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# **MARSHFIELD AREA 2005 ECONOMIC INDICATORS**

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Special Report**

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**Special Report:**

**2006 Energy Outlook for Wisconsin and Practical Solutions for Your Business.**

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## National and Regional Outlook

The Federal Reserve Board has a new chairman in the person of Ben Bernanke. More than any other individual the Fed chairman has a tremendous amount of influence in shaping money and credit policy in the United States. As the new head of the nation's central bank, he takes over from the near legendary Alan Greenspan who served as Federal Reserve chairman for eighteen years. What are the main issues confronting the economy as Benanke takes the helm?

The nation's GDP rose by only 1.1 percent in fourth quarter 2005. This represents a significant slowdown from the nearly 3.7 percent pace during the first three quarters of the year. The deceleration is generally attributed to the after effect of the September hurricanes and a temporary fall off in military procurements. These items are transitory in nature and should not be an issue as we move forward in 2006.

The unemployment rate at the national level continues to move lower. The seasonally adjusted rate stood at 4.9 percent in December. To place this in perspective, in late 2003, the rate was around 6.3 percent. Thus, much progress has been made in this area over the last two and a half years. Likewise, employment has expanded by almost 2.0 percent over the past twelve months. The number of people employed has risen from 140.3 million to 142.9 million over this time frame.

With the economy expanding there are growing concerns about building inflationary pressure. From fourth quarter 2004 to fourth quarter 2005 the Consumer Price Index rose by 3.4 percent. More recently the rate of change appears to be accelerating. Energy and food price increases are the main items driving these figures. Given the uncertainty surrounding the Middle Eastern situation there is additional cause for concern. No one at this juncture knows how the Iranian nuclear problem will unfold. The implication for energy prices may be dire and have a large impact on our economy.

Another issue pertaining to inflationary pressure is the fourth quarter slowdown in worker productivity. Higher levels of employment and rising wages coupled with a decline in productivity translated into additional pressure on the average price level for consumers. Hopefully the decline in productivity is a transitory matter and simply reflects the higher cost of energy.

Housing prices in the larger metropolitan areas appear to be overstated. A number of studies suggest this is the case. Many pundits worry about the consequences of a housing bubble and the impact on the economy if it burst. Consumer spending to a large degree has been supported by the increase in housing wealth. If Bernanke should feel the need to continue and accelerate the pace of interest rate increases to combat inflationary pressures, this could pop the "housing bubble" and of course have consequences for consumer spending. With consumer spending accounting for two thirds of all spending in the nation, it is clear that a significant downturn in household wealth would impact the economy. Let's hope that Bernanke is

not put into a position where he might have to choose between keeping inflation under control and throwing the economy into a recession.

Another issue confronting the country is the stagnation in median household income. In 2003, real median household income stood at \$44,482 while in 2004 it slipped to \$44,389. Moreover, the poverty rate climbed slightly from 12.5 percent in 2003 to 12.7 percent in 2004. As of the time of this report the 2005 figures were not available. Thus, even with an expanding economy the gains in prosperity apparently have not reached middle income and lower income households. This problem must be addressed by the nation or we will run the risk of a further polarized society.

There are of course many other issues facing the nation's economy. Examples include the record string of federal budget deficits, trade deficits, and our country's growing reliance of foreign capital. Thus, the Fed chairman and other policy makers are going to have a very interesting time in the year ahead.

**TABLE 1****NATIONAL ECONOMIC STATISTICS**

	<b>2004 Fourth Quarter</b>	<b>2005 Fourth Quarter</b>	<b>Percent Change</b>
Nominal Gross Domestic Product (Billions)	\$11,995.2	\$12,735.3	+6.2
Real Gross Domestic Product (Billions of 2000 \$)	\$10,897.1	\$11,233.5	+3.1
Industrial Production (2002 = 100)	106.7	109.8	+2.9
Three Month U.S. Treasury Bill Rate	2.23%	3.91%	+75.3
Consumer Price Index (1982-84 = 100)	190.3	196.8	+3.4

## Central Wisconsin

Central Wisconsin unemployment rates were generally higher than a year ago. Only Portage County registered a decline. Total employment was also generally lower. Only Portage County registered an improvement in its total payroll. Nonfarm employment in the three-county area was only slightly higher than a year ago. The decline in manufacturing has been the primary drag on employment growth in our region. Sales tax collections were higher in all three counties suggesting an increase in retail activity. Lastly, business executives are upbeat about future economic conditions.

Unemployment rates for all of the reporting areas are given in Table 2. The seasonally unadjusted unemployment rates in Portage and Wood Counties fell to 4.0 percent and to 5.0 percent respectively over the course of the year. Marathon County registered a very low 3.7 percent unemployment rate. However, this was up from the 3.5 percent mark of twelve months ago. The Wisconsin unemployment rate, likewise, rose from 4.3 percent to 4.5 percent over the same time period.

A state survey of households provides the employment estimates for the various regions presented in Table 3. Portage County was the only area to post a gain in total employment. Portage County payrolls are estimated to have expanded by 2.1 percent from a year ago. Meanwhile Marathon and Wood Counties payrolls contracted by 5.0 percent and 2.8 percent respectively. Employment in Wisconsin fell as well, declining by about 0.7 percent. The United States, however, added almost 2.0 percent to its payroll since 2004.

Table 4 gives central Wisconsin employment change by sector. These estimates are derived from a state sponsored survey of business firms. Total nonfarm employment was virtually unchanged over the course of the year, rising by about 0.1 percent. Manufacturing continues to be a problem spot for the economy because this sector continues to lose employment. For the record, manufacturing is down in the region from 30 thousand to 29.5 thousand people over the past year. Education and health services and information and business services registered the largest gains over the year. Lastly, government employment in the three-county area is down by about 2.0 percent.

Retail activity in the central Wisconsin area is proxied by the data given in Table 5. Sales tax distributions were higher in all three counties when compared to last year's totals. Portage County collections were up by almost 11 percent, while Marathon County posted a 3.7 percent gain, and Wood County sales tax collections rose by nearly 6.5 percent.

The CWERB survey of regional business people is given in Table 6. This group indicates that recent economic changes at the national and local levels are little changed from a year ago. When we asked them to forecast what conditions are likely to prevail in the nation, local area, and with their particular industry they felt that matters would definitely improve in the next several quarters.

**TABLE 2****UNEMPLOYMENT IN CENTRAL WISCONSIN**

	<b>Unemployment Rate December 2004</b>	<b>Unemployment Rate December 2005</b>	<b>Percent Change</b>
Portage County	4.1%	4.0%	-2.8
City of Stevens Point	N/A	6.5%	N/A
Marathon County	3.5%	3.7%	+7.1
Wood County	5.1%	5.0%	-1.5
Central Wisconsin	4.1%	4.1%	0
Wisconsin	4.3%	4.5%	+4.1
United States	5.1%	4.6%	-9.7

**TABLE 3****EMPLOYMENT IN CENTRAL WISCONSIN**

	<b>Total Employment December 2004 (Thousands)</b>	<b>Total Employment December 2005 (Thousands)</b>	<b>Percent Change</b>
Portage County	38.7	39.5	+2.1
City of Stevens Point	N/A	13.2	N/A
Marathon County	74.9	71.1	-5.0
Wood County	39.2	38.1	-2.8
Central Wisconsin	152.7	148.6	-2.7
Wisconsin	2,931.4	2,909.9	-0.7
United States	140,278	142,918	+1.9

**TABLE 4****CENTRAL WISCONSIN EMPLOYMENT CHANGE BY SECTOR**

	<b>Employment December 2004 (Thousands)</b>	<b>Employment December 2005 (Thousands)</b>	<b>Percent Change</b>
Total Nonfarm	150.4	150.5	+0.1
Total Private	130.8	131.3	+0.4
Construction & Natural Resources	5.7	5.6	-1.8
Manufacturing	30.0	29.5	-1.7
Trade	28.0	27.9	-0.4
Transportation & Utilities	7.9	8.0	+1.3
Financial Activities	10.2	10.4	+2.0
Education & Health Services	21.4	21.7	+1.4
Leisure & Hospitality	10.5	10.6	+1.0
Information & Business Services	17.2	17.5	+1.7
Total Government	19.6	19.2	-2.0

**TABLE 5****COUNTY SALES TAX DISTRIBUTION**

	<b>Sales Tax 2004 Fourth Quarter (Thousands)</b>	<b>Sales Tax 2005 Fourth Quarter (Thousands)</b>	<b>Percent Change</b>
Portage County	\$1,130.9	\$1,254.7	+10.9
Marathon County	\$2,704.7	\$2,805.0	+3.7
Wood County	\$1,113.9	\$1,184.7	+6.4

**TABLE 6**

**BUSINESS CONFIDENCE IN CENTRAL WISCONSIN**

	<b>Index Value</b>	
	<b>September 2005</b>	<b>December 2005</b>
Recent Change in National Economic Conditions	60	46
Recent Change in Local Economic Conditions	59	52
Expected Change in National Economic Conditions	55	61
Expected Change in Local Economic Conditions	56	62
Expected Change in Industry Conditions	57	65

100 = Substantially Better

50 = Same

0 = Substantially Worse

## Marshfield

A brief summary of this quarter's results is as follows. Nonfarm employment fell from 43.2 to 43.1 thousand over the past twelve months. Retailers were less upbeat than usual about store traffic and sales. On a brighter note help wanted advertising has increased over the year and nonresidential construction was strong during the fourth quarter. Lastly, the Clark County economy appears to have expanded over the course of the year. A more in depth analysis of the results is contained in the remainder of the report.

Employment numbers based on a state survey of Wood County business firms are given in Table 7. Total nonfarm employment is estimated to have contracted by 0.2 percent over the year. The manufacturing sector continues to be the sector that has most influenced this contraction. Since fourth quarter last year the manufacturing sector is estimated to have lost 400 positions. In contrast the transportation, education and health services, and leisure and hospitality sectors continued to add employees to their respective payrolls.

Table 8 presents the retail confidence survey for fourth quarter. Our survey group believes that store traffic and sales were lower than a year ago. The group also believes that expected sales and store traffic will be at about the same levels as last year. In general, the survey group expressed less optimism in December when compared to the September time frame. The results of this survey are in contradiction to the sales tax numbers for the county which show a healthy amount of retail growth taking place.

Help wanted advertising is a barometer of local labor market conditions. During fourth quarter, the Marshfield index rose from 56 to 67, a 19.6 percent increase in the amount of advertising. This bodes well for future employment opportunities for area residents. The national index rose slightly over the same period increasing from 36 to 39.

There are several measures of local family financial distress in this part of the report. Public assistance claims on a monthly average basis for Wood County decreased from 92 to 91. Thus, for all intent and purpose there was no change in this measure. Data on unemployment claims for Wood County are given in Table 11. The number of new unemployment claims on a weekly average basis increased slightly from 279 to 286, or 2.5 percent. Likewise, the number of total claims climbed from 1,247 to 1,290 or by 3.4 percent. In sum, it appears that there has been a modest increase in the level of family financial distress in Wood County.

Residential construction activity is presented in Table 12. The number of new permits declined from 18 to 4 over the year. The associated estimated value of the construction activity declined from \$4.1 million to \$0.8 million. Similarly, the number of units built contracted from 71 to 4. Better news comes from alteration activity. The

number of residential permits issued rose from 86 to 100. The associated value of this alteration activity increased from \$527 thousand to \$854 thousand.

The nonresidential construction activity in Marshfield for fourth quarter was quite strong. The number of permits issued was 9 and they had an estimated value of \$12.7 million. The number of alteration permits was 11 and they had a healthy valuation of \$1.5 million. Thus, there has been a lot of building activity and this will eventually lead to an increase in the amount of physical capital in the Marshfield area.

Tables 14 and 15 present Clark County economic data. Clark County is an important market for Marshfield area businesses. Clark County industrial sector numbers are given in Table 14. Total nonfarm employment is estimated to have risen by about 2 percent from last year. Table 15 shows that Clark County total employment based on a state conducted survey of households is estimated to have risen by about 7.0 percent. Further, the unemployment rate has contracted from 6.4 percent to 5.3 percent over the course of this past year.

**TABLE 7**

**WOOD COUNTY EMPLOYMENT CHANGE BY SECTOR**

	<b>Employment December 2004 (Thousands)</b>	<b>Employment December 2005 (Thousands)</b>	<b>Percent Change</b>
Total Nonfarm	43.2	43.1	-0.2
Total Private	38.0	37.7	-0.8
Construction & Natural Resources	1.6	1.5	-6.3
Manufacturing	6.9	6.5	-5.8
Trade	7.0	6.7	-4.3
Transportation & Utilities	3.3	3.4	+3.0
Financial Activities	1.2	1.2	0
Education & Health Services	10.4	10.5	+1.0
Leisure & Hospitality	2.9	3.0	+3.4
Information & Business Services	4.9	4.9	0
Total Government	5.3	5.4	+1.9

**TABLE 8**

**RETAILER CONFIDENCE IN MARSHFIELD\***

	<b>Index Value</b>	
	<b>September 2005</b>	<b>December 2005</b>
Total Sales Compared to Previous Year	53	39
Store Traffic Compared to Previous Year	53	31
Expected Sales Three Months From Now	56	53
Expected Store Traffic Three Months From Now	56	53

100 = Substantially Better

50 = Same

0 = Substantially Worse

\* Data collected by UW Marshfield-Wood County

**TABLE 9**

**HELP WANTED ADVERTISING IN MARSHFIELD**

	<b>Index Value</b>	
	<b>2004</b>	<b>2005</b>
Marshfield (December) 1980=100	56	67
U.S. (November) 1987=100	36	39

**TABLE 10**

**PUBLIC ASSISTANCE CLAIMS IN WOOD COUNTY**

	<b>2004 Fourth Quarter (Monthly Avg.)</b>	<b>2005 Fourth Quarter (Monthly Avg.)</b>	<b>Percent Change</b>
Total Caseload	92	91	-1.1

**TABLE 11**

**UNEMPLOYMENT CLAIMS IN WOOD COUNTY**

	<b>2004 Fourth Quarter (Weekly Avg.)</b>	<b>2005 Fourth Quarter (Weekly Avg.)</b>	<b>Percent Change</b>
New Claims	279	286	+2.5
Total Claims	1247	1290	+3.4

**TABLE 12**

**RESIDENTIAL CONSTRUCTION IN MARSHFIELD AREA\***

	<b>2004 Fourth Quarter</b>	<b>2005 Fourth Quarter</b>	<b>Percent Change</b>
Residential Permits Issued	18	4	-77.8
Estimated Value of New Homes	\$4,053.2 (thousands)	\$800.3 (thousands)	-80.3
Number of Housing Units	71	4	-94.4
Residential Alteration Permits Issued	86	100	+16.3
Estimated Value of Alterations	\$527.0 (thousands)	\$853.6 (thousands)	+62.0

\* Data collected by UW Marshfield-Wood County

**TABLE 13****NONRESIDENTIAL CONSTRUCTION IN MARSHFIELD AREA\***

	<b>2004 Fourth Quarter</b>	<b>2005 Fourth Quarter</b>
Number of Permits Issued	2	9
Estimated Value of New Structures	\$580.0 (thousands)	\$12,688.0 (thousands)
Number of Business Alteration Permits	16	11
Estimated Value of Business Alterations	\$1,051.6 (thousands)	\$1,517.1 (thousands)

\* Data collected by UW Marshfield-Wood County

**TABLE 14****CLARK COUNTY EMPLOYMENT BY SECTOR**

	<b>December 2004</b>	<b>December 2005</b>	<b>Percent Change</b>
Total Nonfarm	10.1	10.3	+2.0
Total Private	8	8.2	+2.5
Construction & Natural Resource	0.5	0.5	0
Manufacturing	2.7	2.8	+3.7
Trade	1.5	1.5	0
Transportation & Utilities	0.4	0.5	+25.0
Financial Activities	0.3	0.3	0
Education & Health Services	1.1	1.2	+9.1
Leisure & Hospitality	0.7	0.8	+14.3
Information & Business Services	0.7	0.8	+14.3
Total Government	2.1	2	-4.8

**TABLE 15**

**CLARK COUNTY EMPLOYMENT STATISTICS**

	<b>December 2004</b>	<b>December 2005</b>	<b>Percent Change</b>
Unemployment Rate	6.4%	5.3%	-17.1
Total Employed	15,205	16,268	+7.0
Total Unemployed	1,039	911	-12.3
Labor Force	16,244	17,179	+5.8

# **2006 Energy Outlook for Wisconsin and Practical Solutions for Your Business**

**Preston Schutt**

## **Overview:**

In 2005, energy topics grabbed headlines with a frequency not seen since the 1970s. Record high prices for oil coupled with record profits for oil companies, wars and political tensions in critical oil producing regions, hurricanes damaging U.S. refining infrastructure, and energy users of all types feeling the pinch were just a few examples. As energy consumers we feel helpless, or at best, uncertain about how to cope and what we should do.

If we are thinking about what to do about volatile energy prices, it is important to understand how the predominant types of energy: petroleum, natural gas, coal and electricity are interrelated. Former baseball great Reggie Jackson used to modestly call himself "the straw that stirs the drink." In the world's energy martini, petroleum is the gin and the other types of energy are mixers.

One should also be aware of how we got to this point. Past international events and government policies laid the foundation for today's energy market, and there are clear signals as to where today's market is heading, if you have the time and know where to look. An understanding of the industry's history and dynamics is an important first step in deciding what short- or long- term actions your company or family should take regarding energy.

Wisconsin's energy outlook in 2006 is shaped more by international and national forces than by in-state policies or events. This paper is intended to supply readers with a basic knowledge on the how the world's energy complex operates, discuss today's market dynamics, identify factors to watch for in the upcoming years, and offer some short- and long-term actions you can take to limit your exposure to the variability of energy prices.

## **History of International Energy**

International energy issues begin and center on countries getting and maintaining access to supplies of oil, and the intertwining of politics, economics and competition this goal entails. According to the U.S. Energy Information Administration (EIA) petroleum contributes the greatest single amount--about two-fifths of the world's total energy output -- and natural gas (which is linked to oil) more than one-fifth. While some have called petroleum the single most corrupting influence on governments, it is past and present government policies that have affected today's energy markets in various fashions since diesel and gasoline powered vehicles replaced horses as the predominant mode of transportation.

Access to energy has played a large role in recent world history. Some historians point to Hitler's decision to attack Russia, rather than securing oil resources in the Middle East, as his generals advocated, as the turning point of World War II. Energy became scarce in Germany, leading to innovations such as coal gasification and the Fischer-Tropsch process of catalytically converting hydrocarbon gases into diesel and gasoline. Today, interest in coal gasification in America has reawakened and Saudi Arabia is considering a huge Fischer-Tropsch plant to convert natural gas into diesel to feed Europe's growing need and more readily export natural gas.

Going back over 60 years to February 1945, President Franklin D. Roosevelt, while returning from the Yalta Conference, met with King Ibn Saud of Saudi Arabia on a U.S. warship in the middle of the Suez Canal. Roosevelt was dead two months later, but this meeting may have been one of his most important acts as a world leader.

While actual records of the meeting have never been released by either government, former CIA National Intelligence Officer Bill Christison states that it is quite clear that an agreement was reached under which the United States guaranteed for the indefinite future, the security and stability of the Saudi monarchy. In return, the Saudi King guaranteed U.S. access to, and joint development by Big Oil of the massive Saudi oil reserves, also for the indefinite future. These mutual guarantees were later, implicitly at least, extended to apply to the other, and smaller, Gulf state monarchies, from the Arab Emirates to Bahrain and Kuwait. Christison maintains that these guarantees, and the side effect of supporting authoritarian and undemocratic governments, still form the basis of today's U.S. oil policies in the Middle East which are aimed at guaranteeing long-term access to oil at "reasonable prices." To this day, Saudi Arabia remains the largest producer of all 11 Organization of Petroleum Exporting Countries (OPEC) and the only member whose production is not limited by a quota. It is allowed to "swing" its production, thus its importance in determining world oil prices.

The second, equally important policy, according to Christison, has been for the U.S. to provide strong support to Israel and to guarantee the security of Israel as a Jewish state, also for the long term. Over the last fifty-plus years, there has been a fair amount of tension and conflict between these two policies. Former President Harry Truman was instrumental in helping to establish the state of Israel in 1948. But even then, one of the reasons for opposition to Truman's desires by many other U.S. officials (including the Secretary of State General George Marshall) was that it might endanger the West's access to oil from the Arab nations.

For most of the period since World War II, the U.S. has managed to keep its two basic policies in the Middle East pretty much apart from each other and has kept the tensions between them in check. The one time the U.S. proved unable to keep the tensions between its two policies under control was the OPEC oil embargo in late 1973 and early 1974. The Arab-Israeli war of 1973, and specifically the U.S. response of resupplying Israel with large amounts of new military equipment, precipitated the embargo.

The gas lines that resulted in the U.S. only lasted a few months. But high oil prices lingered for years, causing a long-term chain of market reactions that are affecting today's markets. Christison sees those months as a perfect example of the conflicting interests between the two basic U.S. foreign policies in the Middle East. Because the United States has been able to hold these conflicting interests in check for most of the past half century, Christison thinks that Washington became complacent and allowed the tensions to grow into today's problems. He feels that these tensions are going to be exceedingly difficult to deal with in the future.

## **Addicted to Oil?**

President after President has proposed bold initiatives to curb America's appetite for oil. "America is addicted to oil," President Bush warned during his 2006 State of the Union address, vowing "to replace more than 75% of our oil imports from the Middle East by 2025." Saudi Arabia was particularly upset by the remark, mentioning their country's long history of increasing oil output during times of strife or market unrest. Administration officials quickly backtracked on this statement, saying the President was speaking "metaphorically." Bush proposed the Advanced Energy Initiative, a research program aimed at creating clean power plants and also cars powered by hydrogen, electricity and ethanol.

After President Bush's address, the Wall Street Journal assessed the past 35 years of presidential energy initiatives and did not see much hope for today's proposals. For example, President Richard Nixon during the 1973 Arab oil embargo -- which tripled the price of oil overnight, launched Project Independence. "In the year 1980, the United States will not be dependent on any other country for the energy we need to provide our jobs, to heat our homes, and to keep our transportation moving," declared Nixon. Like Mr. Bush, Nixon also promised federal dollars to produce "an unconventionally powered, virtually pollution-free automobile within five years."

Gerald Ford moved the date for achieving American energy independence forward to 1985. In 1975, Mr. Ford signed the Energy Policy and Conservation Act, which set federal standards for energy efficiency in new cars for the first time. In 1977 Jimmy Carter declared energy independence an issue that was the "moral equivalent of war." Carter created the U.S. Department of Energy, intended to manage America's ongoing energy crisis. In July 1979, after the Iranian oil crisis doubled oil prices, Mr. Carter swore, "Beginning this moment, this nation will never use more foreign oil than we did in 1977 -- never." He proposed a \$142 billion energy plan to achieve energy independence by 1990, moving the date forward yet again.

In 1991, in the prelude to the first Gulf War, George H.W. Bush announced a national energy strategy aimed at "reducing our dependence on foreign oil." He also funded the U.S. Advanced Battery Consortium -- a \$260 million research project to develop lightweight battery systems for electric vehicles.

In 1992, Bill Clinton proposed a tax of 59.9 cents per million BTU on crude oil to discourage dependence on foreign oil. The next year he launched the \$1 billion Partnership for New Generation Vehicles with the Big Three automakers, aiming, by 2004, to produce a prototype car that was three times more fuel-efficient than conventional vehicles.

Returning to the current administration, in May 2001, after California experienced a series of rolling blackouts, Dick Cheney's national energy task force declared: "America in the year 2001 faces the most serious energy shortage since the oil embargoes of the 1970s." In his 2003 State of the Union message, President Bush pledged "to promote energy independence for our country." He also announced his \$1.2 billion FreedomCAR proposal, to develop hydrogen-fueled vehicles.

Have any of these efforts been successful? The U.S. DOE reported that in 1980 the U.S. imported 37 percent of its oil. Today, we import 60 percent and by 2025 they estimate we will be importing 74 percent of our oil use. In 1980, we imported about 17 percent our oil from the Middle East, about the same percentage as we do today.

According to the Wall Street Journal, the only way America has ever cut back on imported oil is in response to higher prices. Today, the U.S. imports about 16 million barrels of oil per day with prices hovering around \$60 per barrel. We also import large quantities of diesel and gasoline, which are not counted as oil imports, although diesel is getting harder to find as Europe switches more of its transport industry to it. World oil prices peaked in real terms in 1980 at about \$90 per barrel. In 1977, U.S. imports were 6.6 million barrels per day. By 1985, imports had been cut in half to 3.2 million barrels.

Why did this happen? Simple economics says the Wall Street Journal: higher prices boosted domestic production and reduced consumption. The Journal fails to mention the impacts of higher vehicle fuel efficiency standards, which forced car makers to make more efficient vehicles. However, the Journal maintains, that despite more than 30 years of government-sponsored initiatives, only about 500,000 alternative fuel vehicles roam America's highways, and none are wholly electric or hydrogen powered. The Journal maintains that "today's higher prices will do far more to free us from dependence on foreign oil imports and spur energy technology innovation than any federal program ever will."

In the words of oil marketers, "The solution to high prices is high prices, and the solution to low prices is low prices." Can we simply sit back and wait for price induced efficiency and conservation to reduce demand while the promise of high returns drives producers to invest in supplying more oil to the market? The next section will look at the fundamentals of today's international and national energy markets, link them to policies of yesterday and discuss some aspects that may offer glimpses of where tomorrow's markets are headed.

## **Today's Energy Markets**

Believers in the unerring wisdom of leaving market forces to work themselves out rarely discuss the nature of petroleum markets, particularly in the U.S. World oil production and supply is largely controlled by OPEC, a cartel of eleven countries that account for about 40 percent of annual production and control about 75 percent of the world's proven oil reserves. In today's tight world supplies, the only producer with much if any excess production capacity is Saudi Arabia, thus their importance and ability to set prices.

To understand market power in the U.S., couple OPEC's controlled production with Big Oil's near oligopoly in refining and distribution of transportation fuels. Big Oil refers to the top oil companies; Exxon Mobil, British Petroleum, Royal Dutch/Shell, ChevronTexaco, and Total. These companies exert considerable market control over the majority of US refining capacity and product distribution chains, and there is no spare capacity in the system. For example, most gas stations may only purchase gasoline from their designated Big Oil supplier, even if an independent supplier has lower prices or surplus. All are reporting record profits and piles of cash on the balance sheets, despite paying high prices for oil. Yet the industry's economies of size and scale serve as an effective barrier to entry for upstart competitors.

Finally for consumers, there are few viable alternatives for transportation. Much of the U.S. lacks the public transportation infrastructure of other countries, and petroleum-based fuels have a near monopoly on the nation's transportation system. Alternative fuels like ethanol or biodiesel can be found, but both require vehicle modifications to use more than a small percentage in the fuel mixture. While there is a "market" for petroleum products, it is likely not one that economists would point to as one to emulate, and it does not measure up to the competitive nature of markets such as food, clothing, housing or other essentials. A victim of California's "energy crisis" claims that the entire debacle proved one thing; that over the short run of a few years, people will pay almost any price to get the energy they need.

## **The Energy Family: How Various Fuels are Interrelated**

Energy is a unique industry. The markets for the fuels are interrelated and more and more becoming national in scope. The fuels and their derivatives compete among each other for market share. But ultimately, petroleum tends to lead as its supplies and prices tend to cascade through all the fuels, affecting their costs and/or sales prices.

Table 1 demonstrates the nation's reliance on petroleum and natural gas. Petroleum users are primarily transportation (67%) and industrial users (23%). While over half of US homes are heated with natural gas, it is also used to produce propane, a product that competes with natural gas and fuel oil for home heating and industrial purposes. Primary uses of natural gas include electric power generation (23%) and industrial uses (32%) such as process heating as well as fertilizer, paints, plastics and chemicals are the primary uses for natural gas. Coal accounts for over 50 percent of electricity produced in the U.S., with natural gas producing about 17 percent and nuclear power 20 percent of all electricity generated.

Table 1: Sources of Energy Used in the US	
Petroleum	40%
Coal	23%
Natural Gas	23%
Nuclear	8%
Renewable	6%
Source: Energy Information Admin. 2004	

Natural gas and petroleum prices are linked closely, with natural gas following oil prices (Chart 1). Domestically, production is linked via fields owned by the same Big Oil companies. They are linked in demand and price by large users such as chemical plants, who have the ability to switch fuels based on price.

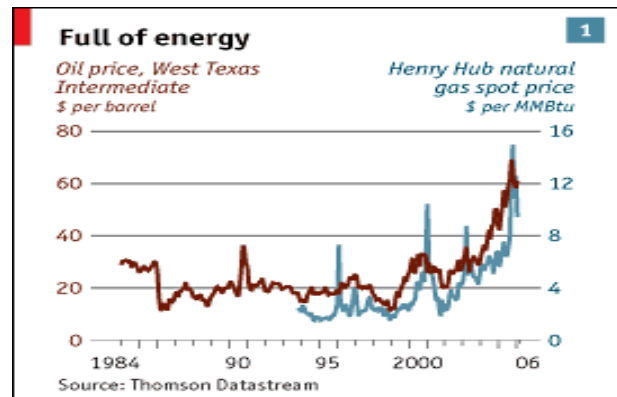


Chart 1: U.S. Oil and Gas Prices

With today's brisk demand, natural gas marketers need only price their product equal to or slightly below the price of fuel oil to be the fuel of choice due to gas' superior emission characteristics. While weather-related events or spot shortages may cause short-term deviations, the prices tend to track closely.

Propane and natural gas prices also track closely, primarily since most propane is stripped from natural gas. While propane can be made in the oil refining process, this is typically done when natural gas shortages or weather-induced demand spikes are causing a natural gas price spike. The refineries will then switch to making propane to use internally in place of natural gas. These activities tend to indirectly affect the price of propane by reducing demand for natural gas.

Today's petroleum and high natural gas prices are also affecting electricity prices, particularly in Wisconsin. Trains that haul the low-sulfur coal from Colorado's Powder River Basin use diesel for locomotion. High natural gas prices have prompted utilities to dispatch their natural gas power plants only when necessary, thus increasing the demand for coal. The increased demands for coal have stressed the rail infrastructure, causing more derailments and spot coal shortages. These factors allow coal companies to raise prices, because of increased costs and the fact that all other fuels are more expensive than coal. Increased coal and natural gas costs can translate immediately into higher electricity prices since utilities are permitted to pass on higher

fuel costs automatically to electric customers via a fuel surcharge, within a permitted band.

The result of all these interrelations is that while fuels tend to compete with one another for market share, their production and use is so intertwined that prices tend to move roughly in unison. In most cases, users are faced with the choice of paying the going price, using less fuel, or switching to another fuel. The easiest route is to pay the going price, and because energy is still typically a very small part of most users' budgets, the second and third option rarely get explored. This creates a short-term inelasticity in the market, which also allows vendors of various fuels to move their prices in near unison. It is this author's opinion that information technology now allows oil and natural gas producers to closely match production and consumption, allowing neither surpluses nor shortages, and more than ever creating the need for some level of oversight to control market power.

### What's driving world Energy Prices?

Much of today's high transportation fuel prices can be pinpointed on a seemingly inelastic world demand for petroleum coupled with the strains this demand is placing on a world energy infrastructure that has seen limited investment over the past 20 years. Add some political instability in producing regions, wars, terrorism threats and a U.S. energy policy that does not seek any near-term efficiency improvements and we have a perfect mix of factors for sustained high prices.

Driving the demand is the U.S. and the growing economies of China and India. While the U.S. uses about a quarter of the world's oil, it accounts for about 30% of the world economic output. Due to the country's growth in output and income, energy costs as a percent of income fell steadily in the 80s and 90s. That has changed.

In the U.S. one need only to point to how today's auto fleet has changed since the '80s. The emergence and popularity of the sport utility vehicle, coupled with

more vehicles per household and more miles driven, have pushed petroleum use higher each year, even in the face of record prices for gasoline and diesel. In 2004, U.S. petroleum use increased by 2.4 percent, or about 500,000 barrels per day. Based on

**Table 2: Sources and Users of Oil, EIA**

HAVE OIL		USE OIL	
Saudi Arabia	26%	U.S.	26%
Iraq	11%	Japan	
Kuwait	10%	7%	
Iran	9%	China	
UAE	8%	6%	
Venezuela	6%	Germany	4%
Russia	5%	Canada	
Libya	3%	4%	
Mexico	3%	Russia	3%
China		Brazil	
	3%	3%	
Nigeria	2%	S. Korea	3%
		France	3%

incomplete EIA data for 2005, daily U.S. petroleum use increased another 100,000 barrels per day to 20.9 million barrels per day with imports comprising about 60 percent.

Those who blame China's growth rate in oil use as the sole cause of high prices are being dishonest. Because China uses so much less oil than the U.S., its growth rate needs to be nearly four times the U.S. growth rate to be equal in terms of barrels per day. British Petroleum estimated China's annual growth to be about eight percent. So in barrels per day growth in oil use, China and the U.S. are about equal partners. China's growth in oil use is starting to slow as coal deliveries become more regular and replace fuel oil in power plants. But what if China's population matches the U.S. in auto use? That is what scares energy planners.

From the early 1980s to the mid-'90s, China quadrupled its economy largely using domestic energy sources. But now it has become a net oil importer, and claims it will need to double its supply to reach its goals. To understand the potential impact on energy consumption, China, with 22 percent of the world's population, now consumes 6.4 million barrels of oil per day. The United States, with 5 percent of the world's population, consumes about 21 million barrels per day. If China had the same per-capita consumption as the United States, it would need about 85 million barrels per day, as much as the entire world consumes today.

China relies on coal for about 70 percent of its energy, which results in severe pollution in many cities. In addition to searching for oil and natural gas throughout the world, it is spending \$40 billion to produce 32 nuclear reactors by 2020. The country is also working to develop alternative energy such as wind farms. China's economy is undergoing wrenching change as it converts from an agrarian lifestyle to an industrial, urban economy. The U.S. has already undergone this change, but China needs to create industrial jobs for many more workers. Wenran Jiang, a China expert at the University of Alberta described the country's energy grab as "driven by desperation." Already there are blackouts in major cities. If economic development hits a speed bump, the Communist Party in power may lose its grip if it can't deliver jobs and economic growth.

The U.S. and China are competing internationally to gain access to oil reserves. Prior to the U.S. occupation of Iraq, Saddam Hussein signed development agreements with China that would have become effective once U.N. sanctions were lifted. China was taken by surprise in Iraq, and has since diversified the regions where it seeks access to oil. China clearly separates business and politics in its oil dealings, making no demands on oil producers' governments to behave in a prescribed manner.

For a country in search of oil, Canada, the U.S.'s top supplier (17%), looks like the Holy Grail. Alberta's tar sands have oil reserves that could rank second only to those in Saudi Arabia, and some predict Canada will become the biggest global supplier by 2010. When Chinese President Hu Jintao visited Canada in September 2005 to celebrate 30 years of diplomatic relations between the two countries, he announced both had moved from a "cooperative" to a "strategic" partnership. The next month, China's largest oil

company, China National Petroleum, spent \$4.2 billion to acquire control of PetroKazakhstan, a Canadian company with assets in Central Asia. China may have failed to acquire U.S.-based Unocal last summer, but just north of the border it has found a new partner in energy-rich Canada. Should the Arctic ice continue to melt, watch for tensions between Canada and the U.S. to rise, since both claim ownership rights that are as yet unrecognized by any world body. The U.S. Geological Survey estimated that 25 percent of the world's undiscovered energy reserves lie under Arctic ice. Access to shipping lanes and fishing rights will also contribute to tensions should Arctic seas open for longer periods.

Besides growing demand, the other oil industry-related factor driving high prices at the pump is the nearly maxed out energy infrastructure. No new refineries have been built in the U.S. for nearly 20 years, and all production increases have been through incremental improvements at existing facilities. Refiners have also eliminated most of the tanks one used to see on site for product storage, preferring "just in time" production. Therefore, any time there is a breakdown, fire, or natural disaster, there is little or no product in storage and prices can immediately skyrocket. In Wisconsin, we saw price spikes in the wake of Hurricane Katrina and often do every time a refinery has a fire or shuts down for routine maintenance.

Further upstream from the refineries, the world's fleet of about 1,500 tankers is fully subscribed, and reports are that transport prices have nearly tripled. Estimates by the EIA indicate the increase in oil transport costs this year translates into an extra 5 cents a gallon for gasoline.

Why is the oil industry so slow to build capacity? The industry as a whole learned a hard lesson after the artificially-induced shortages and price spikes of the '70s. In response to those price spikes, the industry invested heavily in infrastructure and drastically increased supply, only to fall on hard times for the next 20 years. According to McKinsey consultants, the industry failed to earn a return equal to its cost of capital over the cycle. According to McKinsey, because refineries, pipelines or other infrastructure are very large investments, the industry has learned from its previous mistakes that created an oversupply and are being very disciplined in making capital investments. In 1990s western North Dakota oil fields, one could go to a tavern in nearly any former oil boom town and see the same bump sticker, "Dear God, please give me another oil boom, and I promise not to [expletive deleted] it away this time." Until the industry is convinced that the market has fundamentally changed, capacity additions will be incremental and careful.

Higher gasoline and diesel prices at the pump can be caused by several other factors including regulations for specialty fuels to control air pollution, and differences in taxation, political turmoil or terrorism threats. It is becoming more difficult to import refined fuels like diesel because of Europe's large scale switch to the fuel. Even macroeconomic issues like federal budget deficits, which in turn can affect the dollar's buying power can cause a rise in oil prices and thereby increases in gas prices. In 2005, new rules on low sulfur diesel could cause problems in states like Wisconsin,

which are at the end of the pipeline. How international and national issues could affect Wisconsin's outlook on energy will be discussed in the next section.

## Energy in Wisconsin

Wisconsin has some unique features with regard to its overall strategic position on energy. The state's energy portfolio is more reliant on coal than the nation as a whole and less reliant on petroleum (Table 3). The state has four characteristics that sets it apart from the nation.

First, the state has no deposits of fossil fuels, and must therefore import every unit of oil, gasoline, diesel, natural gas, propane and coal. The State Energy Office estimated that in 2004, Wisconsin spent about \$10 billion to import fossil fuels, about \$4,600 per household. This "leakage" of in-state money for out of state goods provides little economic development in terms of a multiplier effect. Nearly 5 percent of Wisconsin's 2004 gross state product "leaked" out of the state in the form of energy. In contrast, tourism brings in about \$6 billion of new money into the state. An examination of whether it is more cost effective to reduce the leakage of energy dollars or attract more out of state tourists would be a good thesis topic.

Second, Wisconsin is at the "end of the pipeline" for receiving most of its transportation fuels and natural gas. This could leave the state in a precarious position in 2006. As mentioned earlier, refinery shutdowns can immediately translate into price spikes, particularly for those at the end of the pipeline. Hurricane Katrina devastated the refineries in the Gulf Coast, causing the remaining U.S. refineries to be pushed hard and delay their scheduled fall maintenance.

As the 2006 spring and summer driving season approaches with its increase in gasoline and diesel demand, Gulf Coast refineries are still not at full output and other refineries will need to shut down for maintenance. Any unplanned outage, particularly in Midwest refineries, could cause severe price spikes in Wisconsin.

As spring 2006 approaches, refineries typically shut down for maintenance and to adjust processes to make summer blends of gasoline and diesel. Spring 2006 could be much worse than typical for price variability. Areas with air emission issues such as Milwaukee and Chicago could be affected by the EPA's oxygenate switch from MTBE to ethanol for its reformulated gas blends. MTBE blends could be added at the refinery and shipped via pipeline. Ethanol will need to be trucked to a terminal for blending. There are concerns about spot shortages of ethanol.

Petroleum	29%
Coal	32%
Natural Gas	21%
Nuclear	7%
Electric Imports	6%
Renewable	5%
Source: 2005 Wisconsin Energy Statistics	

New low-sulfur regulations are also affecting the diesel market, but Wisconsin could be particularly at risk in 2006. Pipelines bring all types of fuels to Wisconsin, including fuels not affected by the new sulfur regulations. It is impossible to get pipelines completely clean. The concern is that low-sulfur diesel shipped to Wisconsin via pipelines could pick up enough sulfur residues to be out of specification for sale. "Out-of-spec" diesel would need to be shipped back to the refinery, and there is no good way to do it since pipelines are one-way. Out-of-spec diesel originating from Gary, IN could be trucked back, but product originating from the Gulf Coast could tie up capacity at a Wisconsin terminal, causing spot shortages and price spikes in Wisconsin. As stated earlier, spare storage capacity is not easily found in today's oil industry.

The third unique factor is the state of Wisconsin's electric generation and transmission infrastructure. The entire electric infrastructure is in the midst of an investment boom. Ten years prior to 1997, Wisconsin utilities were investing little in new generation and transmission facilities. Today, nearly every utility has new facilities built, under construction or planned.

Since 1997, 3,652 megawatts of natural gas-fired generation has been added to the state's generating capacity and another 320 megawatt plant is under construction. Another 1,178 megawatts of coal-fired generation is under construction. The Public Service Commission has approved construction of 1,355 megawatts of a combination of coal, wind and natural gas powered plants. The combination of new generating capacity coupled with the predominance of natural gas-fired plants promises that electric and natural gas rates will continue to climb in Wisconsin.

Between 2001 and 2004, American Transmission Company (ATC) invested \$481 million in transmission infrastructure in Wisconsin. In its 10-year plan, ATC estimates that it will need to invest an additional \$3.4 billion through 2015. Wisconsin is home to one of the most congested power lines in the nation; a 345 kilovolt line running from the Minnesota border, through Eau Claire to near Wausau. As the requirements of the transmission system to move large amounts of power from one region to the next have increased, the need for reinforcements and new connections with other states has increased. Much of what is driving the need for new transmission facilities is the movement toward large, multi-state regional grids to provide more reliability and more economic dispatch of a region's power plants.

Fourth and finally, the state's electric generation is unusually dependent on coal for fuel. The Wisconsin Division of Energy's 2005 Wisconsin Energy Statistics showed that about 73 percent of the state's electricity was generated by coal in 2004. Coal has been an unusually reliable and stable-priced source of fuel until recently. Low-sulfur coal from the Powder River Basin is the state's preferred source. This coal is high demand, rail transport costs have increased, and derailments have been happening with more frequency. Short-term coal shortages in Wisconsin could lead to increased use of natural gas for electric generation, which will translate into higher electricity costs and less reliable supplies of propane. The state's electric infrastructure appears to be in good shape for 2006. However, there is a price to pay for reliability.

While it is difficult to estimate the impacts these generation and transmission investments will have on electric rates, one can be confident that electric rates in Wisconsin will continue to increase for the foreseeable future as infrastructure investments and higher fuel costs work their way through the energy complex. From 1999 to 2004, EIA data show that the average cost of electricity rose in Wisconsin by an average of four percent per year. In 2005, the Public Service Commission approved rate increases for most of the major utilities. Over the past decade Wisconsin energy customers have seen a:

- 49 percent increase in residential and industrial electric price per kilowatt hour between 1995 and 2005.
- 36 percent increase in commercial electric prices per kilowatt hour between 1995 and 2005.
- 74 percent increase in residential delivered natural gas prices per thousand cubic feet between 1995 and 2004. Delivered prices include utilities cost for the gas as well as upkeep and maintenance of their distribution systems.
- 94 percent increase in industrial delivered natural gas prices per thousand cubic feet between 1997 and 2004.
- 94 percent increase in commercial delivered natural gas prices per thousand cubic feet between 1995 and 2004.

Wisconsin's electricity prices in 2006 will be affected by weather and the strength of the U.S. economy, which will in turn affect the price of petroleum, natural gas and coal. As usual, if the summer is hot, natural gas-fired power plants will be dispatched more hours to meet air conditioning load. This of course, draws down natural gas stocks, raising prices for businesses and home heating, which also then affects propane prices. A cool summer in the U.S. will help keep a lid on natural gas prices, but the economy will then determine prices. As long as the U.S. economy stays on solid ground, energy consumers will pay as much they need to in order to get the energy they need. In the near term, as well as the longer-term, there are actions people and businesses can take to limit their exposure to highly variable energy prices. We will address some of those opportunities in the next section.

### **What you can do to control energy costs**

This paper has established that absent an economic meltdown in the U.S. or China, energy prices in Wisconsin are going to stay high or increase and vary widely as weather or refinery or pipeline outages create spot shortages. This may in some ways be good news for businesses and residents that are struggling with energy bills. Sustained high prices eliminate some of the risk in investing in energy management strategies or technologies. High energy prices mean faster paybacks on energy efficiency investments and forecasts of sustained high prices mean there is less risk of buyer's remorse.

For most businesses and residents, there are really only two categories of actions that one can take to reduce their exposure to energy price variability. The first strategy is to systematically manage the type of energy you purchase and the prices you pay. The second strategy is to enact internal management systems that are focused on improving the energy efficiency of the home or business. Together, the two actions comprise the bulk of a comprehensive energy management strategy.

Some energy professionals make a clear distinction between energy conservation and energy efficiency. Most people use the terms interchangeably. In this paper, energy conservation refers to strategies or actions that refer to giving something up to reduce the amount of energy used, such as turning off lights or turning down the thermostat a few degrees. Energy efficiency refers to strategies or actions by which people or businesses can do as well or better than before, but use less energy in the process. Conservation is usually measured by simple reductions in energy use; kilowatt hours, gallons or therms. Energy efficiency is measured in terms of energy use per unit of sales/output or well being criteria. For example, residential energy efficiency programs have changed to reflect efficiency criteria by measuring progress in terms of energy use per square foot of space and using names like "Affordable Comfort." Efficiency says there is no need to sacrifice to use less energy and conservation is now considered only a part of a home or business' energy efficiency strategy.

### **Managing Energy Types and Prices:**

Buying energy is much like buying any other product in that it pays to comparison shop, and be sure to read the fine print. Large energy users pay lower prices due to economies of scale and the fact that, because they are large users they have choices, and choices mean leverage. Some large users can switch between fuels and others can choose to generate their own electricity and thermal energy from local resources or waste streams. It is fact of life that in the world of energy, size and scale wins out nearly all the time. If energy is no more than two to three percent of your total costs, your time spent managing prices may be spent better elsewhere.

### **Transportation Fuel Purchasing:**

In the world selling and buying, the winner is often the one with the best information. It can pay to be up to date on where prices may be headed, if an important pipeline or refinery has gone down, or where stocks are in relation to previous years. There are free and for fee sites that can help you.

Energy Information Administration (EIA), created by Congress in 1977, is a statistical agency of the U.S. Department of Energy. They provide policy-independent data, forecasts, and analyses to promote sound policy making, efficient markets, and public

understanding regarding energy and its interaction with the economy and the environment. This is a free service.

<http://www.eia.doe.gov>

Wisconsin Department of Administration – Energy Division is Wisconsin’s State Energy Office. Information resources include the 2005 Wisconsin Energy Statistics, Degree Days Information, Energy Savers Tips and links to Focus on Energy, the State’s energy efficiency and renewable energy program. Every fall, the Energy Division hosts a Winter Fuels Meeting, where the experts present supply and price outlook for the upcoming winter. Jim O’Neal is the Energy Division’s key person on transportation and heating fuels and organizes the Winter Fuels Meeting. To get information or attend: email: [jim.oneal@wisconsin.gov](mailto:jim.oneal@wisconsin.gov) or (608) 266-8971.

<http://www.doa.state.wi.us/section.asp?linkid=7>

Fee-service: Oil Price Information Service (OPIS) is the world’s most comprehensive source for petroleum pricing and news information. Products and prices began in 1977 with the award-winning Oil Express Newsletter, quickly expanded in 1980 into the only source, and the world’s most comprehensive database of U.S. wholesale petroleum prices. This is a fee-based service.

<http://opisnet.com/news/index.asp>

### **Comparing Heating Fuels:**

Before you buy, be sure you are buying the right fuel for the right job. Some simple math is usually all that is needed, along with some energy conversion information. The New Hampshire Energy Office has a good website that helps users of any size compare heating fuel costs:

<http://www.staywarmnh.org/fuelprices.htm>

The EIA provides an Excel spreadsheet that is very helpful in comparing the cost of various fuels. [www.eia.doe.gov/neic/experts/heatcalc.xls](http://www.eia.doe.gov/neic/experts/heatcalc.xls)

### **Buying Electricity**

Focus on Energy’s Practical Energy Management manual lists several steps in purchasing electricity. Once again, these recommendations are more practical for large users. In Wisconsin, you buy electricity from the regulated utility that serves your location. Your utility sells electricity at different rates, depending on the type of customer you are (residential, commercial, industrial) and the time of day that you’re using the electricity. Understanding your utility’s rate structure and your facility’s energy use patterns helps you reduce your electrical energy costs by matching your energy use to the appropriate rate offered by your utility.

Step 1: Determine your facility’s electrical energy use pattern

- Request your most recent year’s electric bills
- Check them for accuracy (studies show about 1 percent of bills contain errors)

- Plot your monthly electricity consumption: plot both energy (kilowatt-hours) and demand (kilowatts)

Step 2: Use this information to:

- Find out in what month your highest electrical demand (kW) is recorded
- Determine if there is a seasonal pattern to your electrical usage

A basic industrial electric rate includes: 1) Customer charge; 2) Energy charges; 3) Maximum demand charge; and 4) Customer demand charge. These charges vary among utilities and it often takes a bit of investigation to determine if you can benefit from or are eligible to move to another type of rate. Other types of rates include interruptible rates offer reduced demand charges in exchange for the ability to reduce load within specific periods.

Step 3: Find out:

- Your current rate structure
- What other rates are available
- What end-uses make up the peak demand in your facility
- Your 15-minute demand profile for peak days over the last 12 months (request from your utility)

Best practices for purchasing electricity are:

- Match your electrical use to the appropriate utility rate
- Shift electrical load to off-peak whenever possible
- Keep your monthly demand charge to a minimum
- Do not vary your customer demand from month to month
- Contract for interruptible power whenever practical
- Use backup generation to reduce demand charges where economically practical and in case of interruption

## **Buying Natural Gas:**

Focus on Energy's Practical Energy Management manual lists several steps in purchasing natural gas. The natural gas industry is made up of three components:

- Producers
- Transporters
- Distributors

Negotiating a good gas deal in the market requires both expertise and time to coordinate these three components. Most small to medium consumers (who spend less than \$1,000 per month on natural gas) purchase gas through their local utility. The utility serves as the broker to purchase gas from the producer, arranges for its transport from the production site to the distributor and then distributes it to the customer. Utilities sell natural gas at cost, and only make money on as a return on investment in pipelines and facilities.

For large gas consumers, it may make economic sense to buy natural gas from an alternate supplier. A gas marketer or broker is an independent company that sells gas supply and related services to consumers. This company arranges for transportation of that gas to your local distribution systems which delivers it to your facility. Your savings will depend on the amount of gas you use and the terms of your contract with the supplier.

Best practices for purchasing natural gas are:

- Match your natural gas use to the appropriate utility rate
- Take advantage of seasonal variations in fuel prices: Gas prices tend to be higher during the summer than during other seasons and highest during the winter. If your facility has dual fuel capability, alternative fuels could be used during peak periods.
- Take advantage of interruptible service for part of your non-essential load
- Consider storage as part of your purchasing solution
- Consider using an aggregator to make volume purchases. Have you identified and consulted a broker to see if your gas prices can be reduced?

### **Energy Management and Energy Efficiency:**

Energy management uses energy efficiency to reduce a buyer's exposure to price changes. The goal is to reduce a home or business' energy use per square foot or unit of output, respectively. The first step to energy management is to get organized by putting management systems in place such as:

- a commitment from top level management
- defined goals, timetable, risk tolerances, measures of success, responsibilities, lines of authority, carrots & sticks
- track energy bills, identify big energy users, identify no-, low- and long-term project opportunities
- a system of measurements (If you can't measure it, you can't manage it.)
- an analysis method to determine feasibility (use data driven methods, not just what's easiest)
- implement projects on a schedule and stick to it
- a regular audit system: did the project deliver and do what it was supposed to?
- reward: recognition, shared savings, benefits
- feedback: staff teams provide feedback & help identify new opportunities

There are many sites on the internet to get free, practical information and advice on energy efficiency. Wisconsin residents should first check out [www.focusonenergy.com](http://www.focusonenergy.com) to see if they are eligible for services from the program. Information on energy efficiency for your home or business is available on the site.

Homeowners can find the “Home Energy Checklist” from the American Council for an Energy Efficient Economy <http://www.aceee.org/consumerguide/chklst.htm>. The checklist offers things you can do today, this week, this month, and this year.

For homes and offices, EPA’s Energy Star Program [www.energystar.gov](http://www.energystar.gov) provides listings on equipment that passes the rigorous testing on efficiency and reliability to earn the Energy Star label.

The US Department of Energy – Energy Efficiency & Renewable Energy [www.eere.energy.gov/](http://www.eere.energy.gov/) lists 20 Energy Efficiency Best Practices for industries <http://www.eere.energy.gov/consumer/industry/20ways.html>

Another good site for industrial energy efficiency is at the Consortium on Energy Efficiency <http://www.cee1.org/>.

### **Conclusion:**

While there are no short-term easy solutions to today’s energy issues, energy users can take actions to limit their exposure to price variability. Prices appear to be poised to stay at present levels and even increase over the next few years. The first response users can take is to build their knowledge of energy issues and their options for using it. Knowledge of the industry, up to date information and a strategy of well-analyzed actions to control energy prices and use are your best tools for dealing with today’s energy markets.