LA CROSSE COUNTY

Exceptional services. Extraordinary place.

Sustainability Indicators

2023 Report

December 4, 2024

Note: this draft report omits vehicle fuel quantities, because they are currently being revised.

When complete, a final version of the report will be issued.

Prepared by

SUSTAINABILITY ANALYTICS

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Acknowledgements

Thank you to the many La Crosse County staff persons and others who provided information for this report, and to all people and organizations engaged in the important work of preserving and improving the livability of our County.

Introduction

In 2009 the La Crosse County Board adopted a *Strategic Plan for Sustainability*. The plan identified multiple sustainability indicators to be monitored on an ongoing basis. Some indicators apply to government operations only, while others apply to the County as a whole. For most indicators, 2007 was the earliest year for which reliable data could be gathered. It was therefore designated as the "base year" against which future values would be compared. According to the *Strategic Plan for Sustainability*, a report was to be generated on an annual basis to monitor and highlight improvements or setbacks in the pursuit toward sustainability. This report summarizes the status of the following indicators through the end of 2023:

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County Government Operations Indicators

Facility Energy Usage

The La Crosse County government utilizes electricity and natural gas energy sources to operate facilities; each is examined separately below. The County government implemented several facilities changes in 2016 and 2017 that significantly impacted subsequent energy usage levels:

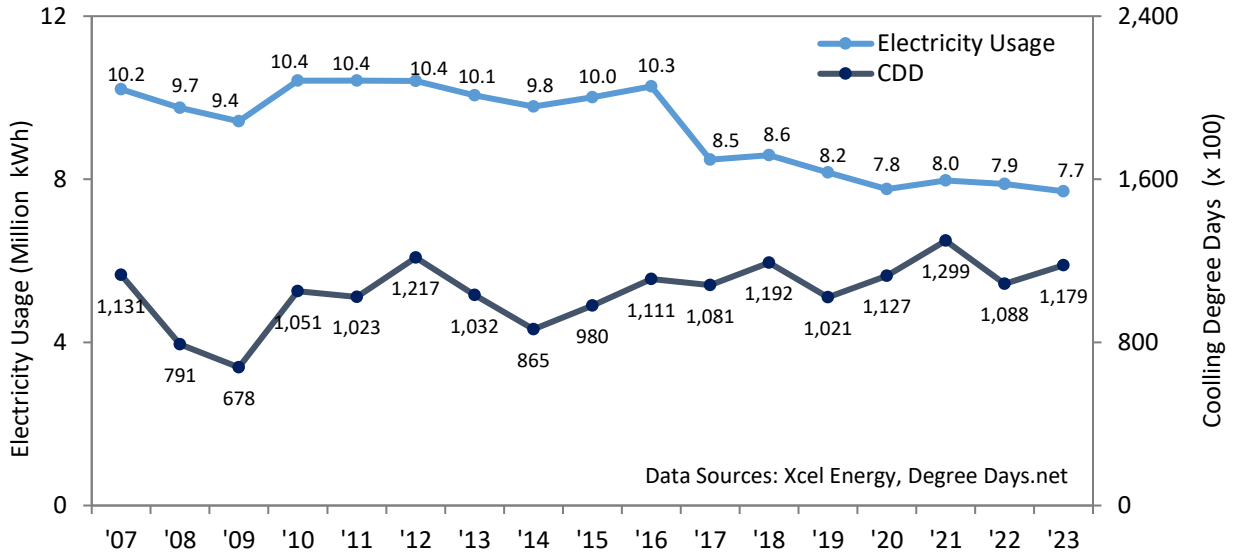
- A new Lakeview Health facility opened late in 2016, replacing the old facility.
- The Administration Center was relocated to another existing facility – smaller in area – in La Crosse. After renovations were completed, the new facility opened early in 2017.
- A boiler replacement and major expansion at the Health & Human Services facility were completed in late 2016

Electricity

La Crosse County government operations consumed 7.71 million kWh of electricity during 2022 – down from 10.20 million kWh in 2007 (-24.5%), and down from 7.88 million kWh in 2022 (-2.3%; see Figure 1). Electricity usage was lower in 2023 compared with 2022 despite higher summer temperatures, which would tend to increase air conditioning loads (see CDD discussion below). The County government's electricity costs in 2023 were an estimated $296,000 less than if usage had remained at 2007 levels, and $1.78 million less from 2008 - 2023 in total. Savings estimates are based on annual statewide average commercial electricity prices, published by the US Energy Information Administration.

As of the writing of this report, the County government plans to install photovoltaic solar arrays at seven facilities. Together, they are expected to produce just over 1 million kWh in their first year of operation – an amount equivalent to approximately 13% of the County government's total electricity consumption in 2023.

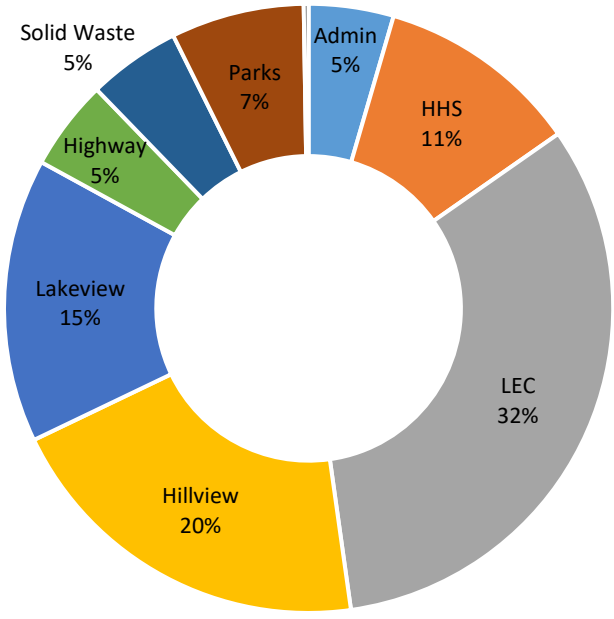
Figure 1: La Crosse County Government Annual Electricity Usage with Cooling Degree Days



Cooling degree days (CDD) measure the difference between outdoor temperature and the base indoor temperature of air-conditioned facilities. The annual CDD values shown in Figure 1 represent an index of overall summer heat levels. Higher electricity consumption for air conditioning is expected in years with higher annual CDD values. In La Crosse, cooling degree days were 8.3% higher in 2023 than in 2022.

Among County facilities/departments, the Law Enforcement Center used the largest amount of electricity in 2023 (32% of the County government total; see Figure 2). Hillview Health Care Center, Lakeview Health Center, and Health and Human Services facilities also used relatively large quantities.

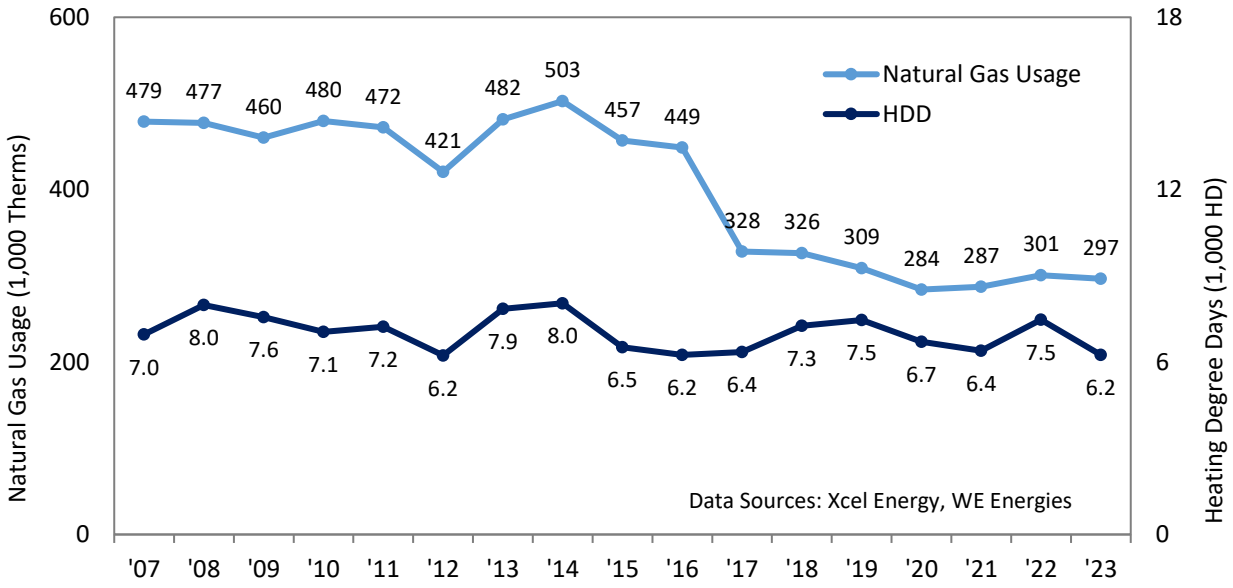
Figure 2: La Crosse County Government 2023 Electricity Usage by Facility/Department



Natural Gas

La Crosse County government operations consumed 296,619 therms of natural gas during 2023 – down from 478,918 therms in 2007 (-38.1%), and down from 300,836 therms in 2022 (-1.4%; see Figure 3). Lower natural gas usage in 2023 compared with 2022 may have resulted from decreased heating loads (due to warmer winter temperatures; see HDD discussion below. The County government spent an estimated $150,000 less for natural gas in 2023 than if usage had remained at the 2007 level, and $937,000 less from 2008-2023 in total. Savings estimates are based on annual statewide average commercial natural gas prices, published by the US Energy Information Administration.

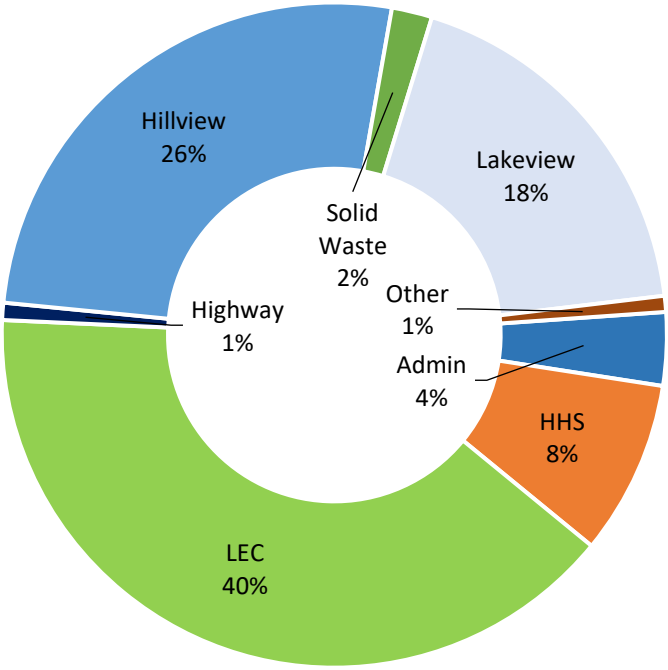
Figure 3: La Crosse County Government Annual Natural Gas Usage with Heating Degree Days



Heating degree days (HDD) measure the difference between outdoor and indoor temperatures. The annual HDD values shown in Figure 3 represent an index of overall winter coldness. Higher natural gas use is expected in years with higher HDD values. In La Crosse, heating degree days were 16.3% lower in 2023 than in 2022.

Among County facilities, the Law Enforcement Center used the largest amount of natural gas in 2023 (40% of the County government total; see Figure 4). Hillview Health Care Center and Lakeview Health Center facilities also used relatively large quantities.

Figure 4: La Crosse County Government 2023 Natural Gas Usage by Facility/Dept



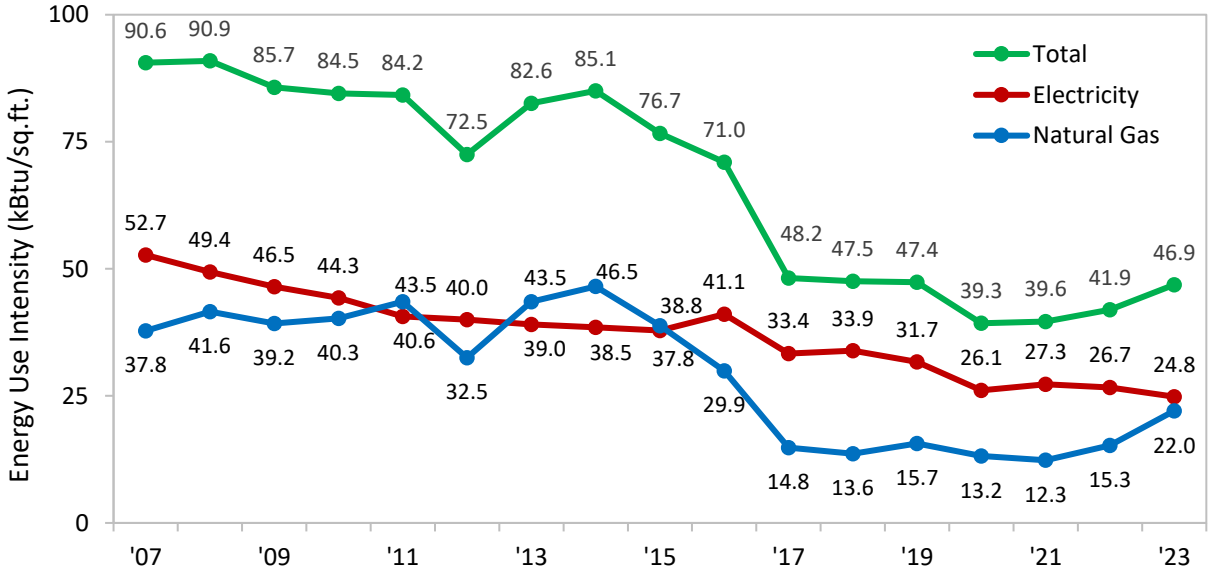
Energy Use Intensity

A facility's annual energy usage per square foot, or *energy use intensity (EUI)*, is a measure of its total annual energy usage (in units of kBtu), standardized by its size (in units of ft^2). EUI is useful for comparing energy use among facilities of different sizes. This analysis examines EUI of two La Crosse County government facilities -- Health and Human Services and the Law Enforcement Center.

Health and Human Services Facility

The Health and Human Services facility's EUI in 2023 was 46.9 kBtu/ft^2 – down from 90.6 kBtu/ft^2 in 2007 (-48.2%), but up from 41.9 kBtu/ ft^2 in 2022 (+11.8%; see Figure 5). For comparison, U.S. EPA's Energy Star Portfolio Manager publishes median EUI values by facility type. As of March 2016, the median site-level EUI value for offices was 67.3 kBtu/ft^2. Note that La Crosse County replaced the boiler and completed an expansion in its Health and Human Services facility in 2016, increasing the total area of conditioned space from 90,000 ft^2 to 114,000 ft^2 and leading to the significant drop in EUI between 2016 and 2017. The drop in energy use intensity between 2019 and 2020 likely resulted from changes in facility usage patterns during the COVID pandemic, but as of 2023 it has returned to pre-COVID levels.

Figure 5: Health & Human Services Facility Annual Energy Use Intensity

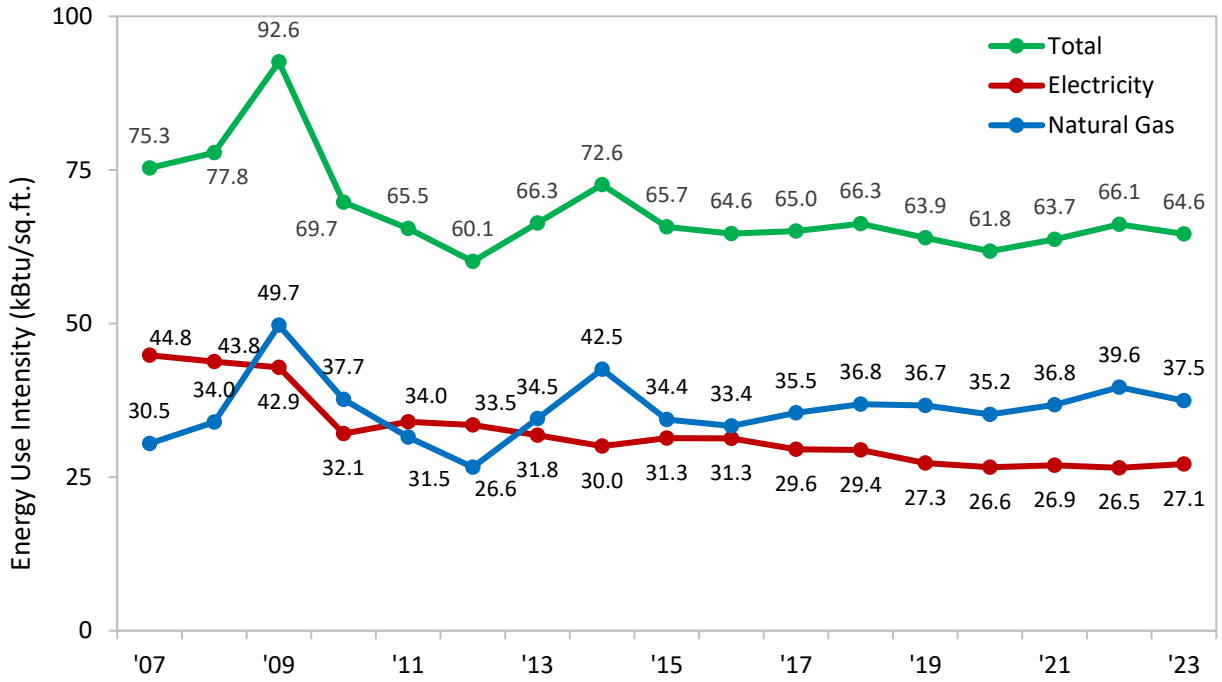


Change in EUI can have significant financial implications. The energy cost to operate the Health and Human Services facility in 2023 was ~$125,000 less than if the EUI had remained at 2007 levels, based on statewide average commercial energy prices.

Law Enforcement Center

The Law Enforcement Center's EUI in 2023 was 64.6 kBtu/ft^2— down from 75.3 kBtu/ft^2 in 2007 (-14.3%), and down from 66.1 kBtu/ft^2 in 2022 (-2.4%; see Figure 6). For comparison, the Portfolio Manager's median EUI value for incarceration facilities in March 2016 was 93.2 kBtu/ft^2. Please note that the La Crosse County Law Enforcement Center underwent a major expansion in 2010, increasing its total area from 169,000 ft^2 to 315,000 ft^2.

Figure 6: Law Enforcement Center Annual Energy Use Intensity



Change in EUI can have significant financial implications. The energy cost to operate the Law Enforcement Center in 2023 was ~$176,000 less than if the EUI had remained at 2007 levels, based on statewide average energy prices.

Vehicle Fuels

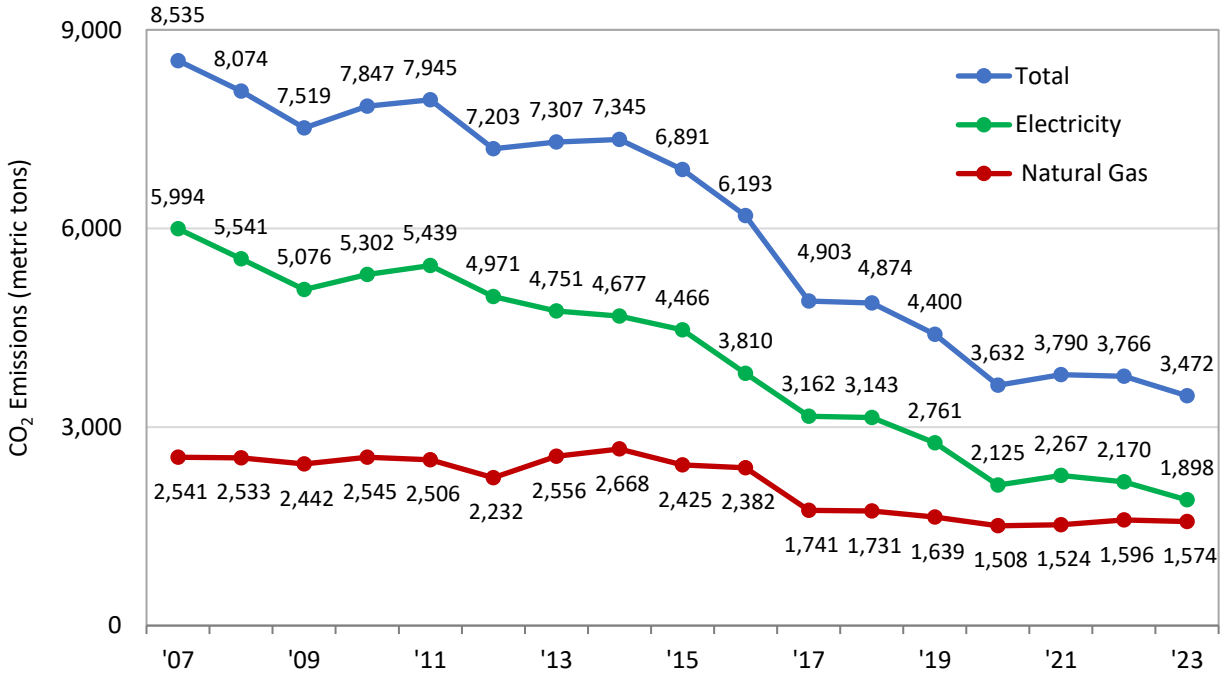
This section of the report is temporarily omitted because fuel usage amounts from previous years are currently in the process of being revised. When complete, an updated version of the report will be issued.

Carbon Dioxide Emissions from Energy Usage

Combustion of fossil fuels to produce energy emits carbon dioxide into the atmosphere. The County government's 2023 electricity and natural gas usage resulted in an estimated 3,472 metric tons of carbon dioxide emissions – down from 8,535 metric tons in 2007 (-59.3%), and down from 3,766 metric tons in 2022 (-7.8%; see Figure 8).[1] The electricity component was the largest driver of reduced emissions from 2007 to 2023, having decreased by 68.3%; but emissions from natural gas decreased, by 38.1%.

Please note that vehicle fuel usage is temporarily omitted from this analysis. Fuel usage quantities from previous years are currently in the process of being revised. When complete, an updated version of the report will be issued.

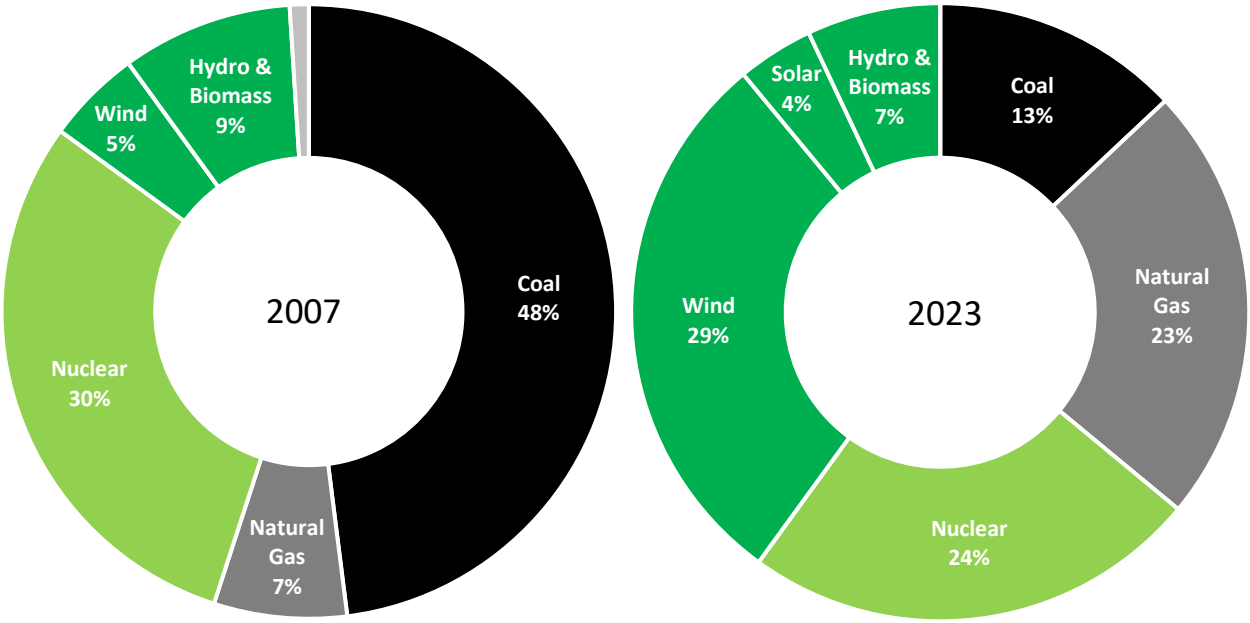
Figure 4: La Crosse County Government Annual Carbon Dioxide Emissions from Energy Usage



[1] 2007 value revised slightly from previous reports based on vehicle fuel data correction

The County government's carbon dioxide emissions from electricity are influenced by two factors: the County government's electricity usage quantities and Xcel Energy's electricity emission rates – i.e., the amount of carbon dioxide emitted per unit of electricity produced. Both factors declined from 2007-2023, usage by 24.5% and emission rates by 58.6%. The decline in emission rates resulted from Xcel Energy producing less electricity with coal and more with natural gas, wind, and solar energy sources (see Figure 9). Natural gas is a fossil fuel source like coal, but electricity generated from natural gas produces approximately only half as much carbon dioxide as electricity generated using coal.

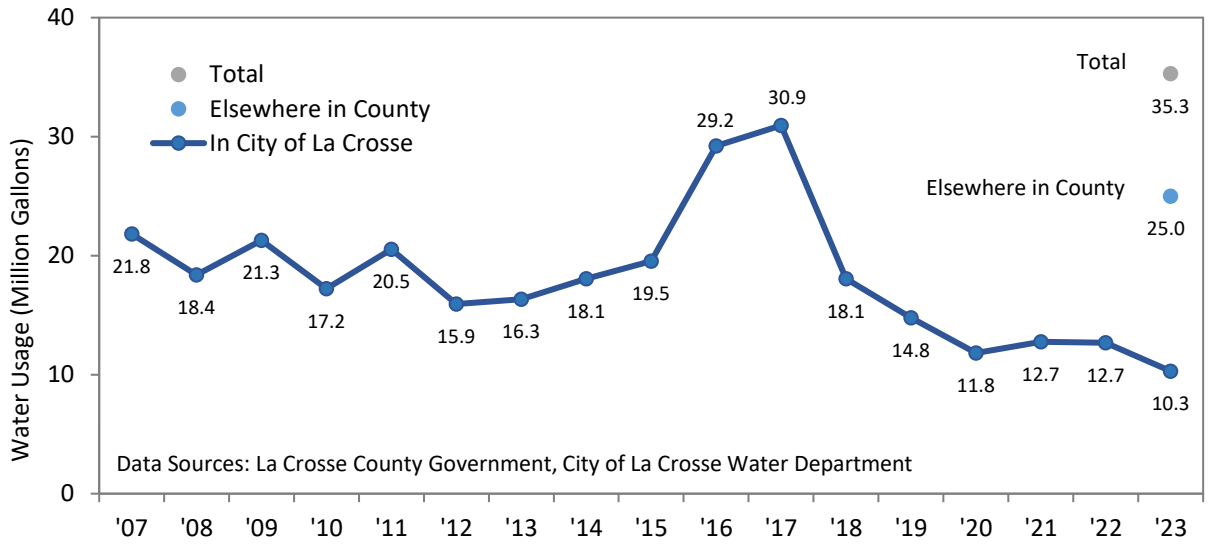
Figure 5: Xcel Energy Upper Midwest Region Electricity Resource Mix



Water Usage

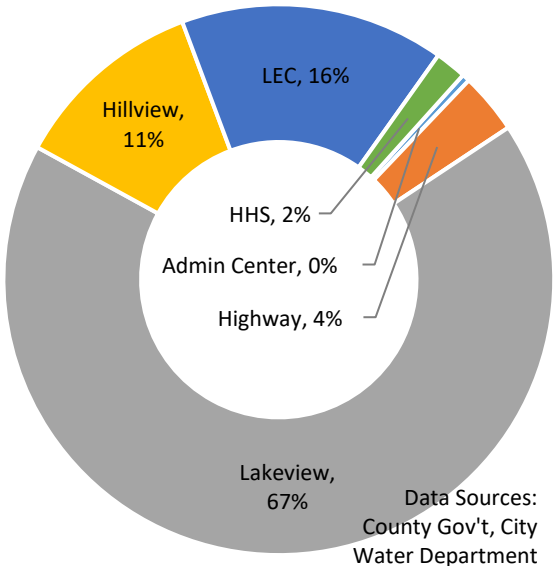
This indicator tracks water usage at County government facilities that are located within the City of La Crosse and served by the City Water Utility: Administration Center, Health & Human Services, Law Enforcement Center, Hillview Health Care Center, Carroll Heights, and the Highway Department facility on Park Lane Dr. Water usage at additional facilities outside the City of La Crosse were also added for the first time in this report. These include Lakeview Health Center and the Highway Department Headquarters, both in West Salem, and the Highway shop in Mindoro. Water sourced from on-site wells at the Administrative Center, Health and Human Services, and Law Enforcement Center facilities is not included.

Figure 10: La Crosse County Government Annual Water Usage



The County government's water usage in 2023 was 35.3 million gallons – including 10.3 million gallons at facilities within the City of La Crosse, and 25.0 million gallons at facilities elsewhere in the County (see Figure 10). The 10.3 million gallons consumed by facilities within the City of La Crosse was down from 12.7 million gallons in 2022 (-18.8%), and down from 21.8 million gallons in 2007 (-52.8%; see Figure 10). On the level of individual facilities, Lakeview used 23.7 million gallons – about 2/3 of the total (see Figure 11). High water usage quantities in 2016 and 2017 resulted from temporary stoppages of on-site wells at the Law Enforcement Center (2016) and the Health and Human Services facility (2017). The facilities used City-sourced water while on-site wells were not operating.

Figure 11: La Crosse County Government 2023 Water Usage by Facility



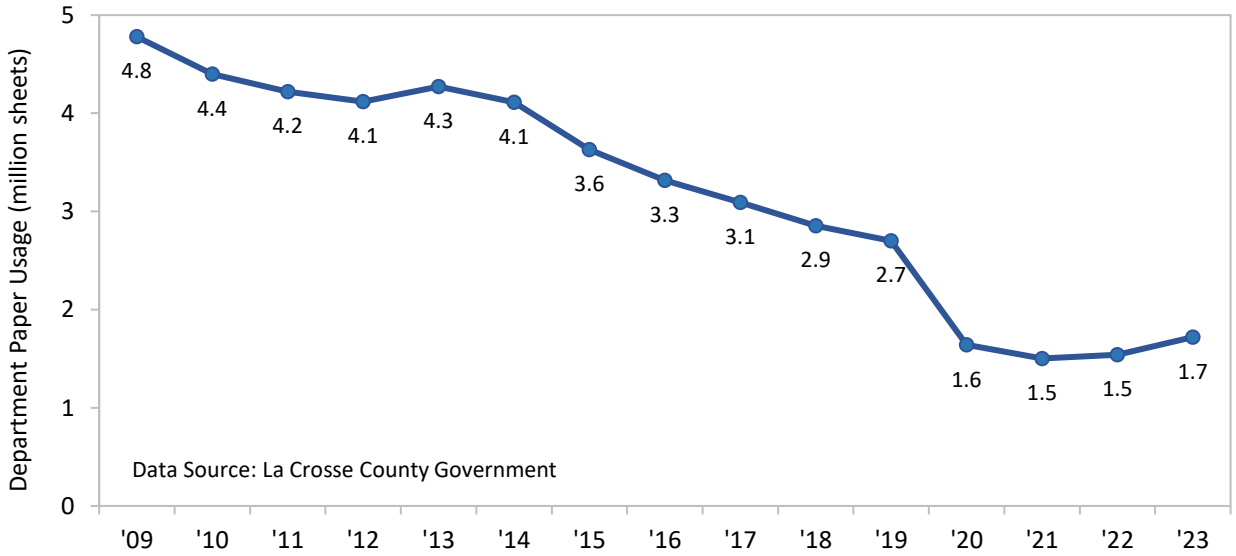
Paper Usage

County government operations consume paper for production and department purposes. In previous years of this report, combined total paper usage (production + department) was presented. In 2021 department printing was responsible for approximately two thirds of total paper usage, and production printing for one third. As of 2022 the County outsources all production printing and no longer tracks quantities in this category. Therefore, this report presents information on department printing only.

County government operations used 1.72 million sheets of paper for department purposes in 2023 – down from 4.78 million sheets in 2009 (-64.0%), but up from 1.54 million sheets in 2022 (+11.7%; see Figure 12). Paper usage information is not available for 2007 or 2008. The large decrease in paper consumption from 2019 to 2020 likely resulted from changes to County employee work patterns caused by the COVID pandemic.

Reducing paper usage has financial and environmental benefits. At $0.05 per printed sheet of paper, the County government spent an estimated $153,000 less on paper/printing for department purposes in 2023 than if usage had remained at the 2009 level, which avoided an estimated 78 mt CO_2e of GHG emissions. Cumulative savings from 2010 – 2023 were $1.189 million and 605 mt CO_2e.[2]

Figure 12: La Crosse County Government Annual 'Department' Paper Usage



[2] Avoided GHG emissions estimated using EPA Waste Reduction Model (WARM) v15, with recycling as baseline management scenario. Paper weight assumed to be 10 lbs. per 1,000 sheets.

Community-Wide Indicators

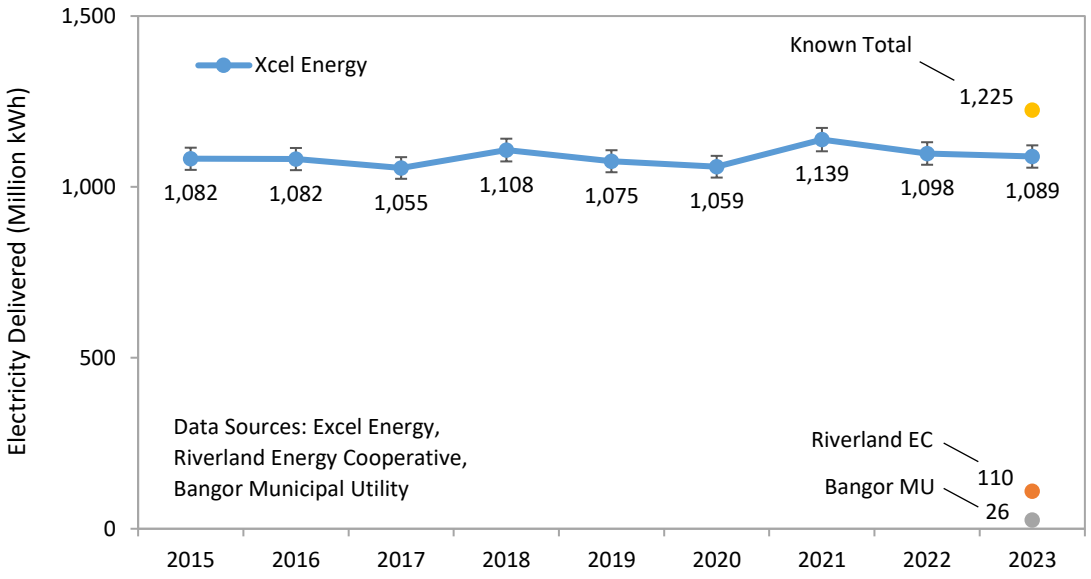
The following three indicators – electricity usage, natural gas usage, and associated carbon dioxide emissions – track community-wide energy use and associated GHG emissions in La Crosse County since 2015, the earliest year for which information is available. Until 2023, however, only electricity and natural gas provided by Xcel Energy was tracked. Electricity and natural gas provided by other utilities that also operate within the County were included beginning in 2023.

Electricity Usage

Five electricity providers deliver electricity to customers in La Crosse County: Xcel Energy, the Bangor Municipal Utility, Riverland Energy Cooperative, Vernon Electric Cooperative, and Jackson Electric Cooperative. Electricity quantities delivered in 2023 are only known for the first three of these, however. Vernon and Jackson Electric Cooperatives did not provide information for this report, so the quantities of electricity they delivered are unknown.

The total known quantity of electricity delivered to La Crosse County customers in 2023 was 1.225 billion kWh. Of this quantity, 61% was delivered to customers in the City of La Crosse, and 39% was delivered to customers elsewhere within La Crosse County. Xcel Energy delivered 1.089 billion kWh (89% of the known total) – down from 1.098 billion kWh in 2022 (-0.8%), but up from 1.082 billion kWh in 2015 (+0.6%; see Figure 13). Note that year-to-year differences may fall within the margin of error (+/-3%) specified by Xcel Energy. Riverland Energy Cooperative delivered 110 million kWh of electricity to customers in La Crosse County in 2023 (9% of the known total), while the Bangor Municipal Utility delivered 26 million kWh (2% of the known total).

Figure 13: Annual Electricity Quantities Delivered to Customers in La Crosse County

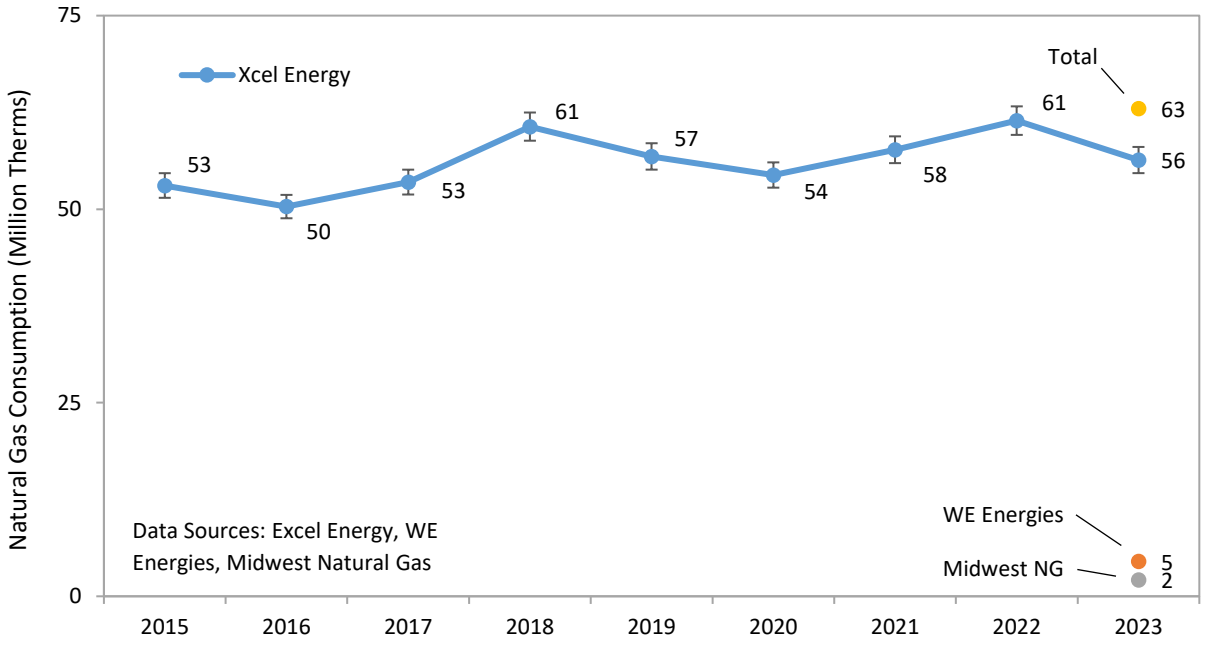


Natural Gas Usage

The total quantity of natural gas delivered to La Crosse County customers in 2023 was 63.0 million therms. Of this quantity, 64% was delivered within the City of La Crosse, and 36% was delivered elsewhere within the County.

Three companies provide natural gas in La Crosse County: Xcel Energy, WE Energies, and Midwest Natural Gas. Xcel Energy delivered 56.3 million therms of natural gas to La Crosse County customers in 2023 (89% of the total) – down from 61.4 million therms 2022 (-8.3%), but up from 53.1 million therms in 2015 (+6.2%; see Figure 14). Note that year-to-year differences may fall within the margin of error (+/-3%) specified by Xcel Energy. WE Energies delivered 4.5 million therms of natural gas to La Crosse County customers in 2023 (7% of the total), while Midwest Natural Gas delivered 2.1 million therms (3% of the known total).

Figure 14: Annual Natural Gas Quantities Delivered to Customers in La Crosse County



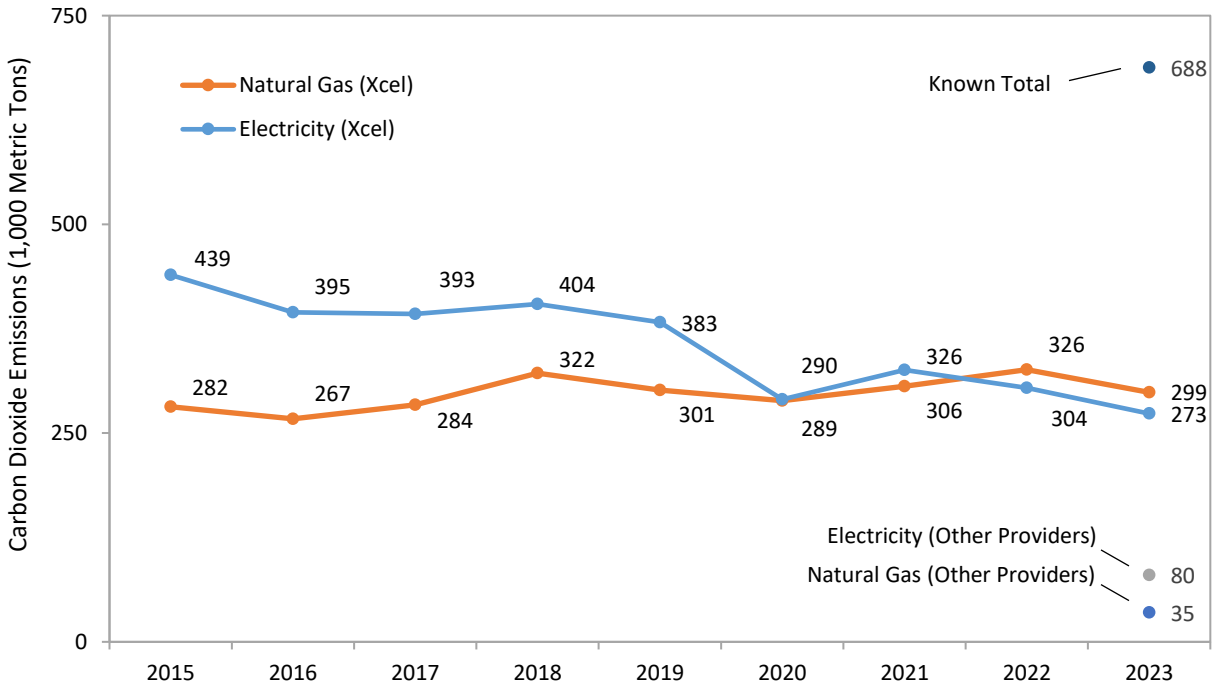
Carbon Dioxide Emissions from Energy Usage

Known electricity and natural gas usage in La Crosse County generated 688,697 metric tons of carbon dioxide emissions during 2023. Electricity contributed 51% of this amount and natural gas contributed 49%. In terms of geography, the City of La Crosse was responsible for 53% of the total, and the rest of La Crosse County was responsible for 47%.

Natural gas usage by Xcel Energy customers in La Crosse County resulted in 298,989 metric tons of carbon dioxide emissions in 2023 – down from 325,992 metric tons in 2022 (-8.3%), but up from 281,532 metric tons in 2015 (+6.2%; see Figure 15). Natural gas delivered by other providers (including Midwest Natural Gas and WE Energies) resulted in an additional 35,243 metric tons of carbon dioxide emissions.

Electricity usage by Xcel Energy customers in La Crosse County resulted in 273,349 metric tons of carbon dioxide emissions in 2023 – down from 304,123 metric tons in 2022 (-10.1%), and down from 439,462 metric tons in 2015 (-37.8%; see Figure 15). Electricity delivered by other providers (including Riverland Energy Cooperative and the Bangor Municipal Utility) resulted in an additional 80,118 metric tons of carbon dioxide emissions.

Figure 6: La Crosse County Community-Wide Annual Carbon Dioxide Emissions from Energy Usage

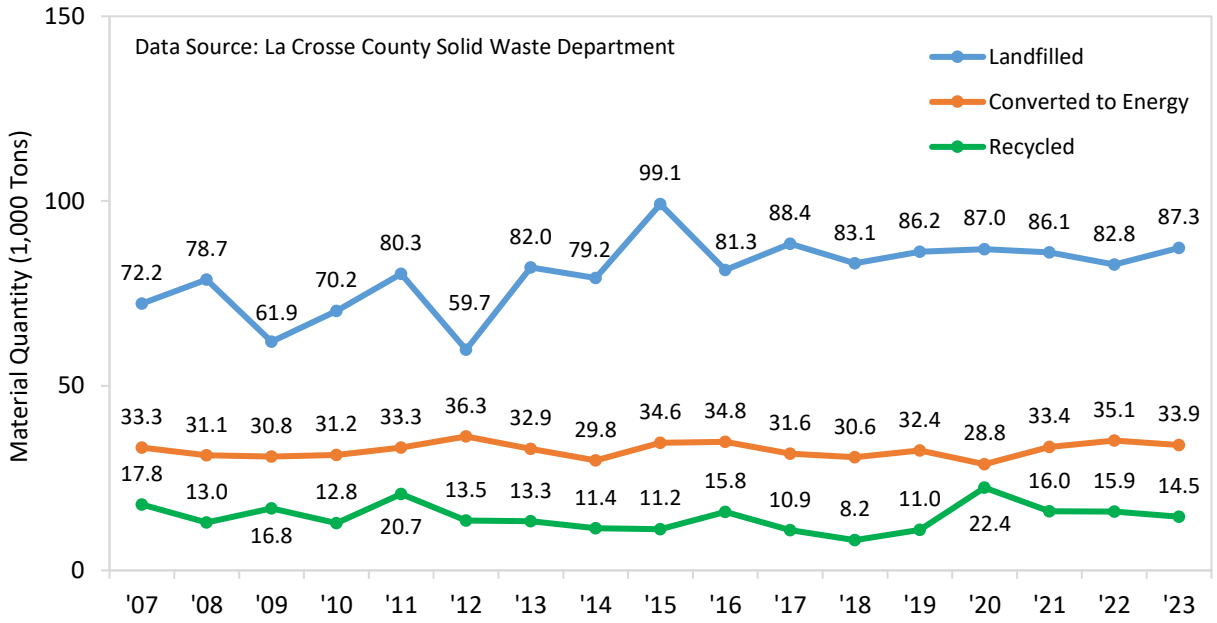


Solid Waste Generation & Diversion

Solid waste managed by La Crosse County enters one of three waste streams: deposition in the La Crosse County Landfill, incineration at Xcel Energy's Waste-to-Energy facility on French Island, or recycling. Recycled quantities include materials diverted for recycling at the landfill -- shingles, concrete, tires, scrap metal, yard waste and wood waste.

In total, La Crosse County handled 135,729 tons of solid waste in 2023 – up from 123,274 tons in 2007 (+10.1%), and up from 133,854 tons in 2022 (+1.4%; see Figure 16). Economic recession may explain the relatively low quantity of solid waste generated in 2009 and the subsequent increasing trend.

Figure 7: La Crosse County Annual Solid Waste Quantities



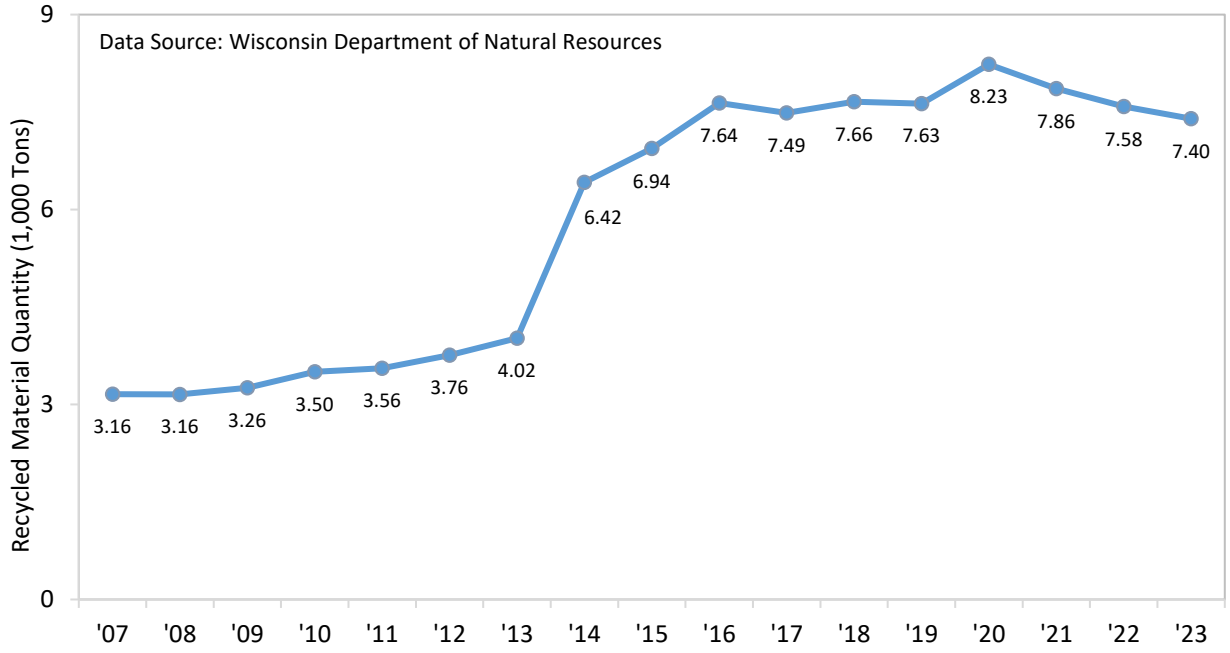
Of the total solid waste handled in 2023, 64.3% was deposited into the landfill, 25.0% was incinerated to produce electricity, and 10.7% was recycled. Roof damage caused by storms resulted in large quantities of shingles being received by the County solid waste system in 2020, which explains the increased quantity of recycled material during that year. The 2023 total diversion rate (i.e., the sum of the percent incinerated, and the percent recycled) was 35.7% - down from 41.4% in 2007, and down from 38.2% in 2021. Waste from La Crosse County incinerated at French Island was used to produce an estimated 22.9 million kWh of electricity in 2023, enough to supply approximately 2,513 households.

Municipal Recycling Collection

This indicator tracks quantities of recyclable materials collected through curbside and drop off collection methods by all municipalities within La Crosse County. Materials include paper products (newspaper, corrugated, magazines), containers (aluminum, steel, bi–metal, plastic, glass) and polystyrene foam packaging.

Recycling collection quantities have increased significantly since 2007. Together, the County's municipalities collected 7,401 tons of materials for recycling in 2023 – up from 3,160 tons in 2007 (+134.2%), but down from 7,585 tons in 2022 (-2.4%; see Figure 17). The increase in recycled quantities between 2013 and 2014 coincide with the initiation of "single stream" collection processes and distribution of larger storage containers to residents in the Cities of La Crosse and Onalaska.

Figure 8: La Crosse County Annual Municipal Recycling Quantities



Transportation

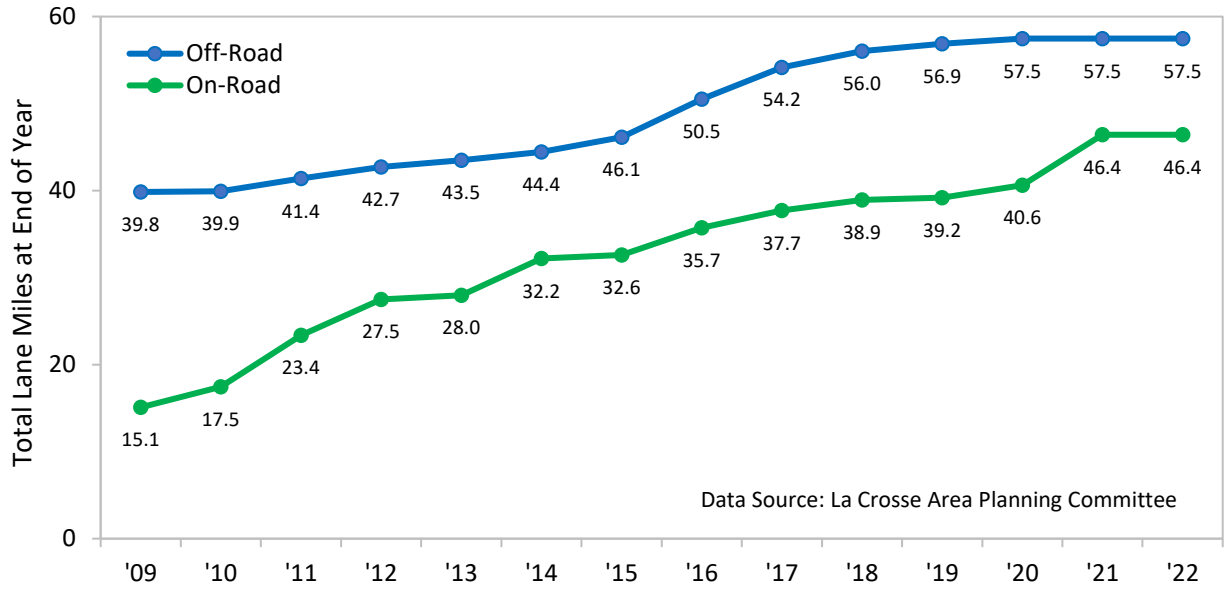
This report tracks two indicators related to alternative forms of transportation: the total length of area bicycle accommodations (i.e., routes and trails), and residents' usage of alternative methods for commuting to work.

Bicycle Accommodations

This indicator quantifies on-road and off-road accommodations for bicycle transportation within the La Crosse Area Planning Committee (LAPC) Planning Area -- which includes the city of La Crescent, MN as well as most of La Crosse County except for the towns of Farmington, Washington, Rockland, Burns, and Bangor.[3] On-road accommodations include designated bicycle lanes and designated shoulders. Please note that streets marked with "sharrow" symbols had been included in previous reports, but as of this report are excluded from the analysis – because visibility has deteriorated. Off-road accommodations include paved trails that are at least eight feet wide, and state trails – which generally have crushed stone surfaces. Trails with grass or earth surfaces are not included. Information for 2007 and 2008 are unavailable for this indicator.

The LAPC Planning Area contained 57.5 lane-miles of off-road bicycle accommodations at the end of 2022 – up from 39.8 lane-miles in 2009 (+44.3%), and unchanged from 2021 (see Figure 19). The Area contained 46.4 lane-miles of on-road bicycle accommodations at the end of 2022 – up from 15.1 lane-miles in 2009 (+207.5%), and unchanged from 2022 (see Figure 18).[4] Information for 2023 was not available in time for this report.

Figure 9: LAPC Planning Area Bicycle Accommodations



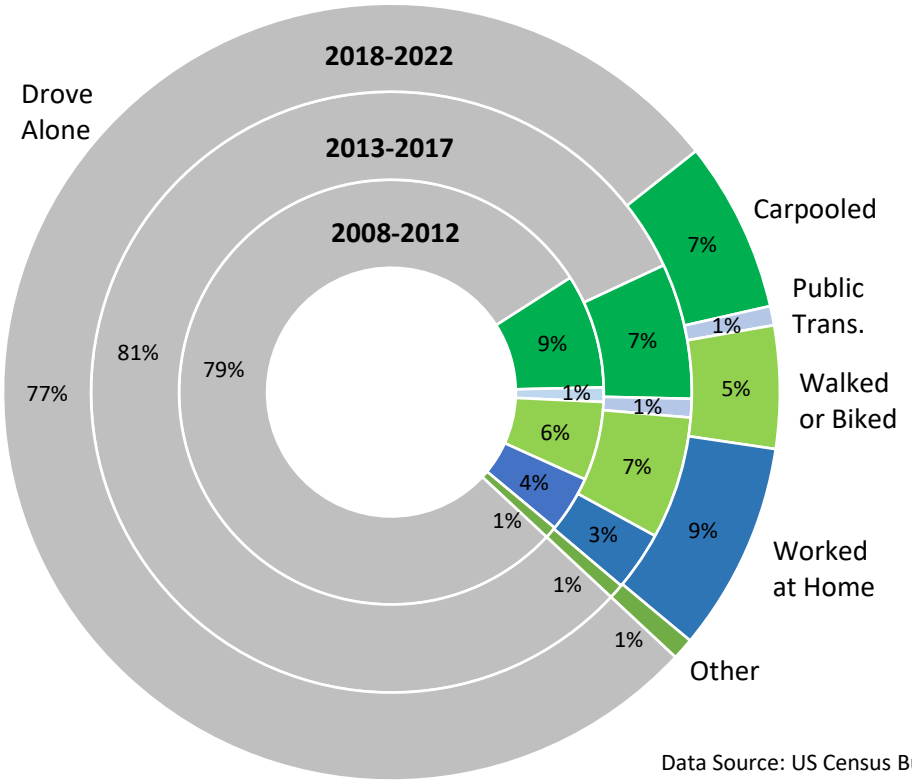
[3] See LAPC Planning Area map at www.lapc.org/content/about/map.htm
[4] On-road and off-road values revised from previous reports to reflect corrections made to LAPC's GIS.

Alternative Commuting Rates

This indicator examines percentages of workers who travel to work in ways other than driving alone in an automobile: bicycling or walking, public transportation, or carpooling. Data are collected as part of the US Census Bureau's American Community Survey (ACS). ACS results are published as 5-year averages; this analysis examines alternative commute rates in three periods: 2008-2012, 2013-2017 and 2018-2022. Information for 2023 was not available in time for this report.

During all three periods more than three quarters of County residents drove alone to work, while the remainder utilized alternative methods including carpooling (7-9%), walking/bicycling (5-7%), public transportation (1%), or worked at home (3-9%; see Figure 19). The City of La Crosse's relatively compact spatial arrangement with short travel distances between residential areas and workplaces make walking/bicycling practical, so this percentage is higher for the City of La Crosse than the state average. Although many students also walk or bike to school in the City, students are not included in the analysis. The higher percentage of persons working from home during the 2018-2022 period was caused by the COVID-19 pandemic.

Figure 10: La Crosse County Resident Commuting Methods

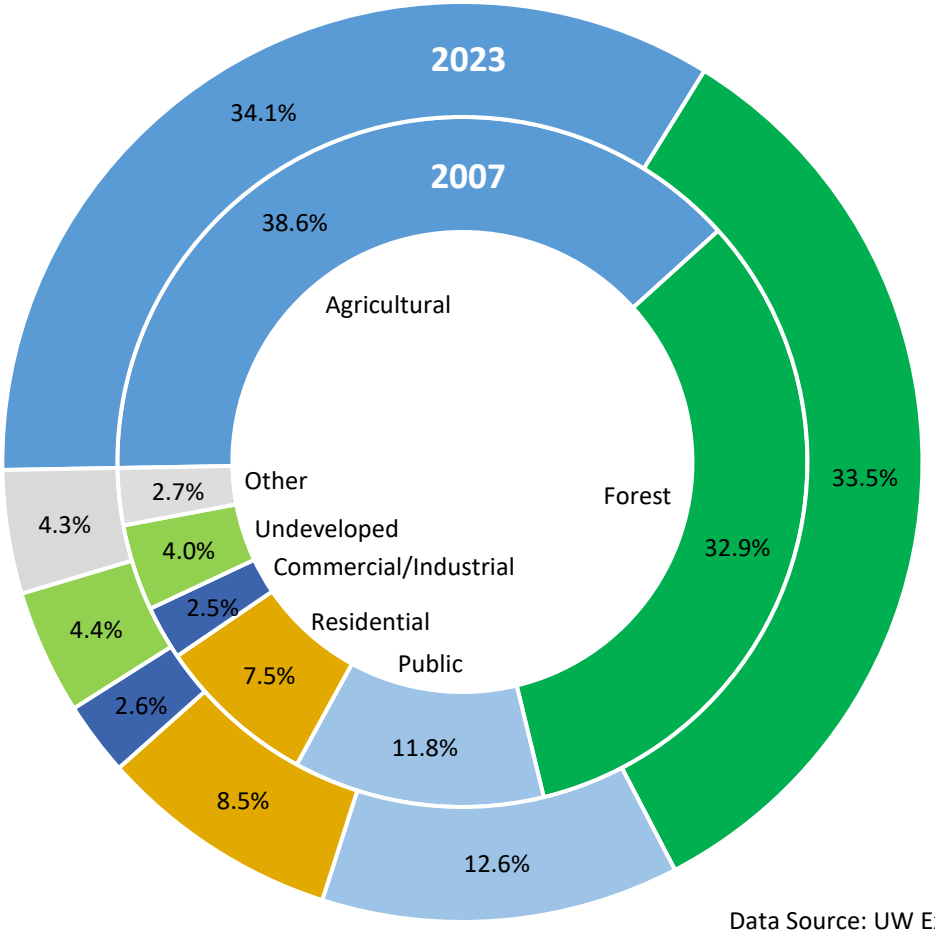


Data Source: US Census Bureau

Land Use

This indicator tracks land use changes across La Crosse County. Land classification categories include residential, agricultural, forest, commercial/manufacturing, public (i.e., local/state/federally owned), undeveloped, and 'other' – which represents land owned by schools, churches, and municipalities. Most of the County's land area is classified as agriculture or forest (see Figure 20). Public and residential uses make up most of the remainder.

Figure 20: La Crosse County Land Use Classifications



Data Source: UW Extension

Public, residential, commercial, undeveloped, forest, and 'other' land use types gained area between 2007 and 2023, while agricultural land was lost. Transition of agricultural land into "undeveloped" land may occur with Conservation Reserve Program enrollment, or loss of access for a season because of high water. The increase in public land may result from WI DNR stewardship grants in within the County, or from any road building or expansion projects that increase right of way. Of greater concern is conversion of agricultural land into residential or commercial/industrial areas.

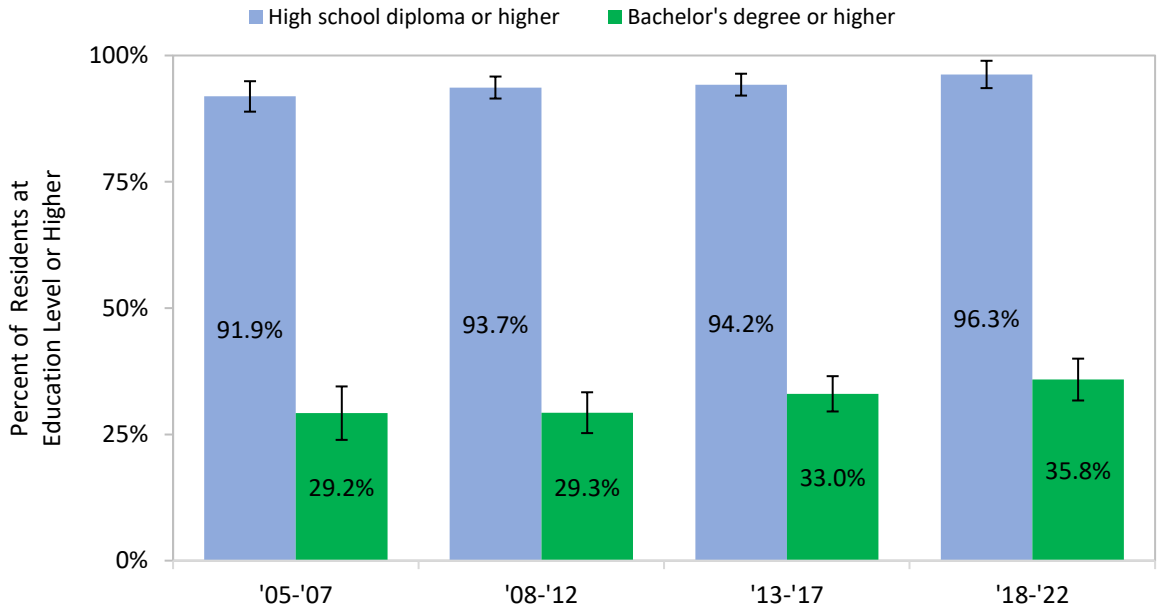
Socio-Economic Indicators

Socio-economic indicators specified by the *Strategic Plan for Sustainability* include educational attainment, household income, poverty rate and unemployment rate. For all socioeconomic indicators but the unemployment rate, the source of these data is the US Census Bureau's American Community Survey (ACS).

Education Attainment

This indicator tracks percentages of residents who held (1) high school diplomas and (2) bachelor's degrees during four periods: 2005-2007, 2008-2012, 2013-2017, and 2018-2022. Information for 2023 was not available in time for this report. An estimated 96.3% of County residents held high school diplomas in the 2018-2022 period, up from 94.2% in 2013-2017 and up from 91.9% in 2005-2007 (see Figure 21). An estimated 35.8% of County residents held bachelor's degrees in the 2018-2022 period, up from 33.0% in 2013-2017 and up from 29.2% in 2005-2007. Both high school diploma and bachelor's degree indicators suggest trends toward higher education levels among County residents over the time periods examined, but please note that period-to-period differences are not statistically significant when margins of error are considered.

Figure 21: Percent of La Crosse County Residents with High School Diploma / Bachelor's Degree

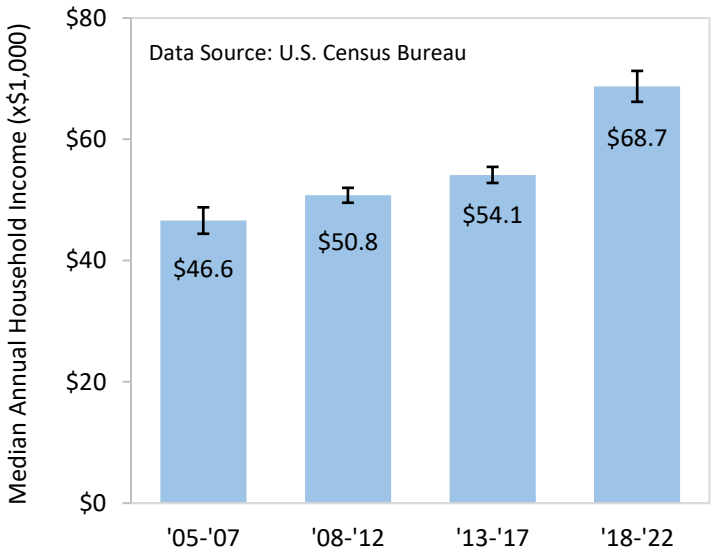


Data Source: U.S. Census Bureau

Household Income

This indicator examines median annual household income (MAHI) during four periods: 2005-2007, 2008-2012, 2013-2017, and 2018-2022. Information for 2023 was not available in time for this report. La Crosse County's estimated MAHI during the 2018-2022 period was $68,731, up from $54,127 during the 2013-2017 period (+27.0%) and up from $46,604 during the 2005-2007 period (+47.5%; see Figure 22). This increasing trend is consistent with economic recovery from the "great recession."

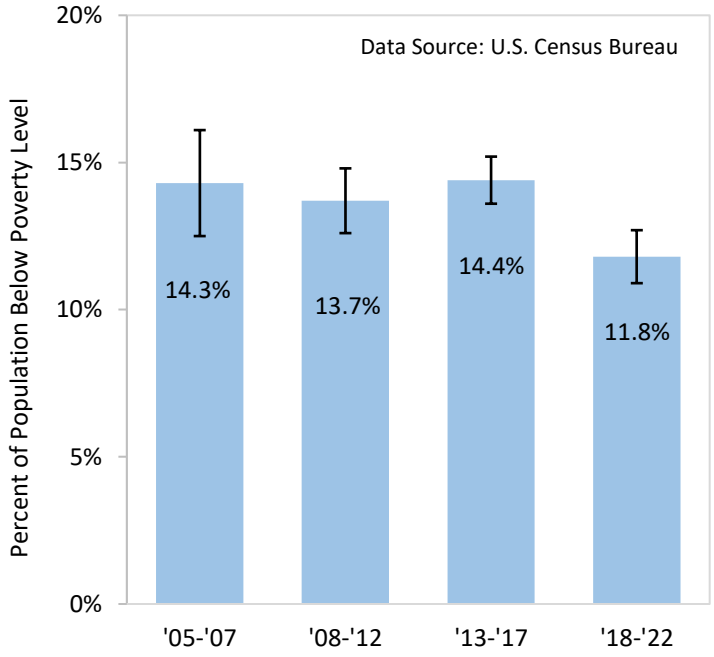
Figure 22: La Crosse County Median Annual Household Income



Poverty Rate

This indicator examines the percentage of residents whose income in the past twelve months was below poverty level during three periods: four periods: 2005-2007, 2008-2012, 2013-2017, and 2018-2022. Information for 2023 was not available in time for this report. La Crosse County's estimated poverty rate for the 2018-2022 period was 11.8%, down from 14.4% during the 2013-2017 period and down from 14.3% during the 2005-2007 period (see Figure 23). Please note that when margins of error are considered, the poverty rate in the 2018-2022 period differs statistically from the 2013-2017 period, but not the 2005-2007 period.

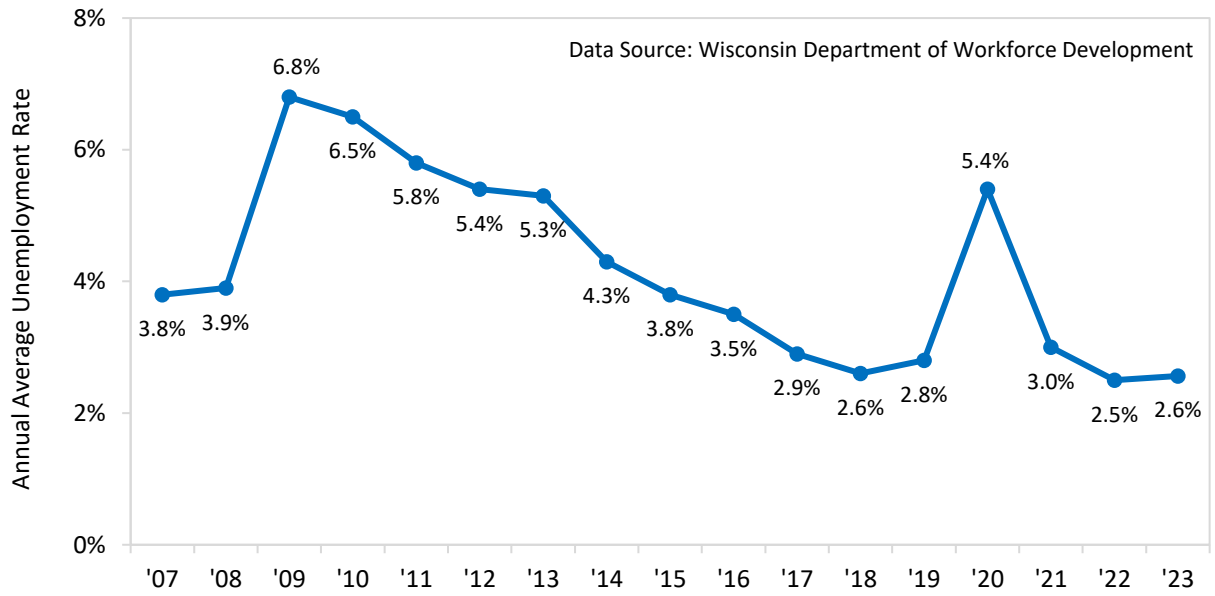
Figure 23: La Crosse County Resident Poverty Rates



Unemployment Rate

This indicator tracks trends in La Crosse County's annual average unemployment rate, as measured by the Wisconsin Department of Workforce Development. La Crosse County's average unemployment rate was 2.6% in 2023 - up from 2.5% in 2022, but down from 3.8% in 2007.[5] After unemployment rates below 4% in 2007 and 2008, the rate increased sharply to 6.8% in 2009 because of the "great recession" (see Figure 24). Rates then slowly declined as the economy gradually recovered, and by 2015 rates had returned to 2007-08 levels. Unemployment rates were under 3% from 2017-2019, increased sharply again in 2020 because of the economic disruption caused by the COVID pandemic, and then returned to 3% and below from 2021-2023.

Figure 11: La Crosse County Annual Average Unemployment Rates



[5] Values for 2023 are considered preliminary as of publication of this report; final values may vary slightly