting that at least at the time of the survey, a critical mass of institutions were considering housing surcharges as one means of addressing the energy budget gap.



The survey also asked respondents if they were implementing targeted budget *transfers* from non-energy related cost centers, with funds redirected toward energy purchasing. Nearly one-third of respondents had transferred or were intending to transfer funds from general administration, and 30% indicated the same for building maintenance. Student services was noted by 12% of respondents, while 10% were transferring funds from instruction. More than 10% of respondents indicated that they were unsure whether or not they would implement any budgetary strategies at the time of the survey.



A number of respondents cited specific budgetary strategies they had taken, including:

- Making a special appeal for increased giving
- Approaching the legislature with a request for supplemental funding
- Freezing vacant campus positions
- Delaying purchase of non-essential equipment
- Using contingency funds
- Transferring unused balances from salary, benefits, and supply funds
- Encouraging voluntary reductions in spending
- Exploring a shift in the cost of energy to individual departments, allowing departments to retain any funds from energy savings

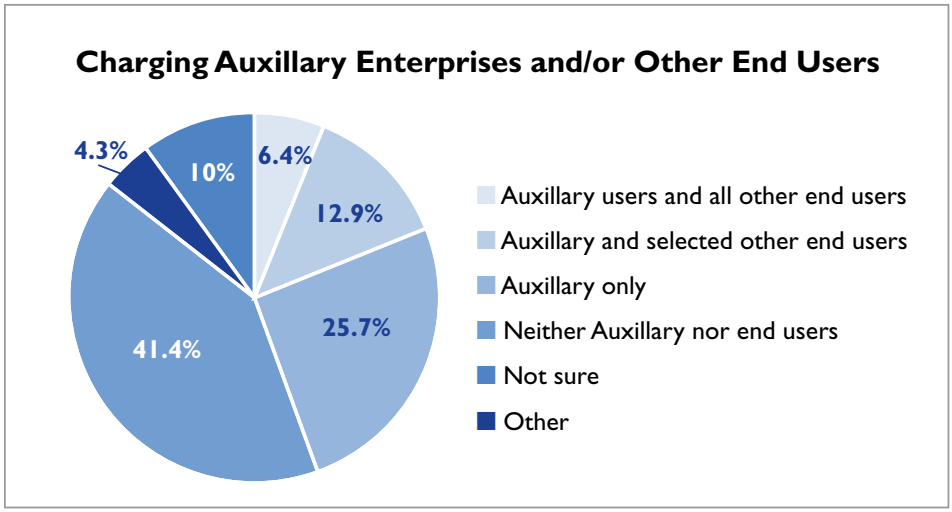
Self-Generation of Electricity and Steam

Only 14 institutions, or 7.4% of the total survey respondents, reported that they generate their own electricity, meaning more than 90% of institutions in the respondent pool are fully reliant upon utility companies. Eighteen percent of respondents indicated that they are investigating the possibility of generating their own electricity in the next five years.

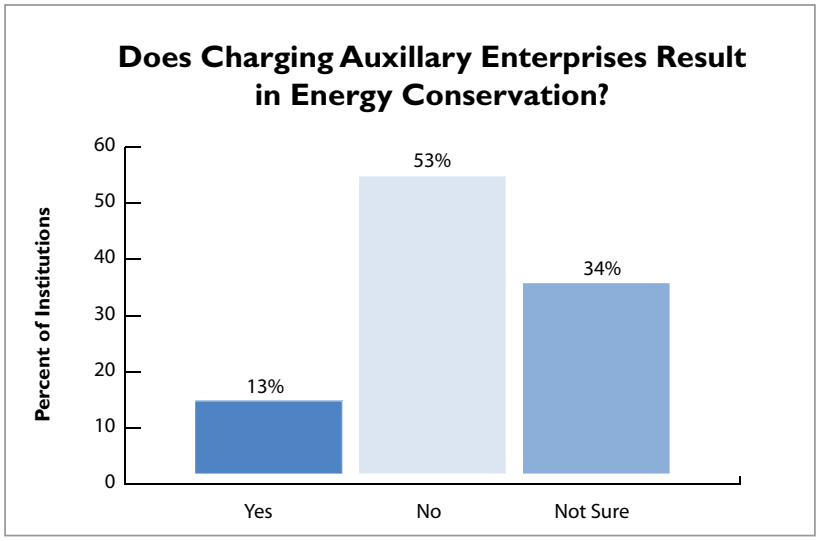
Of the 14 colleges and universities that currently generate part or all of their own electricity, all but one are publicly controlled. Most are larger institutions, with all but three enrolling over 10,000 students. Eleven of the 14 institutions are composed of buildings with a total of more then 7 million square feet; half are over 10 million. Nine of the schools are able to shift or alter the mix of energy sources as a cost-savings strategy. Four of the colleges and universities reported generating less than five percent of their required electricity, while three institutions indicated that half or more of their electricity comes from self-generation.

Relationship to Auxiliary Enterprises

Survey respondents were asked whether they charged auxiliary enterprises or other end-users for their utility consumption. Auxiliary enterprises are those functions of the college or university that generate income in the form of rents, memberships, or fees for service – often to the point of being self-sustaining – which enables said enterprises to operate with limited or no subsidies from an institution's general fund. As noted earlier, some institutions operate student housing systems as an auxiliary enterprise. In addition to student housing, examples of auxiliary enterprises include student unions, bookstores, recreation centers, and even golf courses. Other end-users might include organizations that rent space from the institution or utilize its facilities but are not a part of the institution itself.



Almost half of survey respondents indicated that they charge auxiliary enterprises or other end-users for their energy use. One-quarter charge only auxiliary enterprises, while 13% charge auxiliary enterprises and selected end-users. Only 6.4% of respondents indicated that they charge both auxiliary enterprises **and** all end-users for their energy use.

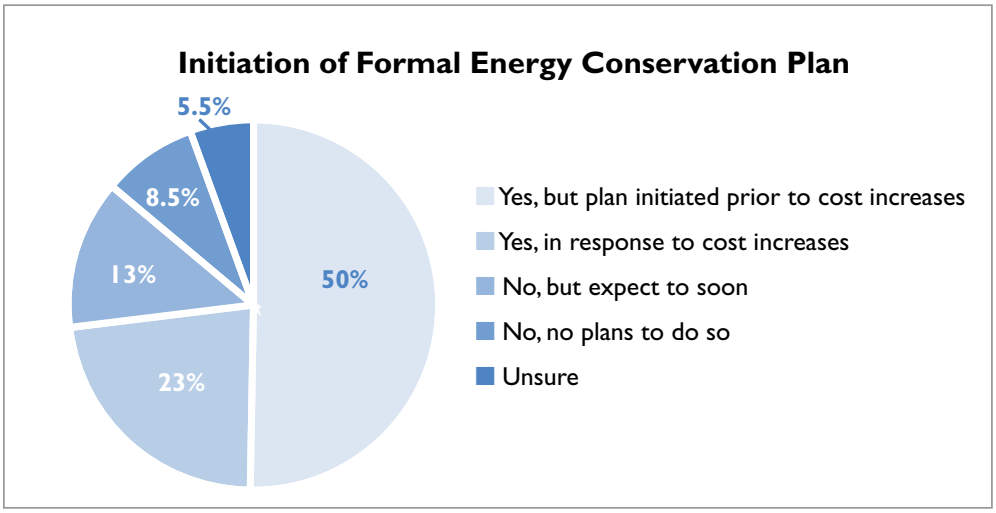


In addition to cost recovery, charging end-users for their energy consumption can theoretically result in conservation by leading individuals to employ strategies to reduce their energy use and expense. However, more than half of survey respondents indicated that they did not believe that charging auxiliary enterprises or other end-users was effective in this way. Conversely, only 13% of respondents felt that charging end-users resulted in energy conservation, while the remaining 34% were unsure. The result is curious if not counterintuitive. People or organizations that are charged for their energy use would seem likely to be more conscious of costs, and therefore more likely to conserve energy. Perhaps the majority of survey respondents have not had the opportunity to make adequate comparisons between institutional affiliates that are charged for their energy use, and those that are not.

Energy Conservation

Conservation Planning

Survey respondents were also asked if they had implemented or were intending to initiate an energy conservation plan, and if so, if these efforts were being made specifically in response to the rising energy prices. Almost three-fourths (73.3%) of respondents indicated that they had implemented an energy conservation plan. Of this group, two-thirds indicated that their plans had been implemented prior to the recent increase in energy prices. However, one-third of these institutions – and nearly a quarter of all those who responded to the survey – indicated that the increase in the price of energy was the impetus for the initiation of an energy conservation plan. Of the remaining respondents, 13% expected to implement an energy conservation plan soon, while only 8.4% had no plans to do so in the near future.

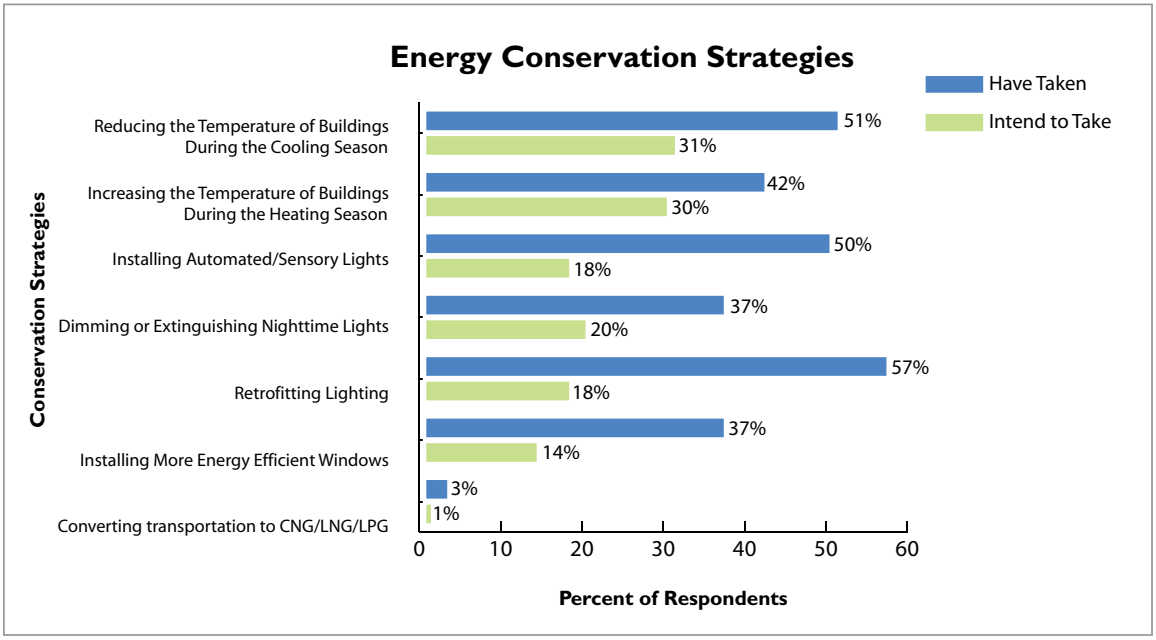


Conservation Strategies

As a follow-up, respondents were provided with a list of different energy conservation strategies and asked which they had implemented or were planning to implement as a direct result of energy cost increases. Some of these strategies related to electrical use, while others concerned the heating and cooling of buildings through natural gas, heating oil, steam, or other means. According to Rebuild America, a program within the U.S. Department of Energy working on best practice energy strategies, "The U.S. Department of Energy (DOE) estimates that at least 25 percent of the more than $6 billion colleges and universities spend annually on energy could be saved" through conservation strategies and wiser energy management practices." [9]

Although the survey question asked respondents to indicate the energy conservation strategies they had implemented as a *direct result* of energy cost increases, the relatively high response numbers seem to indicate that many respondents interpreted the question more broadly and reported strategies they had implemented to reduce *general* energy consumption, not only actions taken specifically in response to current energy-related fiscal challenges. Nonetheless, the numbers are quite intriguing.

Retrofitting building lighting systems to reduce electrical use was the most frequently cited strategy, with 57% of respondents indicating they had already implemented this conservation strategy, and another 18% noting plans to do so. In another attempt to reduce electrical use, half of all respondents indicated having installed automated sensory room lighting mechanisms in campus buildings, while another 18% planned to implement this strategy. Dimming or extinguishing evening and nighttime building lighting had been implemented by 37% of respondents, with an additional 20% planning to do so.



As any college or university physical plant manager or fiscal agent knows, heating and cooling campus buildings requires substantial amounts of fuel. A number of strategies to reduce fuel consumption related to temperature control have been taken or are being considered by Midwestern institutions. More than half (51%) of institutions had lowered the temperature of campus buildings during heating season, while 31% or respondents were planning to do so. Fewer institutions (42%) indicated that they had increased the temperature of campus buildings during the cooling season, which may be due in part to differences in the scope and type of air conditioning systems used. Also, institutions with limited summer enrollments may not need to concern themselves as much with the cooling of campus buildings beyond selected individual offices, where window units might predominate.

In addition to temperature control strategies, 37% of respondents indicated having installed energy-efficient windows in campus buildings, while 14% of institutions planned to do so in the near future. Very few respondents (4%) had converted or were intending to convert campus buses and/or other vehicles to CNG/LNG/LPG.

ENERGY CONSERVATION PROFILE

Who: Hesston College

Where: Hesston, Kansas

What: The Campus Facilities Department is retrofitting light bulbs across the campus to more energy efficient models, and also installing motion sensors.

How: Many colleges and universities have taken action to reduce electrical use by switching to more energy efficient systems and equipment. However, the financing of the project at Hesston is notable. Facility managers used remaining maintenance line item balances at the end of a fiscal year to purchase a set number of energy efficient light fixtures, bulbs, and occupancy sensors. Electricity cost savings during the following fiscal year were used to fund another round of equipment purchases. This process continued until as many lighting systems on campus as feasible were retrofitted.

How Much: The new bulbs and sensors are paid for by energy savings within the first six months of use.

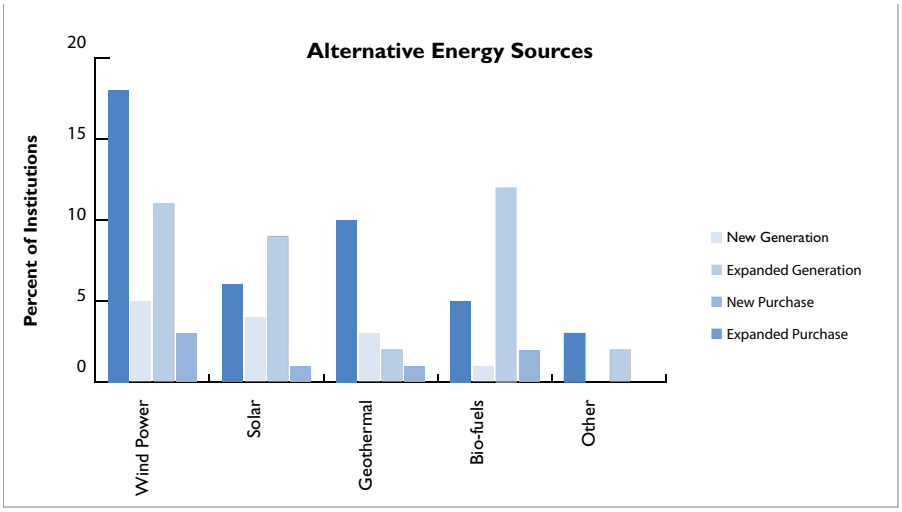
A number of respondents cited specific energy conservation strategies they had taken, including many creative approaches to reducing the use of fossil fuels, such as:

- Improving boiler efficiency by switching to computerized controls, shutting down boilers when possible, reducing the pressure of boilers, extending steam lines, and subjecting boilers to more frequent tune-ups
- Investing in new and improved building control technologies, including on-demand switching and automatic adjustments for changing room occupancy
- Reducing the temperature of campus swimming pools
- Increasing the use of window coverings, including plastic window coating
- Shifting building cleaning to daytime hours to reduce the need for evening lighting
- Implementing public relations campaigns to educate students and staff about energy conservation, including "Energy Week" challenges to students in residence halls
- Replacing steam absorption units with a more energy efficient central centrifugal chiller
- Installation of a central chilled water system with high efficiency chillers and distribution system *(Note: While chillers are more energy efficient than absorbers, absorbers may offer the lowest total cost when an institution has plenty of cheap, coal-produced steam available during periods of moderate to warm temperatures)*
- Chilling with water rather than glycol
- Closing off building sections in the evening and centralizing night courses into fewer buildings
- Installing occupancy sensors on vending machines
- Curtailing nighttime ventilation except in emergencies and for the protection of research equipment and materials
- Working with Rebuild America (http://www.rebuildamerica.gov) and energy management firms
- Utilizing the Facility Energy Decision System (FEDS), a software tool that enables users to quickly and objectively identify energy improvements that maximize savings
- Installing waterless urinals
- Switching from electric clothes dryers to natural gas models
- Replacing on-campus maintenance trucks with fuel-efficient golf carts
- Adding viscosity control to heating oil
- Establishing fuel purchasing protocols and initiating performance contracts
- Reducing testing of cogenerators to save natural gas
- Installing meters on each building to improve monitoring of electricity use
- Extending steam distribution systems to reduce reliance on natural gas
- Conserving steam through more effective steam traps, pumping systems, and thermal insulation
- Shutting off computer surge protectors at night, which can save four cents per computer per night or $14.60 per computer per year

Use of Alternative Fuels

A significant number of colleges and universities are looking to alternative fuel sources to help reduce the cost of energy procurement and exert improved environmental stewardship. Respondents were asked if they were looking to new or increased purchase or generation of alternative energy sources such as wind, solar power, geothermal energy, and bio-fuels. The most popular of these alternative energy sources was wind power, with 23% of respondents considering new or expanded generation and 14% considering new or expanded purchasing of electricity generated by wind. Reference to wind power might be expected given that the Upper Midwest is one of the largest wind producing regions in the United States, with Iowa, Minnesota, and South Dakota joining California and Texas as the top producing states (although a growing worldwide interest in wind power has led to a shortage of turbines and a slowdown in wind development projects[10]).

Also popular with survey respondents was solar power, with 22% of respondents considering new or expanded generation or acquisition of this energy source. Geothermal energy was mentioned by 17% of respondents. While only 7% of respondents indicated that they were considering new or expanded generation of energy using bio-fuels, 15% are investigating the possible new or increased purchase of bio-fuels or the energy generated by them. Chadron State College in Nebraska, and the Universities of Iowa and Minnesota are examples of institutions using or investigating the use of bio-fuels specifically for steam production.



ALTERNATIVE FUEL PROFILE

Who: Chadron State College

Where: Chadron, Nebraska (in the western panhandle region of the state)

What: Chadron State adjusted its campus heating system to include two wood-fired boilers to accompany two existing gas-fired boilers. The wood-fired boilers provide 90% of the campus heating supply in sub-zero weather, and meet 100% of campus needs the rest of the time. The wood chips are a byproduct of the forest industry. A contractor chips wood slash piles on the logging site and transports the chips to Chadron.

How: Fourteen years ago, Chadron State College applied for and received a grant from the State of Nebraska that covered the cost of an expanded heating plant, a wood chip storage facility, boilers, auxiliary equipment, labor, and transportation of fuel.

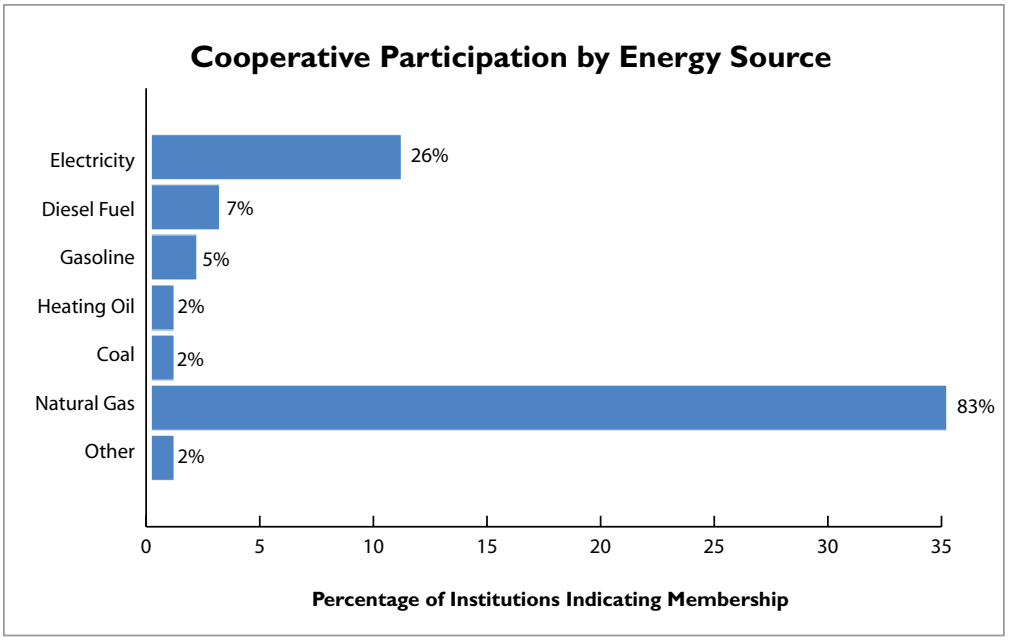
How Much: The alternative fuel saves Chadron State $150,000 to $200,000 each year when compared to the cost of operating only the gas-fired boilers. This represents an approximate 30% energy savings for the college, bringing its utility costs to less than $1 per square foot per year.

Purchasing Cooperatives

Many colleges and universities are members of energy cooperatives or other group purchasing programs that enable institutions to leverage their collective buying power to negotiate lower prices for the purchase of fuels and electricity. The survey asked respondents if they were members of such a cooperative, and about the savings they realized from membership. Institutions who were not members of an energy cooperative were asked if they had investigated membership or were considering joining a cooperative, and the reasons for their decision to forgo the opportunity, if applicable.

Of the 134 respondents who answered this question, 41 indicated that their institution was already a part of one or more energy cooperatives or group purchasing programs. This represents 21.5% of the total number of survey respondents. Of those respondents who indicated that they were not currently a member of a cooperative purchasing program, 28% shared that they were investigating possible new or expanded participation in one or more programs.

Of those who reported current membership in an energy cooperative, the large majority (83%) took advantage of opportunities to purchase natural gas. The second most utilized portion of cooperative programs was electricity (26.2%) followed by diesel fuel (7.1%), gasoline (4.8%), and heating oil and coal (both at 2.4%).



A sizeable number of institutions (38%) reported having previously investigated joining a cooperative and decided not to pursue membership. Examples of reasons for not joining included:

- The local public utility agreement does not allow it
- Do not believe it would result in cost savings
- Maintenance fees
- Ability to obtain competitive prices without joining
- Geographic distance between institutions
- Loss of ability to execute time-sensitive decisions
- Receive better rates from a larger provider
- Proximity of campus to the source
- Municipal utility provides comparable savings and allows for the management of natural gas purchases
- Difficulties associated with entering into a cooperative with institutions from other states
- Too restrictive
- Institutional needs are too unique
- No time to thoroughly investigate options
- Too much work—would require a part-time staff member to meet requirements, thereby offsetting savings
- Not feasible with existing state regulations
- Service territory bottlenecks
- Not available in the area
- Initial sub-metering and administrative costs would consume savings
- Existing agreements with current provider
- Donor status of current energy vendor
- Size of institution allows for purchasing strategies equivalent to savings from a cooperative

Respondents were asked to name the energy cooperatives or purchasing groups to which they belonged. The following groups were cited more than once:

- Cornerstone Energy Managed Procurement Fund (5 respondents)
- Western Area Power Administration (WAPA) (4)
- Wisconsin Public Service (WPS) Energy Services (4)
- ONEOK Energy Marketing Company (Tulsa, OK) (3)
- Iowa Joint Utilities Management Program (2)

A number of other cooperatives and programs were each named by a single respondent:

- Akron Aggregation
- Chippewa Valley Shared Services Association
- Choice Gas
- Constellation New Energy
- Energy USA
- Kansas Joint Utility Management Program
- Kaztex Energy Management (now Constellation NewEnergy)
- Michigan Public Universities Cooperative
- Midwest Energy Alliance
- Northeast Ohio Public Energy Council
- Pioneer Coal
- ProLiance
- Value (State of Wisconsin purchasing)
- Wolverine COOP, State of Michigan

Concerns for the Future

Finally, the survey asked respondents to share their concerns related to the future management of energy costs. Respondents shared thoughts and comments ranging from building energy awareness on campus, to pleas for help:

- How does an institution implement temperature setback policies and manage the community response?
- What are institutions doing to develop long-term energy policies?
- What should an institution be doing in advance of the upcoming deregulation of local utilities?
- How do you instill social responsibility to conserve energy, particularly when a mindset of "I paid for it (room rent)" seems to prevail?
- What benchmarks are available to compare energy use with other institutions?
- How do we get energy "speculators" from investing in the market, thereby raising prices?
- What can be done to develop and promote an energy conservation mentality throughout the college or university community?

Conclusion

Thankfully, the mild winter of 2005-06 softened the blow of increased energy costs for users of natural gas, heating oil, and other fuels. Prices for natural gas also did not spike as sharply as many had expected, further reducing the budgetary impact on colleges and universities in the Midwest. Nonetheless, institutions of higher education throughout the region will continue to be challenged to find the means to cover the increased proportion of their operating budgets that are used for the purchase of energy. A winter of below average temperatures – or even average temperatures – could have put many smaller colleges and universities in very difficult straits.

The upcoming warmer months provide an opportunity for institutions to identify strategies and best practices that can reduce their overall energy needs, including conservation through changes in policies or practice; retrofittings and upgrades to more energy efficient fixtures, equipment, and systems; the increased use of biomass and other renewable and alternative fuels; and leveraging buying power through membership in energy cooperatives or purchasing groups. The expected continued volatility of energy markets demands planning and action to manage the budgetary challenges that are certain to be with us into the foreseeable future.

Sources of Further Information:

Organizations:

- **Rebuild America** (http://www.rebuild.gov)
  From the Rebuild America website: "Rebuild America is a growing network of community-driven voluntary partnerships that foster energy efficiency and renewable energy in commercial, government and public-housing buildings. At the federal level, it is the largest, most established technology deployment program within [the Department of Energy's] Office of Energy Efficiency and Renewable Energy (EERE). The program's goals are to: conserve energy, accelerate use of the best energy technologies, save money, reduce air pollution, lower U.S. reliance on energy imports, help revitalize aging city and town neighborhoods, and create 'smart energy' jobs."

- **Midwest Energy Efficiency Alliance** (http://www.mwalliance.org)
  From the Midwest Energy Efficiency Alliance website: "The Midwest Energy Efficiency Alliance (MEEA) is a collaborative network whose purpose is to advance energy efficiency in the Midwest in order to support sustainable economic development and environmental preservation." Its goals are to "Provide a collective voice at a national and regional level; Act as a clearinghouse to identify, evaluate and create successful programs and market assessments for the region; and Foster communication on effective energy policy."

Other Web Resources

Energy Financing:

- Apollo Alliance
  http://www.apolloalliance.org

- National Association of Energy Service Companies
  http://www.naesco.org/providers/default.asp

Energy Conservation:

- Energy Star for Higher Education
  http://www.energystar.gov/index.cfm?c=higher_ed.bus_highereducation

- American Council for an Energy Efficient Economy
  http://www.aceee.org/progpage.htm

Cooperative Purchasing:

- National Conference of State Legislatures
  http://www.ncsl.org/programs/energy/energy2.htm

- International District Energy Association
  http://www.districtenergy.org
  (College and University case studies at http://www.districtenergy.org/CHP_Case_Studies/collegemap.htm)

- Top Five Cooperative Purchasing Groups named by survey respondents):

  Cornerstone Energy Managed Procurement Fund
  http://www.cornerstoneenergy.com/html/cei_products.shtml#A

  WAPA (Western Area Power Administration)
  http://www.wapa.gov/powerm/default.htm

  WPS (Wisconsin Public Service) Energy Services
  http://www.wisconsinpublicservice.com/business/rates.asp

  ONEOK Energy Marketing Company (Tulsa)
  http://www.oneokenergy.com/

  Iowa Joint Utilities Management Program
  http://www.ia-sb.org/iprograms/IJUMP.asp

Alternative Energy:

- Campus Climate Challenge
  http://www.energyaction.net/main/index.php?&MMN_position=1:1

- Database of Incentives for Renewable Energy
  http://www.dsireusa.org/

- US DOE Energy Information Portal
  http://www.eere.energy.gov/

ENDNOTES

[1]See http://www.oilnergy.com/1heatoil.htm.

[2]See http://www.dom.com/about/companies/hope/prices.jsp#1.

[3]See http://www.ngvc.org/ngv/ngvc.nsf/bytitle/2003supplyfactsheet.html.

[4]See The Kiplinger Letter, February 17, 2006.

[5]Two respondents did not provide their state location.

[6]South Mississippi SunHerald, March 13, 2006.

[7]2006 Supplemental Budget Request, MnSCU System.

[8]Grand Forks Herald, March 18, 2006.

[9]See http://www.rebuild.gov/index.asp.

[10]Minneapolis Star Tribune, March 1, 2006.

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