

City of Kingston 2024 Municipal Operations Renewable Energy Report for the 2023 Calendar Year



Mayor Steven T. Noble

This Municipal Operations Renewable Energy Report reviews the electric sources of the City of Kingston’s municipal accounts for the period between January 1st, 2023 and December 31st, 2023.

This report includes:

- An introduction to Kingston’s grid electricity mix and renewable energy goals
- Renewable energy sourcing strategies employed by the City of Kingston
- Municipal account electricity sources and renewable energy programs

Introduction:

The City of Kingston oversees a wide range of responsibilities, from public infrastructure to essential services, all of which require substantial energy consumption. While municipal use accounted for a little less than 3% of the entire city's total electricity consumption in 2023, it still can play a key role in shaping Kingston’s overall energy profile. This report tracks the sources and procurement methods of electricity as Kingston takes the bold step of transitioning away from fossil fuels to 100% renewable energy.

City of Kingston Municipal Electricity Use 2023

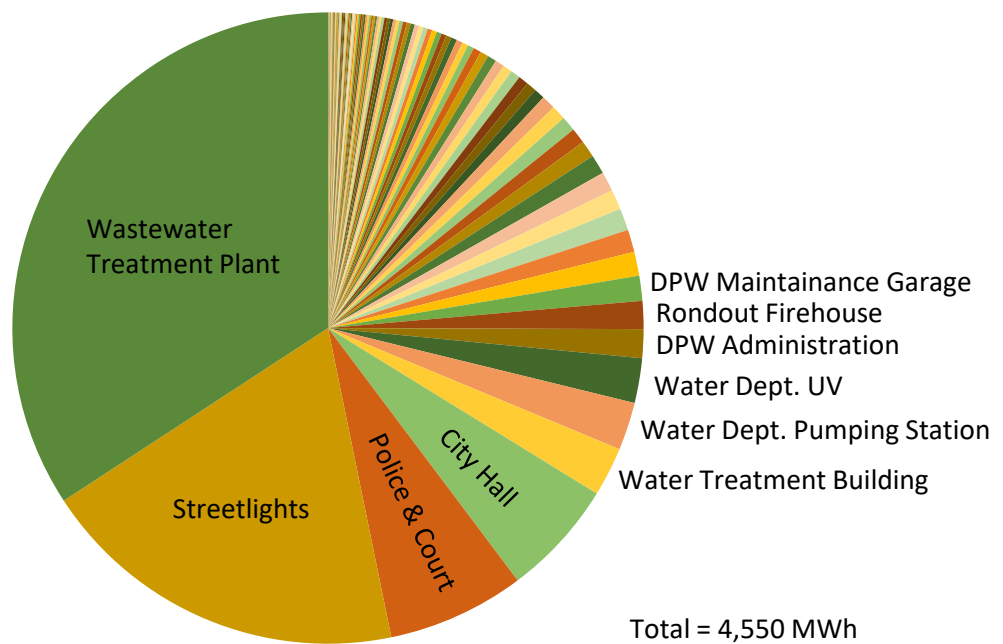


Figure 1. City of Kingston municipal electricity usage in 2023. The ten highest-demand accounts are labeled.

In 2023, the City of Kingston consumed a total of 4,550 MWh of electricity across 121 municipal Central Hudson utility accounts. More than 50% of this electricity was used by the municipal wastewater treatment plant and the city's street lighting infrastructure combined. The ten highest consuming properties account for a full three quarters of the electricity consumed by the city (Figure 1).

Electricity was delivered through the Central Hudson utility grid, which is responsible for maintaining the distribution network in Kingston. New York's deregulated power market gives Kingston the opportunity to choose their electricity suppliers independent of the utility provider. This system allows for city government to select energy sources that may better align with its sustainability goals or cost-saving strategies.

Renewable Energy Sourcing Strategies:

The City of Kingston currently accesses and supports renewable energy through a variety of mechanisms, including:

1. **Municipal on-site solar installation:** On-site solar panel installation on the rooftops or other suitable spaces of municipal properties directly increases renewable energy production and use by the City of Kingston. This strategy is capital intensive but results in a tangible increase in renewable energy production within the city limits.
2. **Renewable Energy Certificates (RECs):** RECs serve as proof that a certain amount of electricity has been generated from renewable sources such as wind or solar and can be bought and sold on a national or state power market. RECs can be bundled with electricity procured through a power purchase agreement or unbundled and purchased independent of electricity. By purchasing RECs, Kingston can claim ownership of renewable energy, even if the electricity was produced thousands of miles away.
3. **Community solar:** Through community solar programs or community distributed generation (CDG) Kingston subscribes to local shared solar projects, allowing it to receive credits on its utility bills for locally generated renewable energy. These credits discount the electricity bill. Community solar enables the city to participate in renewable energy production without requiring direct ownership or installation of solar panels on municipal property. Unlike RECs, community solar credits do not correlate to ownership of the renewable energy.
4. **Passively through the grid mix:** The portfolio of electricity accessible to Kingston through the New York grid was approximately 14% renewable energy and 39% zero-emissions (including nuclear power) in 2023. As more renewable energy projects come online and the state pursues the CLCPA goal of 70% renewable energy by 2030, the portion of renewable energy on the grid is expected to rise.

Together, these strategies allow the City of Kingston to access renewable energy and achieve its clean energy and climate goals.

2023 Municipal Electricity Sources:

Kingston's electricity sourcing strategy is focused on advancing renewable energy initiatives and fostering strategic partnerships to support sustainability goals. Table 1, below, outlines the electricity account affiliation with renewable sourcing strategies for the 2023 calendar year.

Affiliation	# of Accounts	2023 kWh consumed
Municipal Generation*	2	53,469
RECs	34	1,617,163
RECs & Community Solar	66	1,472,615
Community Solar (CDG)	11	490,679
Grid Electricity	10	915,709
Total	121	4,549,635

*Table 2. City of Kingston municipal account and electricity consumption program affiliations for calendar year 2023. * Accounts that produced electricity also had contracted with Constellation Energy for RECs when electricity was purchased from the grid.*

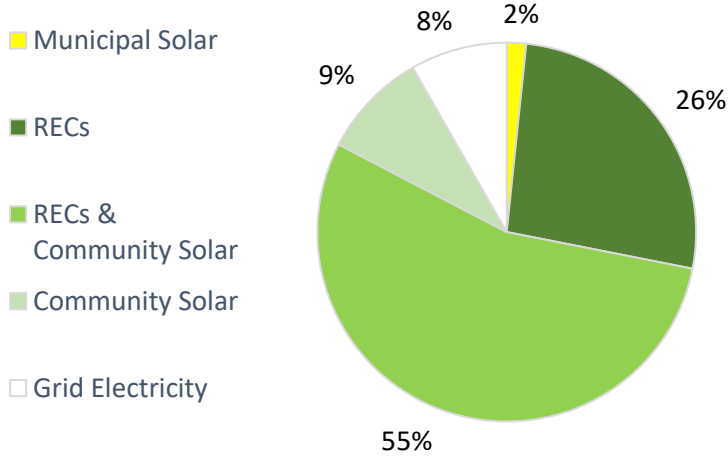
Municipal solar generation began to play a more significant role in the city’s energy mix in 2023, with notable contributions from three on-site solar systems. These included the Andy Murphy Neighborhood Center (AMNC) with a 49-kW system generating 52.9 MWh annually, as well two solar arrays at the Forsyth Nature Center with a combined 6-kW capacity. The 52.9 MWh of electricity produced from solar at the AMNC saved the city \$5,290 assuming an electricity price of 10 cents per kWh. The electricity produced from these projects covered approximately 1% of municipal electricity consumption.

Through 2023, the City of Kingston also had a virtual power purchase agreement for 100 accounts with Constellation Energy, through the NewMix® REC program. This program supplied RECs 100% sourced from wind and/or solar energy nationwide and covered approximately 70% of the city's accounts and 68% of its total electricity consumption. Contracts ran from 01/21-02/23 and were re-signed for 02/23-02/24. Electricity pricing was fixed at approximately 5.5 and 11.4 cents per kWh for the first term and second term of contracts respectively.

In addition to on-site solar installation and REC purchases, 77 utility accounts were linked to community solar across three separate contracts signed with PowerMarket, SunCommon, and Radio Kingston respectively. Most community solar credits in 2023 came from the Medusa and New Windsor, NY solar projects and were managed by PowerMarket. Additional credits were sourced from the local Pointe of Praise and Radio Kingston solar arrays as part of two separate payment in lieu of taxes arrangements with SunCommon and Radio Kingston. A cumulative \$113,479 was credited to municipal accounts affiliated with community solar programs in 2023. Engagement with community solar ensured that the city benefited from and promoted locally sourced renewable energy.

A smaller number of city municipal accounts were not affiliated with any renewable sourcing strategy. The ten accounts with no affiliation comprised approximately 20% of the total kWh consumed by the municipality in 2023, largely due to the electricity demand of the city streetlights account. The average standard rate for electricity purchased from Central Hudson in 2023 was ten cents per kWh.

2023 Account Affiliation



2023 kWh Affiliation

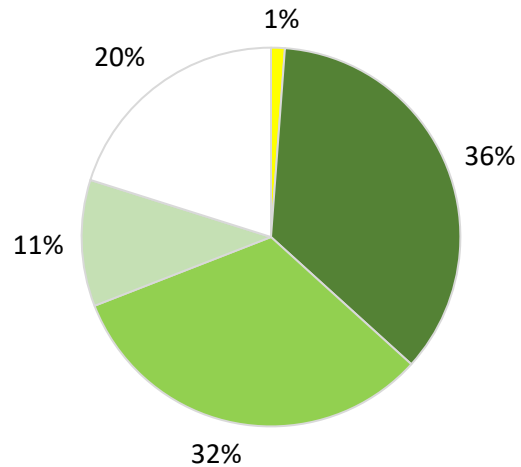


Figure 2. City of Kingston utility account and electricity affiliations.

Conclusions

As the City of Kingston takes proactive steps to reduce its carbon footprint and transition to renewable energy sources, it plays a vital role in advancing the region and state’s broader efforts to decarbonize the power sector. Accounting for renewable electricity intentionally purchased by the city through RECs as well as the portion of grid electricity that came from renewable sources, approximately 73% of the electricity used by the municipality in 2023 was renewable, and 27% came from non-renewable sources (Figure 3). By continuing to pursue renewable energy programs the city will not only reduce the portion of non-renewable energy it uses but also support the growth of renewable energy capacity locally and nationally.

2023 Municipal kWh Renewable Electricity

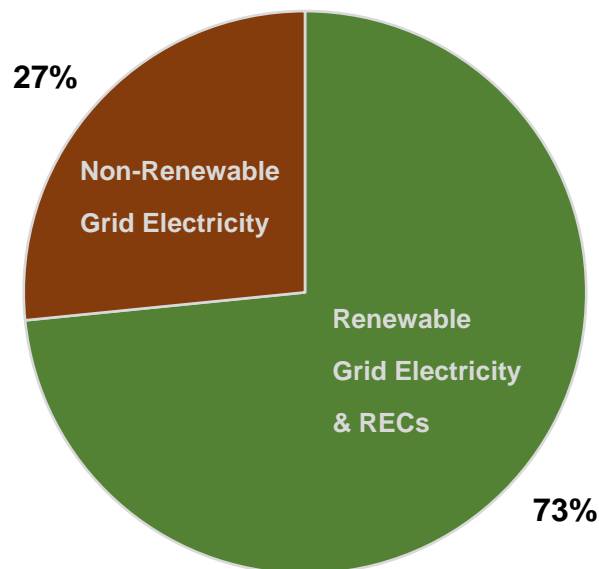


Figure 3. Portion of purchased City of Kingston electricity sourced and/or affiliated with renewable and non-renewable sources.