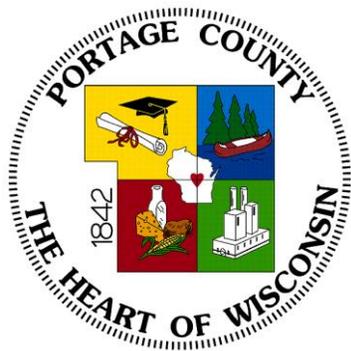


# Portage County Energy Report, 2015

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September 13, 2016

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\*Special thanks to Dan Mechenich for preparing and detailing elsewhere many of the successes and recommendations highlighted in this report during his internship through UW-Stevens Point; and for his prior work on Portage County's Strategic Energy Management Plan as an Energy Specialist with the Central Wisconsin Resiliency Project.

## Contents

Summary of Successes, Opportunities, and Recommendations .....	3
<a href="#">Executive Summary .....</a>	<a href="#">4</a>
Summary of Energy Use in 2015 .....	4
Background .....	5
Natural Gas and Electricity.....	5
Overview .....	5
Detail and Discussion .....	6
Buildings .....	6
Parks.....	8
Strategic Energy Management: Natural Gas and Electricity.....	8
Actions taken .....	8
Progress toward achieving Goals.....	9
Transportation Fuels and Costs .....	10
Retail (Gas Station) Fuel Purchases: .....	10
Bulk Fuels (Highway and Parks Departments) .....	10
Continued Strategic Energy Management Efforts .....	11
Current Overview of Successes, Opportunities, and Challenges Regarding Utilities: .....	11
Current Overview of Successes, Opportunities, and Challenges Regarding Transportation Fuels: .....	12
Appendices.....	14
Appendix A: Buildings Owned and Operated .....	14

## Summary of Successes, Opportunities, and Recommendations

Featured first in this report are these key points from a series of discussions among numerous county department leaders and staff that took place in 2014. ~~These d~~Discussions focused on each participating department's recent successes, opportunities, and challenges in pursuit of further energy savings. A part-time energy intern through UW-Stevens Point provided information resources to staff in these meetings; and documented and summarized key findings as case studies. Key successes and recommendations are included in this section. It is hoped that this summary of successes, opportunities and recommendations may help to engage more colleagues in more strategic energy management efforts and help promote the existing culture of shared responsibility in strategic energy management.

### Highlighted Successes

<input type="checkbox"/>	The Solid Waste Department has reduced air infiltration in its facilities by installing doorway curtains and opening garage doors less frequently and for a shorter duration.
<input type="checkbox"/>	Timers installed on the Highway Department's 1.2 kW engine block heaters have them running only when needed instead of constantly, and computer chips turn off idling patrol trucks after 12 minutes.
<input type="checkbox"/>	The Highway department (and other individuals) routinely look for anomalies in utility bills and can match each with a specific meter.
<input type="checkbox"/>	The Highway and Parks departments carefully track bulk fuel purchases and quickly respond to requests for that data.
<input type="checkbox"/>	The Highway Department has made purchases that conserve energy and improve staff satisfaction.
<input type="checkbox"/>	The Parks and Highway Departments have both boosted vehicle/equipment utilization to generate more revenue in a model that also seeks to reduce operating costs.
<input type="checkbox"/>	The Parks Department "mothballs" several buildings each winter, reducing their energy use to minimum levels.
<input type="checkbox"/>	Handheld meters that measure electricity use has allowed Courthouse Building staff to make behavioral changes that improve energy conservation while minimizing inconvenience.
<input type="checkbox"/>	The Facilities Management Department has completed many low cost/high savings energy conservation projects across numerous facilities and departments.
<input type="checkbox"/>	A new variable frequency drive motor on the landfill's methane flare spins only as fast as needed (typically a ~14 amp draw) instead of at the maximum speed (a ~33 amp draw).
<input type="checkbox"/>	<a href="#">Since adopting the energy plan, County supervisors reviewed data as reported through 2013 (now through 2015).</a>

In achieving these successes, it was various staff members who identified opportunities to conserve energy, helped by a willingness and excitement to carry out the work. The successes listed above show that Portage County's energy improvements are often made at the department level. Continued progress toward energy conservation and efficiencies might well continue in collaboration with departments, with measurement focused on what is managed.

### Key Recommendations

□	Portage County should create an energy planning culture to improve staff participation and acceptance using open dialogue, periodic communications, surveys, orientation, and training.	(SEMP Energy Plan, HR Dept staff, staff working in the Courthouse)
□	Portage County should explore the potential of satisfying <a href="#">SEMP Energy plan</a> objectives and expanding its environmental stewardship with purchasing decisions using free and acclaimed resources like Green Seal's environmental standards.	(Best Practices)
□	Portage County should develop (maintain) a funding strategy for capital and energy efficiency projects that might also encompass renewable energy proposals.	(SEMP Energy Plan)
□	Portage County should develop standard operating procedures and policies, including, but not limited to, those from the <a href="#">SEMP energy plan</a> .	(SEMP Energy Plan)
□	Portage County should account for energy use with efficiency metrics with the help of free and acclaimed resources, like AASHE's Stars program or the U.S. Green Building Council's LEED rating system(s), and use them to write performance-based energy use goals (e.g. a 10% reduction in energy use per revenue dollar, etc.).	(Best Practices)
□	Portage County should firm up cost/savings estimates from the <a href="#">SEMP energy plan</a> and other renewable energy/energy efficiency projects to select the best opportunities, including a possible salaried, full-time, energy planning position.	(Best Practices)

### Summary of Energy Use in 2015

Energy use data in this report spans as much as eight years, from 2008 through 2015. The data shows several areas of appreciable progress. Like the 2013 energy report, this report recognizes the need to take weather variables and into account when evaluating improvements in building performance, and at times focuses attention on facilities owned and operated by Portage County.

In 2015, Portage County spent \$1,117,539 on energy resources, as detailed in this report. In particular, the county consumed 5,488,837 kilowatt-hours (kWh) of electricity, and 244,315 therms of natural gas at a combined cost of \$610,307. The county also purchased 239,294 gallons of transportation fuels (including unleaded and diesel fuels) for county-owned vehicles and equipment, at a cost of \$507,232. These 2015 utility totals represent a modest increase annual electricity use and a decrease in natural gas use compared to 2014. Among facilities predominantly *operated* by Portage County there was a decrease in both electricity and natural gas use in 2015 as compared to both 2009 and 2014.

Taking into account the coldness of winter months and corresponding heating loads of buildings, the performance of buildings was better in 2015 than in most previous years. Notably, improvements in heating efficiencies among *county-operated* buildings resulted in about 11% less energy consumption (per degree day) as compared to 2009.

Electricity use across facilities has varied with efficiency improvements as well as variation in operations, occupancy, service demand, and weather. The county's annual average price paid for electricity (per kilowatt-hour) in 2015 was about 3% higher than average prices paid in 2009. Notably, beginning in 2015, Wisconsin Public Service increased customers' fixed charges – offset to some degree with a slight decrease in variable rates. While this may amount to

more of a shift than an increase for many users, this would bring a noticeable cost increase particularly for accounts that use very little energy and a slight cost decrease for accounts that use a great deal of energy.

Portage County purchased an estimated 31,408 fewer gallons of fuel in 2015 compared to the year before – spending \$484,691 less than 2014. There was a 42% decrease in average price for fuels purchased by the county. The price of fuels had gradually climbed in previous years.

## Background

On April 27, 2010 the Portage County Board adopted Resolution 5-2010-2012, which established the Portage County Smart Energy Team and called for the development of a Strategic Energy Management Plan. In July, 2010 a Sustainability Specialist was hired to develop an energy baseline for the County (an analysis of existing use), and aid in plan development. This position was paid for by the Portage County Facilities Department and a UW-Extension Innovative Grant. In 2011 an Energy Specialist (from the Central Wisconsin Resiliency Project) was retained to assist with a review of transportation fuels use. Altogether, the resulting plan consists of two components: “Phase I: Electricity & Natural Gas” (adopted in April, 2011), and “Phase II: Transportation Fuels” (adopted in March, 2012). The purpose is to limit the County’s energy use, to better utilize alternative energy sources, and to monitor energy consumption and costs over time. This 2015 annual energy report provides a current inventory and indicates areas of progress to date.

## Natural Gas and Electricity

### Overview

#### A Snapshot of Energy Usage, 2015

Number of Portage County government buildings:	14	(excludes park shelters and 1039 Ellis)
County energy use (electricity & natural gas):	43,159 MMBtu’s	(43% Electricity; 57% Natural Gas)
Cost of County energy use (electricity & natural gas):	\$ 610,307	(77% Electricity; 23% Natural Gas)

Portage County government consumes the great majority of its electricity and natural gas energy (about 97% in 2015) in buildings that house its operations. There is also a small amount of energy used at County parks, and a minimal share in the cost to maintain the common areas of the Portage County Business Park. Natural gas is primarily used for water heating, space heating and cooking in County buildings. Total energy use and that of buildings is in the table below<sup>1</sup>.

#### Portage County 2015 Energy Use by Type of Energy for Uses in Buildings

End Use	Type of Energy Consumed	Unit	Annual Consumption	MMBtu Equivalent	Percent of Total Usage
Buildings	Electricity	kWh (kilowatt hours)	5,108,016	17,429	40%
	Natural Gas	therms	244,064	24,406	57%
		<b>Sub-Total</b>	<b>N/A</b>	<b>41,835</b>	<b>97%</b>
<b>TOTAL</b>		<b>Total</b>	<b>N/A</b>	<b>43,159</b>	<b>100%</b>

Source: Data gathered from Wisconsin Public Service, Alliant Energy, and Central Wisconsin Electric Cooperative.

<sup>1</sup> The electricity purchased by Portage County to operate streetlights and signs is tracked; yet it is not included in these totals in keeping with the format of the 2010 Strategic Energy Management Plan and Portage County Energy Report, 2013.

## Utility Costs

The largest energy expenditure in 2015 was for buildings: \$437,109 for electricity, and \$139,778 for natural gas. Together these costs make up 95% of the total costs for the County's electricity and natural gas usage. In total, the County spent an estimated \$610,307 on electricity and natural gas in 2015, which is \$81,307 less than was spent in 2009.

### Portage County 2014 Energy Cost by Type of Energy and End Use

End Use	Type of Energy Consumed	Dollars	Percent of Total Usage
Buildings	Electricity	\$437,109	72%
	Natural Gas	\$139,778	23%
	<b>Sub-Total</b>	<b>\$576,887</b>	<b>95%</b>
	<b>Total</b>	<b>\$610,307</b>	<b>100%</b>

Source: Data from Wisconsin Public Service, Alliant Energy, and Central Wisconsin Electric Cooperative.

Electricity costs more per Btu than natural gas, making the County's expenses for electricity higher than natural gas even though more Btus of natural gas are used. (A Btu is a common unit of energy. One MMBtu is a million Btu.)

### 2015 Dollars per MMBtu by Energy Type

Energy Type	\$/MMBtu
Electricity (kWh)	\$25.74
Natural Gas (therms)	\$5.73
<b>Average</b>	<b>\$14.21</b>

Source: Data from Wisconsin Public Service, Alliant Energy, and Central Wisconsin Electric Cooperative.

Note: Electricity costs subject to cost-sharing are excluded from this calculation.

## Detail and Discussion

### Buildings

Variability in weather is important when evaluating building performance over time. Between 2008 and 2015, the year with the coldest winter months was 2014, and the year with the hottest summer months was 2010. That is measured in heating degree days ("HDDs") and cooling degree days ("CDDs").

County-operated buildings' performance in terms of natural gas (used predominantly for space heating) generally improved between 2009 and 2015. Over the same period Portage County buildings' total electricity use has not changed dramatically. Several buildings have seen more variability than others. Electricity use among the twelve buildings operated by Portage County decreased by about 3% in 2015 compared to the previous year – even with a substantial increase in air conditioning loads associated with an increase in cooling degree days.

### Space Heating:

The heating of county buildings is powered predominantly by natural gas. Some electricity is also used to circulate warm air. Of all the natural gas consumed by county government, most is used for space heating.

Heating Degree Days ("HDDs") are commonly used as a measure of coldness over a given time period. HDDs are calculated according to daily temperatures relative to a specified base temperature if practical interest, such as a target indoor air temperature. So HDDs indicate furnace loads and relate to natural gas consumption in these buildings.

Energy efficiencies including insulation, elimination of air leaks, heating and ventilation systems, and responsible use (keeping doors and windows closed in the winter) are some of many other factors that also affect natural gas use. From

2009 through 2015, the amount of natural gas used per heating degree day (“HDD”) has dropped by about 9% across all facilities covered in the 2010 Strategic Energy Management Plan, and by about 11% among the twelve buildings operated by Portage County<sup>2</sup>. Many energy efficiency improvements implemented in county owned facilities in recent years have contributed to this improvement in building heating performance.

**Ratio of All Portage County Buildings' Natural Gas Consumption to HDD\* (MMBtu/HDD)**

	2008	2009	2010	2011	2012	2013	2014	2015
MMBtu/HDD	3.14	3.31	3.45	3.24	2.94	2.80	3.09	3.03

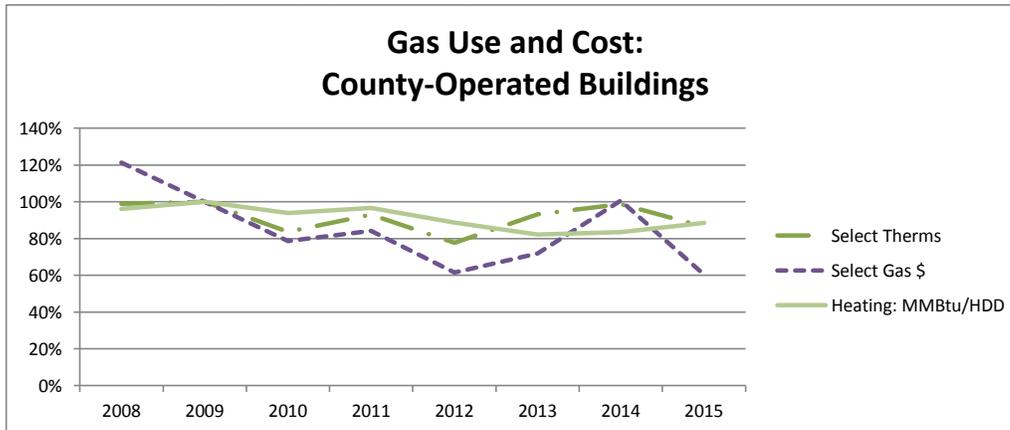
**Ratio of Portage County-Operated Buildings' Natural Gas Consumption to HDD\* (MMBtu/HDD)**

	2008	2009	2010	2011	2012	2013	2014	2015
MMBtu/HDD	2.87	2.99	2.81	2.89	2.65	2.45	2.50	2.65

By this measure, if heating performances of the twelve county-operated buildings had remained what they were in 2009, the county would have required about 48,100 more therms to heat them than it actually did in 2014. This would have cost about \$39,300 more in 2014 alone.

For the buildings operated by Portage County rather than a contracted service provider, the improved heating performance is most pronounced. The graph below illustrates how annual natural gas use (“Therms”), heating efficiency (as “MMBtu/HDD”), and total gas costs have changed relative to 2009 (2009 = 100%). For the twelve county-operated buildings, the natural gas demand per HDD has dropped by about 11% since 2009.

**Gas Use and Cost: Portage County-Operated Buildings**



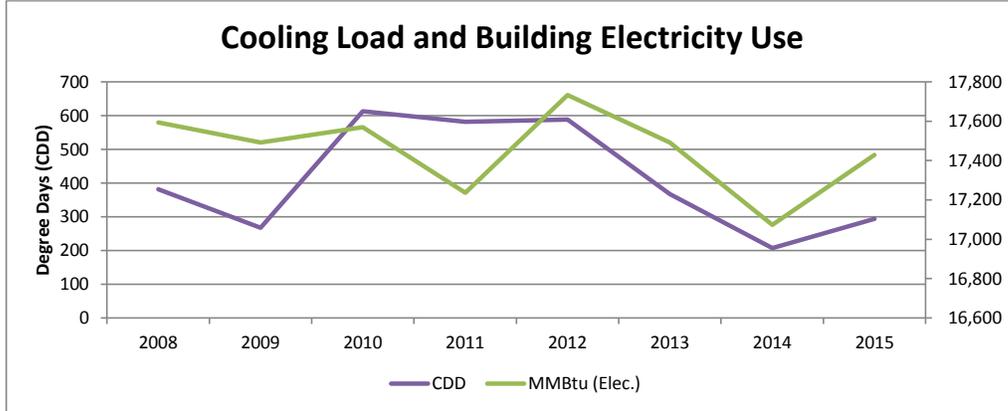
**Space Cooling:**

Building air conditioning is powered entirely by electricity. Many other functions are also powered by electricity, such that space cooling accounts for only part of county buildings’ energy use – an estimated ~10% regarding the Annex

<sup>2</sup> See Appendix A for county buildings operated by Portage County.

Building<sup>3</sup>. So the relationship between cooling degree days and building electricity use is not always very clear regarding annual data, yet may still be seen in the figure below.

**Cooling Load and Building Electricity Use**



**Parks**

The County Parks’ electricity and natural gas use consists of use at shelters and by outdoor lighting in the parks. These facilities show substantial year-to-year variability in energy usage. Usage varies according to the use of parks by visitors, and also varies by the types of operations that need to be performed each year for maintenance.

**Energy Use, and Costs, for Portage County Parks (2011 to 2014)**

	2009	2010	2011	2012	2013	2014	2015
Electricity (kWh)	185,796	169,546	150,108	182,398	155,486	144,243	153,483
Electricity Costs (\$)	\$25,658	\$24,269	\$22,919	\$26,388	\$23,807	\$22,646	\$24,986
Natural Gas (Therms)	108	252	262	201	167	227	251
Natural Gas Costs (\$)	\$158	\$284	\$296	\$204	\$192	\$326	\$297

**Strategic Energy Management: Natural Gas and Electricity**

**Actions taken**

Portage County has embraced the practice of improving building facilities gradually, as replacements become necessary and as other opportunities and demands emerge. Typically pursued in order to contain costs, numerous improvements have helped do so by advancing energy efficiency as well. Some of these were recommended by the Strategic Energy Management Plan adopted in 2010, while others were based on emerging needs and opportunities identified by the facilities director. The energy-saving projects that have been implemented include improving HVAC and hot water controls, reducing air infiltration on doors, insulating AC lines, installing variable frequency drivers for water pumps, replacing lights with LEDs and custom fluorescents, replacing boilers with high performance boilers, replacing electric humidifiers with natural gas, and favoring efficient appliances where appropriate. More projects, and more details

<sup>3</sup> The typical share of electricity used for AC in 2012 was estimated by subtracting one representative building’s average non-summer-months’ electricity usage from each of its summer-months’ electricity usage.

including costs and estimated payback periods for each project implemented, are given in tables (by building) in the appendices of this report.

Efforts in recent years have centered on tracking energy uses and costs, establishing meaningful performance-based measures, engaging more staff and leadership to foster innovation and inform investments, and exploring ways for the county to help lead and improve community energy security on a broader scale.

Considerable focus in 2012 and 2013 was on data tracking used in preparing the first annual energy report since adoption of the energy plan. Practical observations and insights from all county staff were actively sought especially where explanation of trends was needed. Also compiled were a few related measures that indicate the dynamic service demands and variations in heating and cooling loads. As in the 2013 energy report, facilities owned and controlled by Portage County are indicated in the appendices. Yet more could perhaps be done to develop meaningful performance-based measures with respect to the important services provided by each department. Efforts especially in 2014 focused on engaging a lot more staff through a series of meetings specific to participating departments. In these meetings, energy use data and recent trends were examined and discussed. Many successes and responsible actions were noted and encouraged, and a many remaining opportunities and challenges were identified.

#### Progress toward achieving Goals

<b>Overall Snapshots as Reported</b>	<b>2009</b>	<b>2014</b>	<b>2015</b>	<b>'15 as % of '09</b>
Number of Portage County government buildings:	15	14	14	-
County electricity and natural gas use (MMBtu):	46,638	48,491	43,159	93%
<i>Electricity (kWh)</i>	5,651,787	5,359,797	5,488,837	97%
<i>Natural Gas (therms)</i>	273,544	302,031	244,315	89%
Cost of County electricity and natural gas use:	\$691,614	\$696,644	\$610,307	88%
<i>Electricity (\$)⁴</i>	\$470,273	\$450,062	\$ 470,232	100%
<i>Natural Gas (\$)</i>	\$221,341	\$246,582	\$ 140,075	63%
Estimated CO <sub>2</sub> Emissions (lbs CO <sub>2</sub> )	12,765,476	12,604,955	12,147,553	95%
<b>Snapshots for Comparison and Evaluation</b>	<b>2009</b>	<b>2014</b>	<b>2015</b>	<b>'15 as % of '09</b>
Number of Portage County-controlled buildings:	12	12	12	-
County electricity and natural gas use (MMBtu):	42,140	39,657	36,200	86%
<i>Electricity (kWh)</i>	5,117,203	4,481,084	4,354,235	85%
<i>Natural Gas (therms)</i>	246,805	243,677	213,437	86%
Cost of County energy (kWh & therms) use:	\$606,683	\$565,935	\$489,659	81%
<i>Electricity (\$)⁴</i>	\$408,563	\$366,709	\$369,926	91%
<i>Natural Gas (\$)</i>	\$198,120	\$199,226	\$119,733	60%
Estimated CO <sub>2</sub> Emissions (lbs CO <sub>2</sub> )	11,547,900	10,434,964	9,866,287	85%

Regarding “Snapshots for Comparison and Evaluation” above, the adopted goal of a 10% reduction in energy use was achieved regarding the set of twelve buildings operated by Portage County. Looking as far back as 2008, 2012 was the year in which the least natural gas was used. In that year, the net costs of electricity and natural gas (combined) were about 8.9% lower than they were in 2009, costing the county about \$61,641 less. Regarding the natural gas component

<sup>4</sup> This summary includes adjustments to certain costs (but not usage) for the Business Park.

alone, a consumption decrease of 22% was complemented by a price decrease of 21% to achieve a net cost savings of 38%.

Focusing on the buildings and facilities operated by the county (Snapshots for Comparison and Evaluation), utility costs in 2014 were \$40,748 less than in 2009. This represents a total cost savings of about 7%.

### Transportation Fuels and Costs

Portage County spent \$507,232 on fuels for county-owned vehicles and equipment in 2015, purchasing a total of 239,294 gallons of fuel. Total county department fuel purchases (for county-owned vehicles and equipment) from 2012 to 2015 are summarized in the table below. These totals include both unleaded and diesel fuels.

	Total Gallons	Cost	Total Gallons	Cost	Total Gallons	Cost	Total Gallons	Cost
	2012	2012	2013	2013	2014	2014	2015	2015
Highway	167,916	\$568,548	233,487	\$811,778	182,512	\$703,214	150,301	\$300,951
Parks	9,973	\$35,362	9,808	\$33,987	9,873	\$33,467	9,601	\$21,064
Sheriffs	61,447	\$197,697	60,280	\$197,003*	57,300	\$182,762*	59,095	\$136,213*
Fleet	19,495	\$88,271	21,827	\$102,823*	21,017	\$72,470*	20,297	\$49,004*
<b>TOTAL</b>	<b>258,831</b>	<b>\$889,879</b>	<b>325,402</b>	<b>\$1,145,591</b>	<b>270,702</b>	<b>\$991,913</b>	<b>239,294</b>	<b>\$507,232</b>

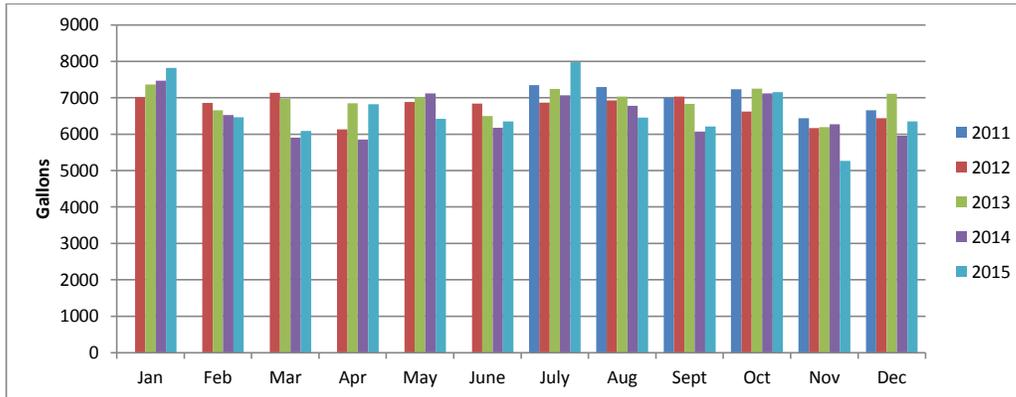
\*Cost totals shown here do not take into account volume discounts for retail purchases.

Over the past three years, total dollars spent on mileage reimbursements for county-related travel totaled \$200,545 (2013), \$205,518 (2014), and \$140,726 (2015).

### Retail (Gas Station) Fuel Purchases:

Monthly retail fuel purchases (including both gasoline and diesel) since July 2011 are shown in the chart below.

Retail Fuel Purchases, 2011-2015



### Bulk Fuels (Highway and Parks Departments)

The purchase of bulk fuels occurs periodically, and a purchase in one time period (shown in the tables below) doesn't necessarily reflect consumption in that period exactly.

The quantity of fuel purchases varies in part with construction activity during the summer months, and with snow removal in the winter months. Compared to 2012, annual snowfall in Stevens Point area in 2013 and 2014 was 87% and 78% higher, respectively, (<http://www.usclimatedata.com/>). The Parks Department's overall fuel purchases have been fairly consistent. Notably, the Park Department's replacement of older and worn out vehicles over the years has gradually increased the fuel economy of its fleet with some work trucks achieving 20 miles per gallon.

Fuel prices have continued to rise up until 2015 when they dropped. Focusing on the Highway department's purchase of diesel fuel in particular: compared to 2013, a 23% decrease in diesel fuel purchases in 2014 coincided with a 12% increase in average prices, resulting in just a 14% overall decrease in cost to the highway department for diesel fuel which amounts to \$108,125 fewer dollars spent compared to 2013.

Gasoline	2011		2012		2013		2014		2015	
	Gallons	Cost								
Highway	17,403	\$56,154	15,000	\$50,331	16,512	\$50,196	16,067	\$49,757	16,026	\$35,079
Parks			5,949	\$22,670	5,752	\$19,657	4,848	\$18,099	5,125	\$12,313

Diesel	2011		2012		2013		2014		2015	
	Gallons	Cost								
Highway	119,713	\$347,699	152,916	\$518,217	216,975	\$761,582	166,445	\$653,457	134,275	\$265,872
Parks			4,024	\$12,692	4,056	\$14,331	5,114	\$16,890	4,476	\$8,752

### Continued Strategic Energy Management Efforts

Given the high (and often rising) cost of energy and fuels, and the County's goals to reduce its use of electricity and natural gas, it remains important to continue to seek further savings and viable alternatives in all areas.

In 2014, UW-Extension CNRED Educator and a part-time Energy Intern engaged staff of various relevant departments – sharing building-specific energy use trends and ideas for further energy savings. These department-level discussions revealed some successes, opportunities, and challenges (as of Fall/Winter 2014). Some of these and additional observations are listed below, and dozens more are documented separately as case studies from meetings with participating departments.

#### Current Overview of Successes, Opportunities, and Challenges Regarding Utilities:

- Success: the Solid Waste Department has reduced air infiltration in its facilities by installing doorway curtains and opening garage doors less frequently and for a shorter duration.
- Success: timers installed on the Highway Department's 1.2 kW engine block heaters have them running only when needed instead of constantly, and computer chips turn off idling patrol trucks after 12 minutes.
- Success: the Highway department (and other individuals) routinely look for anomalies in utility bills and can match each with a specific meter.
- Success: department have made purchases that conserve energy.
- Success: the Parks Department "mothballs" several buildings each winter, reducing their energy use to minimum levels.
- Success: handheld meters that measure electricity use has allowed Courthouse Building staff to make behavioral changes that improve energy conservation while minimizing inconvenience.
- Success: the Facilities Management Department has completed many low cost/high savings energy conservation projects across numerous facilities and departments.
- Success: a new variable frequency drive motor on the landfill's methane flare spins only as fast as needed (typically a ~14 amp draw) instead of at the maximum speed (a ~33 amp draw).
- Success: improvements in systems for tracking purchases.

- Success: dedicated funds in the capital budget to explore energy efficiency and renewable energy opportunities.
- Success: partnered with UWSP for assistance from both an intern and a college of natural resource professor dedicated to exploring and communicating (to staff) numerous energy management strategies.
- Opportunity: exploring potential local government role in promoting energy efficiency improvements that create value (property, and savings) for county residents and businesses throughout the community.
- Opportunity: continuing to invest in basic and innovative energy efficiency measures in existing facilities.
- Opportunity: ensuring high performance and lasting use through excellent design of future building projects.
- Opportunity: using Energy Star Portfolio Manager to better evaluate performance of certain buildings and to engage staff in pursuing operational efficiencies.
- Opportunity: engage business park companies in exploring any interest and opportunity to save energy (and water) by limiting the irrigation to common area trees and high value plantings most vulnerable to drought.
- Opportunity: training a local government employee in solar installation to reduce associated costs
- Opportunity: assist the Human Resources Department in providing employees with energy management training, clear expectations, and easy-to-use energy management tips and memory aids.
- Opportunity: provide sunny offices with anti-glare screens so that they can keep the shades open in the winter.
- Opportunity/Challenge: examining energy costs that are part of the products and services purchased require detailed accounting information that is not always readily available in a form that is most useful.
- Opportunity/Challenge: consideration of creating a clearly defined policy establishing a preference for purchase of locally sourced and/or environmental sound products and services.
- Challenge: project costs – even as mitigated by previously available grants – have been a top concern of Portage County in rejecting two renewable energy projects proposed at County Parks in recent years.

#### **Current Overview of Successes, Opportunities, and Challenges Regarding Transportation Fuels:**

The rising price of fuels affects the cost-effectiveness of any fuel-intensive services provided by county departments. Beyond ongoing pursuit of simple and inexpensive strategies (technologies and practices) that may help to minimize the amounts of fuel required in meeting service demands, a more comprehensive response that is commensurate to rising prices (among other concerns) could also include high-level deliberation of how best to align investments in equipment, practices and important services in the long run.

- Success: the Highway and Parks departments carefully track bulk fuel purchases and quickly respond to requests for that data.
- Success: the Parks and Highway Departments have both boosted vehicle/equipment utilization to generate more revenue in a model that also seeks to reduce operating costs.
- Success: replacement of worn out and older vehicles with more-efficient models over the years, and/or improvements in vehicle utilization (matching capabilities of vehicles and attachments for the demands placed on them), has occurred in the Parks and Highway Departments.
- Success: thoughtful driving techniques that improve fuel economy are understood and often practiced by staff in the Parks Department.
- Success: continued placement of natural windbreaks (in collaboration with land owners) to reduce the need to install snow fences each year.
- Success: patrol trucks (Highway Department) have timers that turn off engine if idled for 12 minutes.
- Opportunity: further training resources for energy-conserving driving techniques may be of interest to staff of the Parks Department, and the Aging and Disability Resource Center; and might be included as part of the orientation and trainings provided by the Human Resources department if and where appropriate
- Opportunity: exploration of opportunities for carpooling or otherwise combining errands may be of interest to Portage House and the Aging and Disability Resource Center.

- Opportunity/Challenge: switching from an 18 to 10 year patrol truck replacement cycle (Highway Department) might hasten improvements in fuel economy and enable the Department to recover more value from vehicles sold - yet would need to be considered by the Highway Commission as it effects upfront costs.
- Opportunity: highway Department was interested in exploring snowplow route optimization.
- Success/Opportunity/Challenge: continue to evaluate alternative fuels' plausibility, and monitor growth in its infrastructure and technology.
- Challenge: unexpected weather can greatly affect how quickly the Highway Department must spend funds allocated for snowplowing (as conventionally based on the previous year).

## Appendices

### Appendix A: Buildings Owned and Operated

	<b>BUILDINGS</b>	<b>OWNER</b>	<b>OPERATOR</b>	
*	Annex	Portage County	Shared; mainly Portage County	
*	Law Enforcement Center	Portage County	Portage County	
*	City/County Courthouse (1/2)	Portage County	Shared w/ C. Stevens Point	i
*	Ruth Gilfry Building	Portage County	Portage County	
*	Health Care Center	Portage County	Portage County	
*	Lincoln Center	City of Stevens Point	Portage County	
	Jefferson House	Portage County	Midstate Independent Living Consultants	
	Portage House	Portage County	Portage County	
	Recycling Center (Materials Recovery Facility)	Portage County	Contracted service provider	
	Transfer Center	Portage County	Contracted service provider	
	Public Library in Stevens Point	City of Stevens Point	Portage County	
	Plover Branch Library	Village of Plover	Portage County	
	Hwy Garage	Portage County	Portage County	
	County Rd Y Shop Prk Dept.	Portage County	Portage County	
	825 Whiting Ave Shop	Portage County	Portage County	
	1039 Ellis St.	Portage County	Commercial Tenant (BHTP)	v
	<b>OTHER FACILITIES</b>			
	Parks (most typical accounts)...	Portage County	Shared w/ RVs, park visitors	ii
	Landfill	Portage County	Portage County; escrow	iii
	Business Park Common Grounds...	Portage County	Portage County; cost-share	iv

Notes:

\* Asterisks here indicates inclusion in the subset of six typical buildings examined elsewhere.

i. As in prior inventories (2009, 2010), this report includes 50% of this building's energy use.

ii. Included in past inventories, and in total; but not included in certain comparisons over time in this report. RVs/users change each year and are not controlled by Portage County. New facilities such as Dewey Marsh Shooting Range, and the potential Standings Rocks Snow-Making machine might also be distinguished for purposes of comparison and evaluation over time.

iii. As in prior inventories (2009, 2010), the full costs (and usage) for the landfill were included in this report among "pumps, fountains, and irrigation".

iv. These facilities fall under the "fountains and irrigation" category. In prior inventories (2009, 2010), the costs (not usage) particularly for these business park accounts were "Calculated as 40% of Portage County Business Park total. 60% is paid by parcel owners". Since that time, as more parcels have been purchased by businesses, the county's share of costs under the cost-share arrangement decreased to about 25% and 24% by 2011 and 2012 respectively, and their costs were adjusted accordingly in this report.

v. Energy use is not included in this report.