

APRIL 30
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2025



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U.S. DEPARTMENT
of **ENERGY**



Change from Within: How Organizations Successfully Pursued Cost-Effective Priorities

May 2, 2025

11:00 am – 12:00 pm ET

Melissa Voss Lapsa

Oak Ridge National Laboratory (ORNL)



Agenda

1

Welcome and Introductions

2

Fairfax County's Carbon Reduction

3

JLG's Change From Within

4

Closing and Q&A

Today's Presenters

- **Kevin Smith, Division Manager of Energy Programs**
 - Fairfax County, VA
- **Jason Grentus, Senior Environmental Manager of Global Operations**
 - JLG Industries, Inc. – Oshkosh Corporation Business

Kevin Smith
Fairfax County, VA





Change from Within: Fairfax County's Carbon Reduction

Kevin Smith, PE, CEM
Office of Environmental and Energy Coordination
Fairfax County, Virginia



May 2, 2025



Agenda

1. Fairfax County's Operational Energy Strategy
2. Developing internal partnerships
3. Water Recycling Facility case study
4. Portfolio-level results achieved

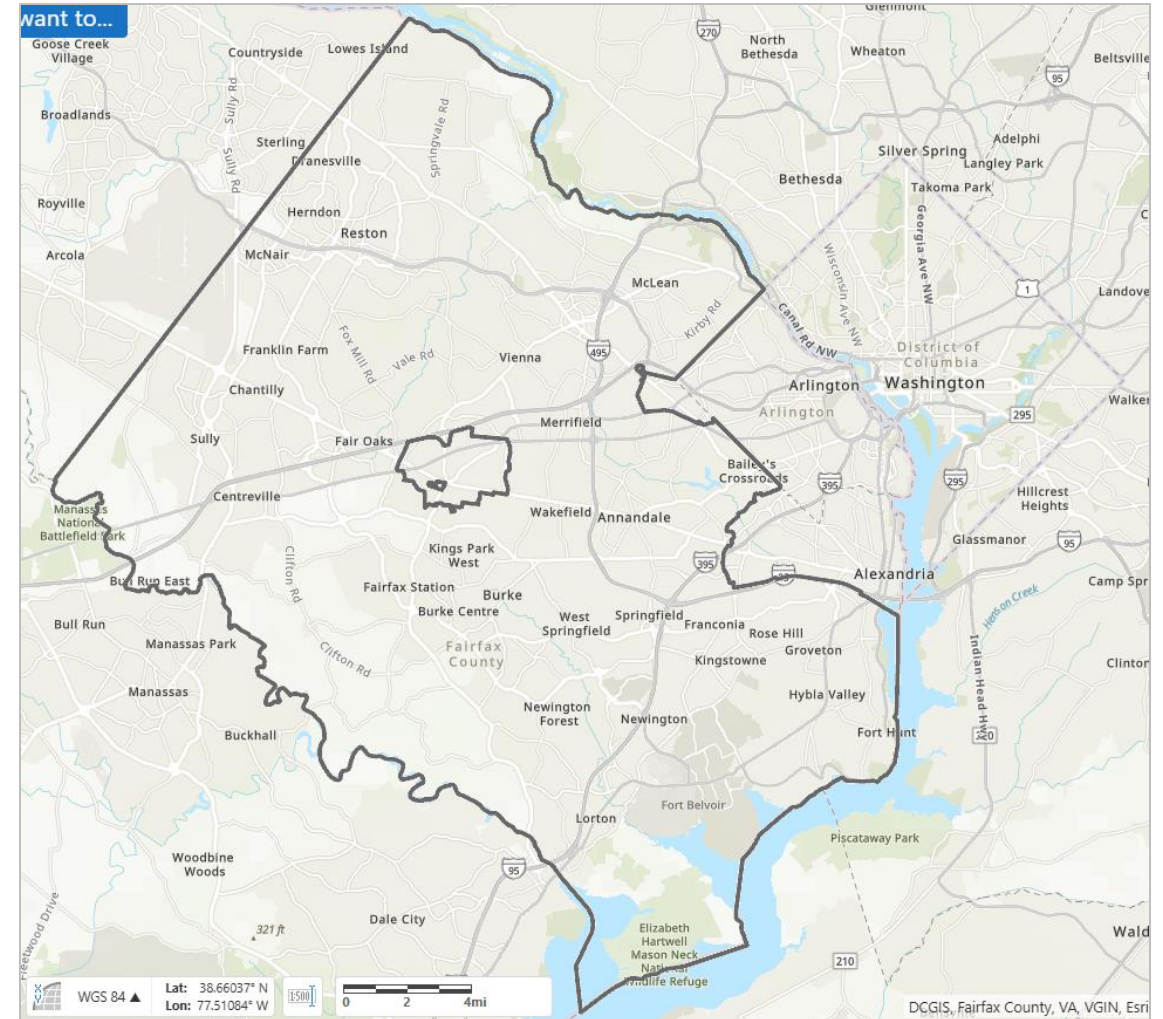


Operational Energy Strategy



Fairfax County, Virginia

- Located outside Washington, DC, in Northern Virginia
- 1.2 million residents, 400,000+ households
- County government employs more than 12,000 staff



Fairfax County's Operational Energy Strategy

**Fairfax County
Operational Energy Strategy**

July 13, 2021

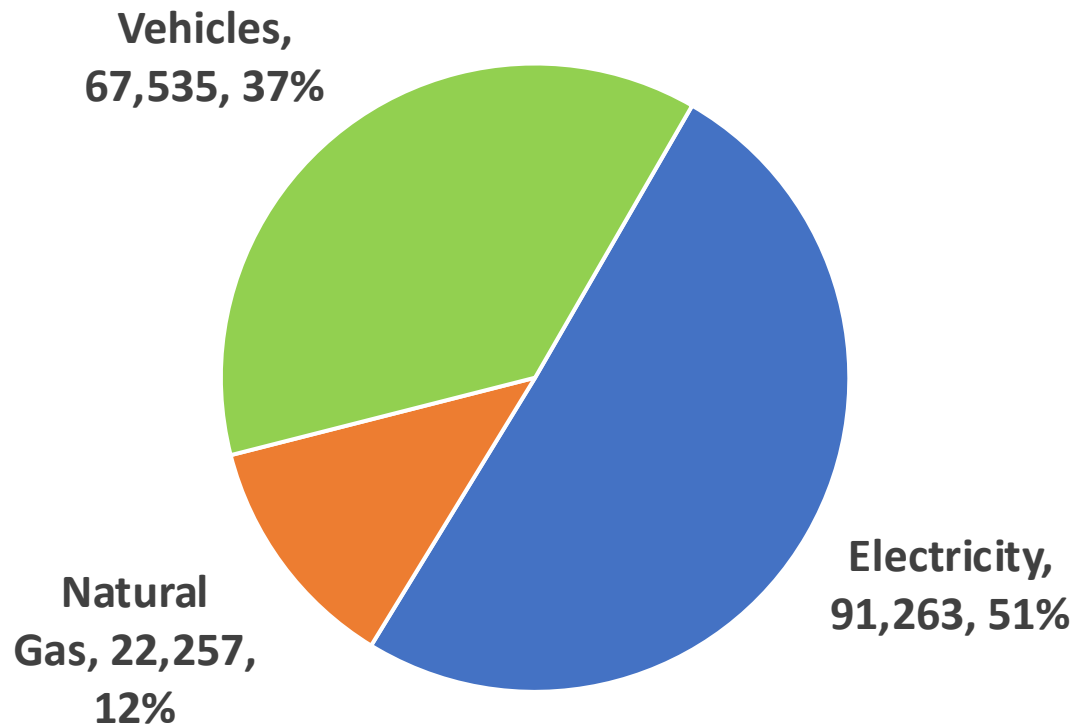


A Fairfax County, Va., publication

- Fairfax County Board of Supervisors adopted the original in 2018; updated version in July 2021
- Establishes a target of **energy carbon neutrality** for government operations by **FY 2040**
- Other targets were established in 11 focus areas, including:
 - Energy Use & Efficiency
 - Green Buildings
 - Renewables
 - Utility Cost Management
- **Office of Environmental & Energy Coordination (OEEC) coordinates implementation efforts**

Government Emissions by Sector

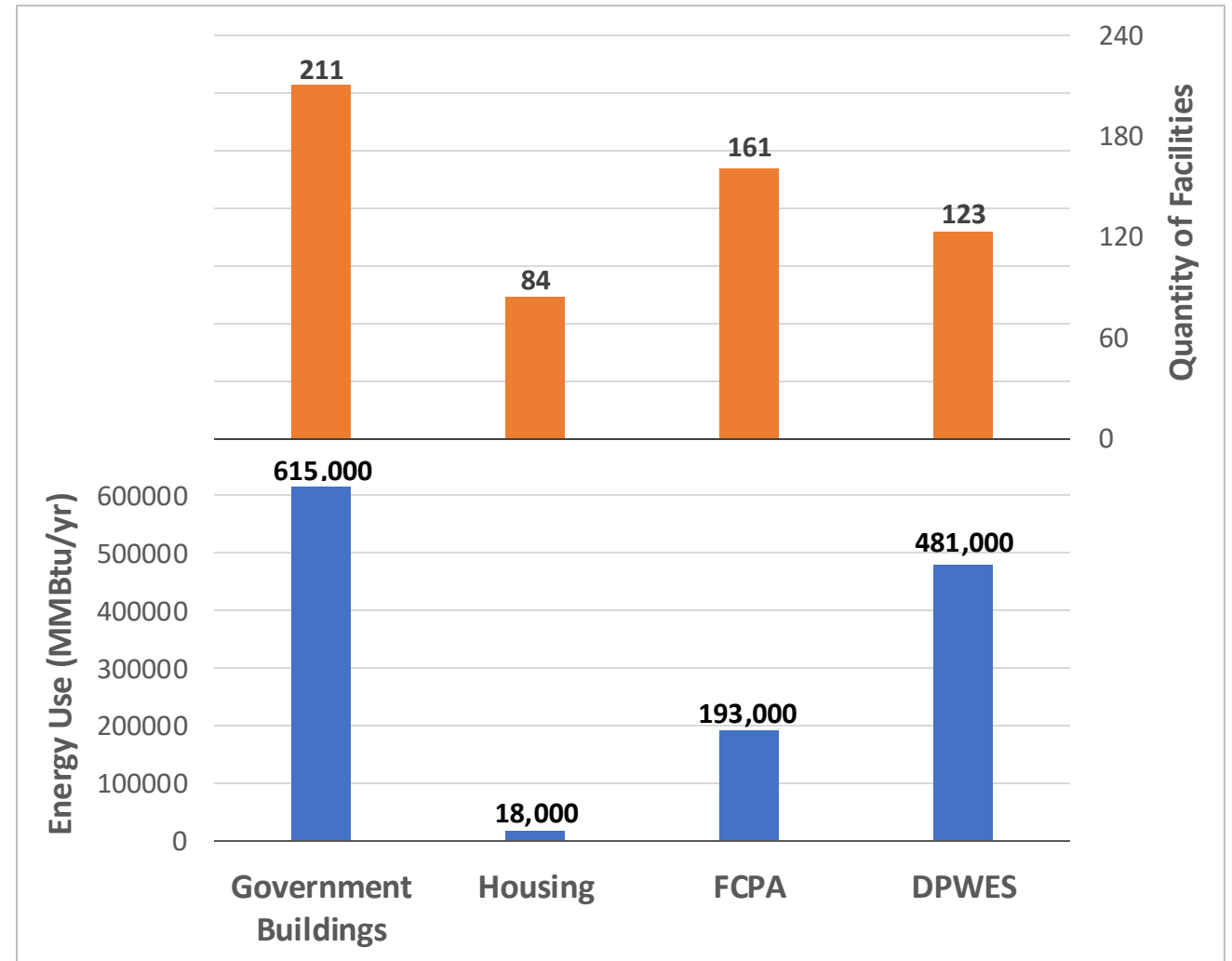
FY 2018 Baseline GHG Emissions (MT CO₂e)



- Buildings and facilities were responsible for 53% of baseline FY 2018 emissions
- Targets:
 - FY 2030: 50% emissions reduction
 - FY 2040: Carbon neutrality
- 3 primary avenues for decarbonization:
 - Building energy retrofits
 - Renewable electricity
 - Fleet electrification

Facility Energy Use by Agency




- **Government Buildings:** offices, libraries, fire stations, community centers, clinics, transit facilities, etc.
- **Housing:** main administrative office, affordable housing
- **FCPA:** Fairfax County Park Authority (parks, recreation centers, nature centers)
- **DPWES:** Department of Public Works & Environmental Services (wastewater treatment, streetlights, solid waste handling)
- 12 different agencies manage facilities (does not include OEEC)



Developing Partnerships



Whole of Government Approach

	<h2>1. Energy Projects, Electric Vehicle Purchasing</h2> <ul style="list-style-type: none"> • New construction & major renovations built to NZE standards and EV-ready • Agency-led energy retrofits and solar projects – predominantly Energy Saving Performance Contracts (ESPCs) • Strategic replacement of fleet and transit fossil-fuel vehicles with EVs • OEEC role: Coordinate, allocate funding, provide technical support
	<h2>2. Recurring Check-in Meetings</h2> <ul style="list-style-type: none"> • Meetings between OEEC and leadership from various agencies to review programs and address significant issues • OEEC role: Establish and lead, collaboratively plan programs, help resolve challenges
	<h2>3. Interagency Climate Team</h2> <ul style="list-style-type: none"> • Quarterly meetings with ~20 agencies focused on facilities and operations • Staff highlight successes and share challenges • Coordinate implementation of Operational Energy Strategy • OEEC role: Establish, coordinate, and facilitate meetings

Partnerships – Fire Station Solar

- New fire stations built solar-ready
- **50 kW** installed at each building in Fall 2023
- Inter-agency collaborative effort
- In 2024, **28%** electricity offset and **\$18,700** savings



Woodlawn Fire Station



Reston Fire Station



Partnerships – FCPA Rec Center Retrofits



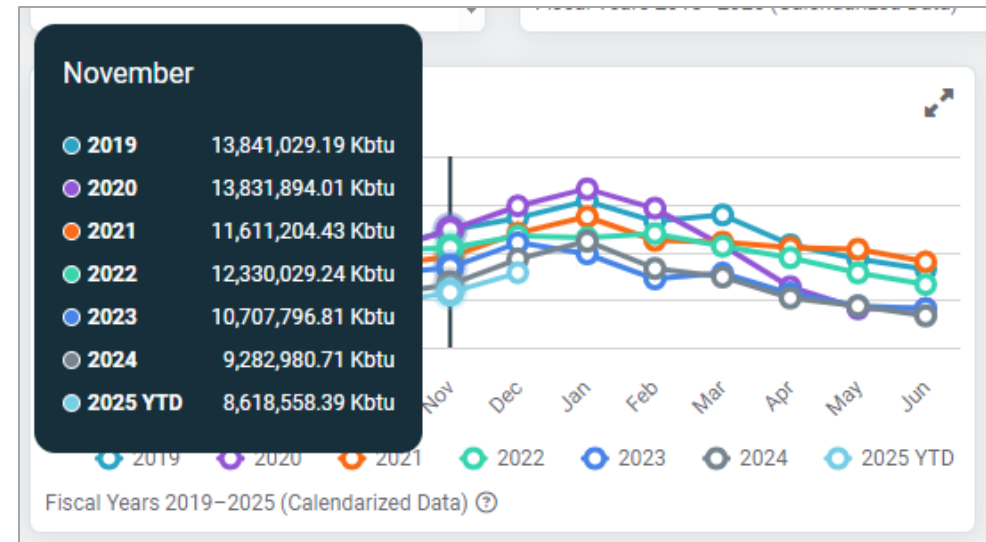
Spring Hill Rec Center



- Projects complete at 3 sites; 2 under construction; 1 in design
- Installed the county’s first **geothermal heat pump system** at Spring Hill Rec Center
- Cub Run Rec Center achieved a **60%** energy reduction after heating plant upgrade



Cub Run Rec Center

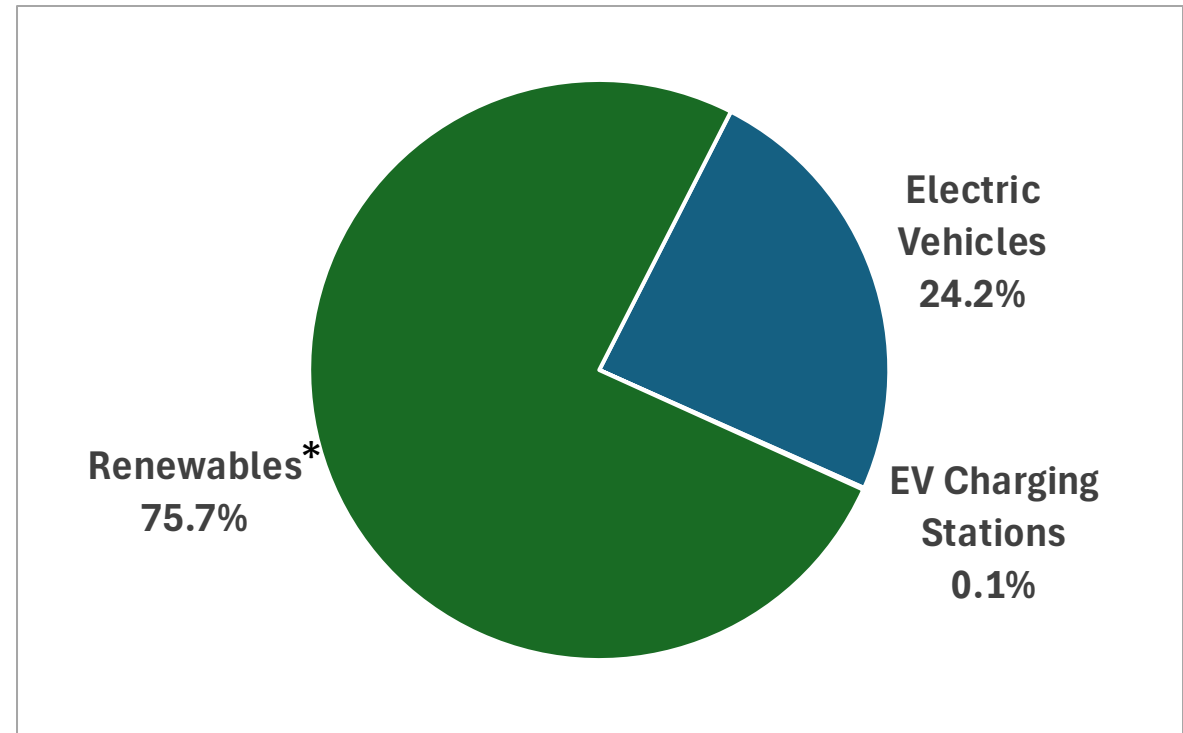


Rec Center Performance Data

Partnerships – 2022 IRA Tax Credits

- Clean energy tax credits available to non-taxpaying entities for the first time
- Significant coordination required to compile necessary documentation
- Fairfax County Government claimed more than \$2M in credits for FY 2024
- Credits come from:
 - 1 geothermal heat pump system
 - 5 solar photovoltaic installations
 - 12 battery-electric buses
 - 4 electric fleet vehicles
 - 8 electric vehicle charging stations

FY 2024 IRA Tax Credit by Category



*Includes geothermal heat pumps

Water Recycling Facility



Noman M. Cole Water Recycling Facility



- Located in Lorton, VA on 400 acres
- Serves more than 400,000 residents in southern Fairfax County
- Processes ~40M gallons of sewage per day
- Provides ~1.5M gallons of water per day to the nearby waste-to-energy facility

Noman M. Cole, Jr. Water Recycling Facility

Noman Cole WRF: 50001 Ready Facility



- ISO 50001 program: a framework for developing and implementing an organization energy management system
- U.S. Department of Energy's 50001 Ready program: a self-attestation of implementation
- Noman Cole WRF achieved 50001 Ready in 2022
- Assembled a diverse team to implement the framework
 - Composed of operations, maintenance, engineering, and IT
 - Annually meet to brainstorm and plan for the year; check in bi-weekly on ongoing efforts
 - Semi-annual management reviews to gain buy-in
- Use the U.S. DOE 50001 Ready Navigator to identify, complete, and monitor tasks
- Created an energy model to track energy use against

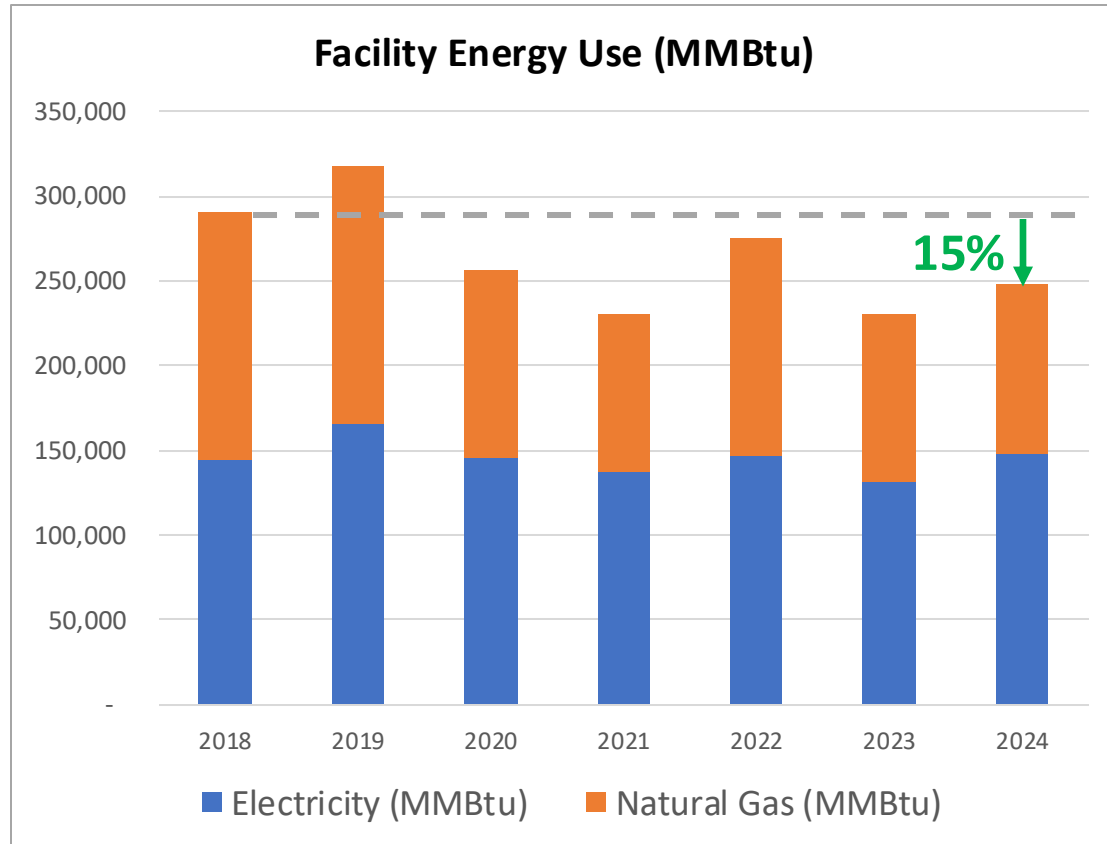
Noman Cole WRF: Successful Projects

- Moving Bed Biological Reactor
 - Upgraded to more energy efficient mixers
 - Replaced a blower with a more efficient option
- Identified aeration as a high energy process; reduced dissolved oxygen to reduce energy use
- Reduced temperature of a standby incinerator which reduced energy use

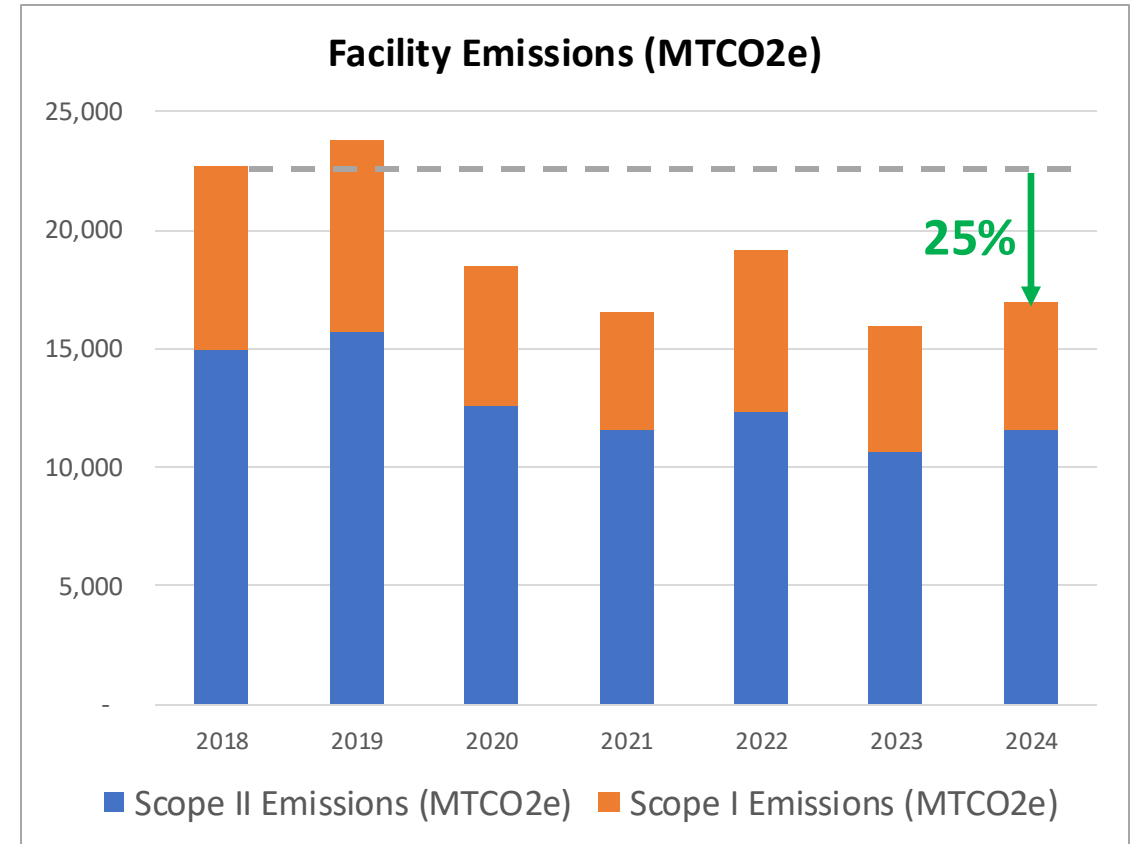


Moving Bed Biofilm Reactor at the Noman Cole Water Recycling Facility

Noman Cole WRF: Overall Impact



15% Energy Reduction



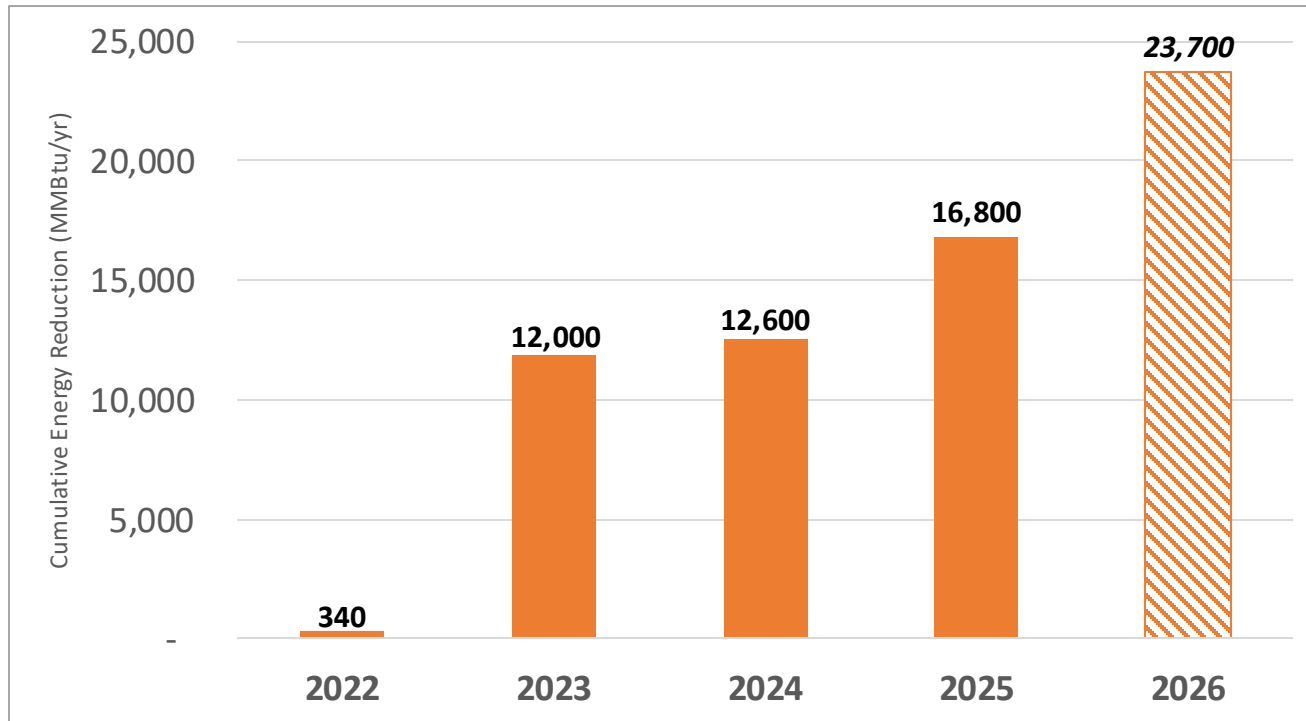
25% GHG Emissions Reduction

Results Achieved



Results: ESPC Retrofits Completed & Planned

Cumulative Annual Energy Reductions Implemented (MMBtu/yr) – ESPC Projects



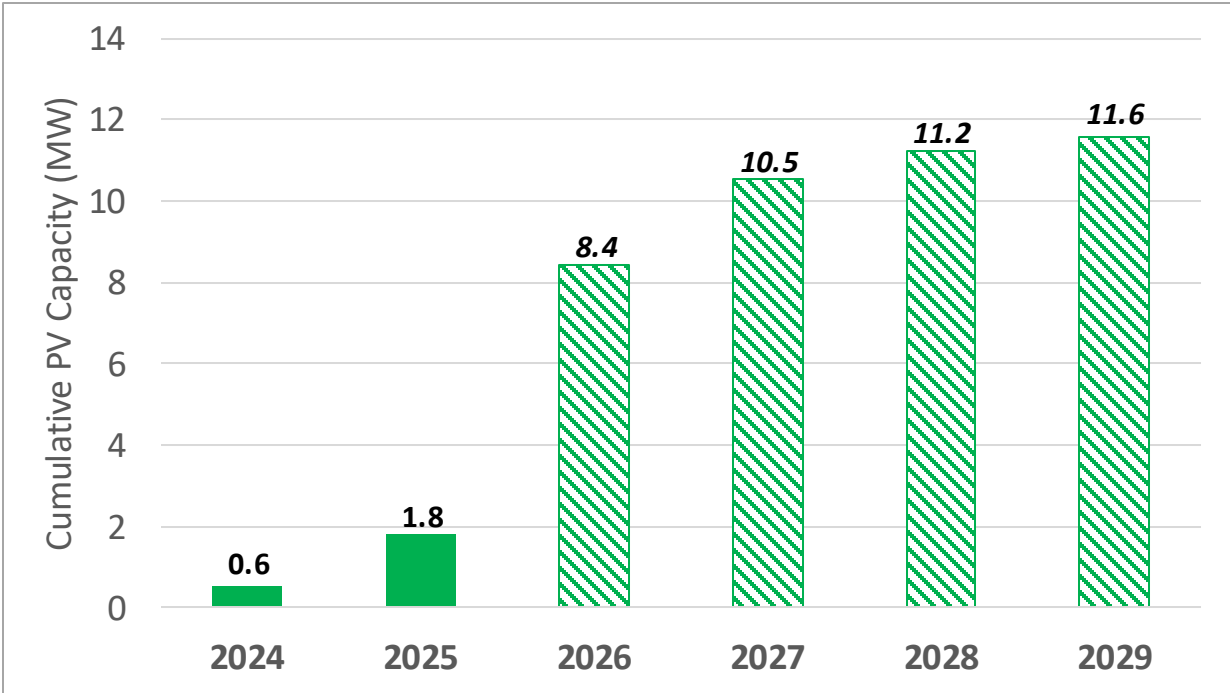
Implemented Projected



Reston Community Center Heating System Upgrade

Results: Solar Projects Completed & Planned

Cumulative Solar Photovoltaic Capacity Installed (MW)



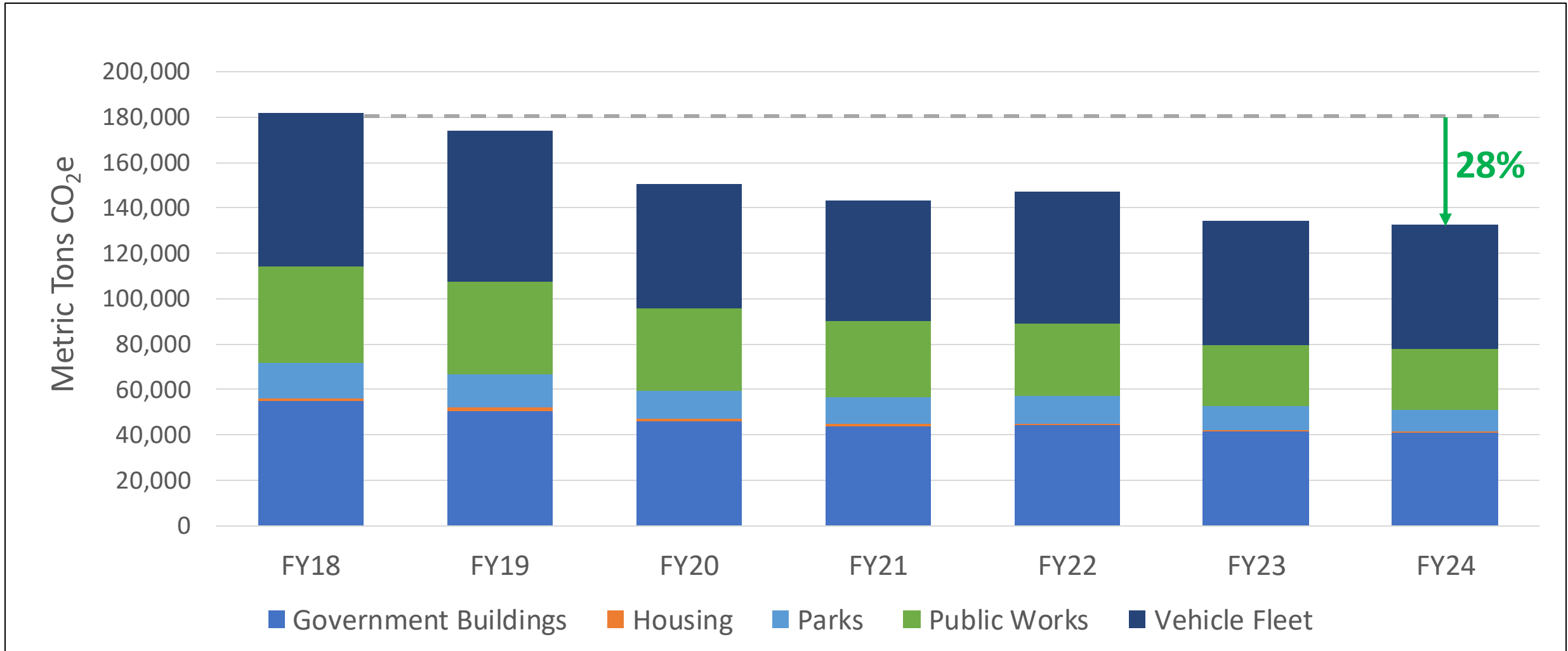
■ Installed

▨ Projected



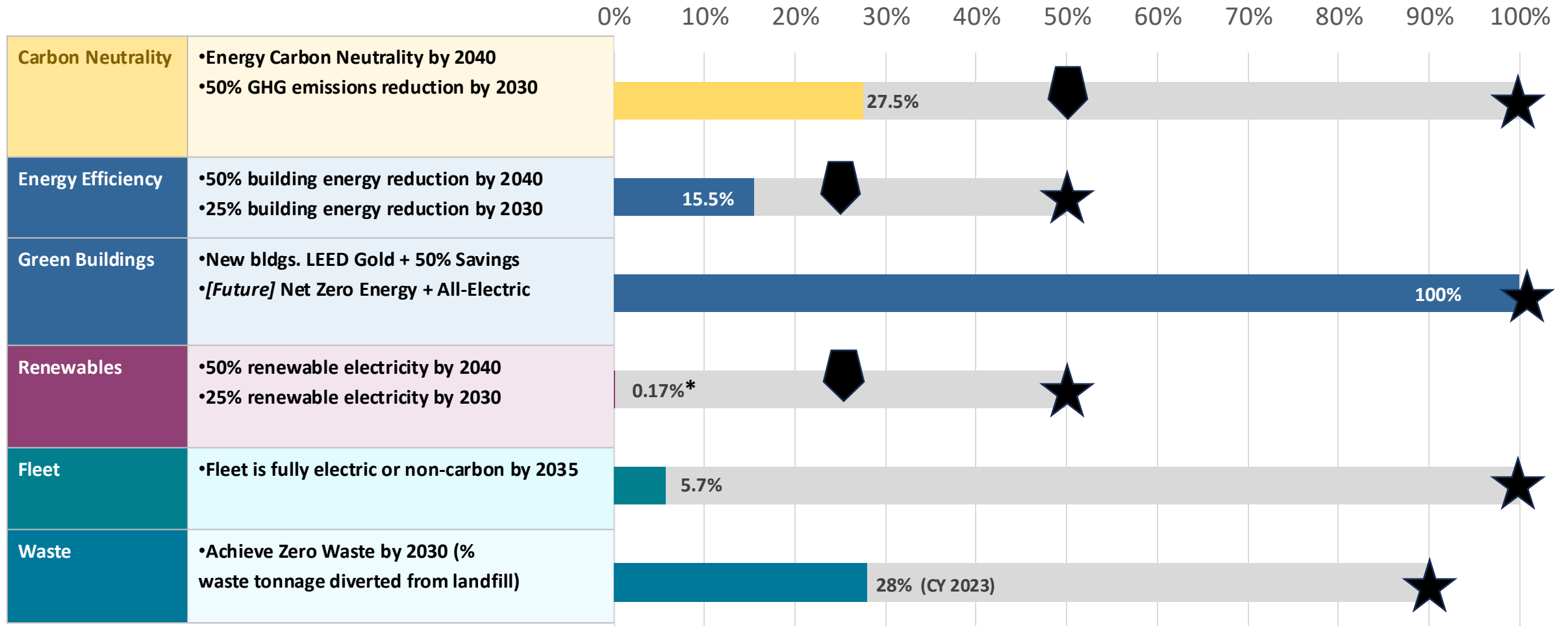
Sully Community Center

Results: Facility GHG Emissions by Agency



28% GHG Emissions Reduction

Results: FY24 Progress Toward OES Targets



*Onsite renewable generation only

Bars = Where we are (FY 2024) ▾ = Interim Goal (FY 2030) ★ = Final Goal (FY 2040)

Questions?

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Jason Grentus

JLG Industries, Inc.

An Oshkosh Corporation Business

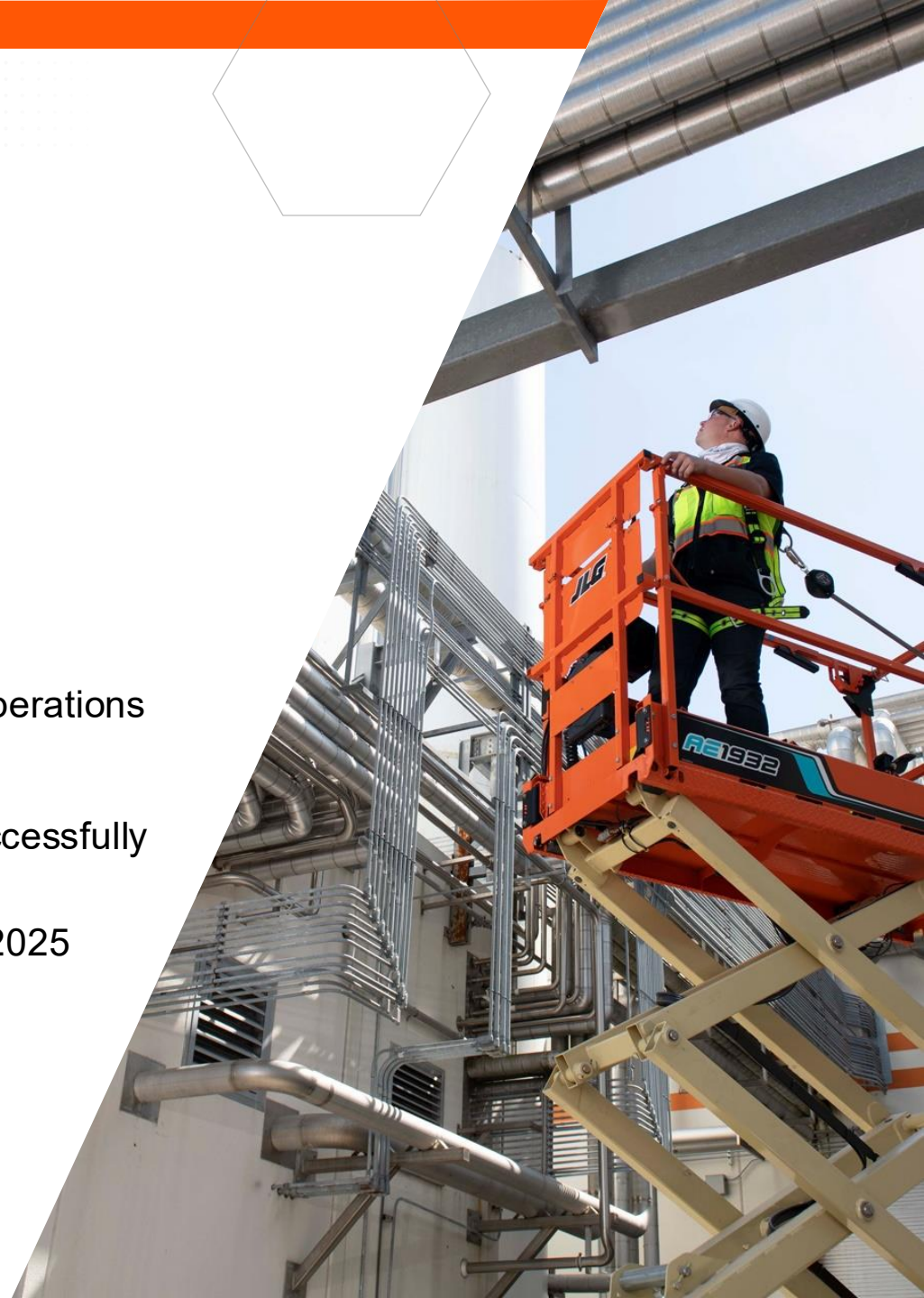


JLG INDUSTRIES, INC

Jason S. Grentus, MBA – Senior Environmental Manager – Global Operations

Department of Energy – Change from Within: How Organizations Successfully Pursued Cost-Effective Priorities

May 2, 2025



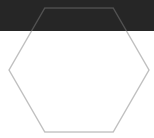
WHO WE ARE

OSHKOSH CORPORATION

Headquarters – Oshkosh, Wisconsin

- Oshkosh Defense – Defense Segment
 - Oshkosh, Wisconsin
- McNeilus – Vocational Segment
 - Dodge Center, Minnesota
- Pierce – Vocational Segment
 - Appleton, Wisconsin
- JLG/Jerr-Dan – Access Segment
 - Hagerstown, Maryland
- Pratt-Miller – Engineering & Product Development
 - New Hudson, Michigan
- AeroTech – Vocational Segment
 - Orlando, Florida





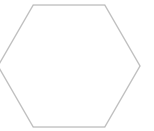
WHERE WE ARE

- Barcelona, Spain
- Leicester, U.K.
- Tonneins, France
- Verona, Italy



- Tianjin, China

- Port Macquarie, Australia



- Hagerstown, MD (HQ)
- McConnellsburg, PA
 - 1 JLG Drive
 - 221 Success Drive
 - 253 Success Drive
- Greencastle, PA
 - Molly Pitcher Highway
 - Jerr-Dan MPH
 - Hykes Road
- Shippensburg, PA
- Bedford, PA
 - Weber Lane
 - Sunnyside Road
- Jefferson City, TN
- Leon, Mexico



ACCOMPLISHMENTS

ENERGY REDUCTION GOALS (OSHKOSH):

- DOE Better Plants Energy Reduction goal: 25% reduction
 - Achieved in 2022 – 29.8% reduction
- Science Based Targets:
 - Our short-term goal is to cut Scope 1 and 2 emissions by 57.7% and Scope 3 emissions by 32.5% by 2033
 - Looking ahead, we aim to reduce all Scope 1, 2, and 3 emissions by 90% by 2050
 - Baseline year 2021
- Reduction of GHG:
 - 14.5% reduction of GHG emissions intensity in our manufacturing in 2023

50001 READY (JLG):

- Shippensburg, Pennsylvania
 - Achieved in March 2021 through 2025
- 1 JLG Drive, McConnellsburg, Pennsylvania
 - Achieved in May 2022 through 2024
 - Assistance through Pennsylvania State University Technical Assistance Program (PennTAP)
- Molly Pitcher Highway, Greencastle, Pennsylvania
 - Achieved in December 2024
- Sunnyside Road, Bedford, Pennsylvania
 - Expected achievement in fall 2025



STRATEGY / ISSUES

VALUE OF STRATEGY:

- Internal / External Communication:
 - Improved awareness within JLG/Jerr-Dan
 - Quarterly Newsletter, Environmental Boards
 - Improved customer / investor awareness
 - JLG.com, Annual Sustainability Report, JLG Leadership
- Team Member Engagement
 - Energy / Sustainability Training, Facility leadership
- Process Improvement
 - Project Planning (energy use evaluation)
 - Energy Surveys
 - Data Management
 - kWh/MMBTU collection
 - SharePoint
 - Key Performance Indicators
- 3–5-Year Sustainability Strategy

ISSUES:

- Energy Project Funding
 - Completed with Operations
- Time
 - Development, Meetings, Information Gathering
 - Reasonable Timelines
 - Tied to Business or Developmental Goals
- Wanting 100% Perfect
 - Including everything in facility
- Becoming a Salesman
 - Learning the business leaders and how to tell the story
 - Benchmarking
 - Not giving up
- International Manufacturing Facilities
 - Hold to the same “DOE” standard



GAINING SUPPORT / CULTURE

GAINING SUPPORT:

- Show Results:
 - Capitalized on the small wins – build from there
 - Sustainability / Environmental Policy, Newsletter, Environmental Boards
 - Earth Day projects – build awareness
- Gain access to executive meetings:
 - Contribute to meetings on sustainability or environmental issues
 - Name and face recognition
- Sustainability Strategy:
 - Align with executives and operations
 - Develop sustainability budget
 - Align with DOE (free resources)
- (Healthy) Internal Competition
 - Site to be first to complete
 - Signage, newsletter plug, executive recognition

CULTURE:

- Show Results:
 - Lighting Projects – safer workplace
 - HVAC / Compressor upgrades – less maintenance work hours
- Project Assistance:
 - Reward project initiators when items are brought up that include energy savings options
 - Lend expertise for energy assessments and equipment comparisons (Be a project multiplier)
- New Hire Training:
 - Include projects, initiatives, awards, etc. in new hire orientation
 - Set culture expectations early for new team members
- Look Outward:
 - Include achievements in press releases, case studies, website, and/or sustainability reports – tell your story
 - Public documents are a great way for customers, investors, potential new team members to see the company

LESSONS LEARNING / PATH FORWARD

LESSONS LEARNED:

- Build Your Case (Why 50001 Ready):
 - Build business case first, then proceed to Task #1
 - Use the DOE Navigator and complete a Gap Analysis, understand what it will take to complete
 - **Be realistic (time and workload)**
- Data Management
 - Explore ways to make data management easier
 - Online utility management, Analysis on equipment energy usage (data plate and energy survey), Industrial Assessment Centers (free resources), SharePoint, energy project tracking.
- 50001 Ready is a living/breathing process
 - Constantly changing / improving energy performance
 - Does not need to be 100% perfect
 - Focus on the largest energy users first and add as you have time
 - Navigator as a “handrail” – can adjust to fit your business

PATH FORWARD:

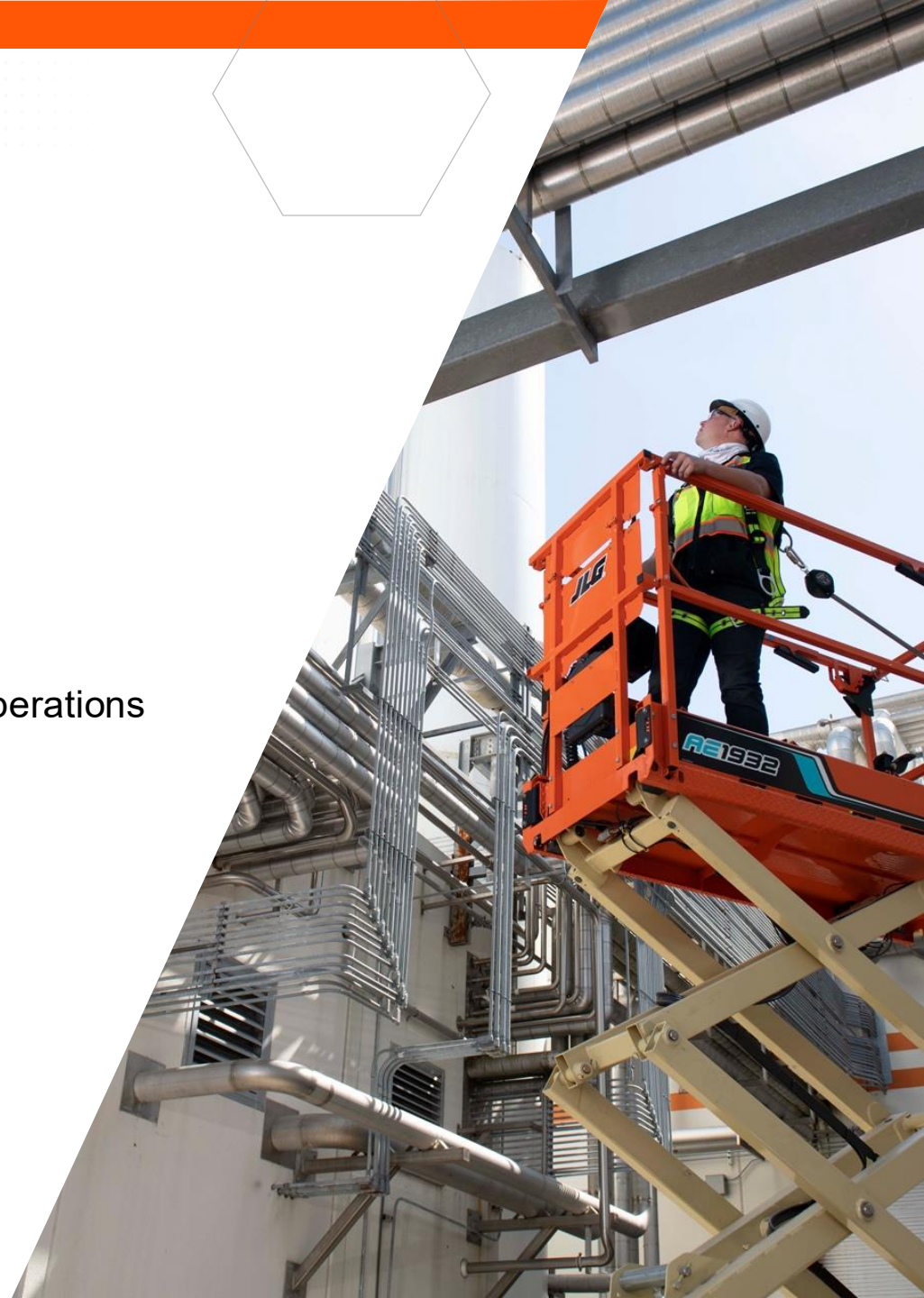
- For JLG – Begin another site per year for 50001 Ready
- Continued refinement of existing 50001 Ready programs
- Adding environmental programs for international sites
 - Tianjin, China – ISO 14001 certified – September 2023
 - Barcelona, Spain – ISO 14001 certified – March 2025
 - Tonneins, France – ISO 14001 planning for 2027
 - Leicester, U.K. – ISO 14001 planning for 2028
- Electrification
- Energy Surveys
- More Solar at Facilities



QUESTIONS

Jason S. Grentus, MBA – Senior Environmental Manager – Global Operations

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Q & A

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