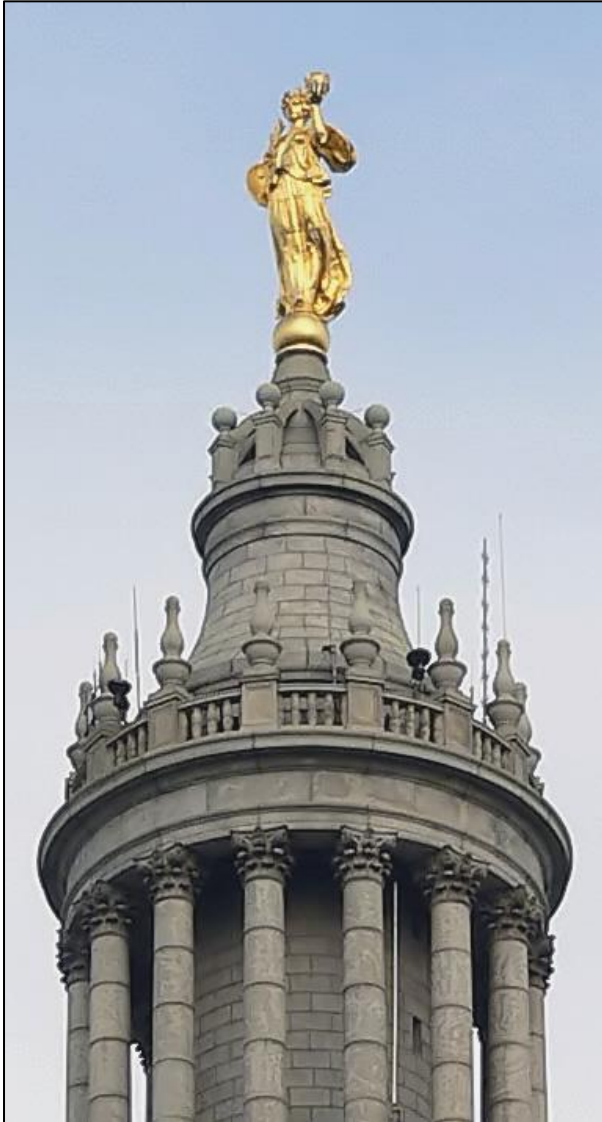


Decarbonization Through Energy Efficiency and Incremental Electrification

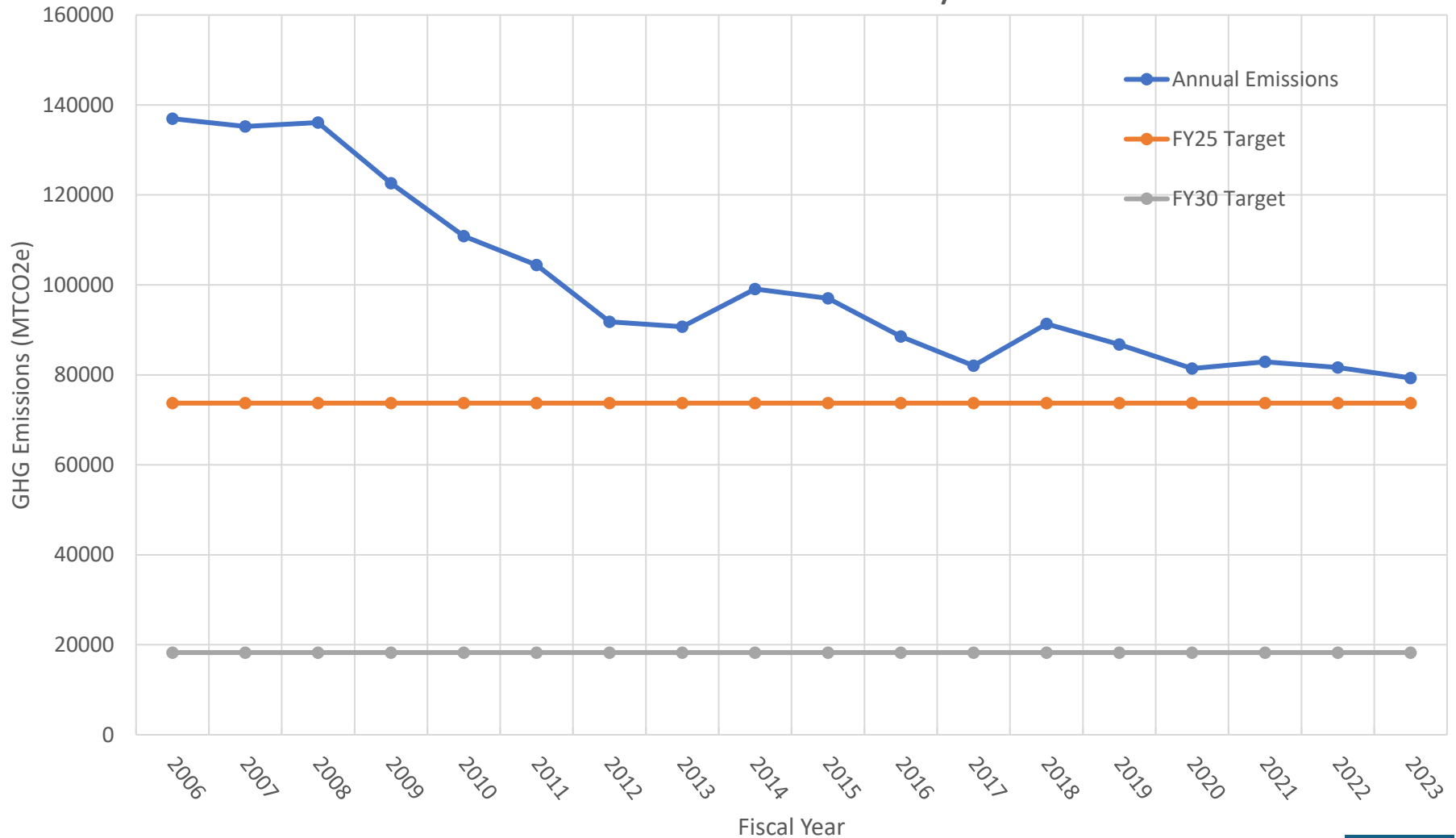
DCAS Background and Building Portfolio



- Manages, operates, and maintains **55 City-owned buildings**
- Over **15 million square feet** mostly occupied by other City entities or the Office of Court Administration
- Portfolio primarily includes **office buildings and courthouses**, maintained by DCAS trades staff
- Provides small-to-medium scale capital project implementation for **base building upgrades and tenant fit-outs**
- **Negotiates leases** in private office space on behalf of City agencies, or **provides space in DCAS managed buildings**

DCAS Emissions Reductions to Date

Annual DCAS Portfolio Emissions by Fiscal Year



Drivers of Emissions Reductions to Date

Emphasis on Building Maintenance

- Mechanical Maintenance and Operations (MMO) team effectively maintains equipment with in-house trades
- FY20 Asset Inventory and Facility Condition Assessments
- In-house retro-commissioning

Innovative and Comprehensive Expense Projects

- In-house implementation of VFDs, motors, small-scale BMS, heat pumps
- Temporary electrician arrangement with Local 3 for lighting projects

Fuel Conversions and Grid Cleaning

- Electricity grid cleaning
- Transitioning from #4 heating oil, and natural gas conversions
- Local Law mandated bio-fuel mixes in heating oil

Emissions Reduction Highlight - AIFCAs



DCAS
10881

Johnson Controls YORK Solution XT

THIS PRODUCT MANUFACTURED FOR INDOOR USE
MODEL # XT1-075N129-KAP017A COM 118752

SERIAL # DATE CODE JOB IDENTIFICATION #
CEWM XT0289 9E-020802-68-01

SEGMENT IDENTIFICATION
(F5)CC0XA-HC0XA-RF0P0

OF SKIDS 5 UNIT TAG# AHU-C-1

SKID 5 of 5
Kings County Criminal Court #

AHU-C-1
Estimated Weight:
H 3,000
pounds

IMPORTANT IMPORTANTE

If this unit is to be stored for more than 6 months prior to startup, the York air handling unit long term storage procedures must be followed. If you have any questions regarding this procedure, please contact your nearest York sales office. Reference form 50.20-NM3

Si la unidad debe almacenarse por más de seis meses antes de su activación, debe aplicarse el procedimiento de almacenamiento a largo plazo para unidades York de procesamiento de aire. En caso de duda con respecto a este procedimiento, se ruega consultar a la oficina de ventas York más cercana. Véase el formulario 50.20-NM3

ETL
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UL
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UL
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- Inventoried **all mechanical, electrical, and plumbing equipment** at all DCAS buildings
- Catalogued **all nameplate information and repair part data**
- ID'd all equipment with **serial numbers** for easy connection to **CMMS**
- Provided **remaining useful life, cost of replacement, and ECM suggestions** for capital planning
- Greatly improved **maintenance process**
- Laid foundation for **advanced capital planning** for long-term LL97 goals

Emissions Reduction Highlight – Trades Training

- Energy efficiency reductions to date largely driven by **in-house projects**
- DCAS trades training facility with **real-world applications** for energy efficiency work
- Motor upgrades, VFDs, controls enhancements for pumping and ventilation systems
- Installation of **new, open-protocol BMS systems**
- **Small-scale electrification** through installation of split-systems, VRF, HWHPs



Emissions Reduction Highlight – Innovative Expense Projects

- **Small-scale VRF** pilots
 - Bronx Neighborhood Building
 - Long Island City Courthouse
- Using vendor layouts / schematics, **in-house labor**
- **Training in-house trades** for pipe brazing, controls
- In-house trades installed **small heat pump RTUs** with vendor assistance
- Maintaining original heating systems for backup heat
- **HPWH** in smaller-load buildings



Drivers of Planned Emissions Reductions

Expedited Expense Project Delivery with Trades Staff and Training

- Emphasis on increased lighting work, VFDs, BMS, and HVAC balancing
- Seeking additional union electricians and controls technicians

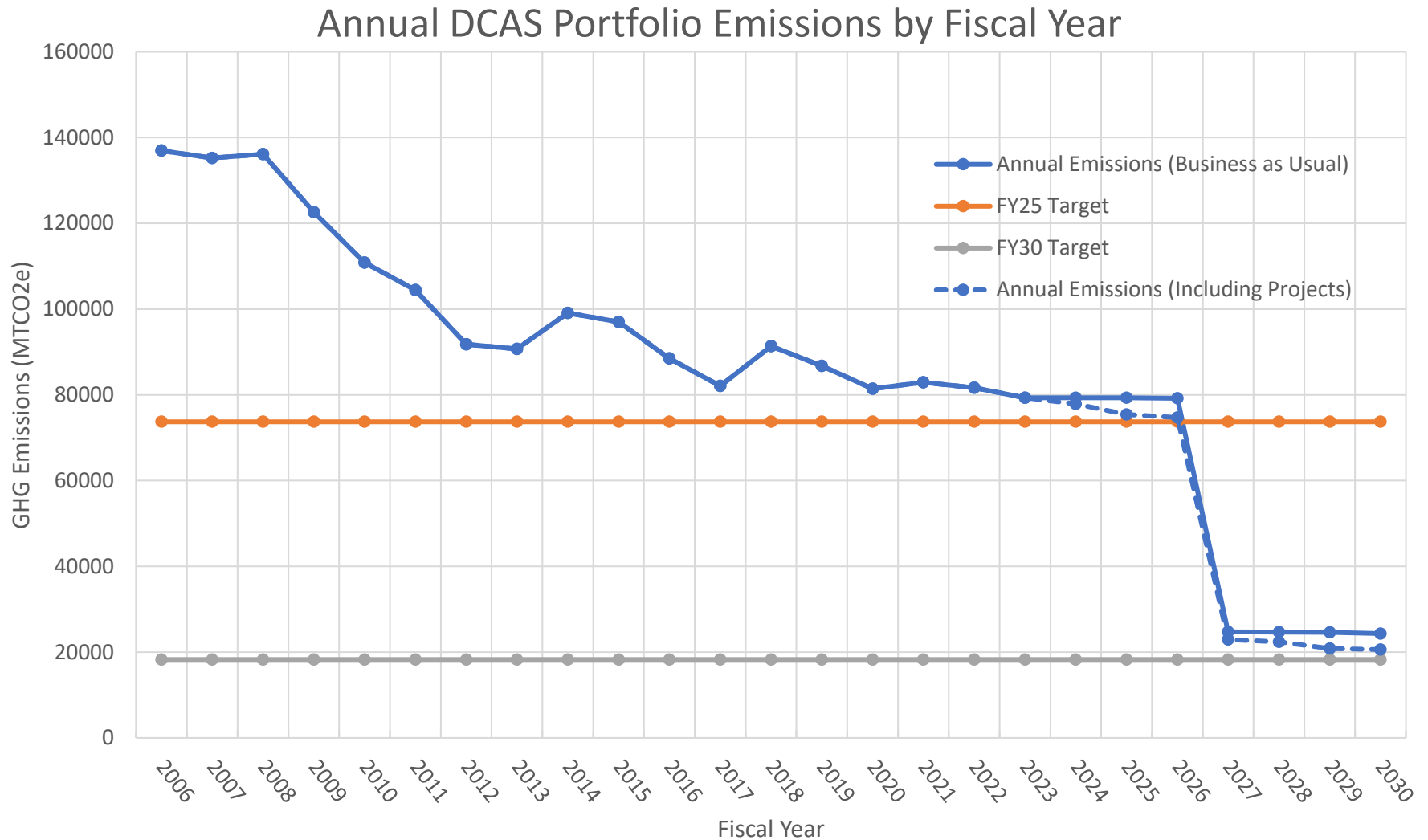
Local Law 88 and 30 Mandated Lighting Work

- Requires lighting be brought up to code in all covered buildings
- DEM support with direct-install lighting program

Legacy Building Management System Servicing and ASHRAE Guideline 36

- Utilizing DEM's BMS service contracts to bring legacy systems to state of good repair
- While performing service contract work, will look to upgrade sequences of operations with ASHRAE 36 guidance
- Also planning to perform testing and balancing at worst performing buildings

DCAS APM Emissions Reductions w/ Current Projects



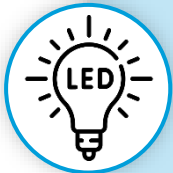
Drivers of Emissions Reductions Opportunities



Expanded HVAC Balancing Post-Covid Building Operation



Building Electrification & Distributed Energy Resources



Direct Install Lighting Program



New Open-Source Building Management Systems



Large Scale Renewable Procurement



Carbon Capital Budgeting and the Green Capital Building Program



THANK
YOU

DCAS

NYC
DCAS
Citywide Administrative
Services