



# Energy Performance Update

City Commission, Committee of the Whole  
August 27, 2019



CITY OF  
GRAND  
RAPIDS

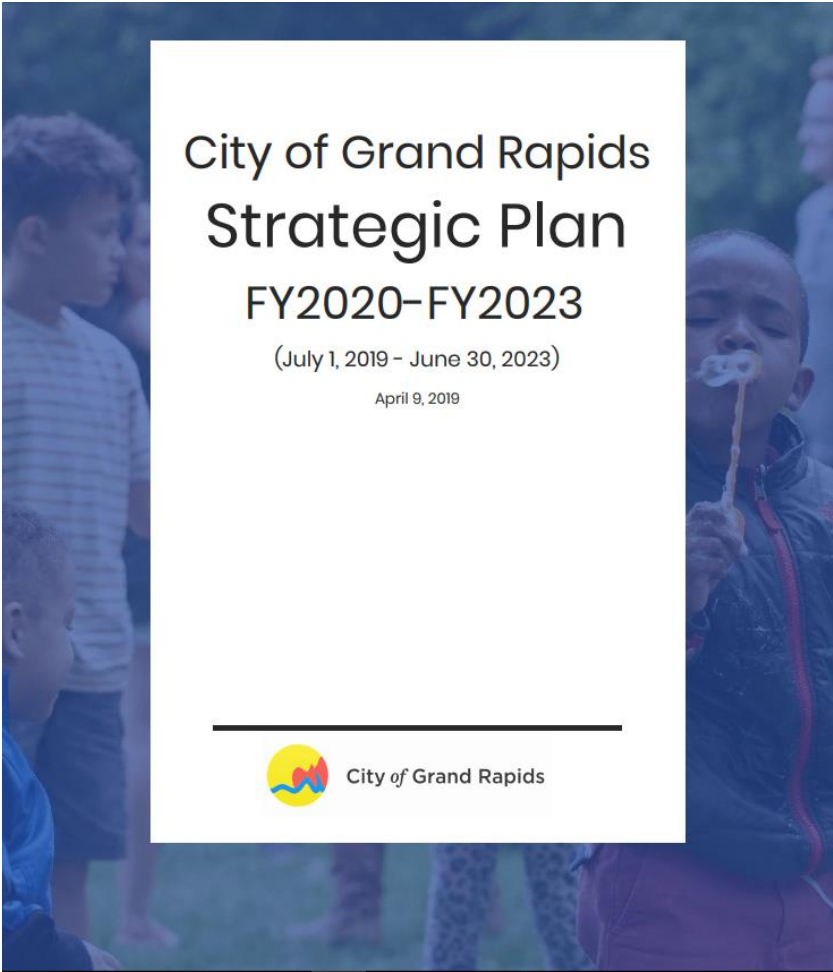
# Presentation Overview


- Background highlights
- Current state of energy performance for City operations
- Future initiatives



Energy Advisory Committee touring solar array at Circuit West

# Background: Energy and Carbon in the Strategic Plan





## Health and Environment

**The health of all people and the environment are advocated for, protected and enhanced.**

**Objective 1:** **Reduce carbon emissions and increase climate resiliency.**

**Strategies**

1. Create carbon reduction goals and integrate goals into appropriate City plans, including the Comprehensive Master Plan
2. Reduce the carbon footprint of City operations (buildings, utilities and fleet)
3. Assess the feasibility and cost of offsetting 100% of City electricity with renewable sources by FY2025
4. Create and support programs and policies to reduce carbon emissions from the building and transportation sectors throughout the community
5. Create a Climate Action and Adaptation Plan in partnership with the community
6. Work with community partners and businesses to achieve a 40% tree canopy

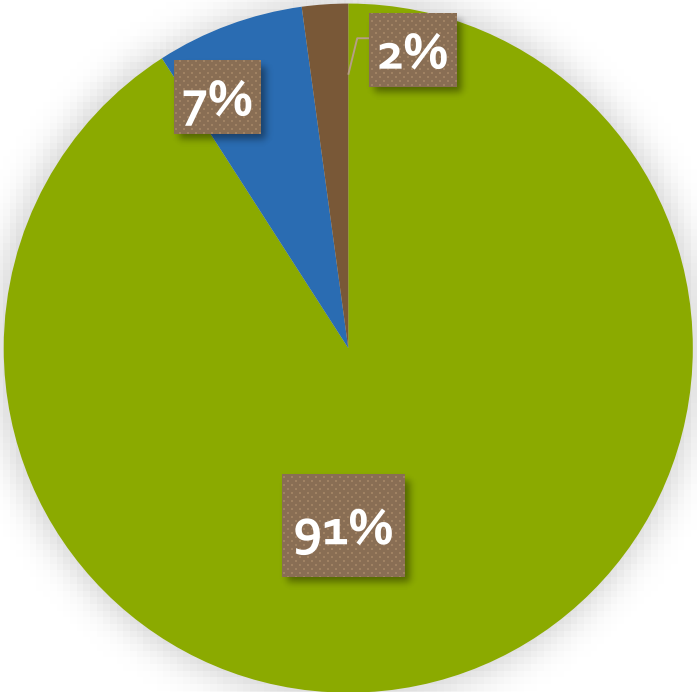
**Draft Metrics**

- Carbon footprint of city buildings, utilities and fleet (metric tons of carbon dioxide equivalents)  
2018: 59,088\*      Goal: To be created  
\*Fleet not included
- % of City electricity supplied by renewable sources  
2018: 34%      Goal for June 30, 2025: 100%
- % of tree canopy  
2018: 34%      Goal: 40%

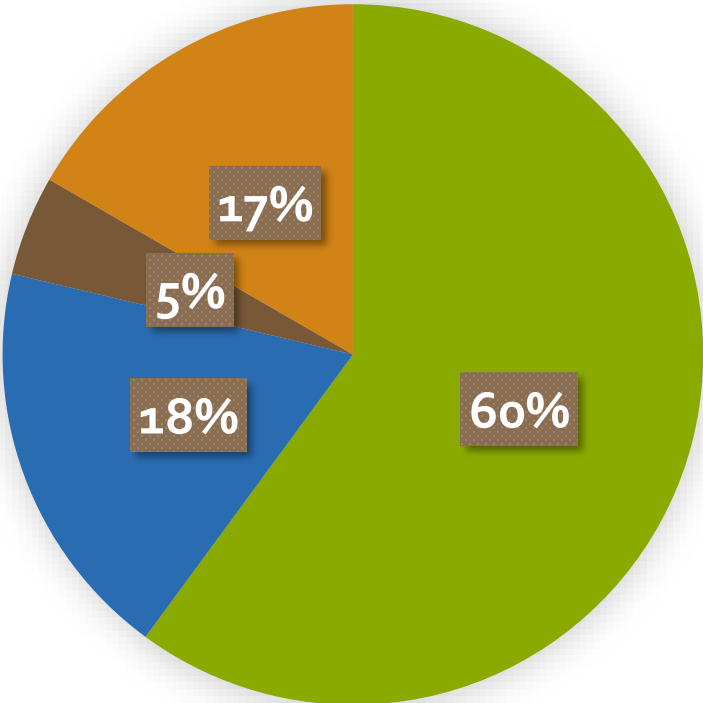


# Background: City's 2018 Energy Footprint (City operations)

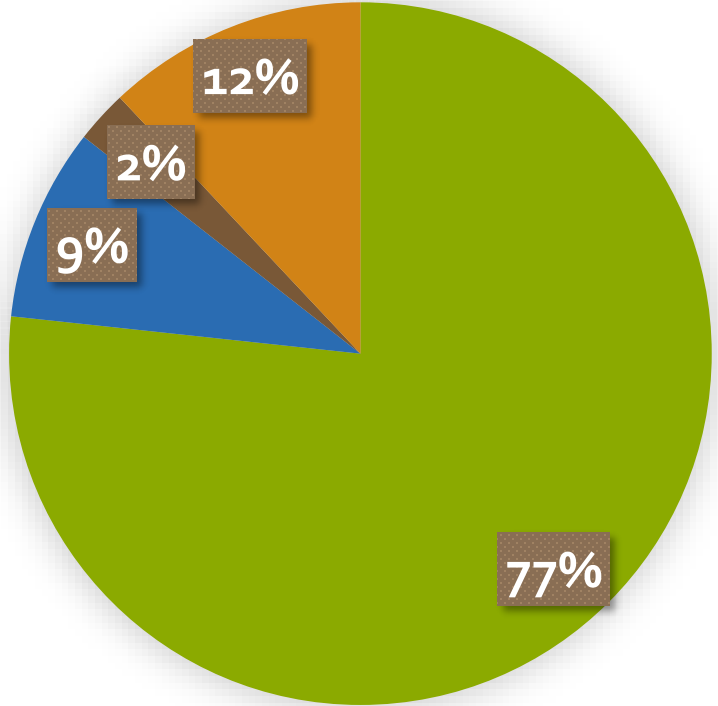
2018 Cost



2018 Consumption (kBtu)



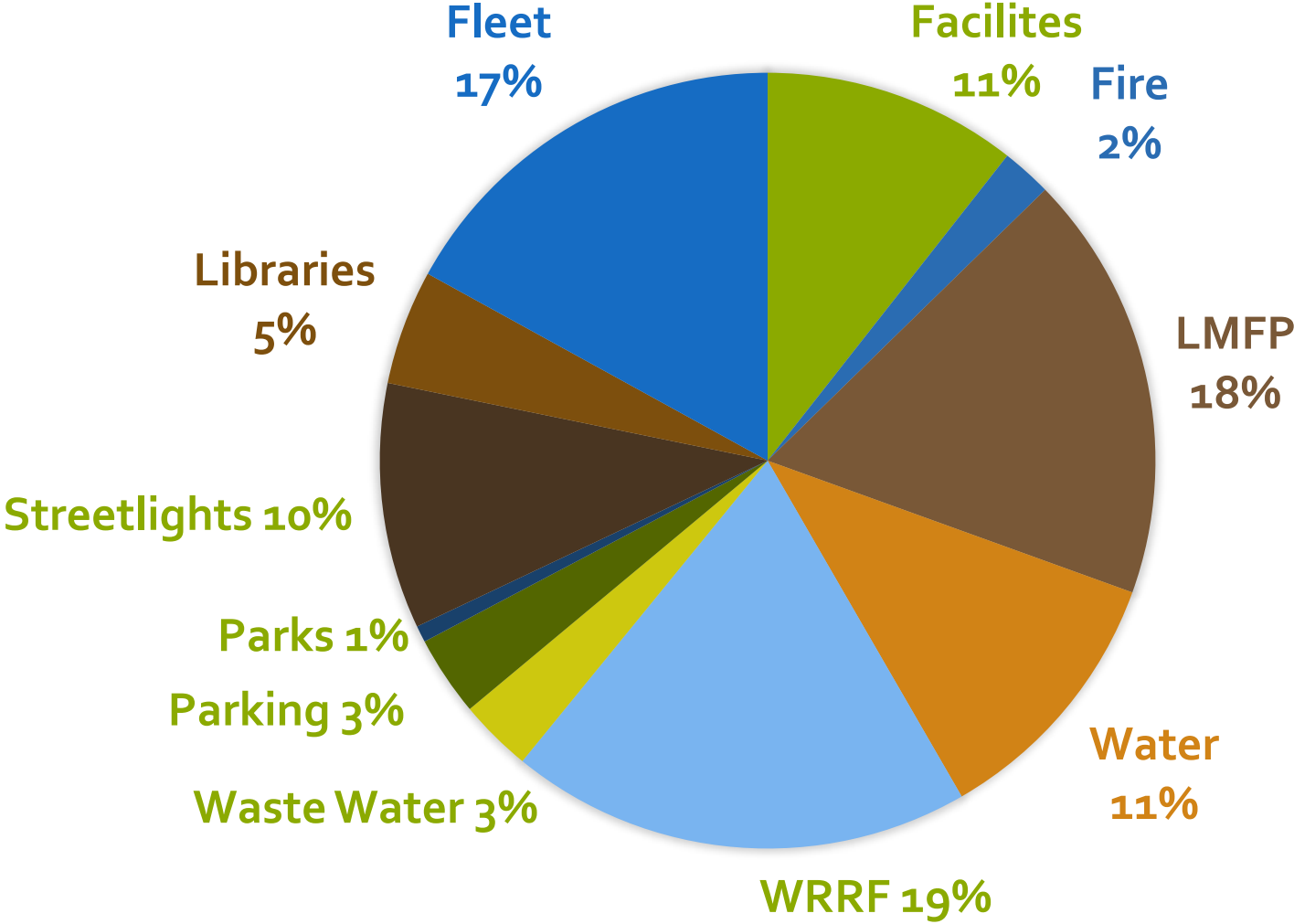
2018 Carbon (MTCO<sub>2</sub>e)



335 energy utility accounts across 200 facilities used 427 million kBtu, generated 56,691 MTCO<sub>2</sub>e and cost \$9.3 million

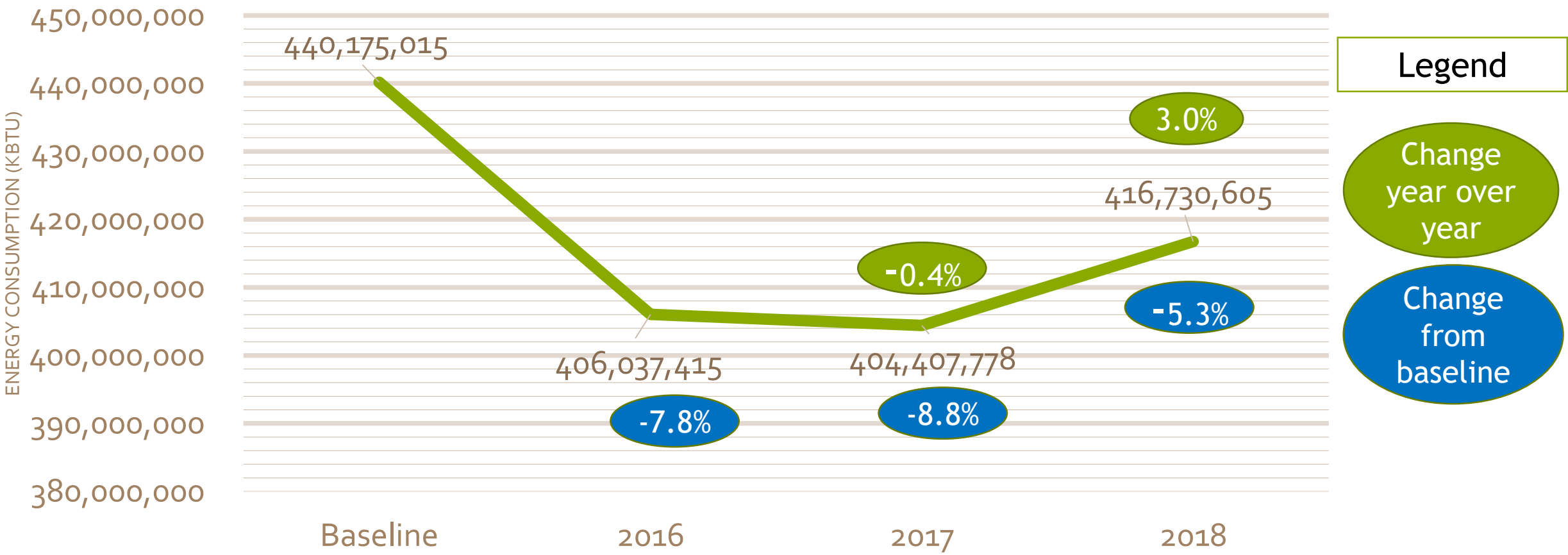


# Background: City's 2018 Energy Consumption by Department



Water utilities  
accounted for 51%  
of all energy  
consumption

# Background: City's Energy Performance Over Time (Weather Normalized)



Baseline is predominantly 2015, but goes back to 2005 for a few facilities. The baseline is calculated from the most historic data available.

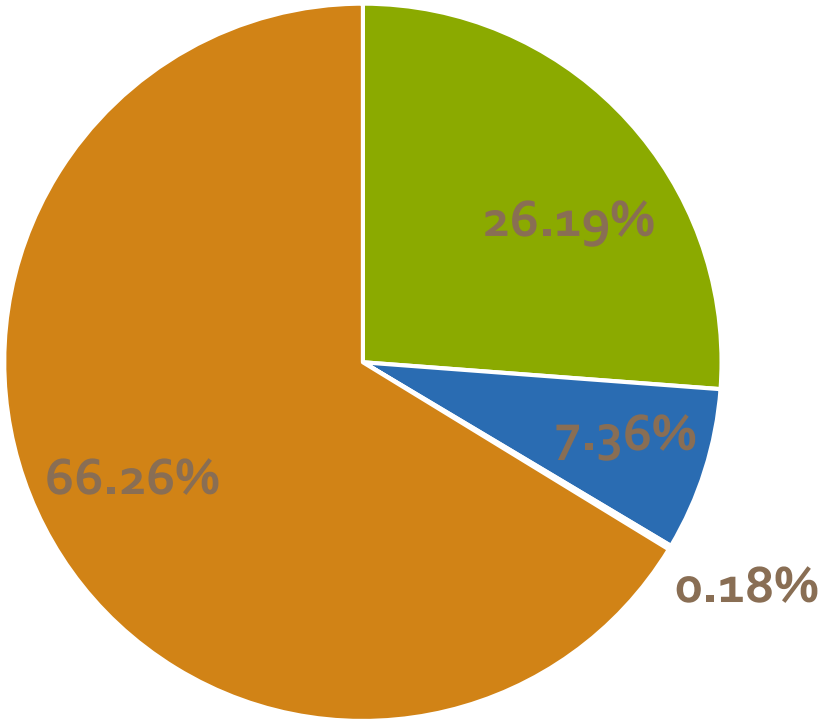
# Current State: Path to 100% Renewable Electricity

- Consumers Energy renewable portfolio
- Energy efficiency
- Solar
- WRRF biodigester
- Renewable energy credits (RECs)



Oak Industrial Solar

34% Renewable



■ RECs                      ■ CE Renewables  
■ Oak Industrial Solar   ■ Conventional

# Current State:

## Why Energy Efficiency Is So Important

- Reduces operational costs
- Nearly always the fastest and greatest return on investment
- Decreases greenhouse gas (GHG)/carbon emissions
- Increases air quality resulting in decreased public health and community impacts
- Stimulates job growth in the green energy sector
- Lead by example



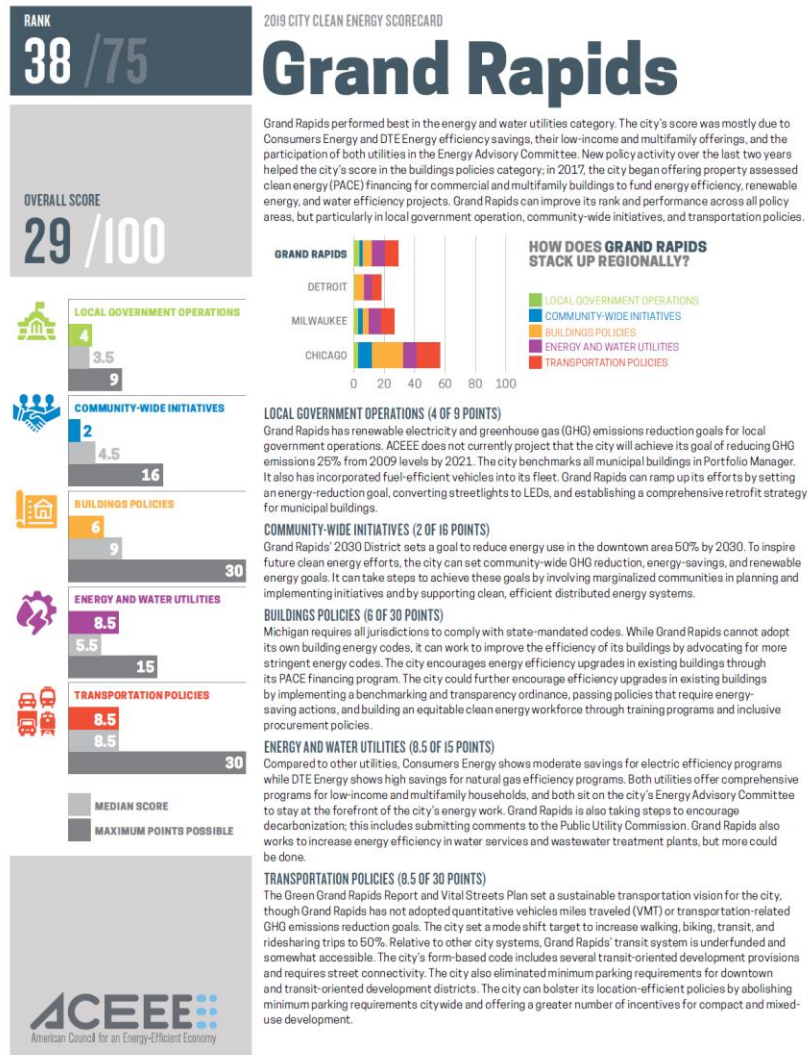
# Current State: U.S. EPA Energy Star Certified Facilities

- 2019 Certification (in process)
  - 1120 Monroe
  - Police Station
  - 201 Market
- 6 certified buildings in 2018



City's HR Department celebrates Energy Star certification

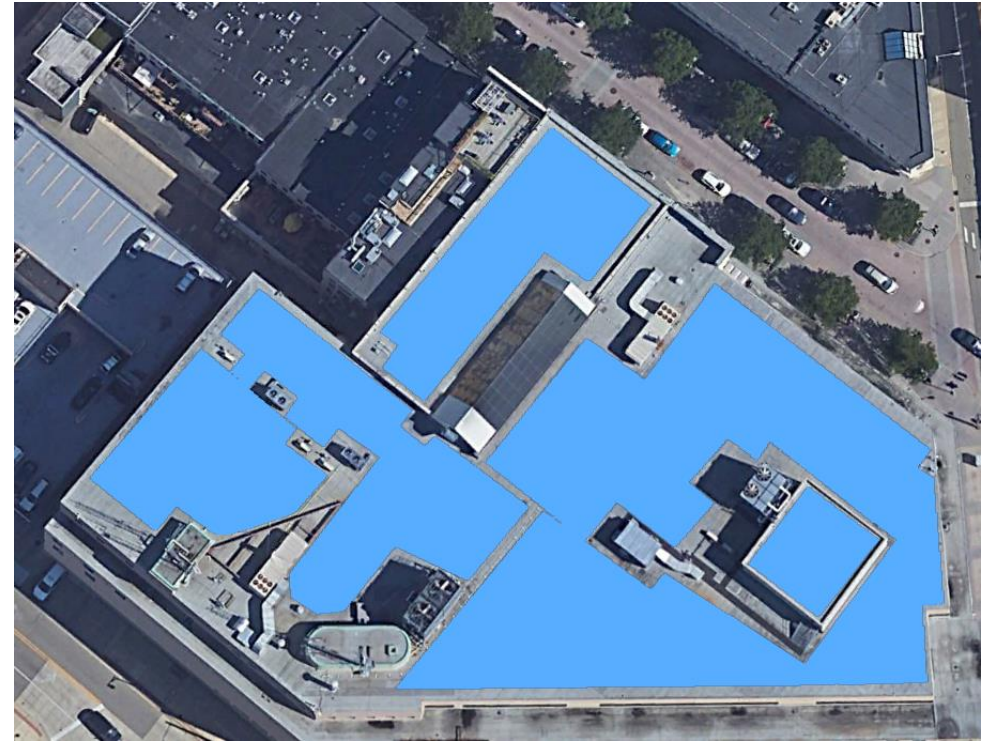
# Current State: 2019 ACEEE Clean City Scorecard



- American Council for an Energy-Efficient Economy
- First year expanded to the top 75 largest US metro areas
- Grand Rapids is one of the smallest cities included, but ranked 38<sup>th</sup> out of 75 (highest MI ranking)
- Currently working on many efficiencies ACEEE recommended

# Current State: NREL Solar Assessment of Eight City Facilities

- We partnered with the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) through SolSmart
- NREL completed a techno-economic assessment of the following eight City facilities for solar:
  - City Hall, Police Station, DASH Lot 9, Butterworth Landfill, Water Resource Recovery Facility, Lake Michigan Filtration Plant, Market Avenue Retention Basin and Bridge Street Fire Station



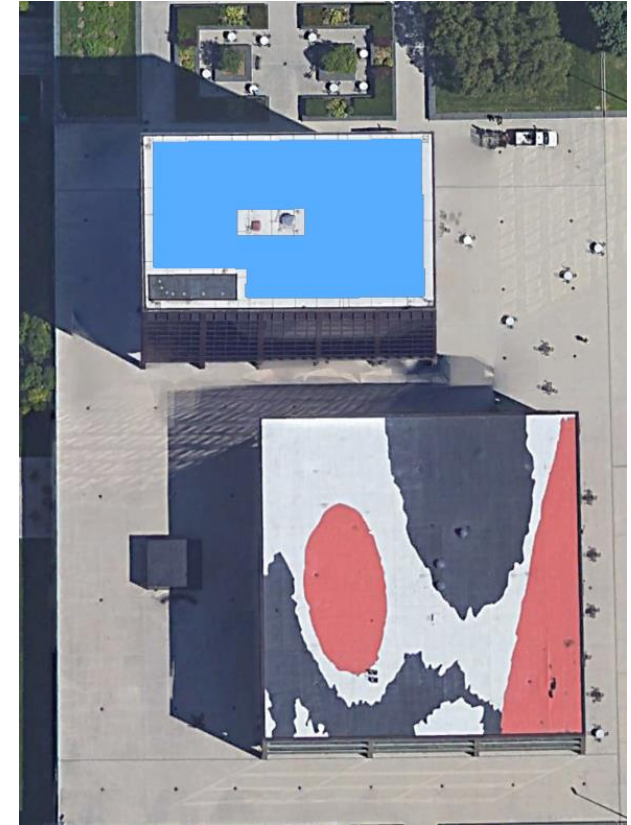
Police Department solar potential



# Current State:

## NREL Solar Assessment of Eight City Facilities

- Technical assessment showed we could install approximately 4,384 kilowatts (kW) of solar that would generate approximately 3.9 million kilowatt hours (kWh) of electricity per year (this excludes Butterworth Landfill)
  - If installed, this would increase our renewable performance from 34% to 40%
- Recently discovered an error in the economic assessment that resulted in incorrect findings
  - We will rerun the economic assessment to determine if and where we will install solar



City Hall solar potential

# Current State:

## Solar on Butterworth Landfill

- Consumers Energy estimated that a 17.5 MW solar array could be installed that would generate approximately 25 million kilowatt hours per year
- NREL estimated that a 14 MW solar array could be installed that would generate approximately 17.8 million kilowatt hours per year
- Intend to finalize an MOU with Consumers Energy and then issue a Request for Proposal for solar



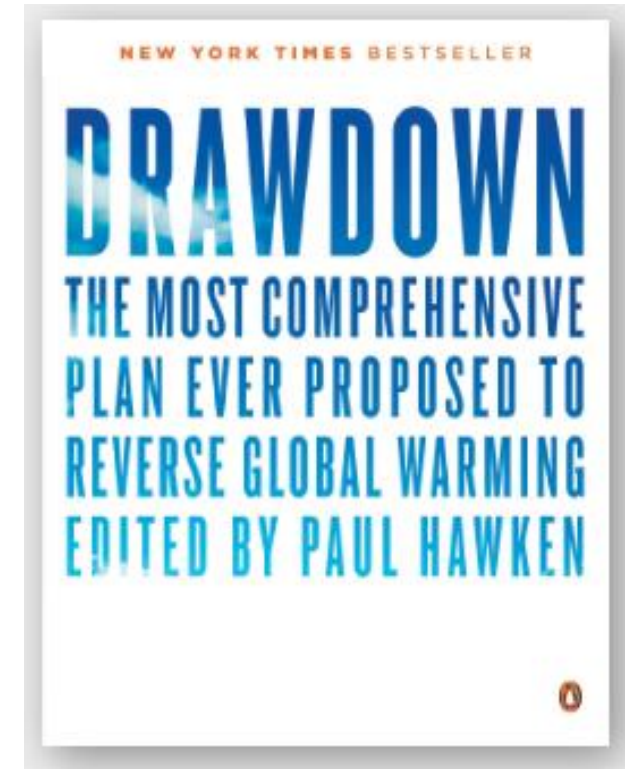


# Future Initiatives

- Issue an RFP for solar development at Butterworth
- Work with NREL to rerun the economic analysis of solar on City facilities
- Continue working on an LED streetlighting strategy
- Identify how many RECs, from where and at what cost the City should purchase
- Create a 100% renewable energy strategy
- Provide an update to the City Commission on community-facing energy and carbon reduction initiatives, including Zero Cities Project, SolSmart (residential solar), GR2030 District and the Community Collaboration on Climate Change

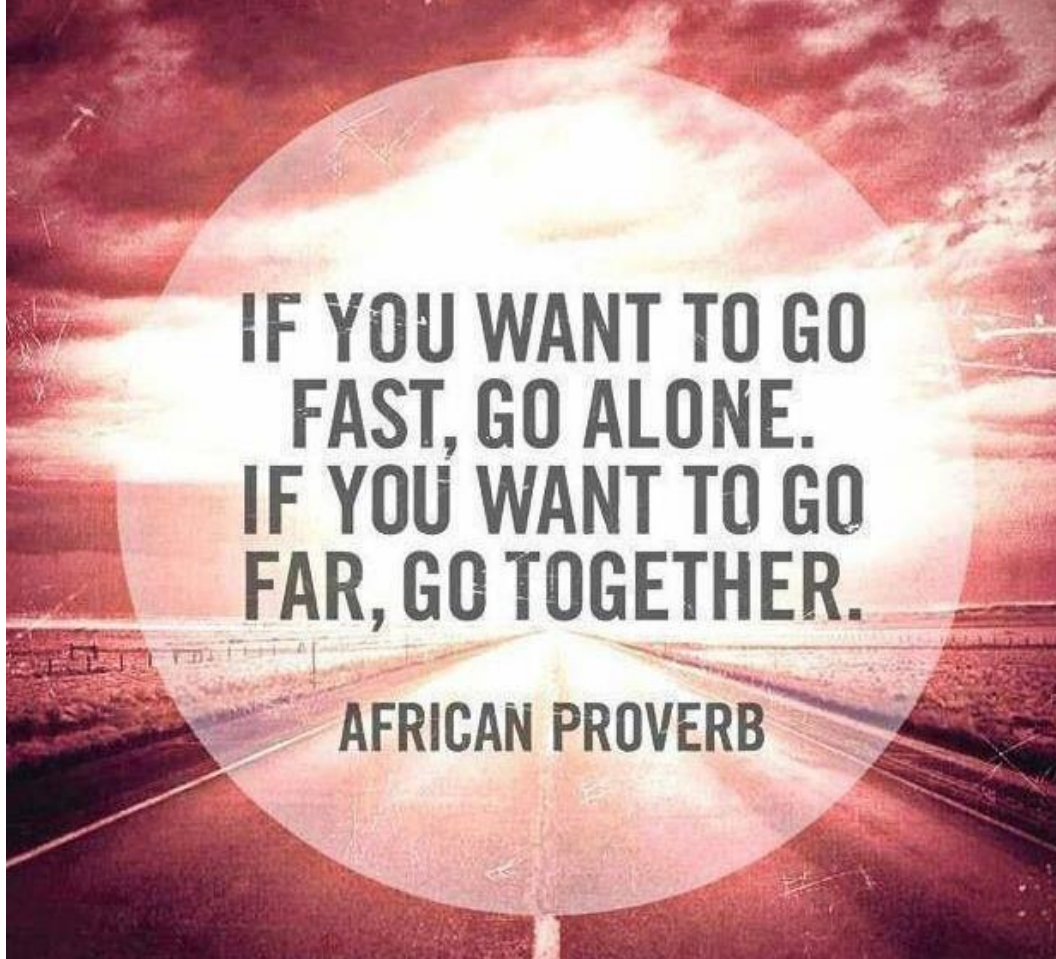
An aerial photograph of a large solar farm with rows of solar panels stretching across a green landscape. The text is overlaid in large, bold, white letters.

# 100 SOLUTIONS TO REVERSE GLOBAL WARMING



[Drawdownmichigan.org](http://Drawdownmichigan.org)  
September 25, 2019





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