

2024-2029

Norfolk County Energy Conservation & Demand Management Plan

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Agenda

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- ▶ 2024-2029 Plan Overview
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 - ▶ Historical County Energy Use
 - ▶ 2023 Baseline Statistics
 - ▶ Proposed Efficiency Measures

2023 Key Highlights

Electricity (kWh)

- 4.43% reduction in consumption from 2018 levels

Natural Gas (m³)

- 20.93% reduction in consumption from 2018 levels

GHG Emissions (metric tonnes CO₂e)

- 23.67% reduction in emissions from 2018 levels

Fuel Consumption (L)

- 21.46% reduction in consumption from 2018 levels

Goals & Objectives



The Corporation of Norfolk County
Energy Conservation and
Demand Management
Plan
July 2019 to July 2024

Legend	
Met	✓
Not Met	✗
Partially Met	☺

Goal	Status
Goal No. 1 Reduce GHG Emissions of County Operations in accordance with the United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement Targets	☺
Goal No. 2 Increase Energy Efficiency of County Operations	✗
Goal No. 3 Reduce Annual Energy Costs of County Operations	☺
Goal No. 4 Promote Commitment to a Sustainable Norfolk County	☺
Goal No. 5 Expand Renewable and Sustainable Energy Generation	☺

Efficiency Measures

Complete

- ▶ Interior LED Retrofits
- ▶ Weather-Stripping Program
- ▶ Building Envelope and Insulation Upgrades Program
- ▶ HVAC Upgrades
- ▶ Staff Energy Awareness Program
- ▶ Electric Fleet Pilot Project
- ▶ Rooftop Solar Net-Metering Pilot Project/Off-Grid RFP
- ▶ Refrigerator/Freezer Replacement Program
- ▶ HVAC Upgrades – Vestibule Heater Replacement Program

Incomplete

- ▶ Waterford EMS Base Addition – High Efficiency Design
- ▶ Energy Efficiency Integration into County Procurement
- ▶ Sustainability Considerations Integration into County Procurement
- ▶ Public Energy Awareness Program
- ▶ Exterior Lighting Controls Program
- ▶ Building Operator/Building Commissioning Training Program
- ▶ Carpool Program
- ▶ LED Street Lighting Retrofit Program (completed via different budget)

2024-2029 ECDM Plan

To improve the energy efficiency of municipal services within Norfolk County, provide local leadership in sustainability and enhance the quality of life of all who live, work and play in Norfolk County.

Goals & Objectives

Goal	Objectives
NEW Goal No. 1 Reduce GHG emissions of County Operations in accordance with the IPCC's scientific targets	5
Goal No. 2 Increase Energy Efficiency of County Operations	5
Goal No. 3 Reduce Annual Energy Costs of County Operations	6
Goal No. 4 Promote Commitment to a Sustainable Norfolk	10
Goal No. 5 Expand Renewable and Sustainable Energy Generation	5

Strategic Plan Linkages

1) Building Norfolk

- ▶ 1.1 Ensure the health, safety and well-being of the community
- ▶ 1.2 Provide a solid infrastructure foundation
- ▶ 1.3 Ensure responsible growth policies and strategies

2) Serving Norfolk

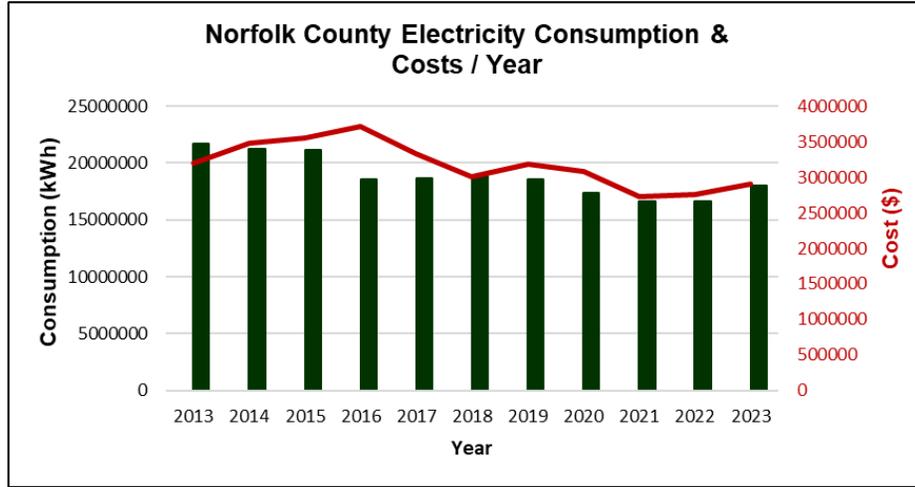
- ▶ 2.1 Strengthen communication and service delivery
- ▶ 2.2 Foster a positive employee culture
- ▶ 2.3 Create an environment of continuous improvement

3) Sustaining Norfolk

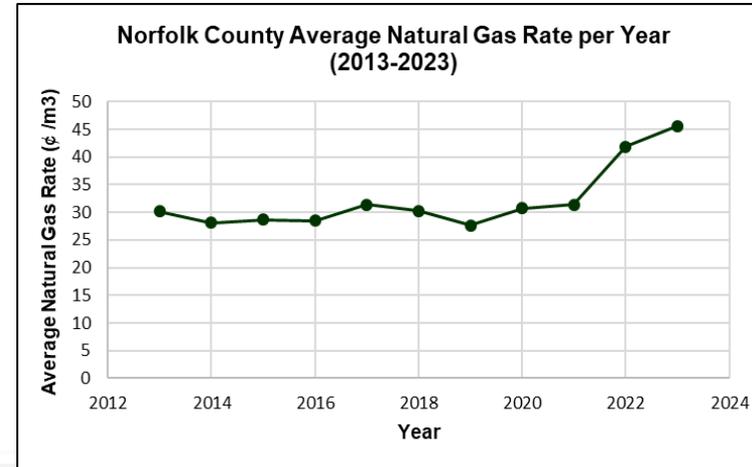
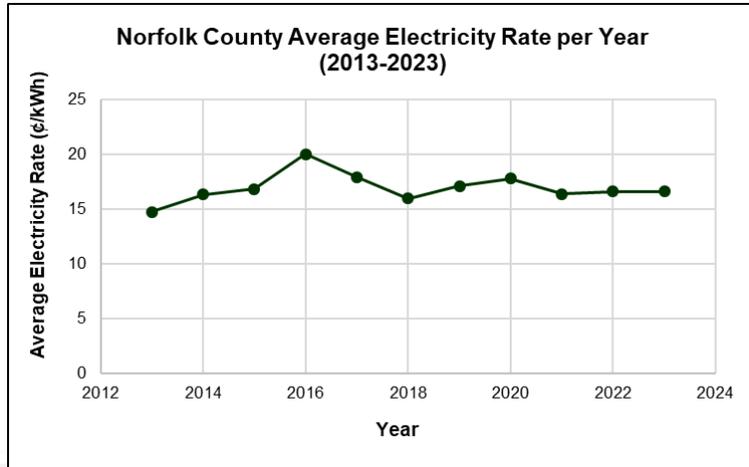
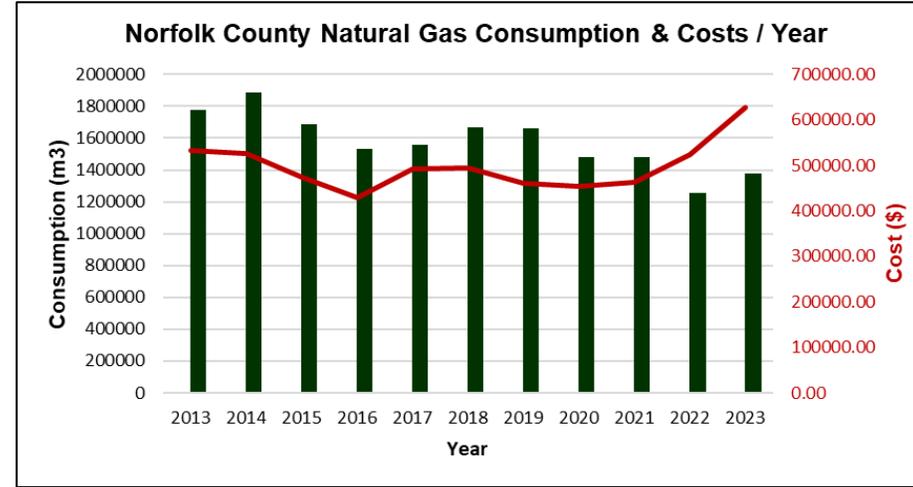
- ▶ 3.1 Continue to implement and enhance our climate action strategies
- ▶ 3.2 Ensure financial sustainability

Historical County Energy Use

Electricity

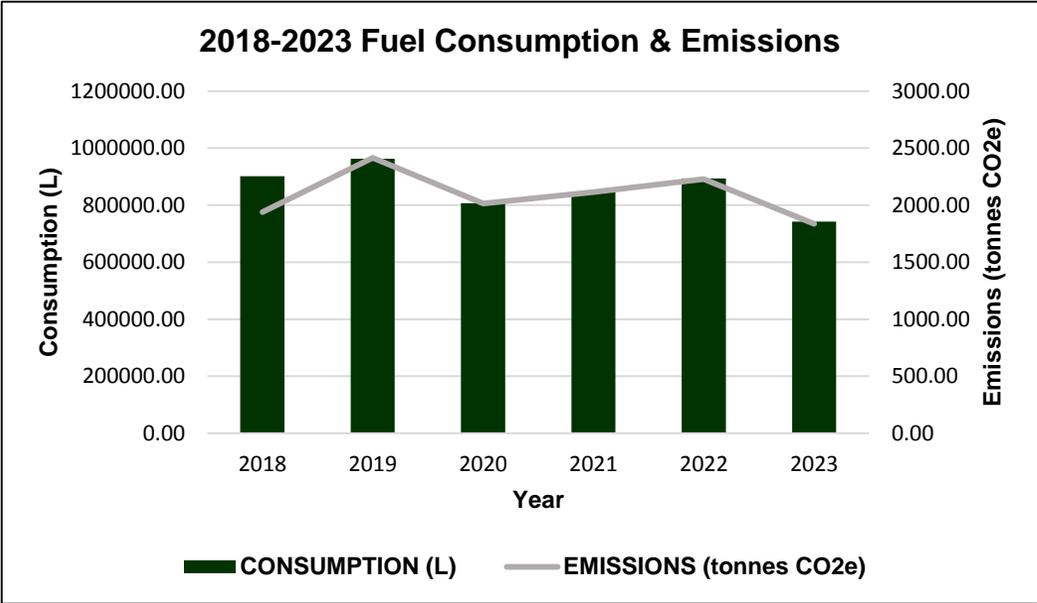
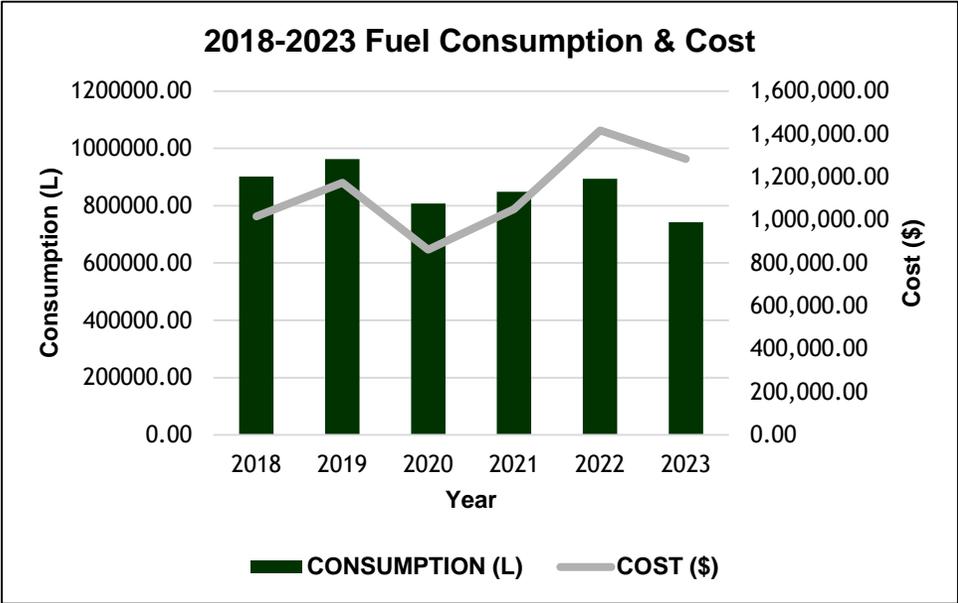


Natural Gas



Historical County Energy Use

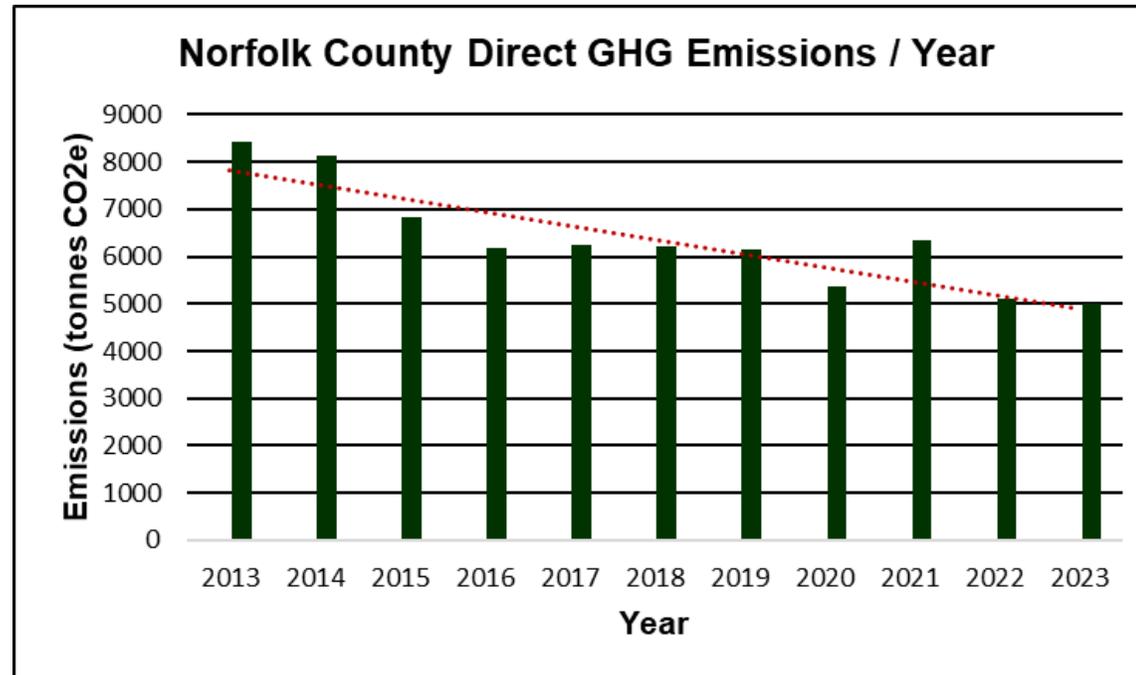
Fleet Fuel



*Including reimbursed mileage.

Historical County Energy Use

GHG Emissions



2023 Baseline Statistics

Energy Consumption Statistics

2023 Electricity Consumption = 18,049,968.75 kWh

2023 Natural Gas Consumption = 1,380,050.33 m³

2023 Fuel Consumption:

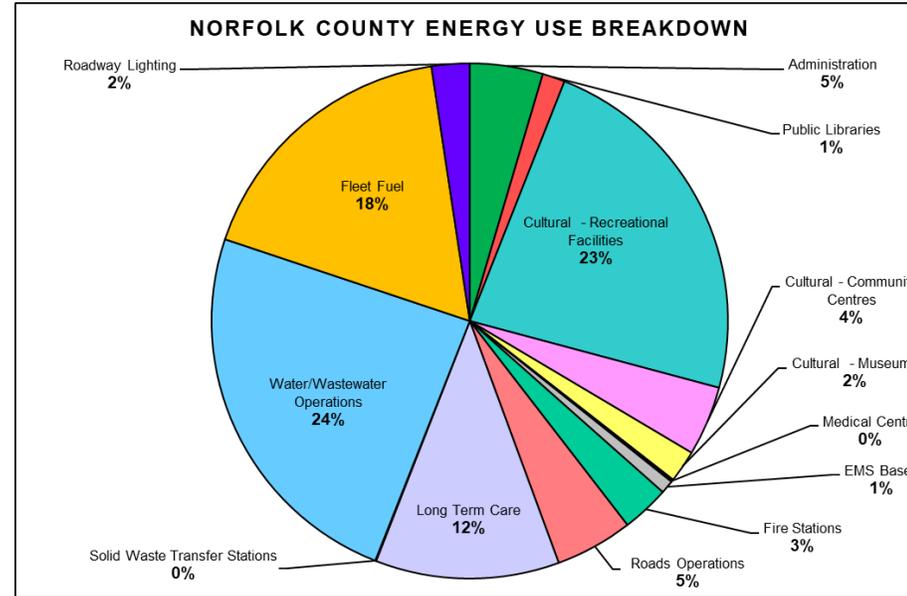
- Dyed Diesel: 102,678 L, Clear Diesel: 228,313 L
- Unleaded Gasoline: 411,473.86 L

2023 Reimbursed Mileage = ~390,931 km

Total Energy Consumption = 134,010,821.95 kBTU

Total Energy Generation = 57,460.48 kBTU

Total Net Energy Consumption = 133,953,341.47 kBTU



Energy Cost Statistics

2023 Electricity Costs = \$2,906,621.00

2023 Natural Gas Costs = \$627,133.00

2023 Fuel Costs: \$1,045,762.00

2023 Fuel Costs for Reimbursed Mileage = \$238,467.89

Total Energy Costs = \$4,817,983.89

2023 Baseline Statistics

Energy Intensity Statistics

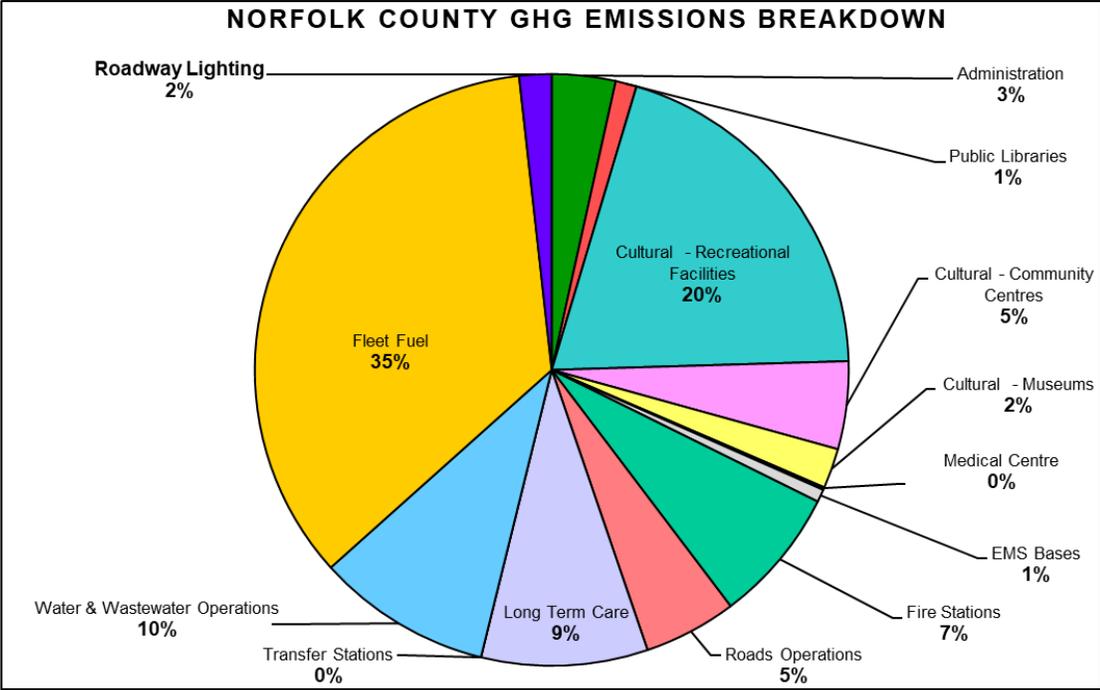
Property Category	2023 Energy Use Intensity	
Administration	53.94	↓
Public Libraries	38.97	↓
Cultural Facilities - Recreational Facilities	83.46	↓
Cultural Facilities - Community Centres	49.25	↓
Cultural Facilities - Museums and Associated Facilities	44.20	↓
Cultural Facilities - Medical Centres	33.72	↑
EMS Bases and Associated Facilities	53.78	↓
Fire Stations and Associated Facilities	46.40	↓
Roads Operations and Storage Facilities	99.26	↑
Long Term Care Facilities	120.82	↓
Solid Waste Transfer Stations	90.06	↓
Water Treatment Facilities	2.95	↑
Wastewater Treatment Facilities	3.77	↑

2023 Baseline Statistics

GHG Emissions

2023 Total GHG Emissions = 5,018.18 metric tonnes CO2e

2023 Net GHG Emissions = -4,969.17 metric tonnes CO2e
Total – (Carbon Sequestration of County-owned Woodlots + County-owned Urban Trees)
 $5,018.18 - 9,987.35 = -4,969.17$



Proposed Efficiency Measures

Annual (operating)

- ▶ Weather-Stripping Program (Small + Large Streams)
- ▶ Building Envelope and Insulation Upgrades
- ▶ Window Replacement Program
- ▶ Air Curtain Program
- ▶ Interior Lighting Controls Program
- ▶ Refrigerator/Freezer Replacement Program
- ▶ Hybrid Hot Water Heater Replacement Program
- ▶ Energy Monitoring and Management Program
- ▶ Corporate & Public Energy Awareness Programs
- ▶ Building Operator/Building Commissioning Training Program

Capital

- ▶ HVAC Upgrades/Retrofits – Design (2025-2029)
- ▶ Rooftop Off-Grid/Net-Metered Solar System Expansion – Design (2025-2029)
- ▶ LED Street Lighting Retrofit Program (2025-2029)
- ▶ Community Energy & GHG Emissions Reduction Plan (2025)
- ▶ EV Fleet Expansion (2026, 2029)
- ▶ Rooftop Off-Grid/Net-Metered Solar System Expansion – Construction (2026-2029)
- ▶ HVAC Optimization Pilot Project (2026)
- ▶ HVAC Upgrades/Retrofits – Construction (2026-2029)
- ▶ Net-Zero Fire Station and/or EMS Base – Design (2026)
- ▶ Net-Zero Fire Station and/or EMS Base – Construction (2028)
- ▶ Energy Audits at County Facilities (2028)
- ▶ Corporate Renewable Energy Feasibility Study (2028)

Thank-you

Questions?

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COUNTY