

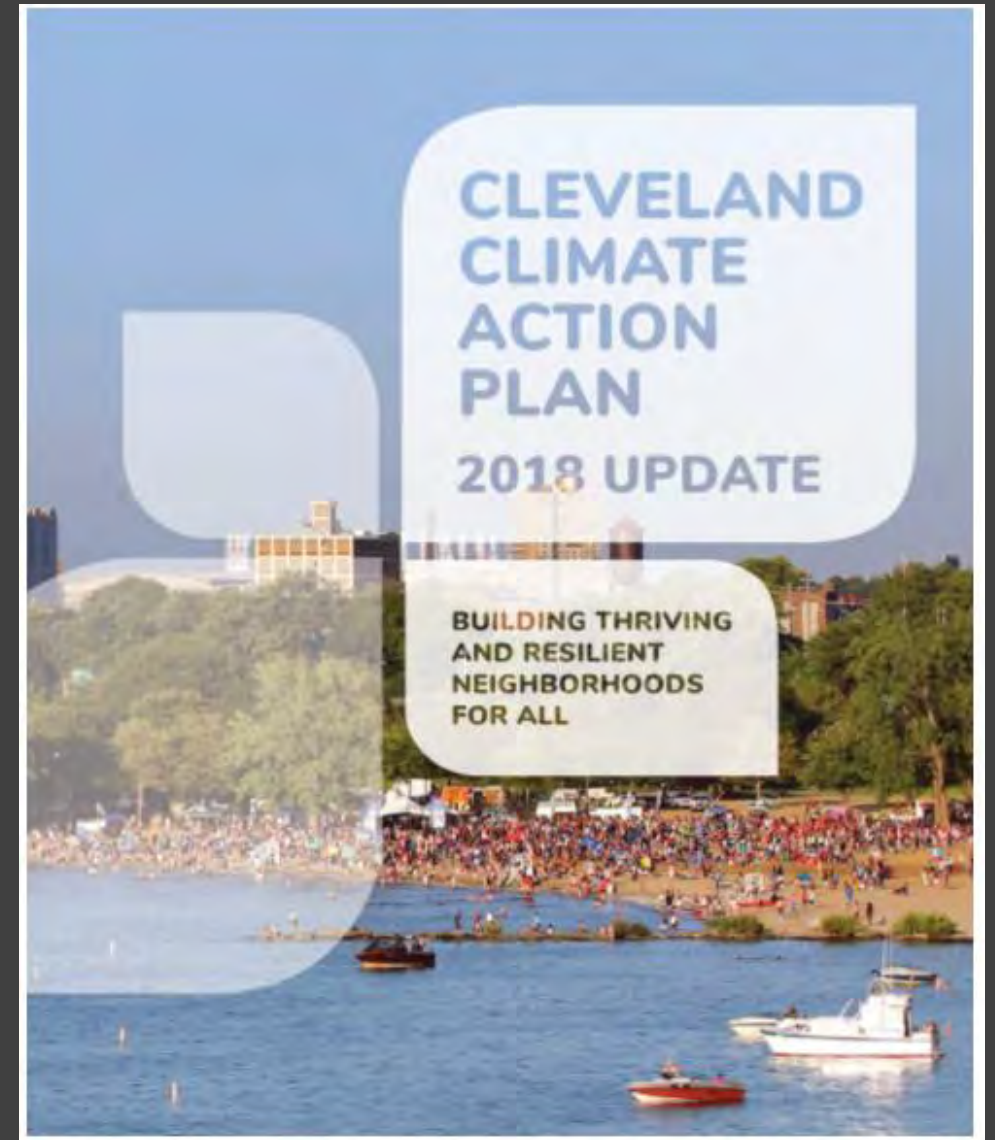


Benefits of Benchmarking: The City of Cleveland

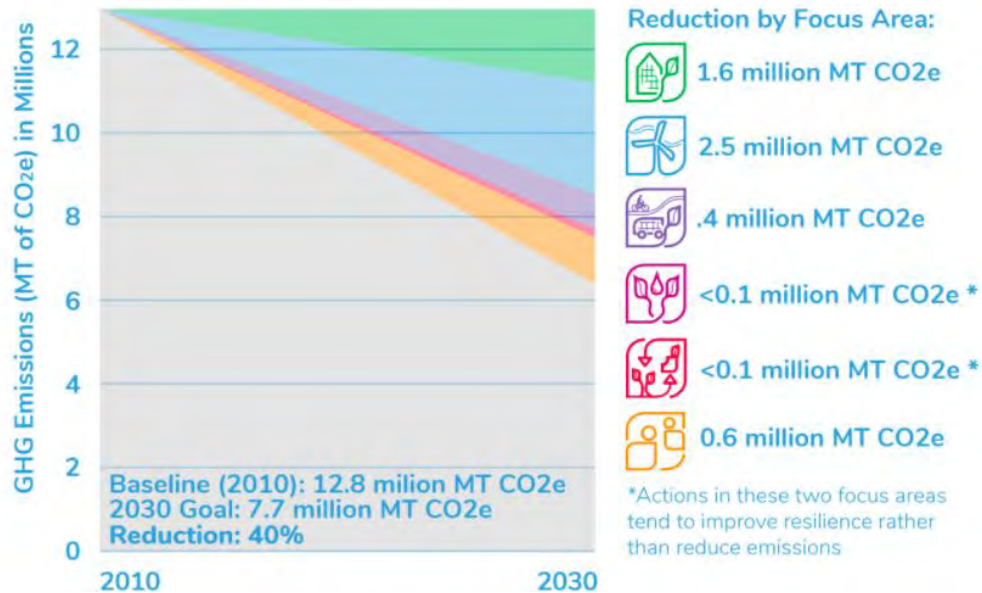
MEEA Building Energy Codes Conference 2020

Cleveland Climate Action

The 2013 Cleveland Climate Action Plan established an overarching greenhouse gas reduction goal of 80% below 2010 emissions by 2050, with interim goals of 16% reduction by 2020 and 40% reduction by 2030.



Cleveland Climate Action Plan



Energy Efficiency & Green Building



Sustainable Transportation



More Local Food, Less Waste



Clean Energy



Clean Water & Vibrant Green Space



Cross-Cutting Priorities

Green Building & Energy Efficiency



Goals

- By 2030, reduce residential and commercial energy use 50% and industrial use by 30% saving Cleveland households and businesses \$170 million annually from utility savings.
- All large commercial and industrial buildings are tracking and managing their energy use by 2023

Objectives

- 1: Make more homes affordable, comfortable, healthy, and energy efficient
- 2: Prioritize energy efficiency in small and mid-size businesses
- 3: Support community hubs to be more efficient and resilient
- 4: Promote new construction and major renovations that meet high green building standards

Greenhouse gas emissions
reduction goal, below 2010
baseline:

- 10% by 2016
- 20% by 2020
- 45% by 2030

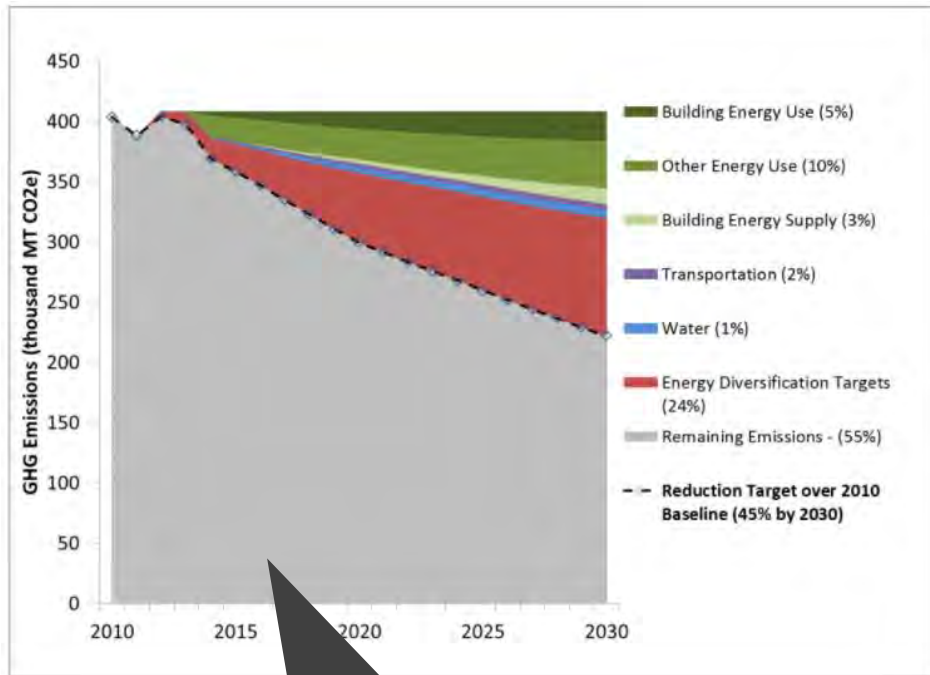


Municipal Climate Action

Leading by Example

SC-MAP

Building-Related Focus Areas



2020 interim goal was achieved in 2018 – 23% reduction

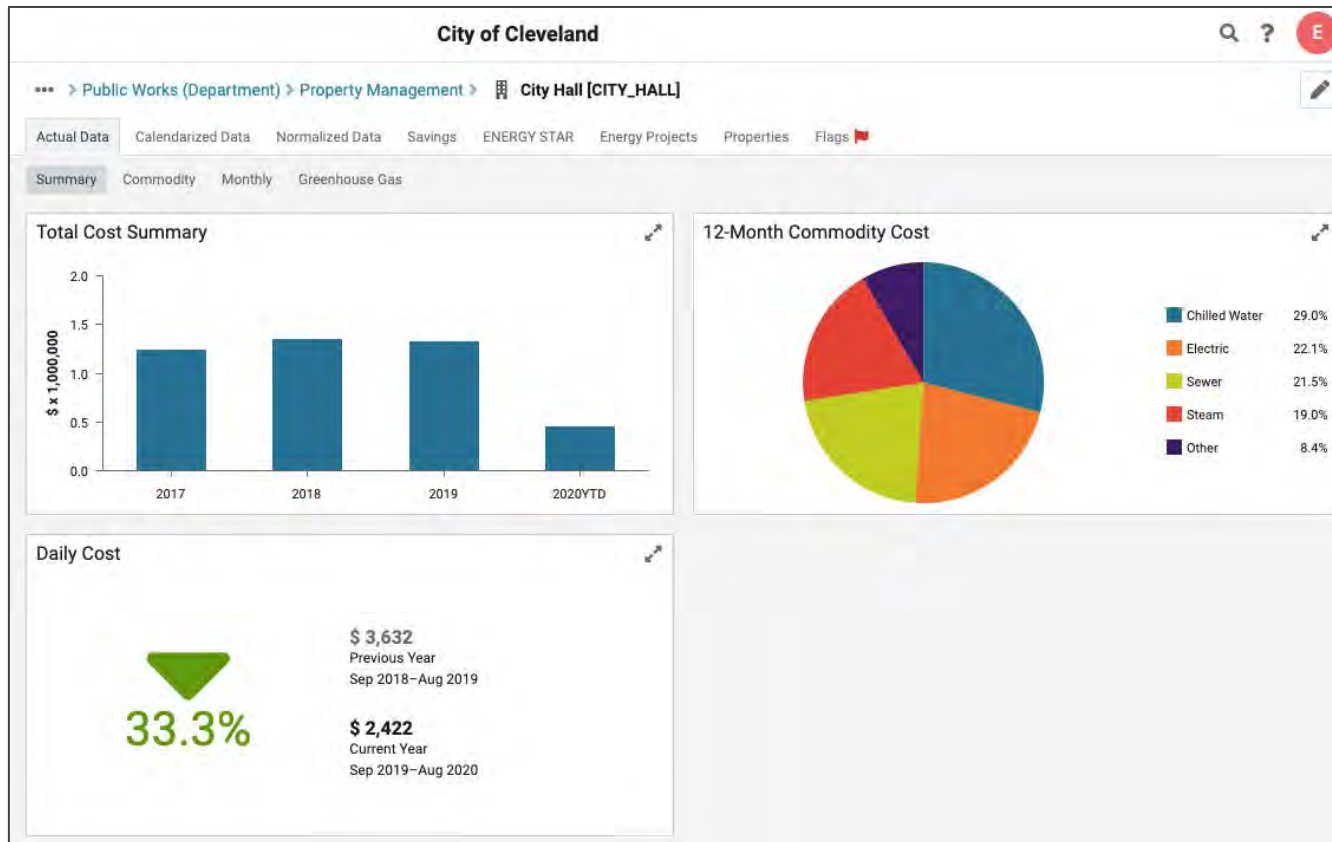
Design, Construction, and Maintenance

- Green building for new construction & major renovations
- Capital improvement project sustainability review
- Preventative maintenance

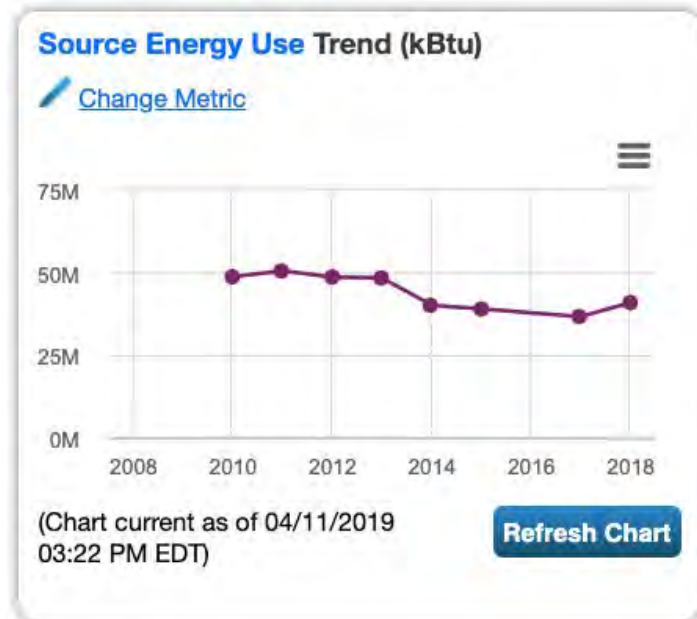
Energy

- Energy efficiency and conservation in existing buildings
- Building automation systems
- Re-commissioning tune-up
- Division of Water system pumping and treatment optimization
- Streetlight upgrades

Energy Management and Benchmarking



Energy Management and Benchmarking



Metrics Summary			
Metric 	Dec 2010 (Energy Baseline) 	Mar 2020 (Energy Current) 	Change 
ENERGY STAR Score (1-100)	83	93	10.00 (12.00%)
Source EUI (kBtu/ft²)	106.6	75.6	-31.00 (-29.10%)
Site EUI (kBtu/ft²)	61.4	41.7	-19.70 (-32.10%)
Energy Cost (\$)	1,170,143.28	866,239.03	-303904.25 (-26.00%)
Total GHG Emissions Intensity (kgCO2e/ft²)	5.9	4.2	-1.70 (-28.80%)
Water Use (All Water Sources) (kgal)	34,364.8	Not Available	N/A
Total Waste (Disposed and Diverted) (Tons)	Not Available	Not Available	N/A




Energy Management

Utilizing Benchmarked Data

Ongoing operational improvements

Capital Improvement Project Input

Internal & External Reporting



Ongoing Operational Improvements

Utilizing Benchmarked Data

Energy Data and Building Operations

- Notifications for high monthly cost/consumption
- Billing errors
- Equipment malfunctions, leaks, adjustments



• Cost per day is higher than previous bills



MLB Usage	121.8 MLB			
Use				
Proportional Share of Bill Costs			\$	3429.15
Charge				
Meter Subtotal	121.8 MLB	\$28.154 / MLB	\$	3429.15