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Wauwatosa Sustainability Committee
Annual Report to the City for Calendar Year 2023

April 30, 2024

2023 Committee Members

Rob Zimmerman (Chair)	Seth Flanders	Steve Ostrenga
Katherine Riebe (Vice Chair)	Zoe Hastert	Christine Wolf
Mary Young (Secretary)	Rob Hoverman	Chuck Pomerenke (City Liaison, non-voting)
Mike Arney	Lynn Morgan	Ald. Melissa Dolan (Council Liaison, voting)

2023 Executive Summary

The mission of the Wauwatosa Sustainability Committee (WSC) is 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.

Energy and associated greenhouse gas (GHG) emissions decreased in Wauwatosa's city-owned facilities in 2023, continuing improvement from previous years. Highlights:

- Reduced purchased electricity use by 12.5% (657,471 kWh) vs. 2022
- Decreased overall GHG emissions by 9.4% (613 tons CO_2e) vs. 2022

Results from 2023 demonstrate the impact of ongoing energy efficiency projects such as improvements to street lighting, the successful operation of the PV solar installation at the DPW building, and annualization of the impacts from the 300 kW PV system at City Hall that started in Spring 2021.

WSC thanks the City's Department of Public Works for its leadership in adopting various energy-efficiency technologies that ultimately benefit local taxpayers and the environment. Year-by-year energy and GHG data illustrate the impact of the investment in efficiency and are especially pronounced in years with spikes in energy prices, as occurred in 2022.

A primary goal for WSC in 2024 is to support the City in funding and hiring a Sustainability Manager to pursue City sustainability goals and participate in partnerships and networks with other communities.

Energy and GHG Results

Wauwatosa City Operations

The City's 2023 energy usage and GHG emissions were 9.1% lower and 9.4% lower, respectively, in 2023 compared to 2022. Energy expenses decreased by 12.1% due to decreased energy use (all fuel types but gasoline) and decreases in price (all types but electricity). Continuing reduction of energy use and increasing onsite electricity generation helps ease the financial impact of volatile energy prices.

	HDD	CDD	Purchased Electricity (kWh)	Natural Gas (Therms)	Gasoline (Gallons)	Diesel (Gallons)	MMBTU	GHG (tons CO2e)	Energy Cost
2022	6,364	947	5,266.684	176,601	91,084	106,273	61,211	6,549	$1,554,434
2023	5,404	875	4,609,213	146,515	93,637	105,142	56,111	5,936	$1,365,730
Change	(960)	(72)	**(657,471)**	(30,086)	2,553	(1,131)	(5,100)	(613)	($188,704)
% Change	11.0%	(11.9%)	**(12.5%)**	(17.0%)	2.8%	(1.1%)	(9.1%)	(9.4%)	**(12.1%)**

Looking at the price increases in more detail, most of the decrease in energy cost to the City was due to the reduction in liquid fuel prices. However, all areas contributed to the cost savings.

	Electricity Price ($/kWh)	Electricity Cost ($)	Natural Gas Price ($/Therm)	Natural Gas Cost ($)	Gasoline Price ($/Gallon)	Gasoline Cost ($)	Diesel Price ($/Gallon)	Diesel Cost ($)	Energy Cost
2022	$0.129	$679,744	$0.87	$153,345	$3.38	$308,168	$3.89	$413,176	$1,554,434
2023	$0.141	$651252	$0.78	$115,015	$2.86	$267,983	$3.15	$331,480	$1,365,730
Change	$0.012	($28,492)	($0.08)	($38,330)	($0.52)	($40,185)	($0.74)	($81,696)	($188,704)
% Change	9.5%	(4.2%)	(9.6%)	(25%)	(15.4%)	(13.0%)	(18.9%)	(19.8%)	(12.1%)

The reduction of greenhouse gas emissions (GHG) continued in 2023 with a 9.1% decrease. This is despite a projected 1.1% estimated increase worldwide in 2023. The decrease appears to be driven by reductions in electricity and natural gas use, which were down 11.9% and 17.0% respectively. Liquid fuel use stayed relatively flat with a change of less than 1% year-on-year.

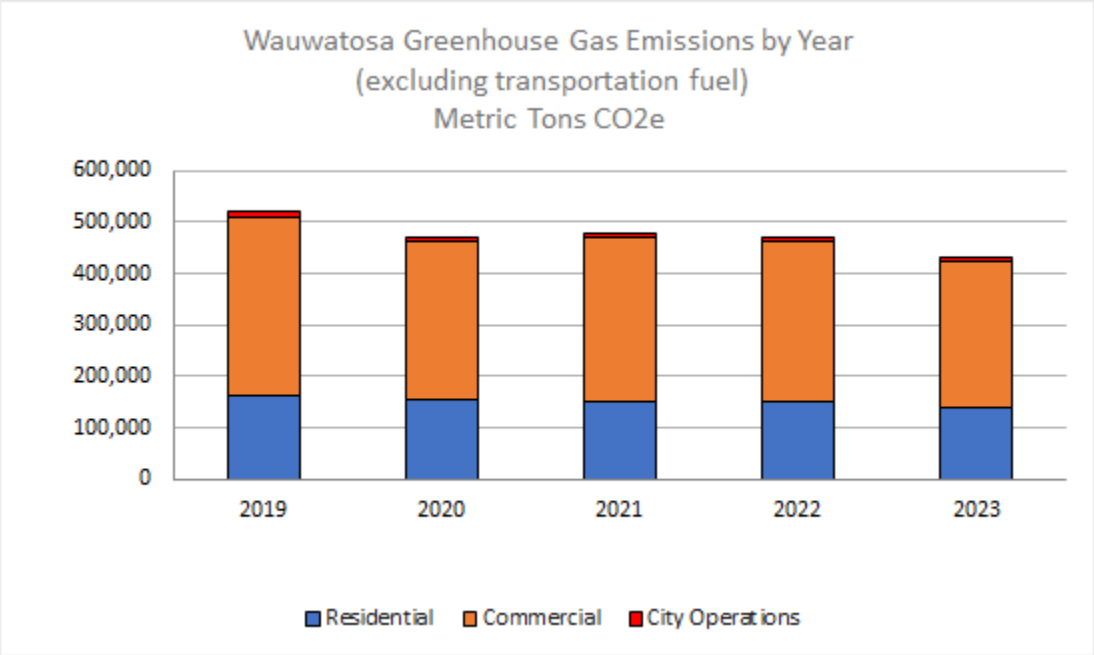
Comparing energy use in different years can be challenging due to the circumstances in each year. Energy use will fluctuate due to heating degree days/cooling degree days, snowstorms causing increased fuel use for plowing, and building use or restrictions. Overall spending will change due to price changes in diesel fuel or natural gas in conjunction with fuel use. However, for some of the variables, normalizing the data can help highlight different areas. A specific example of this is natural gas usage for heating buildings. Normalizing the natural gas usage in Therms by Heating Degree Days (HDD) helps to understand the effect of building or equipment improvements. In 2023, the City used 27.1 Therms per Heating Degree day vs. 27.8 Therms / HDD in 2022. Both values are much less than the 2010 baseline of 41.8 Therms / HDD. Overall, Wauwatosa buildings have become much more efficient in their natural gas use. The supporting data section of this report presents a chart of this data.

New solar arrays brought major reductions in net City electricity use in 2020 (DPW) and 2021 (City Hall). In 2023, Wauwatosa continued to reduce purchased electricity use. The City remains poised to reach its 50%-below-2010 target for municipal operations emissions in 2030. Upcoming solar deployments at the Police Department, Muellner Building, and Potter Road pumping station will continue to drive down purchased electricity. Liquid fuel use has been relatively flat since 2010 and will likely remain so for the next few years. But with many electric vehicles of all types now coming to market, attractive low-emission options will soon emerge for the City fleet.

City-Wide Energy Use and Greenhouse Gas Emissions

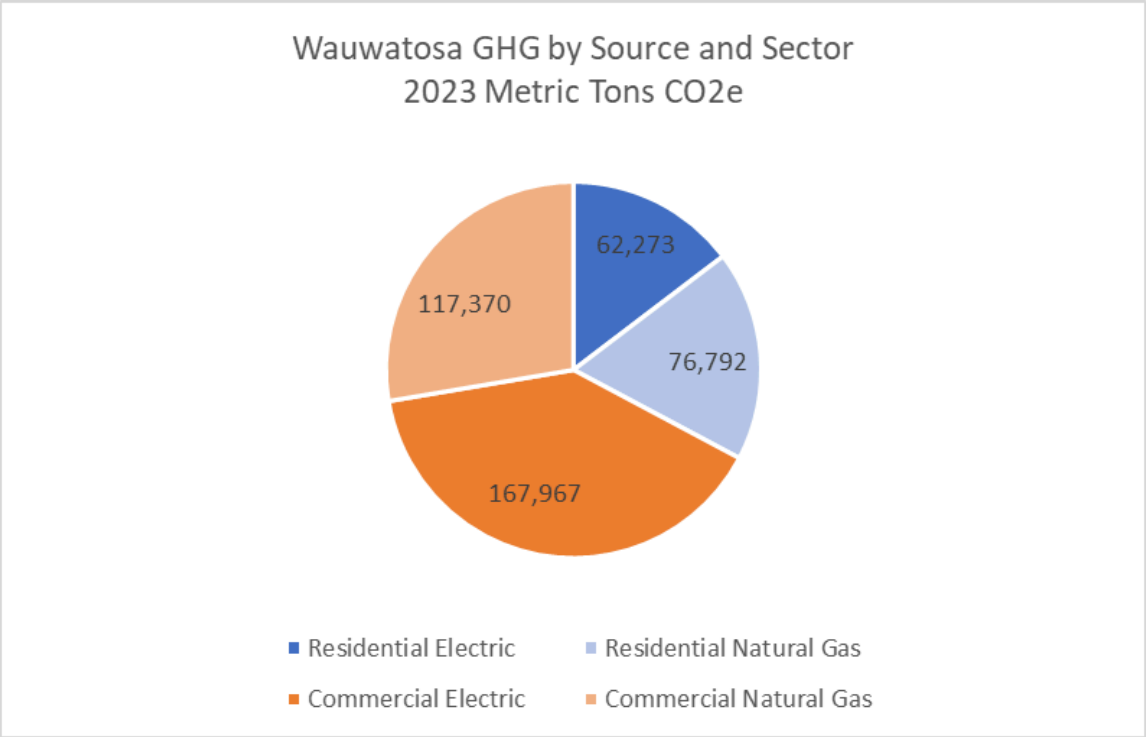
WSC engaged with WE Energies to provide aggregated data on electricity and natural gas use for Wauwatosa's residential and commercial energy customers. Data is available for 2019 through 2023, and will be updated yearly. The data provides a baseline for the City's energy and GHG reduction targets that are under development. Of note is the 17% decrease in overall GHG emissions in 2023 compared to the pre-pandemic year of 2019. Overall GHG emissions, not including transportation, declined by 8.2% in 2023 vs. 2022.

City operations comprise less than 2% of the city-wide emissions, as represented by the thin red line at the top of each bar in the chart below. While the City Operations staff remains committed to reducing energy use and associated GHG emissions, it is apparent that significant progress is possible only if energy efficiency and renewable energy efforts are directed at both the Commercial and Residential sectors of Wauwatosa. Also, since this analysis is based solely on data from WE Energies, it does not include GHG emissions from transportation fuels. Data from other cities, including Milwaukee's research in 2018, suggest that transportation fuels would add approximately 25% to these values.



WE Energies has made public commitments to decarbonize its electricity generation by 2050. The CO_2 emissions to produce one kWh of electricity have decreased over the past decade due to WE Energies'

conversion of power stations from coal to natural gas. However, to fully decarbonize, WE Energies needs to deploy renewable sources such as wind and solar much faster. As they do so, the GHG impact from Wauwatosa's electricity use will decrease. In 2023, approximately 54% of Wauwatosa's GHG emissions were due to electricity use, and the remaining 46% was due to burning natural gas. As stated previously, this data does not include transportation fuels.



Recycling and Composting Results

The City's solid waste diversion rate decreased from 26% to 25%. During 2023, 15,505 tons of municipal solid waste were collected in the City. Of that, 3,848 tons were diverted for recycling. The biggest challenge to curbside recycling continues to be the contamination of the materials that residents deposit in recycling bins. For example, many residents are still placing plastic bags in their bins. The plastic bags clog the sorting machinery and result in lower recyclable payments to the City. It is in the City's best interest, both financially and environmentally, to purify the recycling stream.

The City collected and composted 7,318 tons of yard waste in 2023. Diverting this material from landfills reduces the total volume of solid waste while providing organic materials such as landscaping mulch and wood chips by the City and available for pickup by Wauwatosa residents. In addition, Wauwatosa businesses and households participated, at their own expense, in private curbside food waste composting services. One such provider, Compost Crusader, reports composting 144 tons of waste for an average of 440 subscribers in Wauwatosa. Organic matter in sanitary landfills decomposes anaerobically to produce methane, a potent greenhouse gas. Studies in other communities report that 2-10% of their overall greenhouse gas emissions are from landfills.

Water Use

The City's water use increased by 5.7% in 2023 vs. 2022. Residential water use increased by 3.1%, with CII (Commercial, Industrial, Institutional) uses increasing by 7.9%. Overall, the City billed for 1.513 billion gallons of water in 2023. Of this, 836 million gallons was for residential use. This equates to 48.5 gallons per capita per day (gpcd), which is typical of older cities in the Midwest and slightly lower than the national average of 52.1 gpcd.

Designations and Partnerships

SolSmart

Wauwatosa became a SolSmart Gold designee in 2021. The Solar Energy page on the City's website, created as part of the SolSmart process, is still a valuable resource for residents interested in solar.

Green Tier Legacy Communities

The City has been a member of the DNR-sponsored Green Tier Legacy Communities (GTLC) since 2017. The GTLC gives Wauwatosa access to DNR resources and a network of peer municipalities and non-profits with similar sustainability goals. GTLC members such as La Crosse, Sheboygan, and Wausau are similar in size to Wauwatosa. Sharing with and hearing from these communities as well as larger (Racine) and much smaller ones (Egg Harbor) has been affirming and motivating. The list of GTLC participants can be found here.

In 2023 the GTLC introduced new reporting requirements for member communities. City staff and WSC members gathered 52 metrics across six different areas for the 2022 and 2023 calendar years. Sample results for 2023:

- The City has 8 electric and hybrid vehicles in its fleet of 277 vehicles ("Energy and Emissions").
- The City has 2 publicly accessible electric vehicle charging stations ("Transportation Systems").
- The City has 30 miles of recreational trails and 1,400 acres of green space ("Land Use").
- The City inspected 42% of public stormwater outfalls for illicit discharges ("Water Quality and Conservation").

Wisconsin Local Government Climate Coalition

Wauwatosa is part of the Wisconsin Local Government Climate Coalition (WLGCC), whose member cities represent 1.7 million Wisconsinites. The WLGCC identifies decarbonization strategies both within their cities and across the state. Statewide strategies include distributed electricity generation policies, building codes, and building performance benchmarking and reporting. Members of WSC have been participating in WLGCC meetings since October 2021.

Milwaukee City-County Task Force on Climate and Economic Equity

In 2020 and 2021, WSC members participated in work groups of the City-County Task Force on Climate and Economic Equity. The Task Force's work culminated in June 2023 with the City of Milwaukee

passing a Climate and Equity Plan, featuring 10 “big ideas” for climate action. This plan will be the basis for regional efforts beyond the City of Milwaukee, including the 2024 EPA Climate Pollution Reduction Grant that Milwaukee is leading and Wauwatosa (among others) is supporting.

Energy Independent Community

Wauwatosa’s 2020 Energy Resolution set a goal for the city to obtain at least 25% of energy for municipal operations from local, renewable sources. This goal included Wauwatosa in a list of Wisconsin Energy Independent Communities.

In 2023, 6.7% of city energy use came from local, renewable sources. Almost three-fourths of this was from the solar arrays on City Hall and the Department of Public Works. The remaining one-fourth was the renewable portion of the electricity Wauwatosa purchases from WE Energies. So Wauwatosa is not on track to meet this goal.

If the Milwaukee Environmental Collaboration Office obtains the Climate Pollution Reduction Grant it is applying for in 2024 (with Wauwatosa’s support), then by 2026 Wauwatosa could be obtaining 100% of its electricity from the Renewable Pathways program. This would get the City to its goal using about 30% of total energy from local, renewable sources.

2023 Wauwatosa Sustainability Committee Work Streams

Work Stream	Status	Comments
1. Create and maintain an energy and greenhouse gas inventory for the City to use as a baseline for near-term energy and GHG reduction goals.	✓	• Energy and GHG emissions for City operations as well as cumulative data for Wauwatosa, are being collected and reported annually. • Also including waste/recycling and water use
2. Identify and recommend specific policies, actions, or long-range goals which the City can enact or promote consistent with the City's Energy Resolution of October 2020.	↻	• WSC proposed to the Mayor that the City partner with Grow Solar and Rewiring America. • WSC facilitated a meeting between City staff, Redwood Energy, and Barrett Lo about building electrification • City signed on to WLGCC data sharing resolution • City signed on to regional partnership for EPA Climate Pollution Reduction Grant
3. Establish and grow partnerships with City departments and committees, elected officials, civic groups, the Wauwatosa School District, and other communities and organizations that support Wauwatosa's efforts to reduce its overall environmental impact and achieve its sustainability goals.	↻	• WSC agreed to support the Wauwatosa Housing Commission in areas where their objectives will also lead to environmental gains for the City. • Meetings with school board members and participation on schools' 2075 task force • WLGCC participation • Work with Milwaukee ECO on funding mechanisms for a staff position focused on sustainability • Meetings with City staff including communications
4. Engage with Wauwatosa residents and businesses to share ideas and practices that enhance sustainability in the community.	↻	• Staffed informational tables at the Tosa Community Fair and Tosa Farmers' Market (April, June 2023) • Exhibited at the Tosa Green Summit in September 2023 • Championed "No Mow May" by coordinating outreach, signage, and information

✓ completed or made significant progress

↻ started; in progress

··· not started or minimal progress

New/Additional Activities

No Mow May

While it was not a directly stated goal, the Committee identified the practice known commonly as “No Mow May'' as a step towards promoting sustainable landscape practices in Wauwatosa. The intent of “No Mow May'' is to allow early blooming vegetation for pollinators to consume as a source of dwindling food supplies. The Common Council approved delaying enforcement of grass heights until June, thereby updating an existing code, on December 20, 2022.

No Mow May was observed formally in May 2023. There was no cost other than a nominal fee for a yard sign if desired. Feedback from participants was generally positive. Few, if any, complaints were received. WSC will again support No Mow May in 2024. Participation by City residents and businesses is voluntary.

Sustainability Manager/Coordinator Staff Position

In late 2022, the Common Council adopted a plan presented by Alder Dolan and supported in person by WSC members for the creation of the position of Sustainability Manager to be included within the Department of Public Works. Said position was consistent with the approved Strategic Plan, and the City agreed to adopt the Vision, Missions and Organizational Values contained within the strategic plan as presented to the Committee of the Whole on September 6, 2022.

In coordination with City staff, members of the Wauwatosa Sustainability Committee prepared a draft position description for a part-time sustainability manager position. However, funding for the position was not included in the 2024 budget. At Mayor McBride’s request, a small group representing City staff and WSC members investigated the concept of a shared sustainability staff for several Milwaukee County communities. Many of the sustainability manager’s goals would not be unique to Wauwatosa, and could benefit a larger population base. The City and WSC coordinated with the City of Milwaukee’s Environmental Collaboration Office (ECO) to write a proposal that Mayor McBride shared with the Milwaukee County Intergovernmental Cooperation Council in January 2024. The WSC remains optimistic that a combination of funding sources will allow this position to be created and staffed in 2024.

Wauwatosa Sustainability Committee 2024 Work Streams

1. Maintain and improve an energy/greenhouse gas inventory and reporting framework for the City to use as a baseline for near-term energy and GHG reduction goals. Continue to track WSC activities, meet Green Tier reporting requirements and produce the WSC annual report.

2. Identify and recommend specific policies, actions, or long-range goals which the City can enact or promote consistent with the City's Energy Resolution of October 2020. In particular, support efforts to create a Sustainability Manager position in Wauwatosa or shared between Wauwatosa and other Milwaukee area municipalities.

3. Establish and grow partnerships with City departments and committees, elected officials, civic groups, the Wauwatosa School District, and other communities and organizations that support Wauwatosa's efforts to reduce its overall environmental impact and achieve its sustainability goals.

4. Engage with Wauwatosa residents and businesses to share ideas and practices that enhance sustainability in the community.

Supporting Data

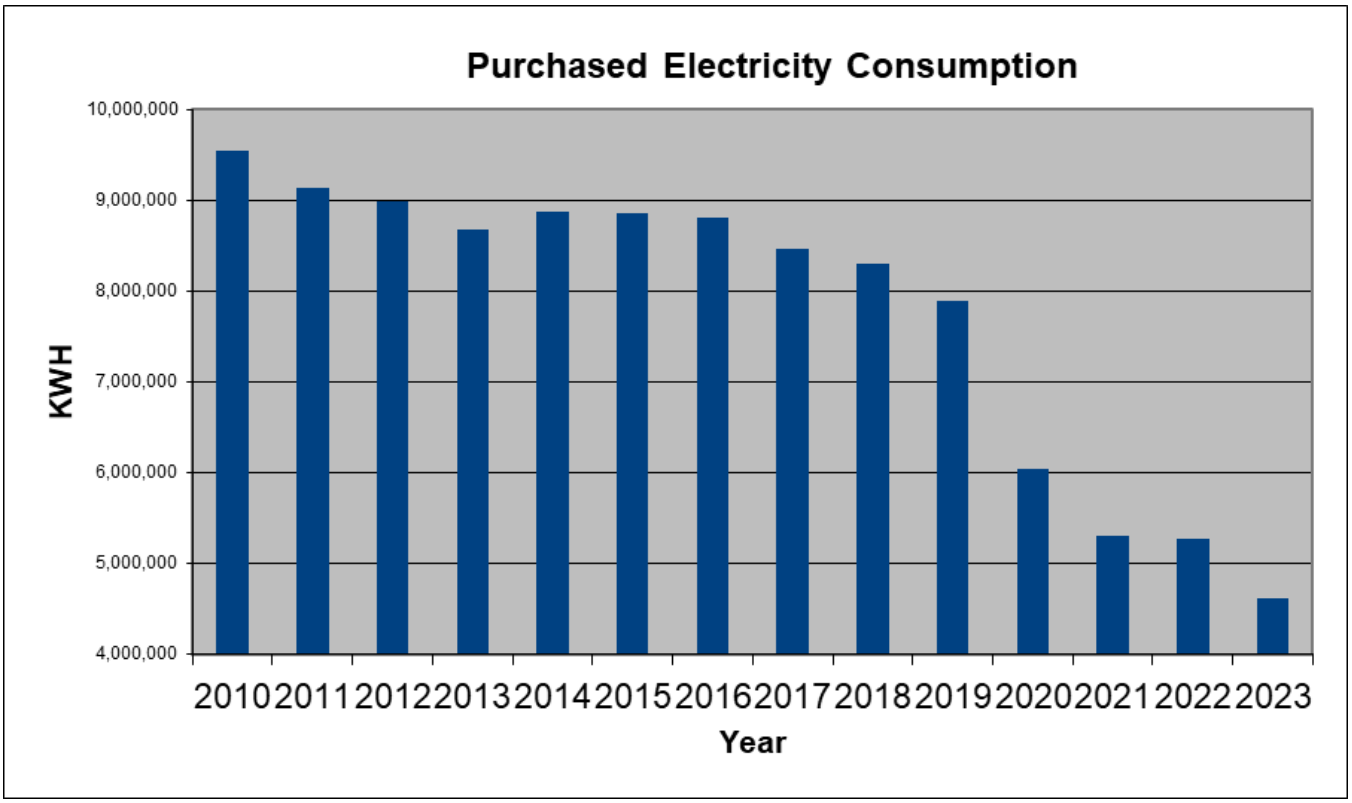
City Government Energy and GHG Results, 2010-2021

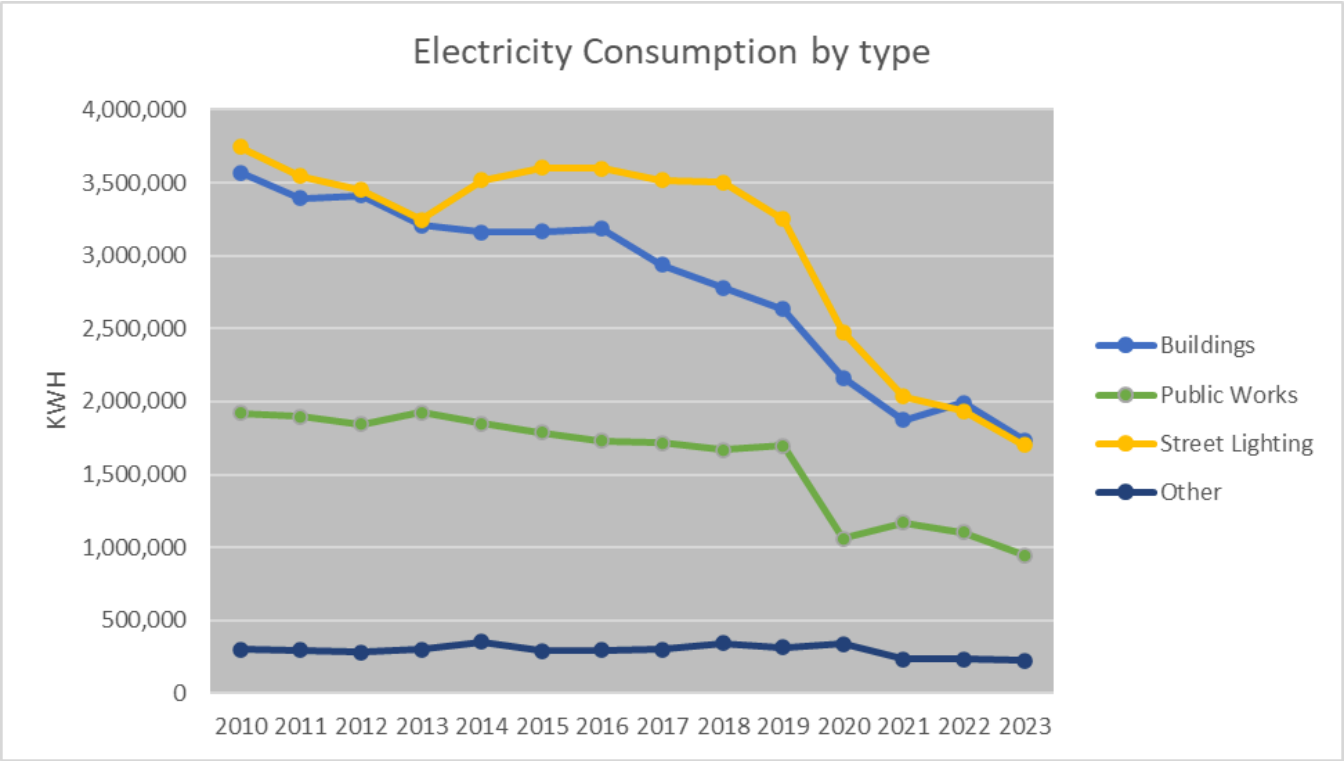
Year	HDD	CDD	Purchased Electricity (KWh)	Natural Gas (Therms)	Gasoline (gallons)	Diesel (gallons)	MMBTU	CO2e (Tons)	Dollars
2010	6,183	944	9,538,796	258,700	96,266	91,890	82,645	10,725	$1,514,995
2011	6,633	793	9,136,848	253,225	94,670	93,689	80,781	10,392	$1,650,433
2012	5,703	1,041	8,993,549	207,404	96,288	93,958	75,941	10,034	$1,651,593
2013	7,233	688	8,679,293	268,624	91,341	103,216	81,668	10,207	$1,724,667
2014	7,616	464	8,878,545	300,852	88,088	111,957	86,380	10,612	$1,750,699
2015	6,468	622	8,850,347	237,108	85,097	97,590	77,574	10,029	$1,452,050
2016	6,068	991	8,807,278	210,261	87,949	97,361	75,055	9,865	$1,374,577
2017	5,926	777	8,471,286	196,238	88,551	92,683	71,936	9,482	$1,364,956
2018	6,694	929	8,299,790	210,478	91,561	101,098	74,294	9,557	$1,460,888
2019	6,835	727	7,896,032	211,152	95,998	105,970	74,188	8,631	$1,427,603
2020	6,094	938	6,037,021	162,325	93,611	97,533	61,515	6,952	$1,075,791
2021	5,731	1,075	5,310,268	166,168	87,298	105,784	59,793	6,486	$1,210,164
2022	6,364	947	5,266,684	176,601	91,084	106,273	61,211	6,549	$1,554,434
2023	5,404	875	4,609,213	146,515	93,637	105,142	56,111	5,936	$1,365,730

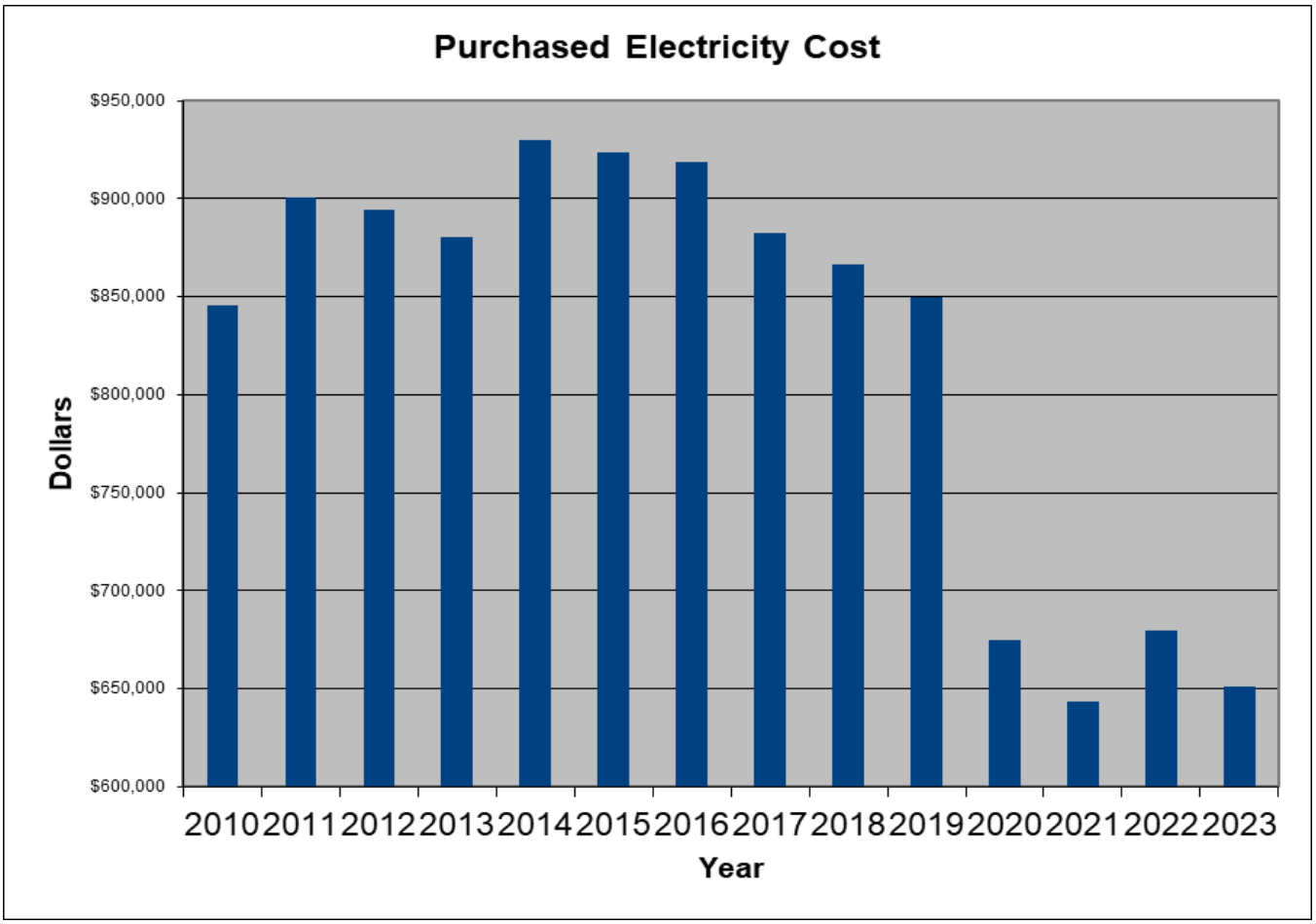
The spreadsheet is available in Microsoft Excel format by request of the Committee. Selections from the data are presented graphically on the following pages.

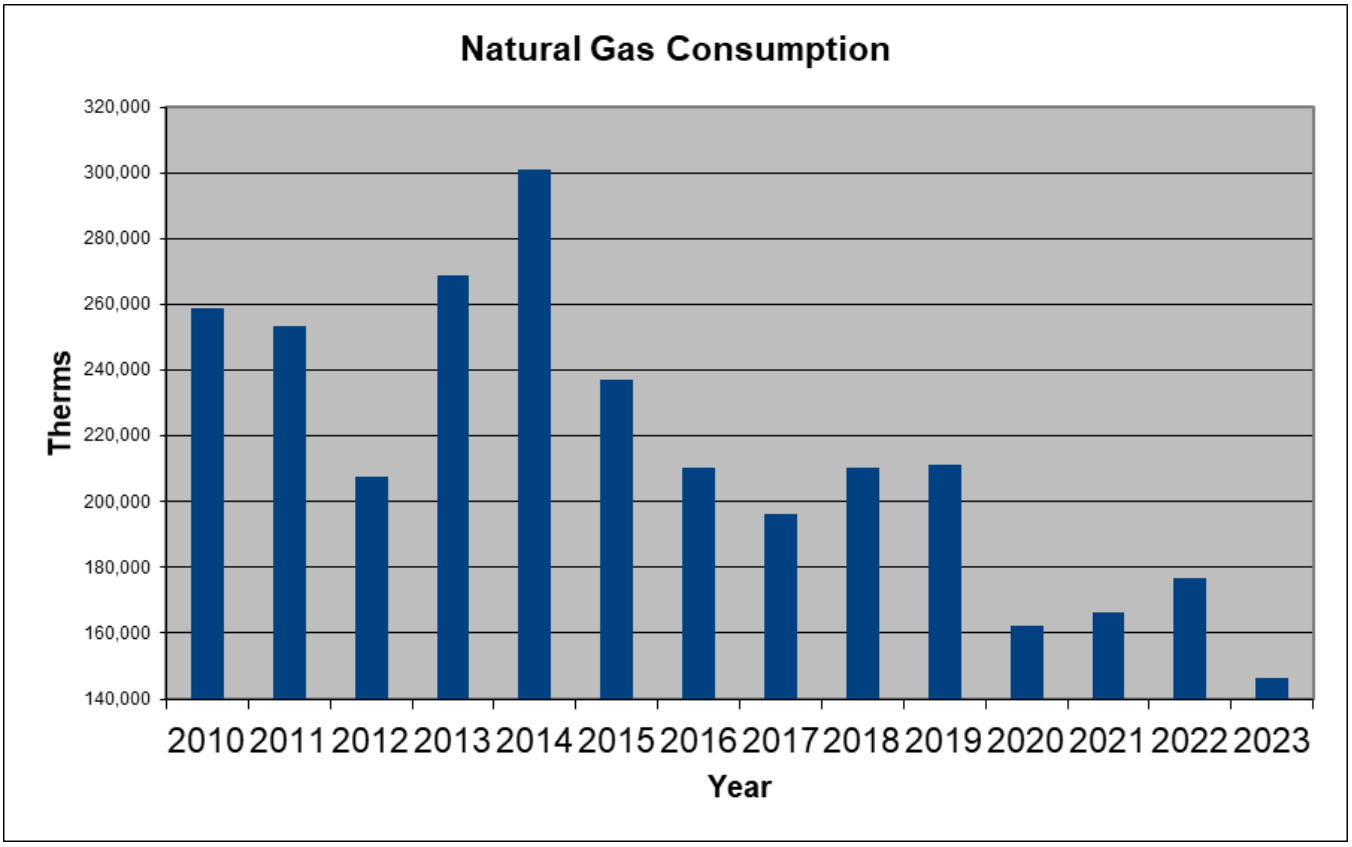
Abbreviations

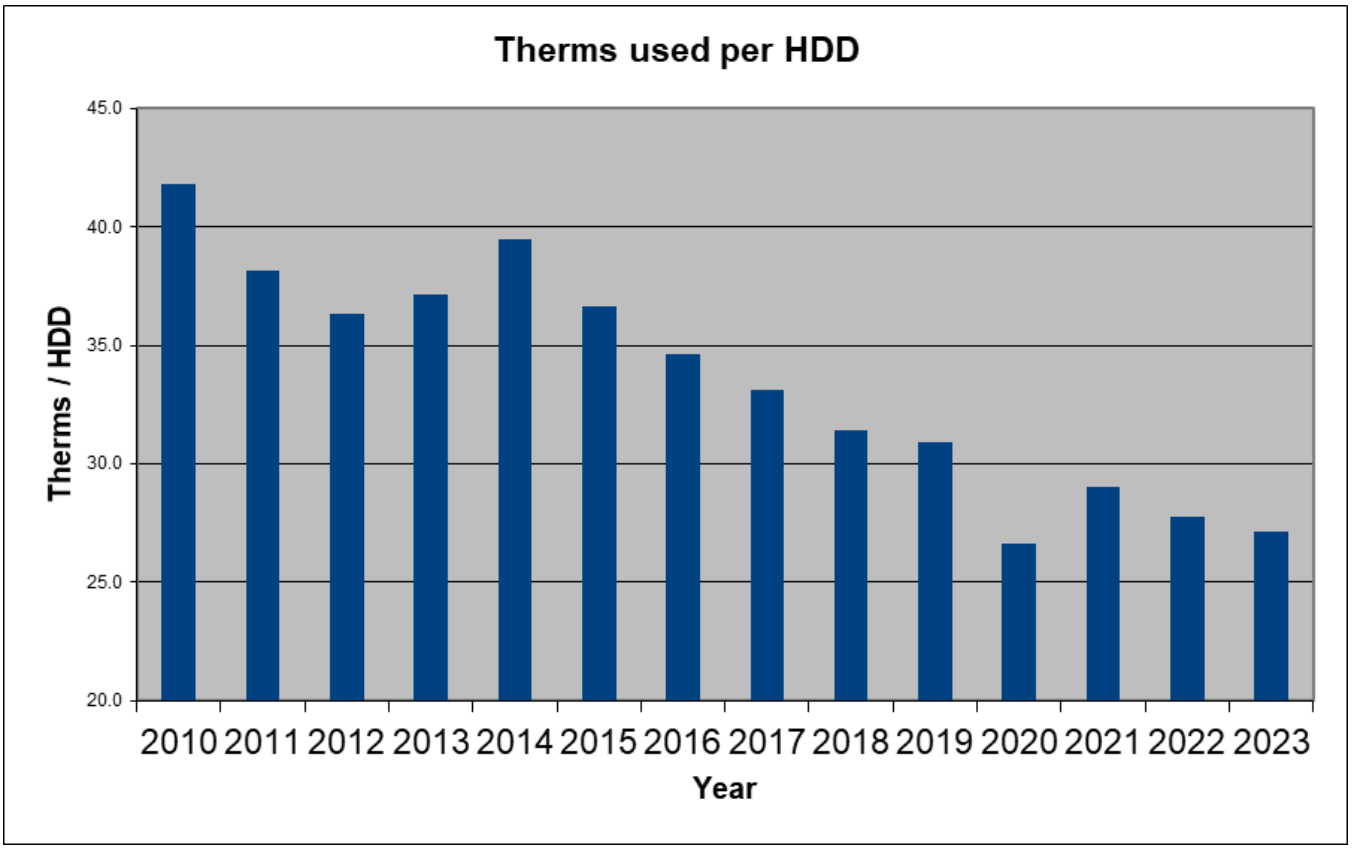
HDD: heating degree days
CDD: cooling degree days
KWh: kilowatt-hours of electricity
Therm: amount of natural gas required to produce 100,000 BTU (0.1 MMBTU) of heat
MMBTU: million BTU. Energy content of various fuels purchased are expressed in MMBTU and summed to show the total energy used for City operations.
CO_2e: estimated emission of greenhouse gases, in tons of CO_2 equivalent. Greenhouse gases other than CO2 are assigned factors based on their relative global warming potential and are included in this value. Source: https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.

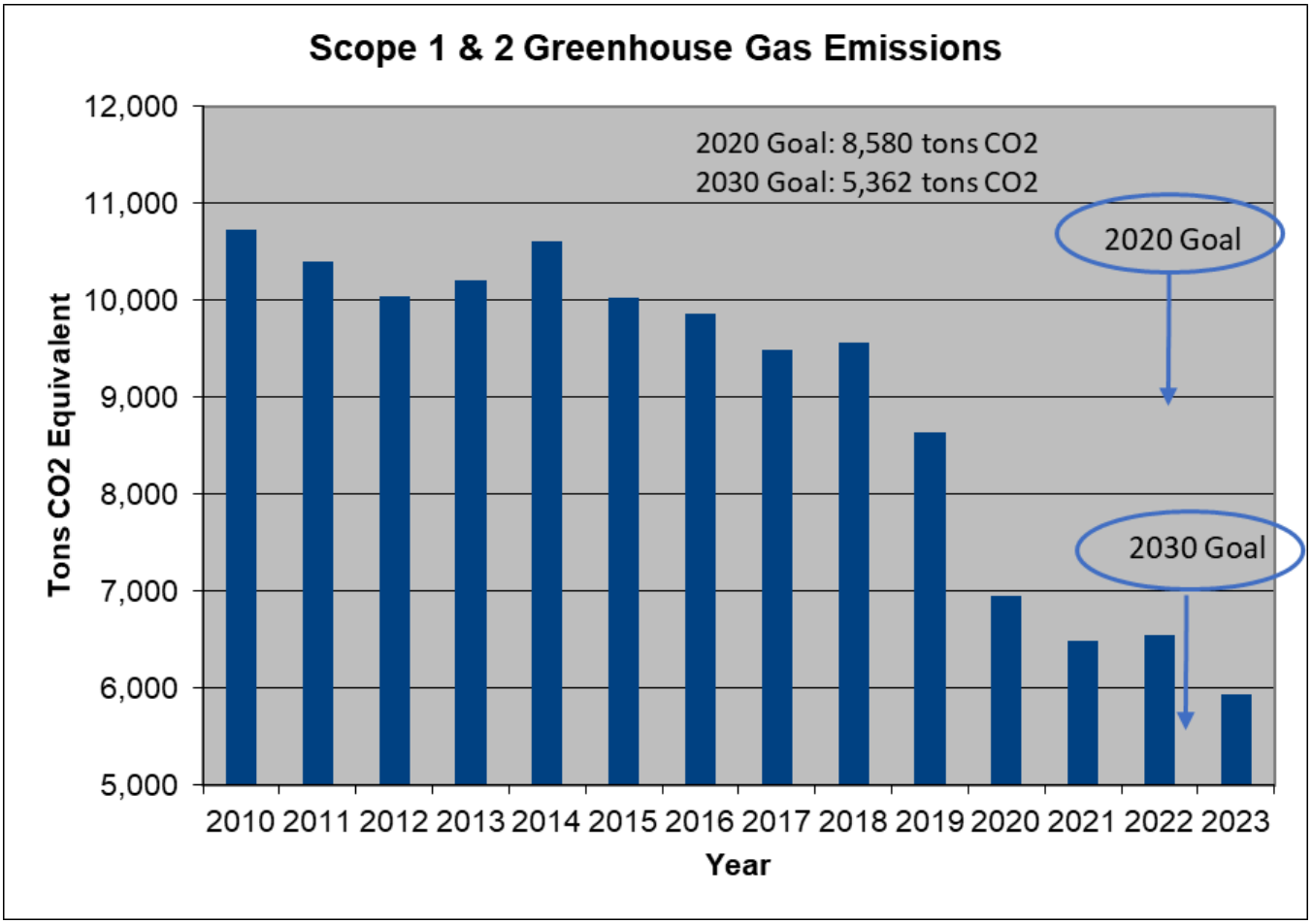

Purchased Electricity Consumption
10,000,000
9,000,000
8,000,000
7,000,000
6,000,000
5,000,000
4,000,000
KWH
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023
Year


Electricity Consumption by type
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
KWH
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023
Buildings
Public Works
Street Lighting
Other


Purchased Electricity Cost
$950,000
$900,000
$850,000
$800,000
$750,000
$700,000
$650,000
$600,000
Dollars
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023
Year


Natural Gas Consumption
320,000
300,000
280,000
260,000
240,000
220,000
200,000
180,000
160,000
140,000
Therms
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023
Year


Therms used per HDD
Therms / HDD
45.0
40.0
35.0
30.0
25.0
20.0
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023
Year


Scope 1 & 2 Greenhouse Gas Emissions
2020 Goal: 8,580 tons CO2
2030 Goal: 5,362 tons CO2
2020 Goal
2030 Goal
Tons CO2 Equivalent
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023
Year

WE Energies City-Wide Energy Data, 2019-2023

	2019		2020			2021			2022			2023		
Residential		GHG (MT CO2e)		GHG (MT CO2e)	y/y change		GHG (MT CO2e)	y/y change		GHG (MT CO2e)	y/y change		GHG (MT CO2e)	y/y change
Electric Customers:	23,959		23,936			24,317			22,161			22,606		
Electricity (kWh):	149,249,818	73,132	159,431,943	73,020	-0.2%	160,460,770	71,405	-2.2%	156,040,679	64,757	-9.3%	150,055,153	62,273	-3.8%
Gas Customers:	21,468		21,518			21,701			19,710			19,957		
Gas (therms):	16,891,191	89,523	15,129,368	80,186	-10.4%	15,021,828	79,616	-0.7%	16,405,364	86,948	9.2%	14,489,041	76,792	-11.7%
Total Residential:		162,655		153,206	-5.8%		151,021	-1.4%		151,705	0.5%		139,065	-8.3%
Commercial														
Electric Customers:	1,316		1,318			1,310			2,250			2,317		
Electricity (kWh):	435,758,457	213,522	406,627,927	186,236	-12.8%	434,921,137	193,540	3.9%	423,505,260	175,755	-9.2%	404,740,875	167,967	-4.4%
City Operations:	7,896,032		5,951,905		-24.6%	5,310,268		-10.8%	5,266,684		-0.8%	4,609,213		-12.5%
Gas Customers:	1,010		1,025			1,072			1,400			1,418		
Gas (therms)	25,500,658	135,153	23,486,797	124,480	-7.9%	23,666,237	125,431	0.8%	25,469,314	134,987	7.6%	22,145,373	117,370	-13.1%
City Operations:	211,152		162,325		-23.1%	166,168		2.4%	176,601		6.3%	146,515		-17.0%
Total Commercial:		348,675		310,716	-10.9%		318,971	2.7%		310,742	-2.6%		285,338	-8.2%
Private Street Lighting														
Electricity (kWh):	507,979	249	514,145	235	-5.4%	422,774	188	-20.1%	419,724	174	-7.4%	419,724	174	0.0%
TOTAL GHG (MT CO2e):		**511,579**		**464,157**	**-9.3%**		**470,180**	**1.3%**		**462,622**	**-1.6%**		**424,577**	**-8.2%**
	delta from 2019				**-9.3%**			**-8.1%**			**-9.6%**			**-17.0%**

Does not include transportation

Does not include fuel oil for heating

City Operations use is included in Commercial data from WE Energies

"Customers" are discreet meters