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Wauwatosa Energy and Recycling Advisory Committee Annual Report to the City for Calendar Year 2018

March 21, 2019

2019 Committee Members

Chuck Rohrer (Chair), Mike Arney (Vice Chair), Steve Ostrenga (Secretary), Andy Korb, Lynn Morgan, Alderperson Heather Kuhl (Council Liaison – voting member), Chuck Pomerence (City Liaison – non-voting)

Energy Highlights

Status of 20% by 2020 goal

Established in 2013, the Committee's goal is to reduce the City's energy usage and CO₂ emissions 20% by 2020 based on a 2010 benchmark. The City's 2010 energy usage was 82,644 MMBTU and 74,294 MMBTU in 2010 and 2018 respectively. The goal is for the city to have a consumption to 66,115 MMBTU by 2020. As of 2018, the City reduced energy usage by 10% as compared to 2010. The City's progress to date from the 2010 bench mark is as follows:

- Electricity – decreased 13%
- Natural gas – decreased 19%
- Gasoline – decreased 5%
- Diesel – increased 10%
- CO₂ – decreased 11%

A reduction of energy use by 20% from 2010 levels equates to an estimated annual savings of \$300,000 to the City.

2018 energy consumption

The City consumed more energy in 2018 relative to 2017. As a result, the City's energy usage reduction decreased from 13% in 2017 to 10% in 2018 as compared to the 2010 benchmark. Although the City hit a record low for the amount of electricity used in 2018, the City increased usage of other forms of energy. The City's overall energy use increased from 71,935 MMBtu in 2017 to 74,294 MMBtu in 2018, an increase of 3%. The major reasons for the increase in energy are as follows:

1. The weather was more extreme in 2018 than 2017. The City required both more heating in the winter and more cooling in the summer.

2. Increased tree-trimming and road-building activity caused vehicle fuel use to increase from 181,230 gallons in 2017 to 192,659 gallons in 2018.

Weather can cause energy use to increase or decrease in the single-digit percentage range. Therefore, it is imperative that the City continue with planned energy-saving projects to meet the goal of 20% reduction from 2010 levels by 2020.

Priorities to achieve Goal

To meet the Committee's goal, the following is recommended to be prioritized:

1. Convert all streetlights to LED, which will reduce energy usage by approximately 1,500,000 KWH per year and save the City an estimated \$105,000 annually.
2. Install a solar photovoltaic system to not only reduce electric costs, but also to reduce CO2 emissions. In 2018 the City completed a solar feasibility study evaluating potential deployment sites: DPW, Landfill and Police Station. The study indicated that solar is economically beneficial to the City.
3. Develop a plan to decrease vehicle fuel usage

Recycling Highlights

The City's solid waste diversion rate for 2018 increased from 33% to 37%, the highest ever. This means 37% of household refuse plus street sweepings is recycled. The communication efforts made by the City in 2018 appear to be bearing fruit.

2018 Accomplishments

1. Assisted City with a solar feasibility study and application for the Office of Energy Independence grant
2. Assisted City with planning for LED street lighting
3. Supported composting pilot project to begin in 2019
4. Tracked energy use for City buildings and vehicles
5. Promoted recycling at the 8th Tosa Green Summit
6. Networked with other Wisconsin Cities in the Green Tier Legacy Communities to identify best practices
7. Assisted the City with joining the SolSmart initiative to encourage solar installations.
8. Assisted City with increased solid waste diversion from 33% to 37%

Plans for 2019

In 2019 the Committee will continue to work with our City liaisons to assist with facility management and energy use as well as solid waste/recycling/composting processes as follows:

1. Assist with planning for solar installation to government buildings
2. Assist with a plan to convert all street lights to high-efficiency LED
3. Assist with a composting pilot program.

4. Participate in Green Tier Legacy Communities (<http://greentiercommunities.org/>) and improve sustainability score.
5. Participate in SolSmart to help the City achieve SolSmart designation.
6. Continue to identify mechanisms to increase solid waste diversion rate.
7. Request that the Common Council expand the Committee's scope to include sustainability. As a framework, the Committee will use the score sheet from Green Tier Legacy Communities, which was approved by the Common Council. (*Appendix 1*)

Energy Use - Measurement

The Committee has prepared an annual energy use spreadsheet of City facilities and vehicles. The Committee is using the annual energy usage information to track our progress towards the goal of an average 20% reduction from 2010 levels in all areas by 2020.

The highlights of the spreadsheet are

1. The weather in 2018 was more extreme than 2017, with more heating degree days and more cooling degree days.
2. Energy costs for 2018, including electricity, natural gas, diesel, and gasoline, totaled \$1.46 million, down from \$1.5 million in 2010. Cost has decreased due to conservation and a decline in the price of most types of energy.
3. The City used a record-low amount of electricity in 2018.
4. Natural gas usage is down 19% from 2010. However, more extreme weather caused usage to increase from 2017.
5. Gasoline usage is showing improvement with a 5% decline since 2010, but an uptick since 2015. The Committee recommends that fuel efficiency be taken into consideration on any vehicle purchase.
6. Diesel usage is up 10% from 2010, with a large increase since 2017. Diesel usage spikes during snow events. Increased roadwork and tree trimming have also contributed to the increased consumption. The Committee encourages the City to look into diesel usage and create a strategy for reduction.
7. CO₂ emissions are down about 11% from 2010. This is good progress but is behind the level needed to meet the 20% goal.

The summary table from the report follows:

	HDD	CDD	KWH	Therms	Gasoline	Diesel	Dollars	CO2 Tons
2010	6,183	944	9,538,796	258,700	96,266	91,890	\$1,514,995	10,725
2011	6,633	793	9,136,848	253,225	94,670	93,689	\$1,650,433	10,392
2012	4,746	1,041	8,993,549	207,404	96,288	93,958	\$1,651,593	10,034
2013	7,233	688	8,679,293	268,624	91,341	103,216	\$1,724,667	10,207
2014	7,616	464	8,878,545	300,852	88,088	111,957	\$1,750,699	10,612
2015	6,468	622	8,850,347	237,108	85,097	97,590	\$1,452,050	10,029
2016	6,068	991	8,807,278	210,261	87,949	97,361	\$1,374,577	9,865
2017	5,906	769	8,471,286	196,238	88,551	92,683	\$1,364,956	9,482
2018	6,684	929	8,299,790	210,478	91,561	101,098	\$1,460,888	9,557

In the table, HDD refers to heating degree days, a measure of how much heating was required. Similarly, CDD refers to cooling degree days, a measure of how much cooling was necessary. KWH is the kilowatt-hours of electricity. The therms column refers to total natural gas usage. Gasoline and diesel are shown in gallons of fuel. The dollars column refers to the total energy expenditure for all types of energy in the table. CO₂ Tons column refers to the estimated emission of greenhouse gasses, in tons of CO₂ equivalent. The sources for the CO₂ calculation are <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator> for all but diesel fuel. For diesel fuel emissions, a factor of 22.2 lb CO₂ / gallon from CarbonFund.org was applied.

The spreadsheet is available in Microsoft Excel format by request of the Committee.

Energy Goal

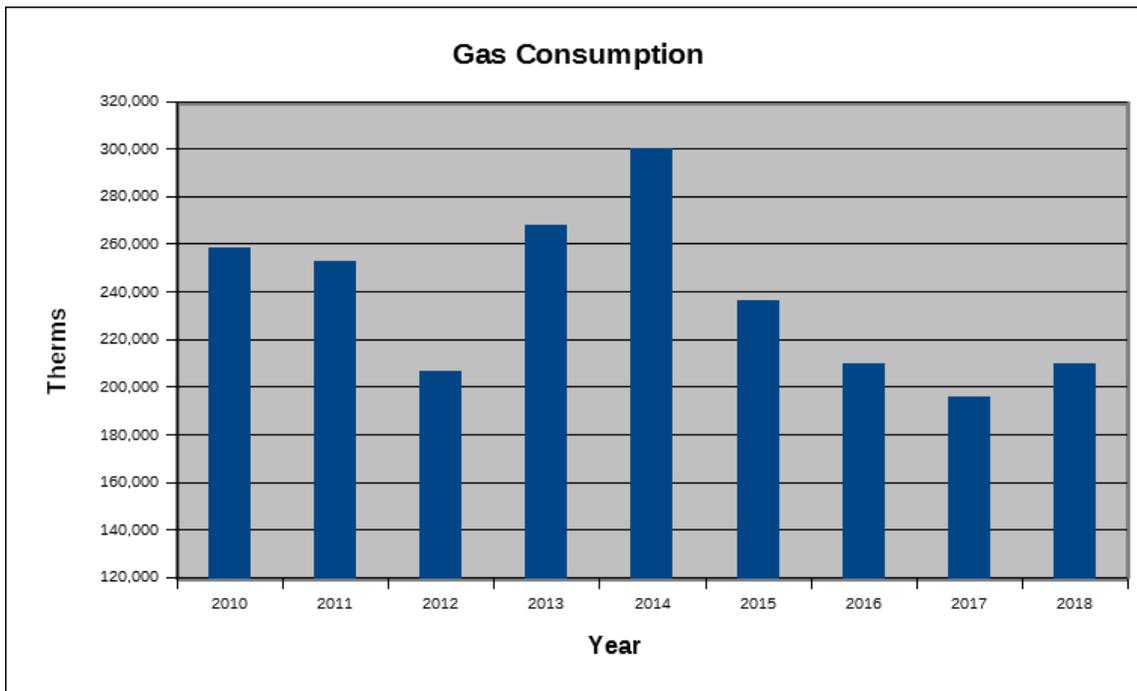
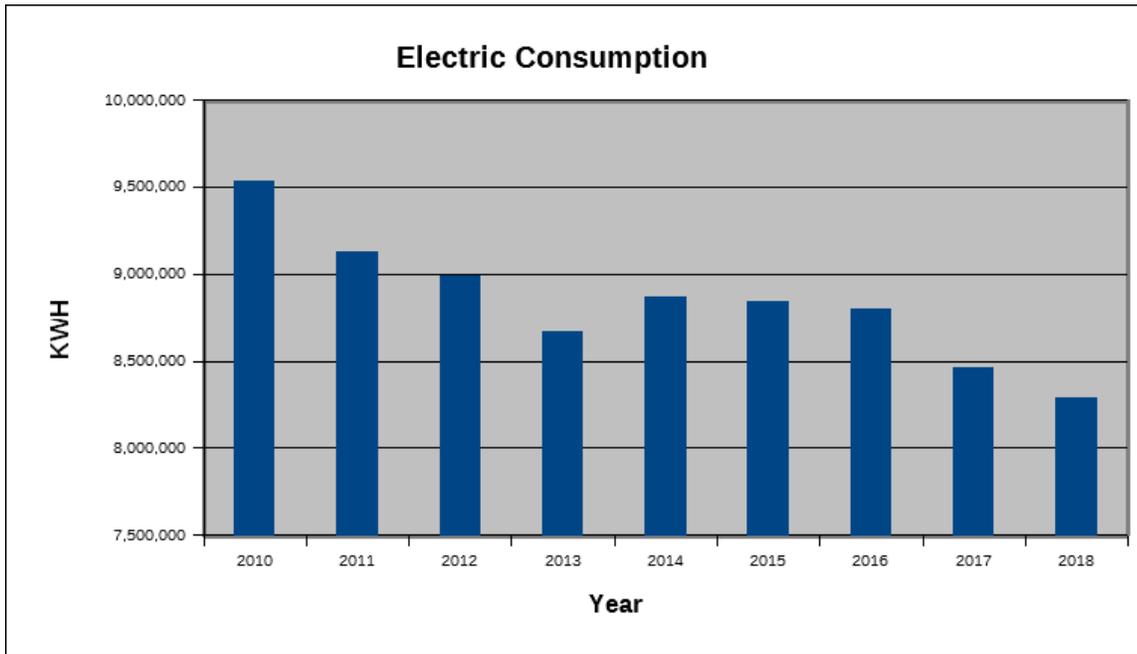
The City's 2010 energy use was 82,644 MMBTU and the goal is by 2020 to have consumption at or below 66,115 MMBTU. In 2018, the City consumed 74,294 MMBTU.

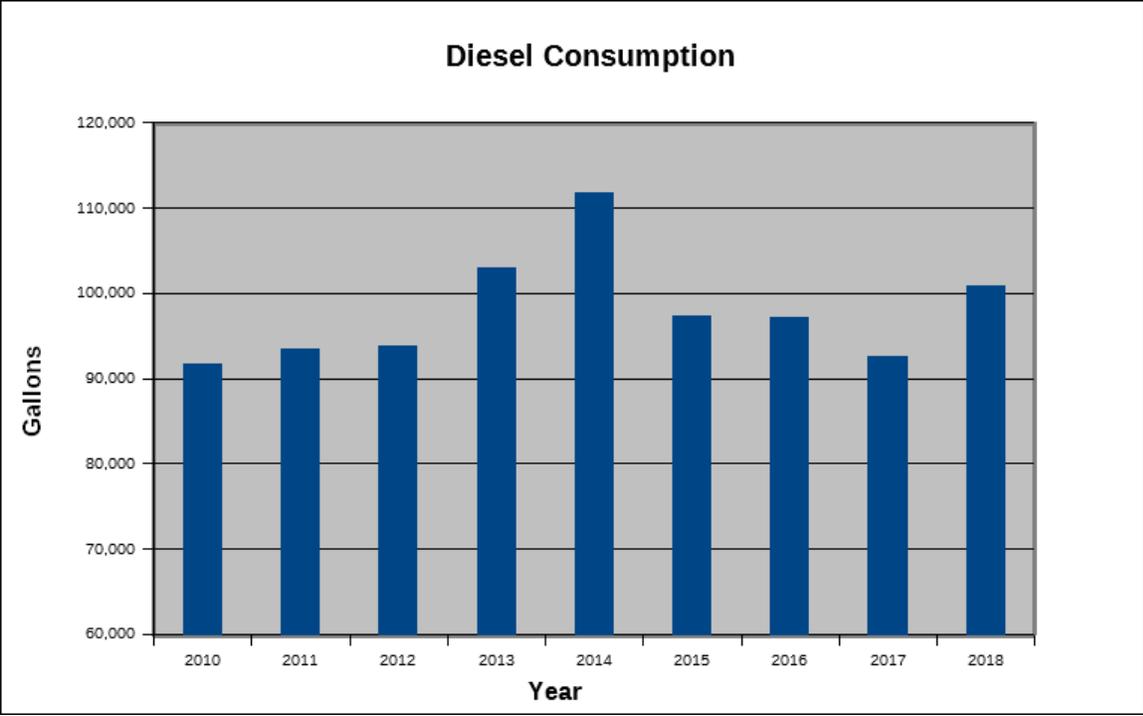
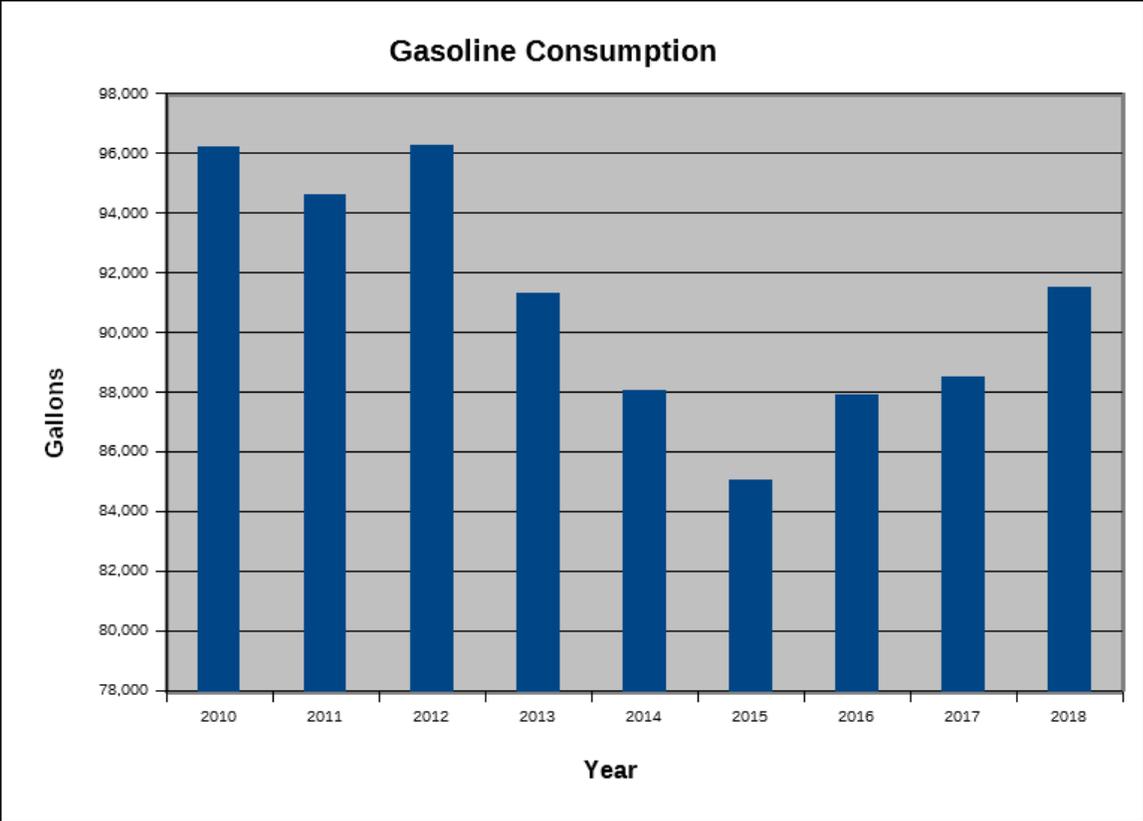
Summary of Recommendations

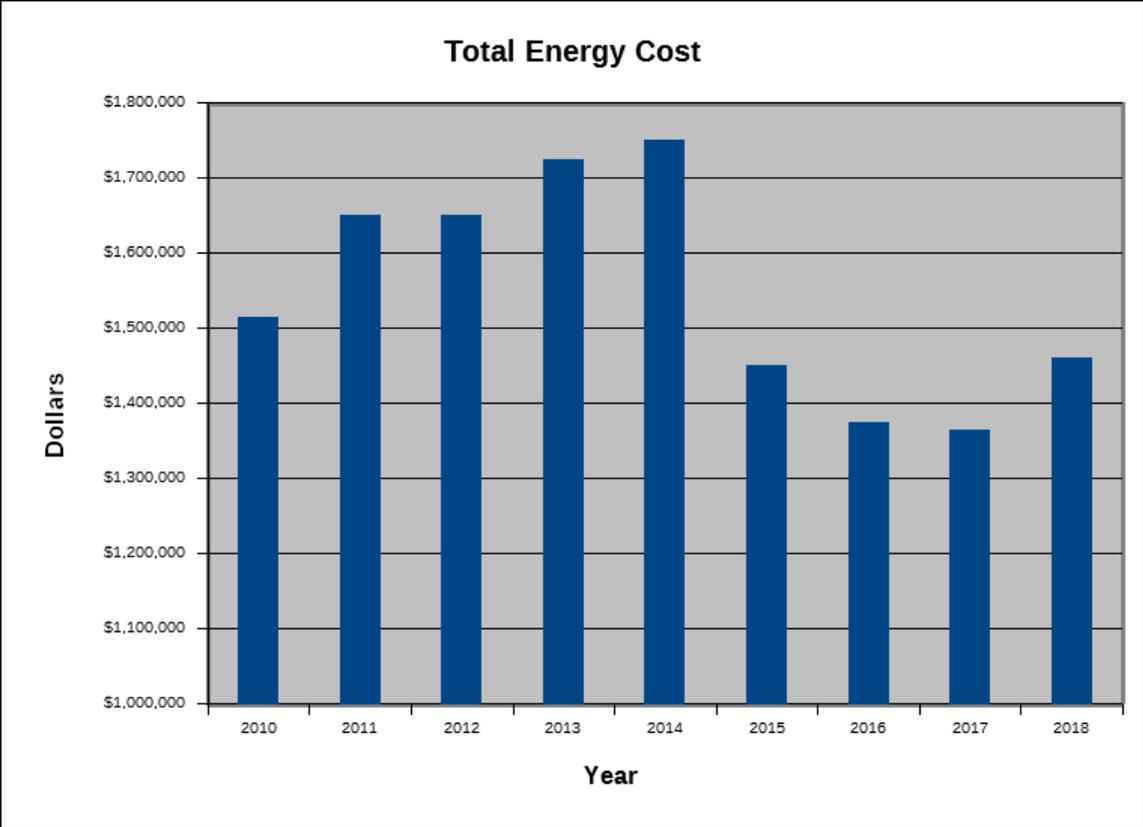
The Committee recommends the following actions:

1. Complete installation of LED streetlights at earliest practical date
2. Install a solar photovoltaic system of 0.5 MW or greater
3. Develop a plan to reduce use of vehicle fuels
4. Implement composting pilot program
5. Continue participation in Green Tier Legacy Communities to identify best practices and benchmarks
6. Earn SolSmart designation of bronze or above.

2018 Energy Consumption Graphs







Appendix 1 – Draft of Ordinance

Chapter 2.29 - ~~ENERGY AND RECYCLING ADVISORY~~ SUSTAINABILITY COMMITTEE

Sections:

2.29.010 - Created.

- A. There is hereby created a committee to be known as the Wauwatosa ~~Energy and Recycling Advisory Sustainability~~ Committee, comprised of nine individuals, to include:
1. Eight citizen members, who shall be residents of Wauwatosa, to be selected at large by the mayor and subject to confirmation by majority vote of the common council, being selected so as to provide a broad range of expertise on energy, ~~or~~ recycling, or sustainability issues; and
 2. One member who shall be a member of the common council, appointed biannually by the mayor, to be a liaison and voting member of the committee;
- B. A city staff member may be appointed to serve as an ex officio (non-voting) member.

(Ord. No. O-14-01, § I, 1-7-2014)

2.29.020 - Appointment.

- A. Appointments to the committee by the mayor shall be for a term of three years.
- B. Members shall serve staggered three--year terms, with three terms expiring at the end of each calendar year.
- C. The members shall elect a chair, vice chair, and secretary for one--year terms at the beginning of each calendar year, after the start of new membership terms. The chair, vice chair and secretary may serve a maximum of two consecutive, one--year officer terms.

(Ord. No. O-14-01, § I, 1-7-2014)

2.20.030 - Mission.

~~The committee's mission shall be to advise the City staff and Common Council on matters involving:~~

- ~~A. City energy consumption, including tracking and benchmarking usage and emissions, recommending goals, suggesting evaluating possible capital projects and their effect on energy, and evaluating possible capital projects and their effect on energy, and evaluating alternative energy solutions. The goal shall be to reduce the usage, cost and emissions of city energy consumption, comparing calendar year energy consumption and emission measurements to goals and benchmarks.~~
- ~~B. Recycling, solid waste, and yard waste collection and processing, including tracking and benchmarking of landfill diversion, recommending goals, suggesting and evaluating possible capital projects and their effect on recycling, and evaluating alternative recycling solutions. The goal shall be to increase the amount of recycling and landfill diversion, by comparing calendar-year measurements to goals and benchmarks.~~

The committee's mission shall be to champion environmentally sound practices fostering the City's long-term livability and economic vitality. The committee advises the Common Council and City staff on sustainability matters, and collaborates with residents, businesses and other partners to advance the City's environmental goals, including:

- A. Energy use practices that optimize financial, health and environmental benefits, including demand reduction, building and vehicle efficiency, and renewable energy options.
- B. Waste and material management practices that optimize financial, health and environmental benefits, including waste reduction, recycling, composting and other initiatives.
- C. Community outreach initiatives that help to educate residents and businesses on energy use and recycling sustainability initiatives that work to maintain, enhance the quality of life in Wauwatosa.

(Ord. No. O-14-01, § I, 1-7-2014)

2.29.040 - Annual report.

The ~~Wauwatosa Energy Committee~~ Sustainability Committee shall provide an annual update to the ~~community development committee~~ Community Affairs Committee in the first quarter of each calendar year.

(Ord. No. O-14-01, § I, 1-7-2014)

2.29.050 - Sunset provision for recycling committee.

The recycling committee created by resolution is hereby merged with the ad hoc energy committee to create the energy and recycling advisory committee. The recycling committee shall expire on December 31, 2013.

(Ord. No. O-14-01, § I, 1-7-2014)