



# **Durham County Greenhouse Gas & Renewable Energy Goals Update**

**February 2025**

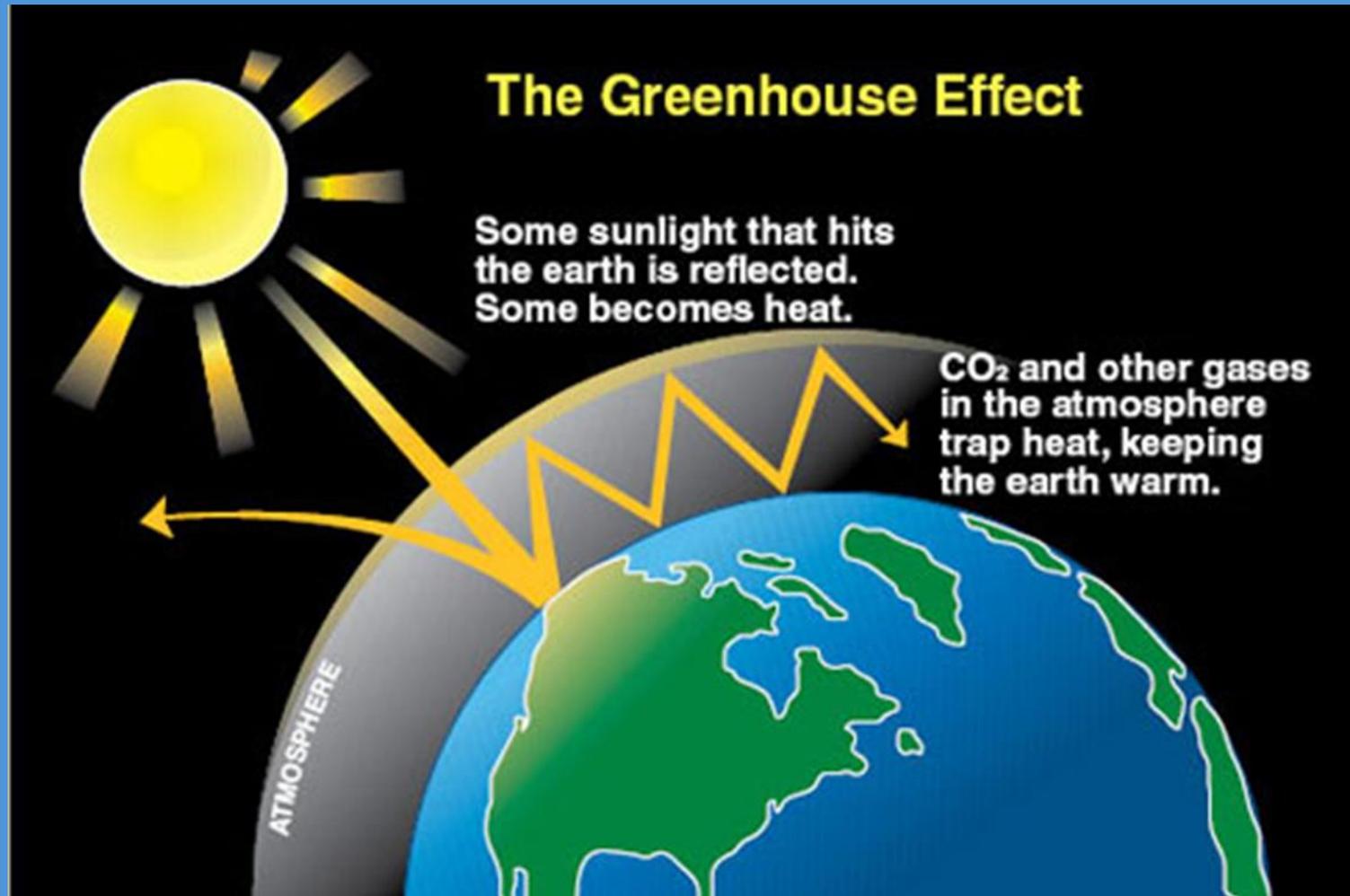


# Today's Discussion Topics

- **Greenhouse Gas Emissions Reduction & Renewable Energy**
  - Goals
  - Progress
  - Challenges
- **Projects and Policies - Direction needed**
  - Comprehensive Facilities Assessment
  - High Performance Building Policy
- **State Policy – Direction needed**
  - Duke Carbon Plan/Integrated Resource Plan



# The Issue



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# The Impact



**CHOPPER 11**

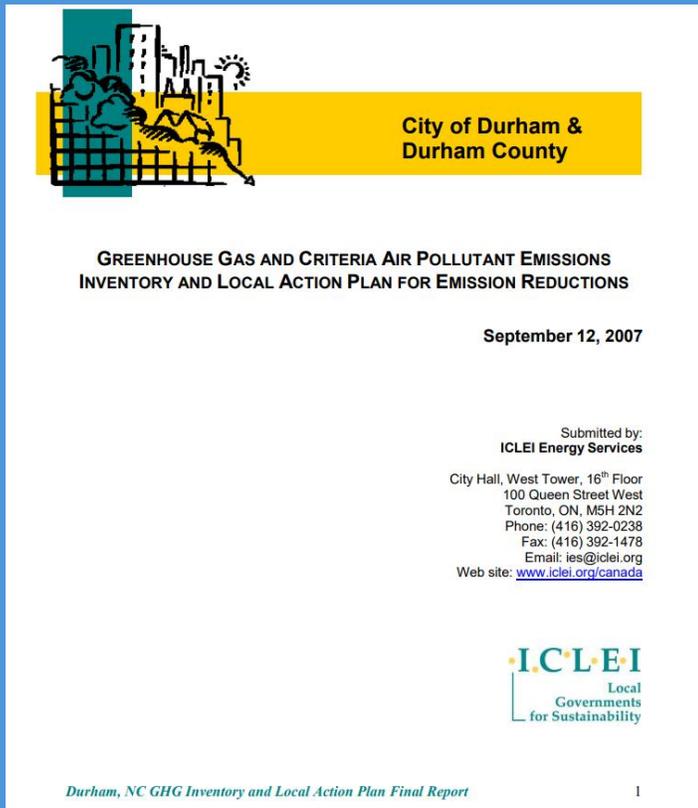
**FUTURECAST HEAT INDEX**  
SATURDAY 4:00 PM

Location	Heat Index
South Hill	108°
Roxboro	101°
Henderson	102°
Roanoke Rapids	110°
Durham	109°
Louisburg	105°
Rocky Mount	110°
Raleigh	109°
Siler City	102°
Clayton	107°
Sanford	105°
Dunn	105°
Goldsboro	108°
Pinehurst	103°
Fayetteville	111°
Clinton	107°
Raeford	104°

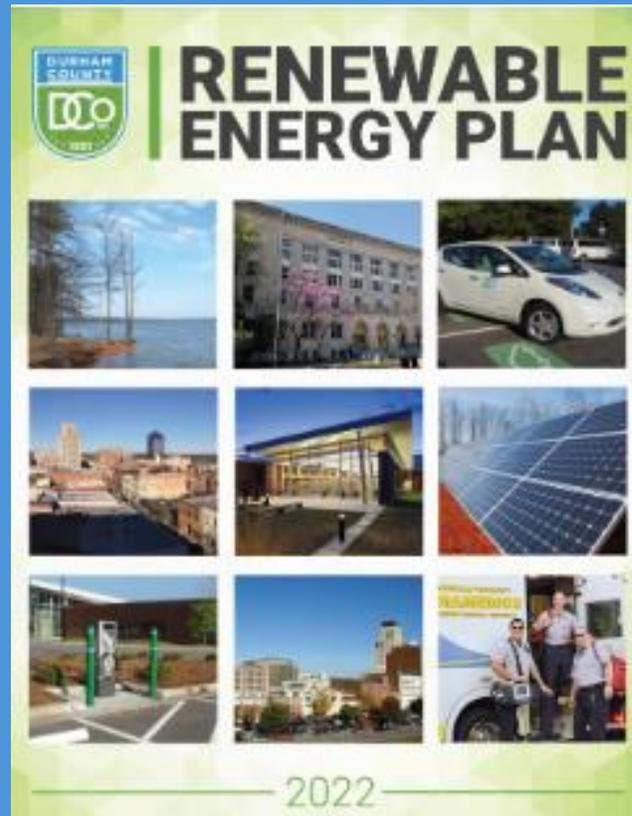
**HAPPENING NOW**  
FIREFIGHTERS BATTLING BRUSH FIRE ON FRIENDSHIP ROAD NEAR HOLLY SPRINGS

ABC11 EYEWITNESS NEWS 5:05





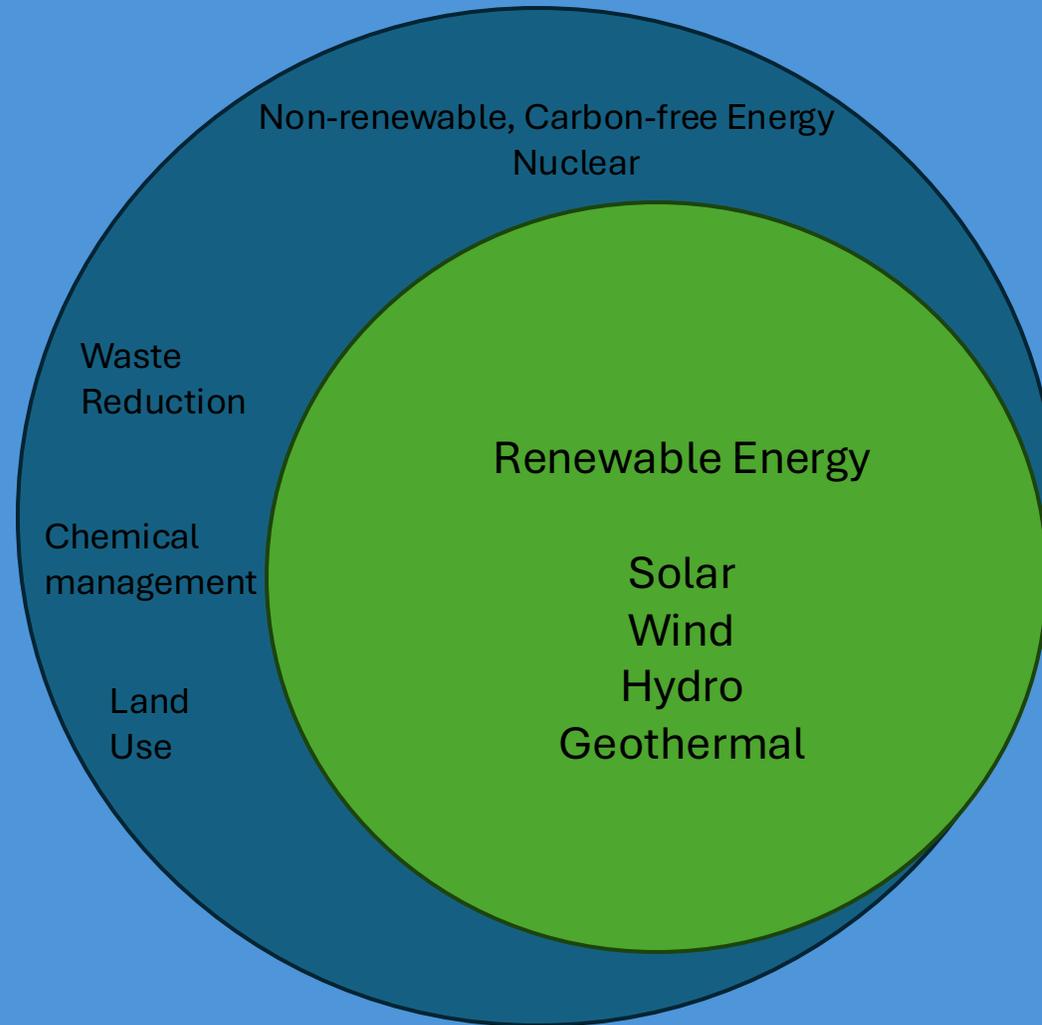
Durham City-County  
Greenhouse Gas  
Reduction Plan  
(2007)



Durham County  
Renewable Energy  
Plan (2022)

- **Reduce greenhouse gases by 50% from 2006 levels by 2030**
- **Transition County operations to 80% renewable energy by 2030 and 100% by 2050**

# GHG Emissions Reductions vs Renewable Energy



# Progress

## Renewable Energy

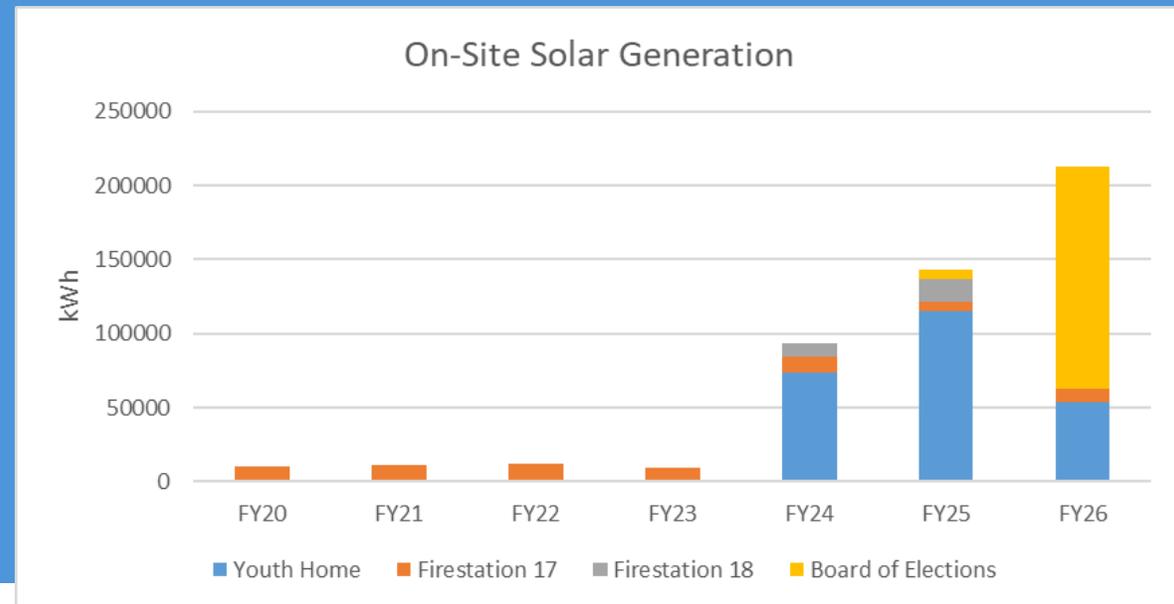
- Youth Home
- Fire & EMS 17 & 18 – City-owned/County Co-Located
- Board of Elections
- Duke Energy Green Source Advantage (2027)

## Energy Efficiency

- LED upgrades, Building Automation, Tune-ups
- Performance Contracting

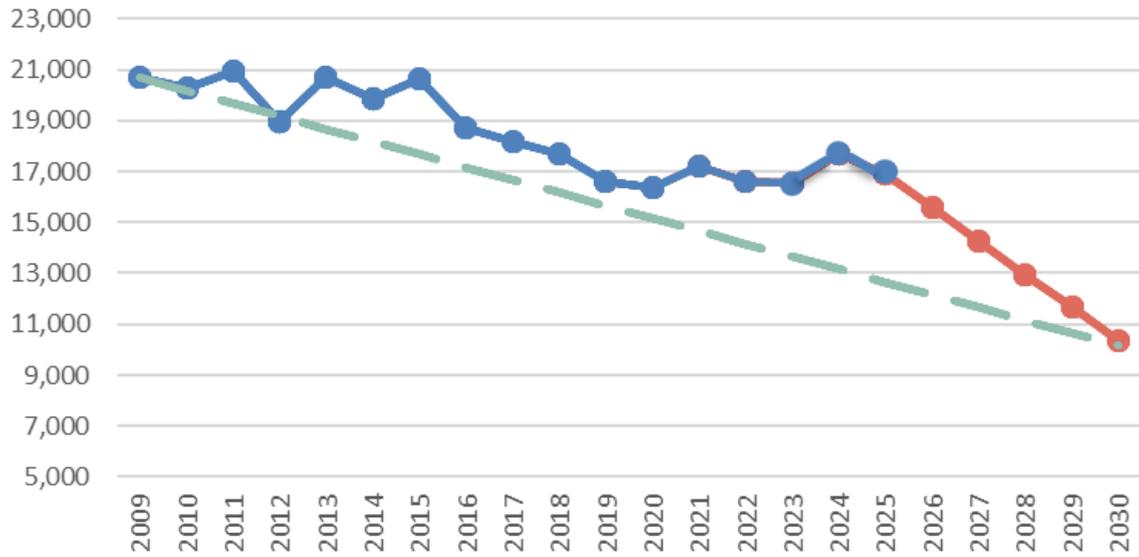
## Fleet Transition

- 10 Electric Vehicles in Fleet (1% of fleet)
- 59 Hybrid vehicles (10% of fleet)
- Motor pool implemented



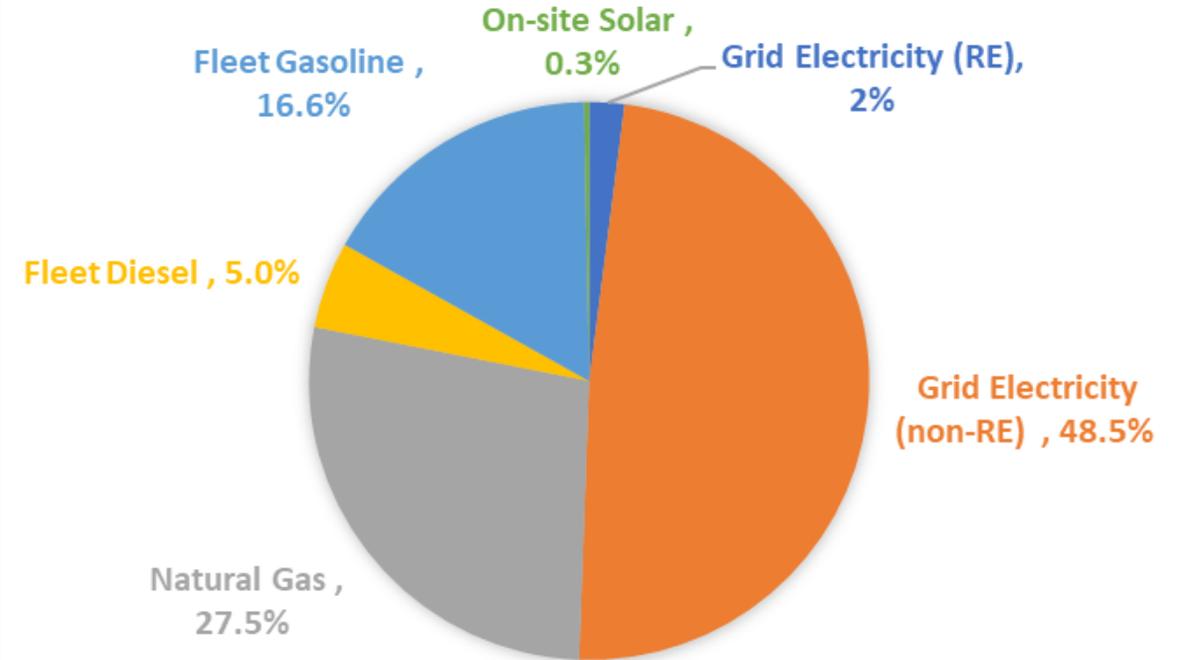
# Current Emissions Reduction & Renewable Energy

## County Operations GHG Emissions



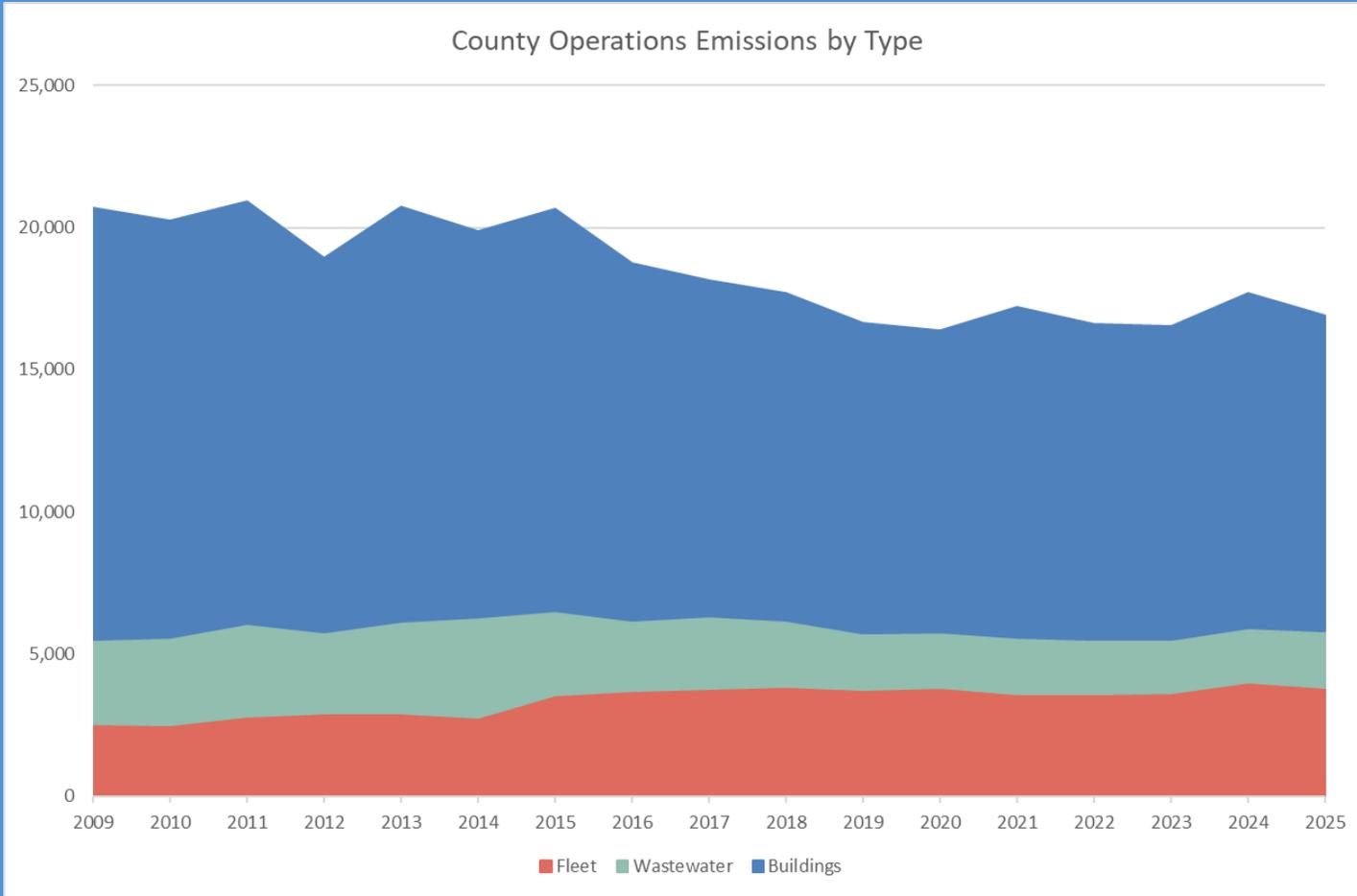
**Total GHG reduction = 18%**

## ENERGY USE BY SOURCE FISCAL YEAR 2025



**Total RE = 2.3%**

# Our Current Greenhouse Gas Emissions



**Buildings = -27%**

Square footage: +94%

Building efficiency: +42%

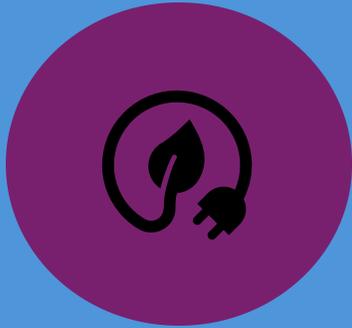
**Wastewater = -27%**

**Fleet = +51%**

Fleet size: +67%



# Challenges



TECHNOLOGICAL  
BARRIERS



GROWING  
OPERATIONS



STATE LAW  
CHANGES



FEDERAL  
CHANGES

# Next Steps



# Green Source Advantage Commercial-Scale Solar



# Comprehensive Facilities Assessment



**2.2 Million Square Feet**

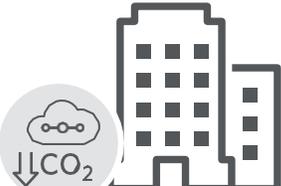


**~80% of County's Facilities**

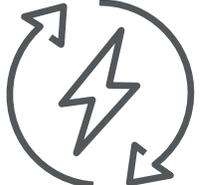


**≤ \$789,700**

# Assessment Components



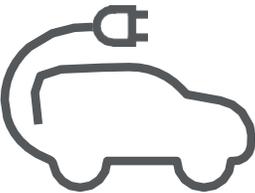
**Energy Efficiency**



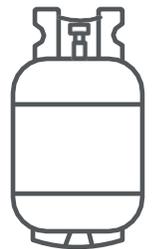
**Renewable Energy & Energy Storage**



**Building Electrification (DHW / HVAC)**



**Fleet Electrification (EV Charging)**



**HVAC Refrigerants (Hydrofluorocarbons)**



**Financial Analysis**



**Incentives and Grant Programs**

# Priority Facilities

- **Admin I**
  - Energy Efficiency – 16% ghg reduction, 17.4% energy cost reduction
- **Admin II**
  - Energy Efficiency – 17.4% ghg reduction, 18% energy cost reduction
  - Renewable Energy – (62 kW system) 4.4% of total energy use
- **Detention Center**
  - Renewable Energy – (200 kW system) provide 6.7% of total energy use
  - Energy Efficiency – 40.6% ghg reduction, 48% energy cost reduction
- **Courthouse**
  - Energy Efficiency – 19.2% ghg reduction, 21% energy cost reduction
  - Renewable Energy – (145kW system) 3.4% of total energy use
- **Warehouse**
  - Energy Efficiency – 24% ghg reduction, 29% energy cost reduction
  - Renewable Energy – (280 kW system), 72% of total energy use



# Priorities Continued

- **East Regional Library**
  - Energy Efficiency – 24% ghg reduction, 26% energy cost reduction
  - Renewable Energy – (130 kW system) – 39% of total energy use
- **Health and Human Services**
  - Energy Efficiency – 19% ghg reduction, 22% energy cost reduction
  - Renewable Energy – (300kW system) 8.5% total energy use
- **Judicial Building Annex**
  - Energy Efficiency – 20% ghg reduction, 21% energy cost reduction
  - Renewable Energy – (50kW system) 9.5% of energy use
- **Main Library**
  - Energy Efficiency – 18% ghg reduction, 19% energy cost reduction
  - Renewable Energy – (90 kW system), 10% total energy use



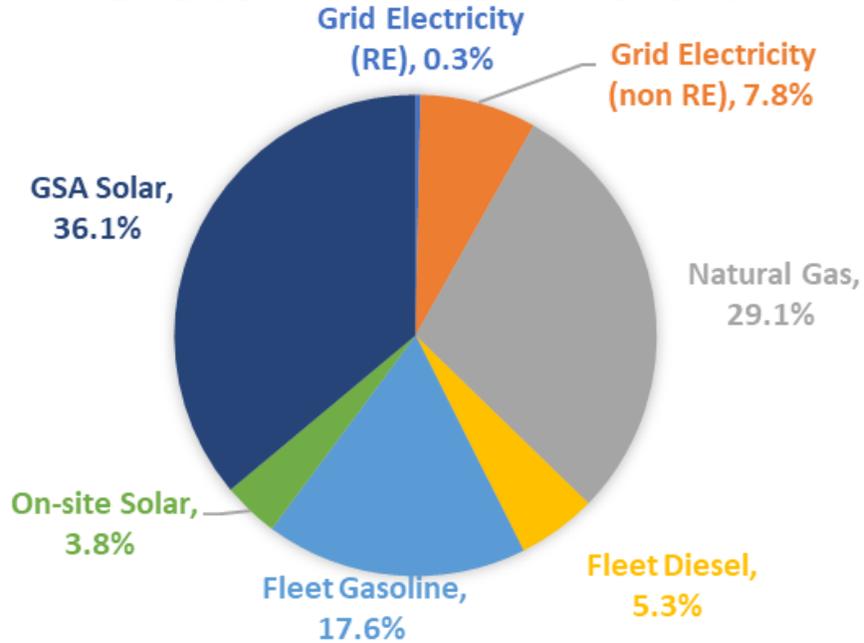
# Priorities Continued

- **North Regional Library**
  - Energy Efficiency 26% ghg reduction, 28% energy cost reduction
  - Renewable Energy – (120 kW system) 39.5% total energy use
- **South Regional Library**
  - Energy Efficiency – 26% ghg reduction, 28% energy cost reduction
  - Renewable Energy – (200 kW system) 51% total energy use
- **Southwest Regional Library**
  - Energy Efficiency – 21% ghg reduction, 22.6% energy cost reduction
  - Renewable Energy – (115 kW system) 30% total energy use



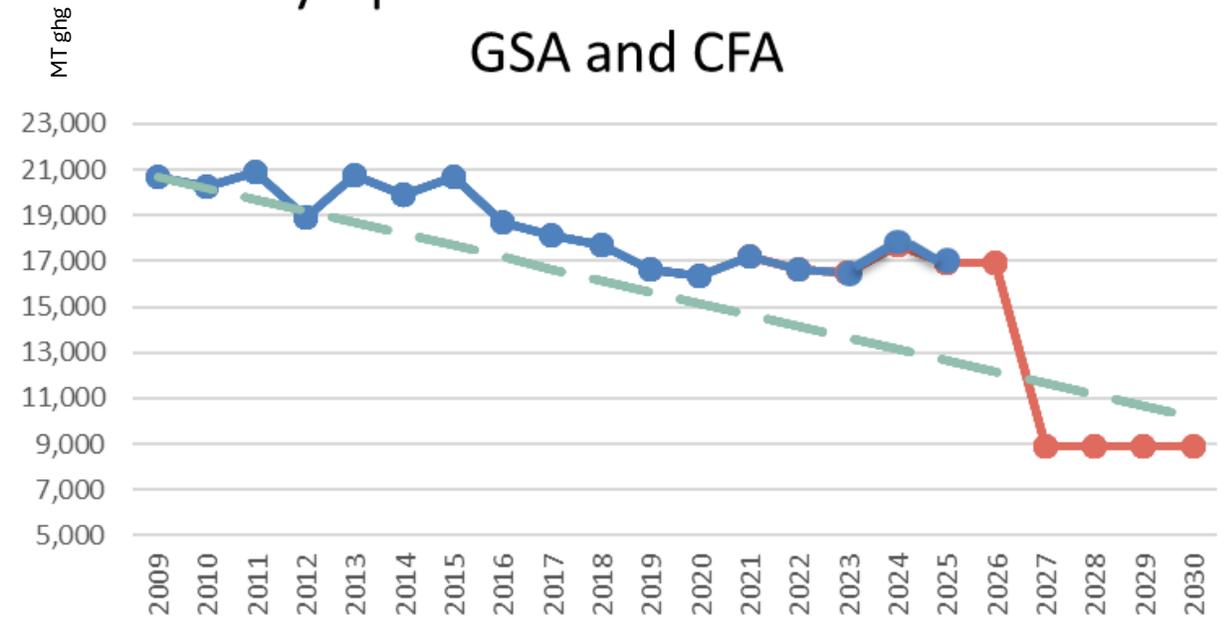
# Where We Will Be\*

## ENERGY WITH GSA AND CFA



**Total Renewable Energy = 40.2%**

## County Operations GHG Emissions with GSA and CFA

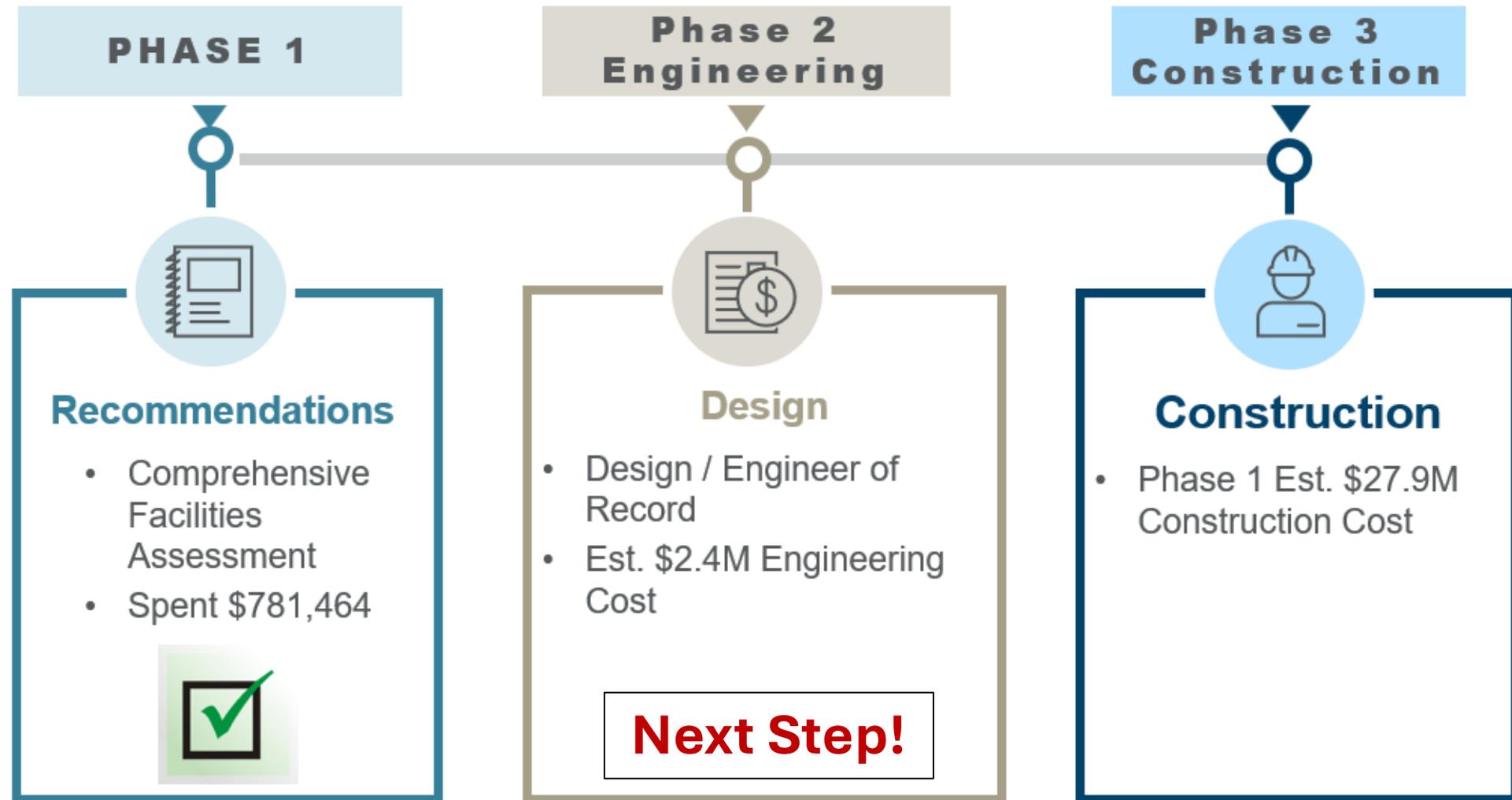


GSA = Green Source Advantage

CFA = Comprehensive Facilities Assessment

\*Preliminary estimates





# Next Steps - CFA

- Move forward with Phase II
- Move forward with some quick wins





## Durham County High Performance Building Policy (HPBP)

2026 Revision



# Past to Future

2008

## High Performance Building Policy

### Requirements:

1. LEED standards
2. Minimization of transportation-related energy use
3. Reuse of previously developed land

2026

## High Performance Building Policy

### Specific requirements:

1. LEED standards
2. Energy efficiency
3. Renewable energy
4. Electric vehicle infrastructure
5. Electrification
6. Maintenance and Operations
7. Reporting and Administration



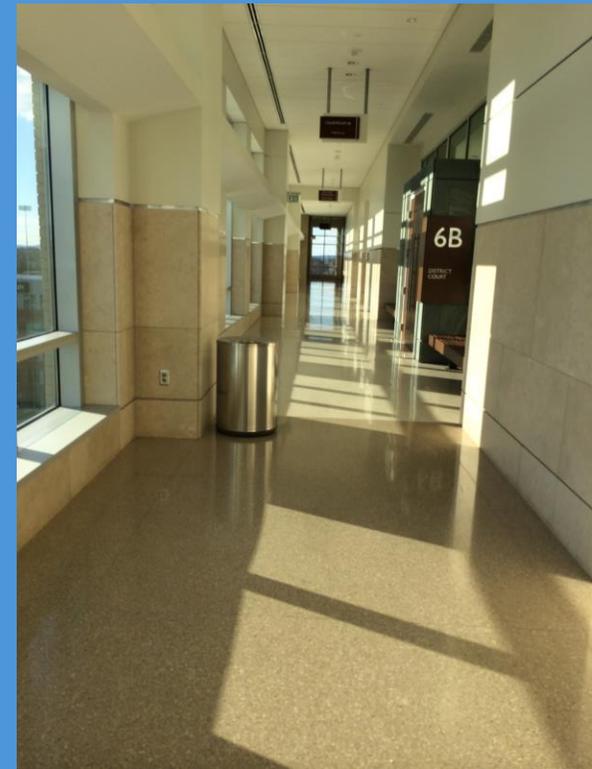
# Construction & Renovation Design

## SUSTAINABILITY GOALS

- Design & build to LEED Gold standards with focus on energy efficiency & GHG reduction
- Install solar PV systems or make rooftops solar ready

## ENERGY EFFICIENCY

- Meet highest LEED points for energy performance
- Perform daylight analyses & use passive design strategies



# Construction & Renovation Design

## EFFICIENCY

- Install WaterSense fixtures
- Install ENERGY STAR appliances

## ELECTRIFICATION & REFRIGERANTS

- Use all-electric equipment wherever possible
- Use refrigerants with zero ozone depletion & low global warming potential



# Construction & Renovation Design

## ELECTRIC VEHICLE INFRASTRUCTURE

- Provide EV charging infrastructure in new & renovated parking areas
- Apply a minimum % of parking spaces for charging or EV-ready

## SITE LOCATION

- Choose sites that reduce transportation-related energy use
- Favor locations with good public transit access & proximity to amenities



# Construction & Renovation Design

## DESIGN & COMMISSIONING

- Include energy analyses throughout design stages
- Use Duke Energy's Energy Design Assistance or similar programs
- Use bird-friendly glass & glazing on windows

## SOLAR PV

- Install rooftop solar PV whenever possible
  - If not possible, make the building solar-ready



# Operations & Maintenance

## For All County-Operated Buildings

- HVAC system efficiency
- HVAC system operation hours
- Temperature control
- Electrical load management
- Boiler & generator efficiency
- Sustainable products with minimal toxic material & high recycled content



# Lighting

- Upgrade all lighting to high-efficiency bulbs in buildings, parking areas, & vending machines
- Install light timers & motion detectors
- Turn off lights in unoccupied areas
- Meet DarkSky International standards for all outdoor lighting



# Employee Behavior

## ENERGY & WATER CONSERVATION

- Turn off lights, equipment, & water when not in use
- Adhere to prohibition of space heaters & portable A/C units
- Adhere to prohibition of personal-type appliances (e.g. microwaves) in individual spaces
- Keep all exterior doors & windows closed

## ENVIRONMENTALLY PREFERRED PURCHASING

- Purchase products made with recycled, non-toxic, and/or recyclable materials whenever possible
- Purchase products that meet EPA Energy Star or DOE Federal Energy Management Program standards
- Purchase items that meet the EPA WaterSense certification when available



# Reporting & Administration

- **Monthly reviews** of utility monitoring system
- **Annual report** of building performances
- **Design review** to ensure policy compliance
- **Regular training** on the policy for departments directly involved
- Portion of energy savings are reinvested in the **Clean Energy Reinvestment Fund**

# Discussion



# Carbon Plan – Integrated Resource Plan (CPIRP)

- HB951 in 2021
  - 70% reduction in carbon emissions by 2030 and carbon neutrality by 2050
- SB261 in 2025
  - No interim goal
  - Allows for rate hikes before resources are built
- Newest CPIRP just released
  - Public hearings in early 2026



# CPIRP Joint Local Government Letter

## Content

- Projection assumptions and modelling
- Near term plans create more vulnerability and higher costs long term
- We cannot meet our goals with the proposed plan
- Need to focus more on efficiency

## Process

- Draft letter by end of February
- Approval in March

# Discussion

