

# Annual Energy Team Meeting 2011

2 Washington Street  
October 26, 2011

**NYC** Citywide Administrative Services | Energy Management

**planNYC**



# What have we all been up to in the past year?

**2,730** buildings benchmarked

**120**

building retrofits completed since 2008

**51.4%**

City buildings performing **at or better** than national average

**433** **125**

electric & alternative fuel vehicles in FY11

meters installed at **48** buildings

**136** audits

completed or underway

**92** boiler tune-ups & repairs

**223** followers on **Twitter**

**WOW!**

**10,143** municipal utility accounts in **EC3**

**133** friends on **facebook**



**KICK OFF EVENT**  
 FRIDAY, MARCH 18, 2011  
 9:30AM  
 SEGAL THEATRE



**We are**  
 NYC ENERGY TEAM



# DCAS Energy Management is your partner towards reaching **the City's common goal**

## MISSION

To serve as the hub for energy management of City government operations

## GOALS & OBJECTIVES

### Long-Term Goals

- Ensure clean, reliable energy for City operations
  - Reduce greenhouse gas emissions of operations
- 

### Short-Term Objectives

- Continue to scale up number and quality of projects
- Motivate and support agencies in changing behavior
- Improve quality and usage of building and energy data
- Manage energy contracts and accounts to ensure best value for NYC

# We provide Energy Management resources for your use

## Data

- Benchmarking
- SEPTS
- EC3

## O&M tools

- O&M Plan
- Energy Managers
- Training
- Metering & monitoring

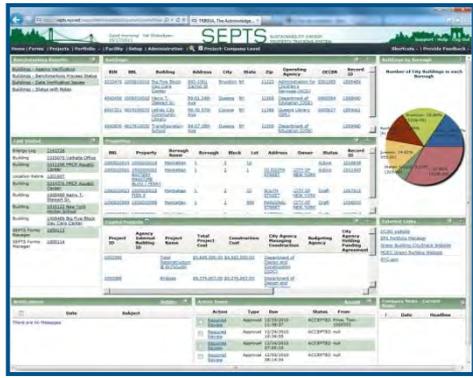
## Outreach

- Website/ Social Media
- Guidelines
- Newsletters
- Awareness materials

## Budget & Management

- Energy efficiency audits and retrofits
- Administration of grant awards
- Non-building emissions reductions

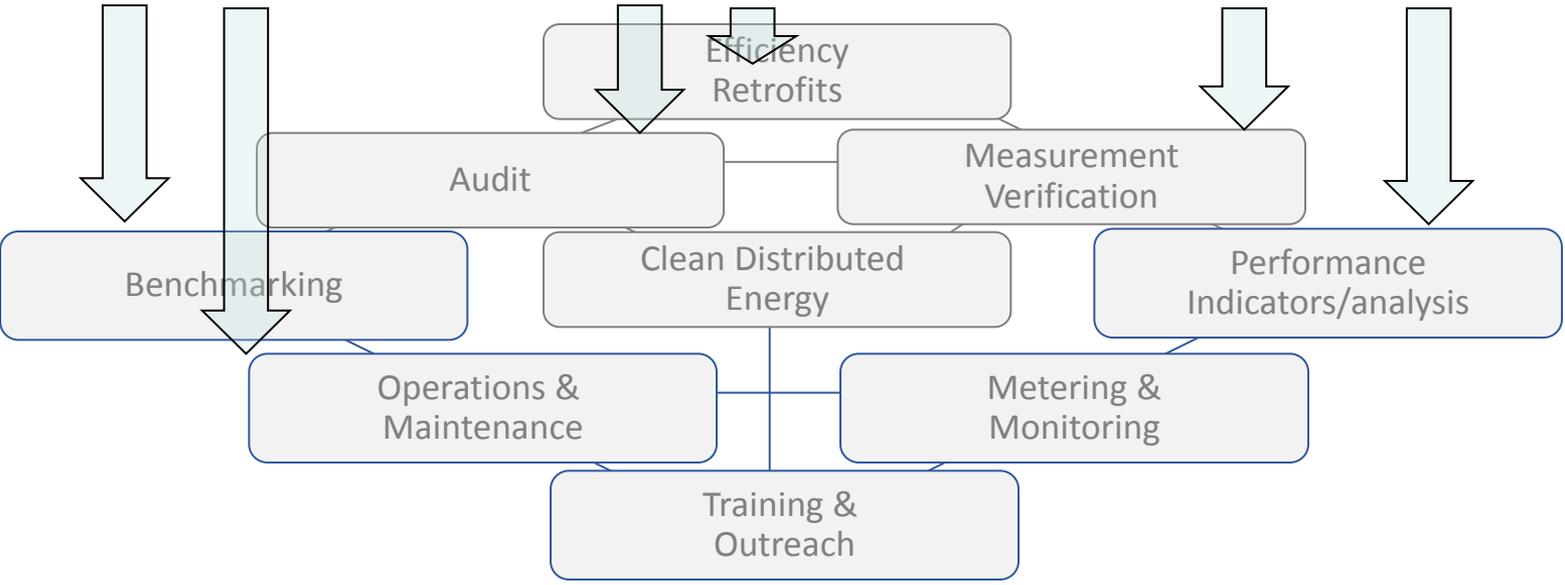
# Data tools help you to track and analyze energy use



**Portfolio Manager**

**SEPTS**

**EC3**



# Energy benchmarking helps us to prioritize capital investments going forward

## ENERGY BENCHMARKING REPORT

for  
New York City Municipal Buildings

October 2011



**NYC** Citywide  
Administrative  
Services | Energy  
Management

**planNYC**

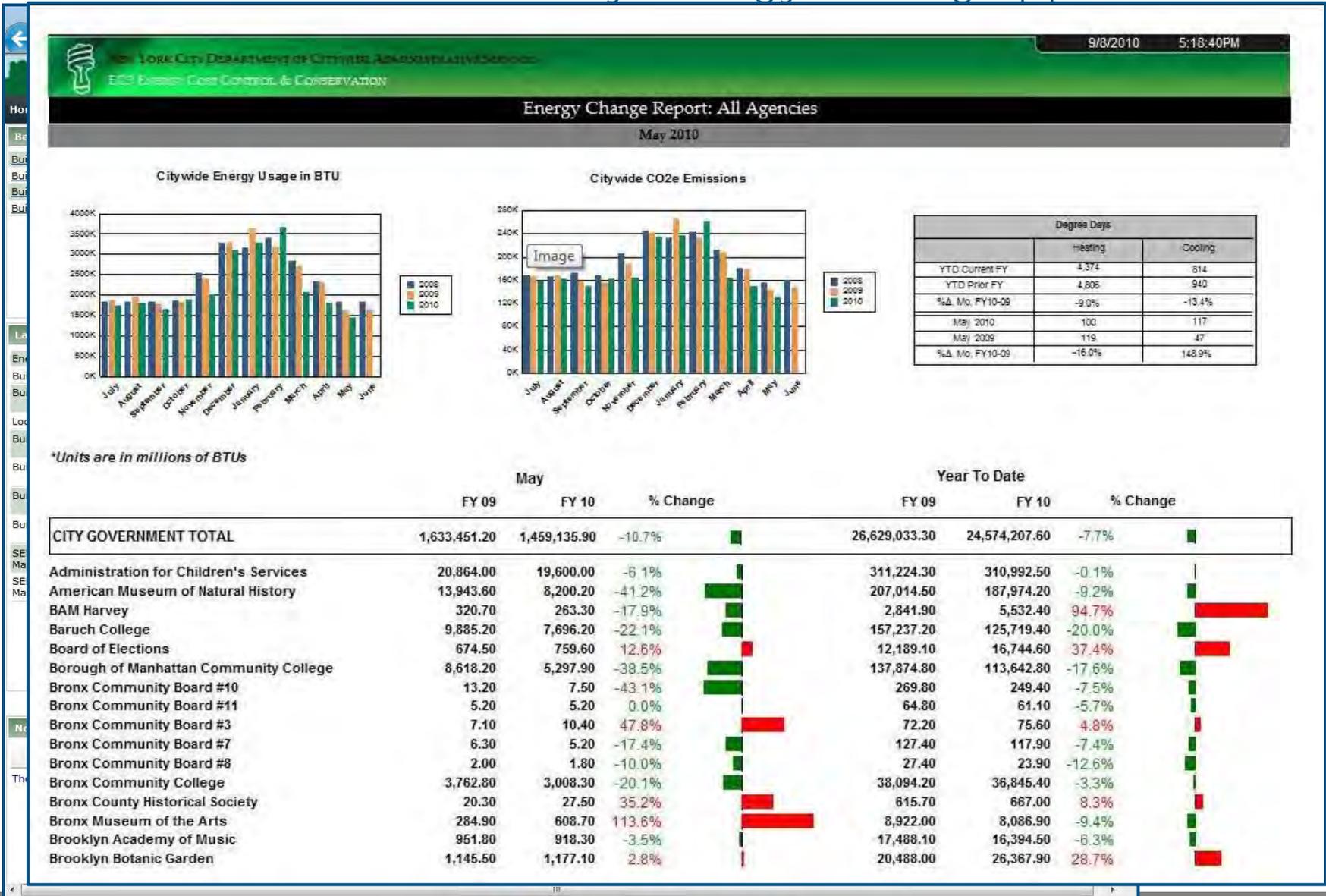
### What we've learned

- 51.4% of buildings at or better than national average
- 2,730 buildings
- 260.6 million square feet managed by 28 agencies

### Next Steps

- Prioritize audits & retrofits for buildings >50,000 sq ft (LL87)
- Small building RFP
- Continue to improve data and refine results

# SEPTS and EC3 help you to better understand your agency's capital resources and identify energy-saving opportunities



# The Energy Efficiency Operations & Maintenance Plan lays out a clear path towards no and low cost energy savings



Type of Work	# of Buildings
Control System Repairs	5
Pipe Insulation	7
Boiler Efficiency Tune up	87
Steam trap replacement	10
Light sensor installation	64
Weatherization	10

# Implementation of the City's O&M Plan is being supported

by Energy Managers at the large agencies

DCAS: Joseph Didesidero

DOE: Lily Shames

DOC: Blake Boyer

FDNY: Tarek Khalil

NYPD: Jay Rahhali

DPR: Vanessa DeVillez

DSNY: Donald Porter

# WELCOME!

# Training is a tool with limitless return on investment



Program	Completed
Building Operator Certification Level 1	97
Building Operator Certification Level 2	32
Building Operator Certification for Custodial Engineers	1,005*
Certified Energy Manager	117
<b>Total</b>	<b>1,250</b>
* Projected completion by end of 2012	

# Outreach materials support you in raising awareness among building occupants

facebook

Sign Up Facebook helps you connect and share with the people in your life.

EnergyNYC Like

Government Organization · New York, New York

Wall

EnergyNYC Shout-out to Parks employee Lillian R. for setting an example for her co-workers by switching off lights and her computer monitor and unplugging electronic chargers at the end of the work day. She's saving electricity and saving money that can be used for other essential City services. Green Thumbs Up for Lillian!

Green Thumbs Up!

COLLECT AND REDEEM FOR PRIZES

Wall Photos

EnergyNYC We're about to start a series of efficiency up Commission (TLC) Woodside repair & mainten will include lighting, sensors and HVAC improv

It's **HOT** today!

High temperatures and expected high energy demand means that today is a **Peak Load Management Day**.

To conserve energy and avoid a blackout our building staff will be:

- turning off unnecessary overhead lighting
- reducing elevator service
- increasing space temperatures

portable for everybody, you should:

equipment when not in use

free makers or cell phone chargers

NYC's Peak Load Management (PLM) program, de-  
ment power outages. Under the PLM pro-

Posters and Kill-a-Watt meters available at the end of the meeting

twitter

energyNYC

@energy\_NYC New York, New York

The Division of Energy Management (DEM) manages the energy accounts and energy efficiency initiatives for the City of New York.

http://www.nyc.gov/energy-conservation

Tweets

energy\_NYC energyNYC Shout-out to @Parks employee Lillian R. for saving energy at work by switching lights off at the end of the day. Green Thumbs Up! 1 hour ago

energy\_NYC energyNYC Upcoming efficiency upgrades @NYC\_Taxi\_Limo Woodside maintenance facility will reduce energy costs by \$32k/yr and GHG emissions by 250k mt 5 Oct

energy\_NYC energyNYC October is Energy Awareness Month! @ENERGY explains how to Turn Words into Action; Turn Action into Results 1.usa.gov/qkkgU 4 Oct

NYC\_Buildings NYC Buildings by energy\_NYC Don't forget to sign-up for the Energy Code Training we are holding tomorrow w/ @cooperunion bit.ly/p6uf3l. 3 Oct

energy\_NYC energyNYC Saving energy on Staten Island at 2 Sanitation garages - new

LEAVING?  
**SWITCH IT OFF.**

THANKS

green



energyNYC



energy\_NYC

# Seasonal announcements and reminders help you avoid fees and lower your agency's costs

## NYC Heating Season Guidelines 2011-12

### FOR ALL BUILDING OCCUPANTS

Five simple steps to conserve energy while remaining comfortable at your workplace:

1. Open blinds, shades, and drapes during daylight hours in order to take advantage of natural light and heat provided by the sun.
2. Arrange desks, chairs and work stations away from windows and outside walls to avoid cold drafts.
3. Keep radiators and hot-air registers clear and free of obstructions such as books, files, or plants.
4. Make sure that window air conditioners are properly sealed.
5. Do not use supplementary heating equipment such as electric or kerosene space heaters; these are fire hazards and are absolutely prohibited.

### FOR FACILITY MANAGERS

During the heating season, managers of City facilities must follow these guidelines:

1. Building temperatures are to be maintained at no higher than 68 degrees F when heating systems are on. *The City Health Code allows for daytime temperatures of up to 72 degrees in schools and daycare centers; the Building Code allows for settings of 70 degrees in hospitals.*
2. Clean and adjust boilers for maximum efficiency.
3. Maintain automatic temperature control systems. Make sure heat timers are working properly, where applicable.
4. Supplementary heating equipment such as electric or kerosene space heaters are absolutely prohibited in all City facilities.

**Reminder to facilities with dual fuel boilers and interruptible gas service:** Make sure your oil tanks are filled. **NOTE:** Failure to comply with utility company regulations for dual fuel services will result in severe financial penalties and possibly loss of dual fuel service classification.

**Reminder to facilities heated with steam:** Do regular steam trap maintenance.

For more information, see this user-friendly 7-page resource from the US Department of Energy on **Actions You Can Take to Reduce Heating Costs:**  
[http://www1.eere.energy.gov/femp/pdfs/om\\_combustion.pdf](http://www1.eere.energy.gov/femp/pdfs/om_combustion.pdf).

These provisions are to be implemented consistent with the Health Code. City buildings and spaces which have been exempted from these requirements will continue to be exempt.

Please contact the DCAS Energy Management at (212) 669-2568 with any questions or visit our website at [www.nyc.gov/energy-conservation](http://www.nyc.gov/energy-conservation).

## 2011-2012 Interruptible (Dual Fuel) Reminder

Agencies with facilities that have interruptible (natural gas) heating: it is time to prepare burners, fuel supply, and switching equipment.

- Check dual fuel burners to ensure ability to switch to alternate fuel when the utility company requests a switch.
- Fill your facility's oil tanks before the cold weather required.
- Submit any information requested by the utility company, including an affidavit attesting that there is adequate supply of alternate fuel, that the equipment for using the alternate fuel is in good working order, and that the customer has read and understands the customer obligations and consequences of failing to meet alternate fuel requirements.)
- Participate in any and all tests. **A test failure is counted as a violation.**
  - Con Edison test date (limited to accounts that switch by notification) is late October, with 4-6 hours notification.
  - NGrid test date (applies to all accounts) is early December; exact day to be announced.
- Be sure that facility personnel have the necessary utility contact information, and, **in the event of a failure to interrupt, notify the utility company and DCAS Energy Management immediately.** The utility must be notified of this failure within one hour of its occurrence, and repairs must be made within 48 hours. (The utility may grant an extension of up to seven days if a necessary part is not available.) **A financial penalty (9 times the cost of gas) can be charged until the violation is corrected.**

### Other information:

- "Two strikes and you're out":** If two violations occur in the heating season, the customer will be transferred to firm service at higher rates for the remainder of the heating season and the next 12 months.
- Only one exception will be allowed, and only for a documented mechanical failure; there is no exception for a lack of alternative fuel.
- Utility contact information
  - Con Edison: Gas interruption hotline, 212 460-3459
  - National Grid: 718-403-3134 (800-930-5003 for facilities in the Far Rockaways)



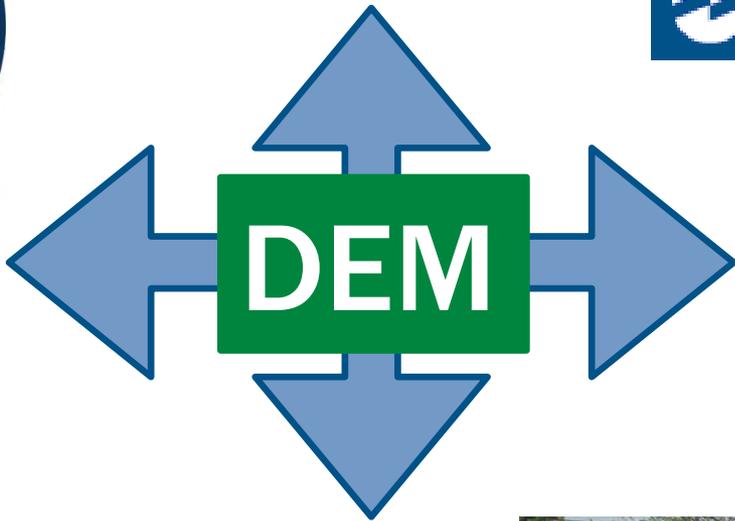
DEM assists you by coordinating several different funding streams with our partners



ARRA/EECBG

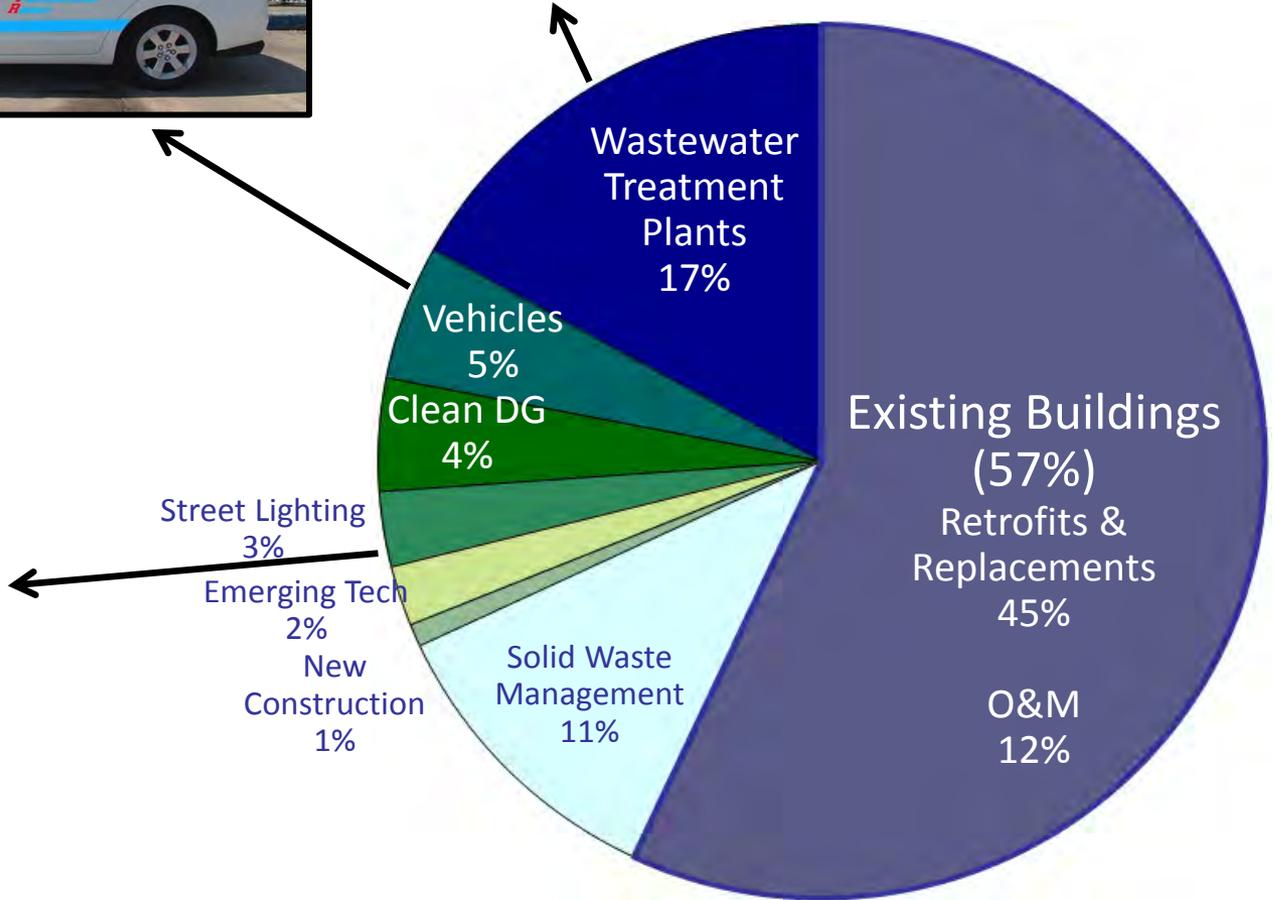


NYPA



CMAQ

# We also help to coordinate emission reductions from non-building sources



# How are agencies using DCAS Energy Management tools?

## Data

- Correction - EC3
- DCAS – benchmarking

## O&M tools

- Fire – O&M Plan
- Sanitation – O&M Planning Application
- Schools - training

- BREAK -

## Budget & Management

- Police - retrofit
- Transportation – fleet

## Outreach

- Parks – outreach

# New York City Department of Correction

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## How DOC is Using EC3 to Improve Energy Management



Energy Management Unit

## Make the most of what you're given

### What do we have?

- 16 electrical accounts
- Most do not represent individual facilities
- Many types of accounts:
  - TOU, Conventional, and High Ten/Low Ten
- Our peak demand fluctuates between approx 23 MW in summer to approx 27 MW in winter
- We consume over 160 million kWh/yr
- We spend approx \$20 million for electricity and \$13 million for natural gas

# What data is available?

EC3 contains more data and generates reports and makes exporting data much faster with Excel

Old HLP reports contained data but required time to extract metrics



Monthly Facility Data [All Parameters]

Agency Department of Correction 072000

			FY 2012		FY 2011		Sep-2010	Oct-2010
			Jul-2011	Aug-2011	Jul-2010	Aug-2010		
0101184	80 Hudson St	Electricity Cost (\$)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
0101184	80 Hudson St	Electricity Demand (KW)	0.00	0.00	0.00	0.00	0.00	0.00
0101184	80 Hudson St						0.00	0.00
0101184	80 Hudson St						0.00	\$0.00
0101184	80 Hudson St						0.00	0.00
0101214	125 White Street [MDC]						\$106,355.24	\$102,556.64
0101214	125 White Street [MDC]						1,688.16	1,513.52
0101214	125 White Street [MDC]						\$37,600.00	\$68,000.00
0101214	125 White Street [MDC]						\$17.00	\$40.00
0101214	125 White Street [MDC]						\$842.41	\$1,135.13
0101214	125 White Street [MDC]						\$107,797.71	\$103,691.78
0101214	125 White Street [MDC]						2,388.54	2,705.98
0201148	1 Halleck St [VCBC]						\$187,001.30	\$121,224.14
0201148	1 Halleck St [VCBC]						2,172.00	1,846.00
0201148	1 Halleck St [VCBC]						\$46,400.00	\$1,079,200.00
0201148	1 Halleck St [VCBC]						\$187,001.30	\$121,224.14
0201148	1 Halleck St [VCBC]						3,980.88	3,683.28
0300783	275 Atlantic Ave [BKO]						\$33,071.73	\$32,214.24
0300783	275 Atlantic Ave [BKO]						492.00	434.00
0300783	275 Atlantic Ave [BKO]						282,400.00	284,000.00
0300783	275 Atlantic Ave [BKO]						22.00	135.00
0300783	275 Atlantic Ave [BKO]						\$48.43	\$167.04
0300783	275 Atlantic Ave [BKO]						\$33,120.16	\$32,381.27
0300783	275 Atlantic Ave [BKO]						866.02	914.53
0400823	15-15 HAZEN ST [GMD]						\$112,279.78	\$72,542.93
0400823	15-15 HAZEN ST [GMD]						1,261.68	1,142.64
0400823	15-15 HAZEN ST [GMD]	Electricity Usage (KWH)	782,800.00	733,600.00	719,600.00	719,600.00	719,600.00	664,400.00
0400823	15-15 HAZEN ST [GMD]	Total Cost (\$)	\$155,902.94	\$135,626.98	\$120,310.33	\$115,282.40	\$112,279.78	\$72,542.93
0400823	15-15 HAZEN ST [GMD]	Total Usage (mmBTUs)	2,671.67	2,503.73	2,455.97	2,455.97	2,455.97	2,267.38
0400824	11-11 HAZEN ST ADOLESC RECPIN DETEN CNTR [RNDC]	Electricity Cost (\$)	\$153,318.87	\$139,088.04	\$128,838.44	\$120,933.81	\$116,067.81	\$76,813.87
0400824	11-11 HAZEN ST ADOLESC RECPIN DETEN CNTR [RNDC]	Electricity Demand (KW)	1,320.00	1,396.32	1,320.00	1,396.00	1,330.00	1,316.00

Energy Change Report: All Facilities

August 2011

Units are actual energy used, in millions of BTUs. See notes at end of report.

OEC ID	Facility	August		Year to Date			
		FY 11	FY 12	FY 11	FY 12		
Department of Correction: (072000)							
0400809	16-16 Hazen St	37,381.2	31,756.7	-15.0%	37,381.2	66,193.4	-50.3%
0401621	19-27 Hazen St	19,265.4	19,239.0	-0.2%	22,198.2	20,160.4	-9.9%
0401684	16-27 Hazen St	4,285.4	4,887.8	11.7%	8,977.6	8,151.4	-2.2%
0301146	1 Halleck St	3,869.1	4,326.0	9.2%	9,084.0	8,832.6	-2.8%
0401166	09-09 HAZEN ST	3,987.2	3,844.4	-3.6%	8,161.2	7,142.7	-12.5%
0401351	16-06 HAZEN ST	3,987.2	3,388.4	-15.2%	6,651.6	7,911.7	17.9%
0101214	125 White Street	3,384.4	3,046.2	-9.5%	6,967.7	6,324.4	-9.4%
0400825	16-18 HAZEN ST	2,898.8	2,983.1	0.1%	6,986.4	6,661.7	-2.1%
0401995	15-19 HAZEN STREET ROSE M. SINGER CENTER	2,496.6	2,484.0	-0.5%	5,156.0	5,444.4	5.6%
0400824	11-11 HAZEN ST ADOLESC RECPIN DETEN CNTR	2,441.0	2,474.8	0.5%	6,260.6	6,542.7	4.6%
0400823	15-15 HAZEN ST CORR INSTITUTION FOR MEN	2,456.0	2,903.0	1.9%	4,922.0	5,175.6	5.4%
0400826	10-18 HAZEN ST CORR INSTITUTION FOR MEN	1,122.2	1,941.3	73.0%	2,738.6	3,060.9	44.3%
0301963	15-27 Hazen St	1,243.3	1,114.0	-10.0%	2,913.3	2,930.7	-0.3%
0301963	275 Atlantic Ave	1,013.6	1,016.9	0.7%	2,148.3	2,150.7	-0.0%
0401482	126-82 82nd Ave	61.9	61.4	-0.4%	81.9	127.0	55.0%
0401684	79-29 Astoria Blvd	44.2	36.7	-16.2%	91.8	87.8	-4.5%
0400844	Hazen St	21.2	26.7	25.4%	49.5	67.0	35.2%

# What can we do with it?

# We Can Leverage the Data to Achieve our Goals

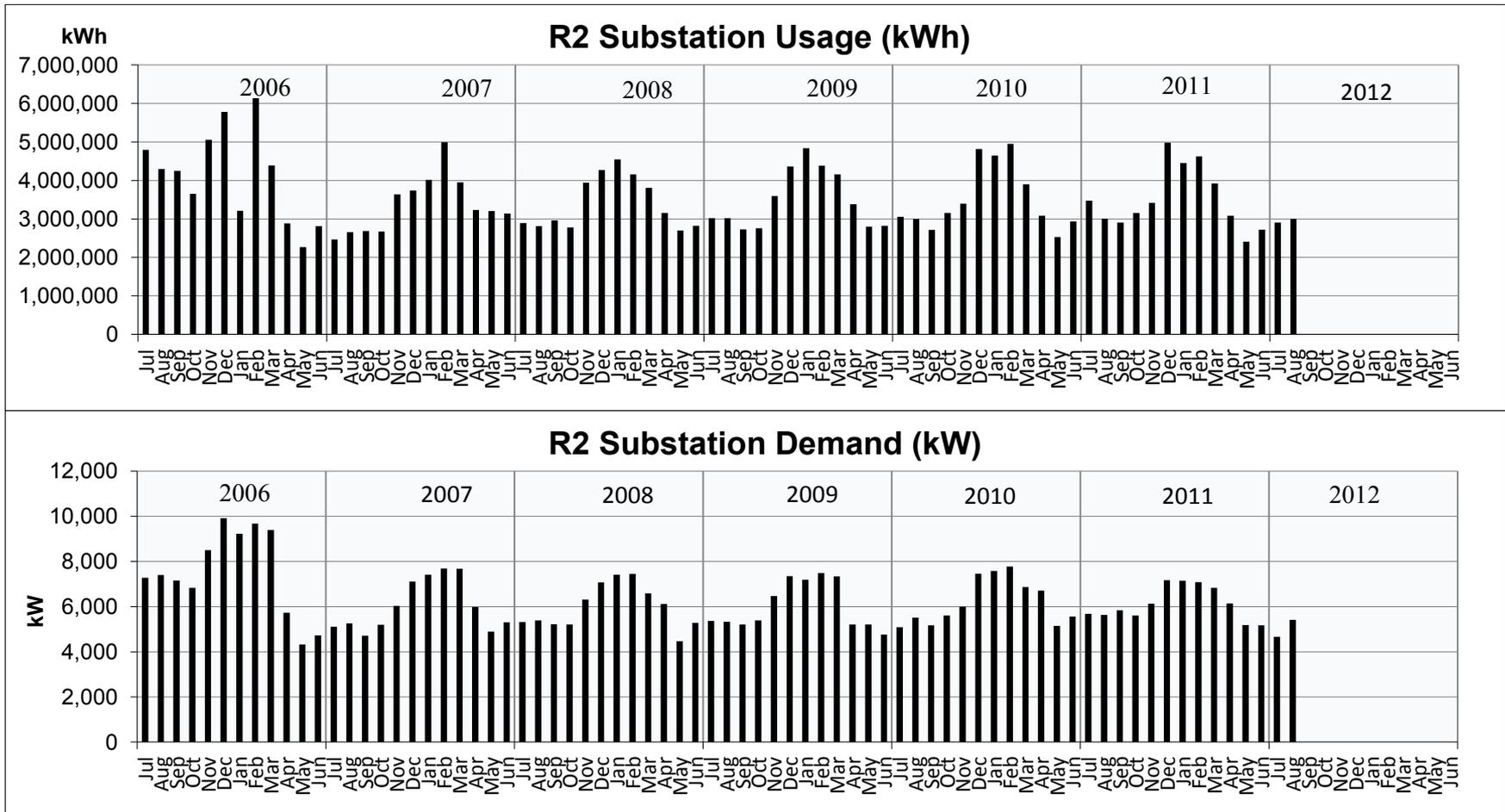
Develop charts that slice and dice data in a variety of ways:

- Show Trends
- Drill Down for Detail
- Identify Saving Opportunities
- Track Use to Budget





# Drill Down as Far as Possible to Locate Savings Opportunities

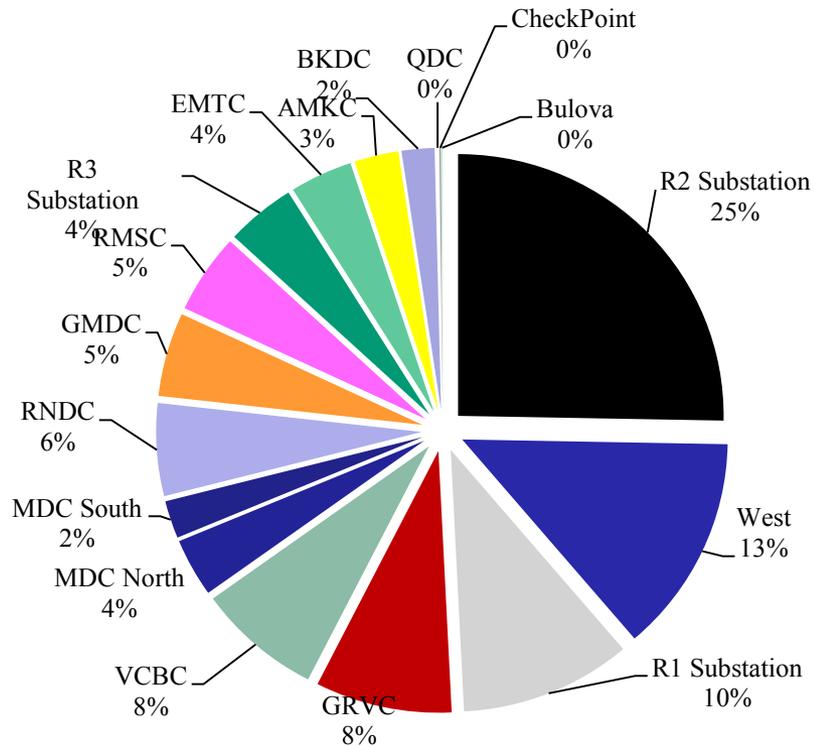


\*\*The following locations are served by this account:

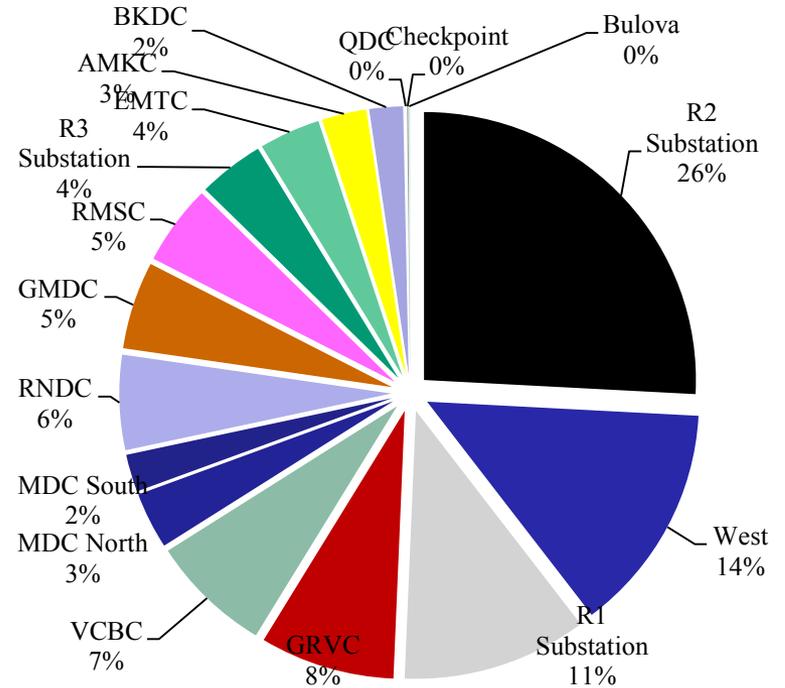
RNDC Mods 2, 4, 10 | RMSC Dorms 17-20 | RNDC Sprungs, MOD 3 | GMDC Servery & MOD 3 | GMDC W. Sprungs | GMDC E. Sprungs & WS | DCJC / OT CTRL | DIV 1 & 2 / OPC | Compost Facility | JATC Equip Rm A | JATC Equip Rm B | JATC Equip Rm C | OBCC 300 Bed Annex | OBCC Kitchen / Locker Rm | OBCC Main Bldg | NIC Aids Mod | NIC Kitchen / Elevator | Telecom / SOD / COD | ASRS N. Pumping Station | OBCC CPSU 500 Bed Annex | Powerhouse | DIV 1 Storehouse

# Determine the Largest Opportunities

## NYC DOC FY2011 Usage by Account

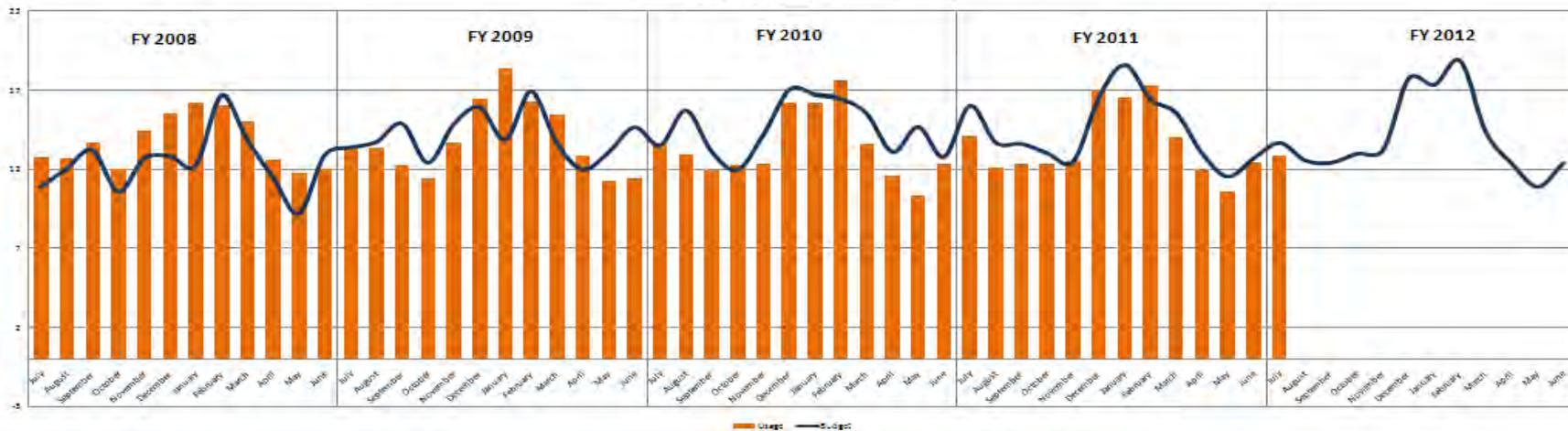


## NYC DOC FY2011 Cost by Account

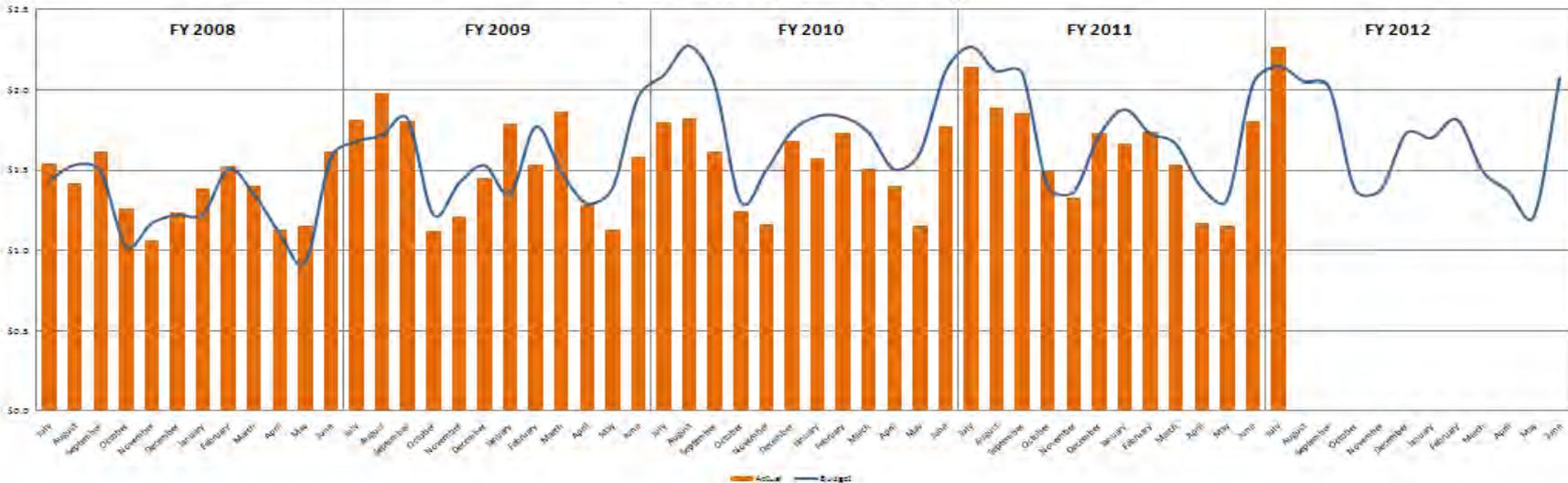


# Track to Budget for Incentive Alignment Program

Actual Usage Vs Budget (million kWh)



Actual Cost vs Budget Analysis (million \$)



# Use the Analysis to Achieve Goals

- Make the case for Incentive Alignment Program
- Provide data for internal energy saving initiatives
- Send monthly report to all stake holders to achieve buy-in
- Other outreach activities

# Metrics Available with EC3

Metric	How to Calculate	How to Interpret
Overall (Blended) \$/kWh	$\frac{\text{Total Electric Cost (\$)}}{\text{Total kWh Used}}$	Measures defined in terms of kWh savings are converted to \$ savings with this factor.
Load Factor	$\frac{\text{Total kWh per month}}{(\text{Days per month} \times 24 \text{ hrs per day}) \times \text{Max kW}}$	<p>Customers with low load factors will almost always have high overall blended \$/kWh, since demand charges can be a greater portion of the total cost.</p> <p>Low load factors are a prompt to suggest ways to level the load – spacing out equipment use to avoid peaks.</p>
Fraction of electric bill that is demand	$\frac{\text{Demand Cost (\$)}}{\text{Total Cost (\$)}}$	<p>Establishes relative importance of demand charges.</p> <p>For example, if demand charges are two thirds of the bill, demand will get more focus than if it is 25% of the bill.</p>

# Metrics we'd like to see in the future

Metric	How to Calculate (Necessary Data)	How to Interpret
Energy Use Index (EUI) in kBtu/SF-yr	$\frac{\text{Total Electric \& Gas kbtu}}{\text{Total Square Footage}}$ <p>(More discrete metering as a result of Smart Meter and or Building Audits)</p>	<p>EUI values are benchmarked for common building uses.</p> <p>Comparisons establish whether usage is acceptable and suggests reasonable targets for improvement.</p>
Difference between on-off peak kWh and/or kW charges	<p>On-peak Charges – Off-Peak Charges</p> <p>(Requires detailed rate structures for each account)</p>	<p>The higher the differential, the greater the incentive to shift loads to off peak.</p> <p>This is a key parameter for economic viability of Thermal Energy Storage</p>
Magnitude of power factor charges	<p>Usually denoted on the bill</p> <p>(Will be made available in the future as accounts incur charge)</p>	<p>Establishes a budget for power factor correction measures.</p> <p>For example, with a 3 year payback hurdle, power factor charges of \$10,000 per year mean that up to \$30,000 in corrective measures would constitute a viable investment.</p>



# Analysis and Reporting is Ongoing

- Make the most of the data at hand
- Each iteration yields new answers and questions
- Make your case and back it up
- Distribute the analysis to interested parties
- Keep at it!

# NYC Government Building Benchmarking

Melissa Wright Ellis

DCAS Energy Management, Chief of Staff

October 26, 2011

**NYC** Citywide Administrative Services | Energy Management

**planNYC**



# Outline

## **Benchmark Effort Overview**

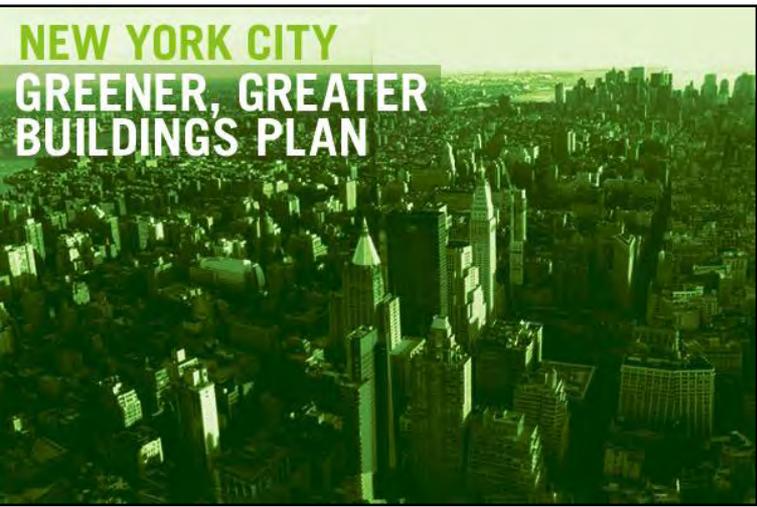
### **Results**

- NYC Government Buildings Performance vs. National Average
- Sample Benchmark Results by Building Type
- Agency-wide Building Energy Performance vs. National Average

## **Role of Benchmarking in 30x17 Strategy**

### **Next Steps**

# Benchmarking effort basics



2009

Mayor Bloomberg signed Greener, Greater Buildings Plan.

2010

DEM completed first annual benchmarking.

2011

DEM published results of second annual benchmarking on DOF website.

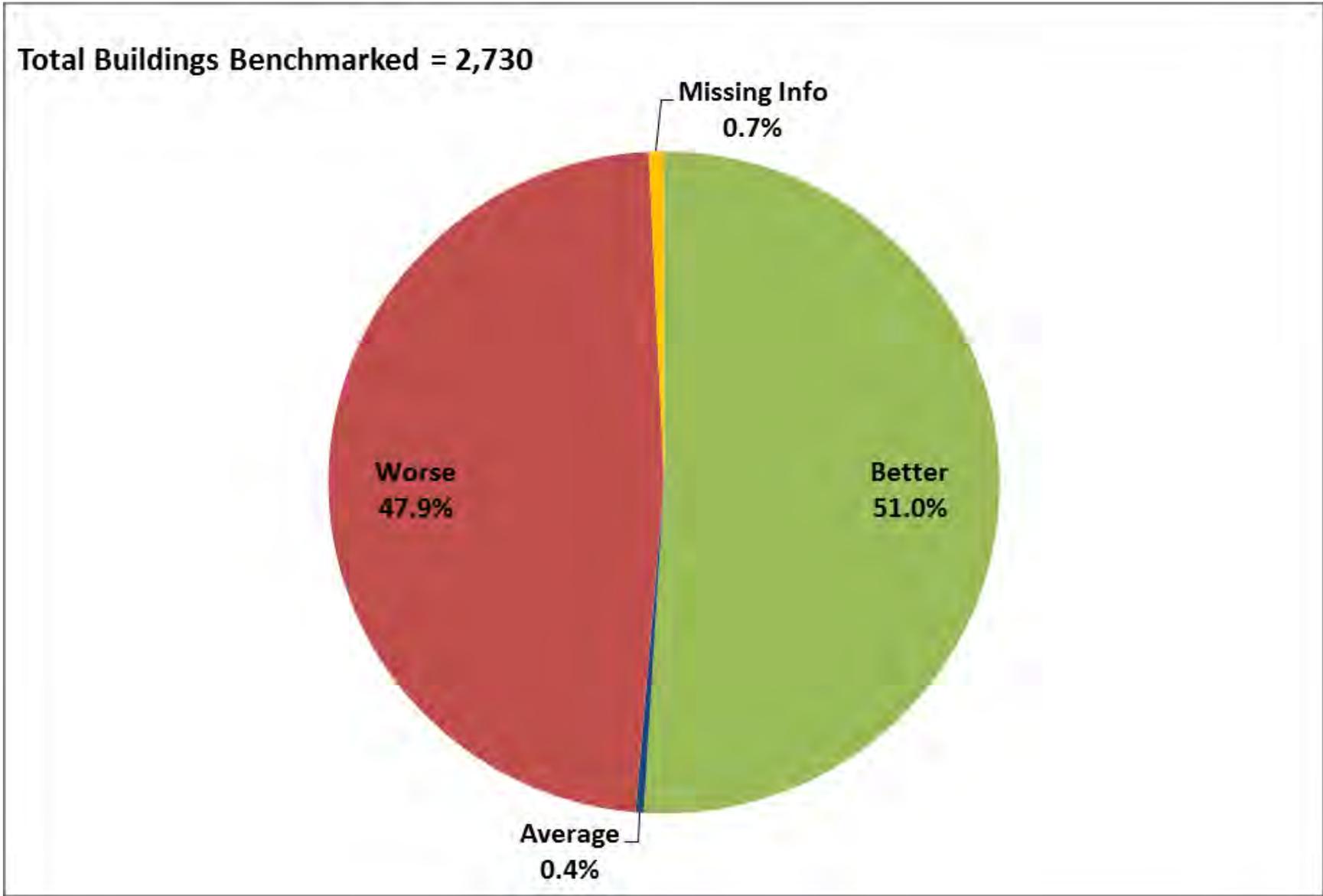
Coming Soon

Analytical report release.

- City has benchmarked 2,730 buildings
- Performed benchmarking using U.S. Environmental Protection Agency's (EPA) Energy Star Portfolio Manager tool
- For eligible facilities, Portfolio Manager rates energy performance on a scale of 1–100



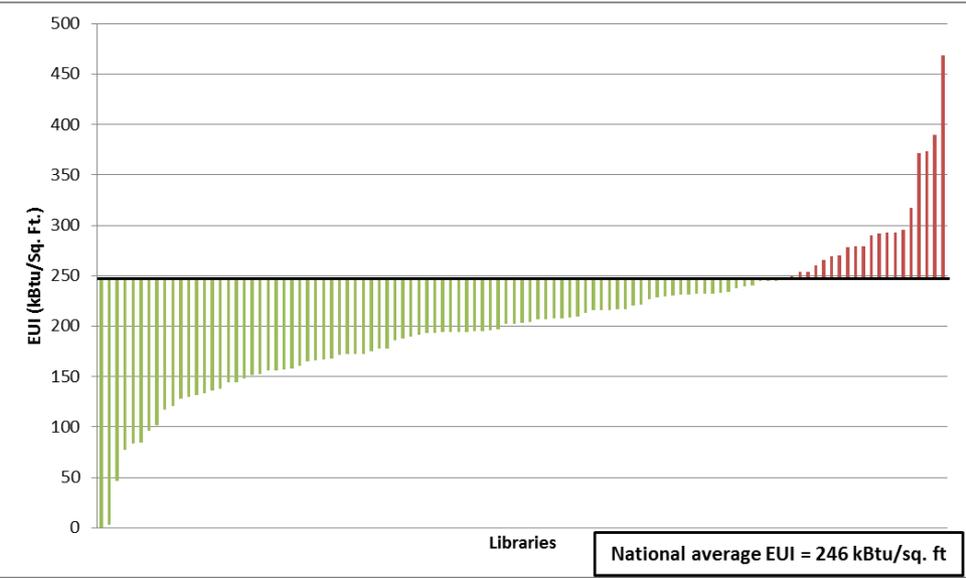
# NYC Government Building Performance vs. National Average (by building or campus), 2010



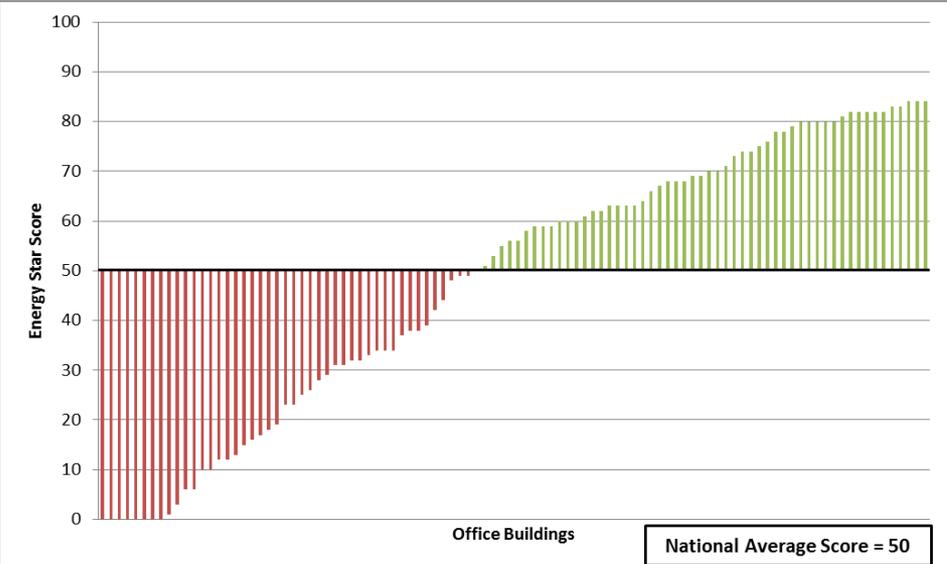
# Samples of 2010 benchmark results by building type



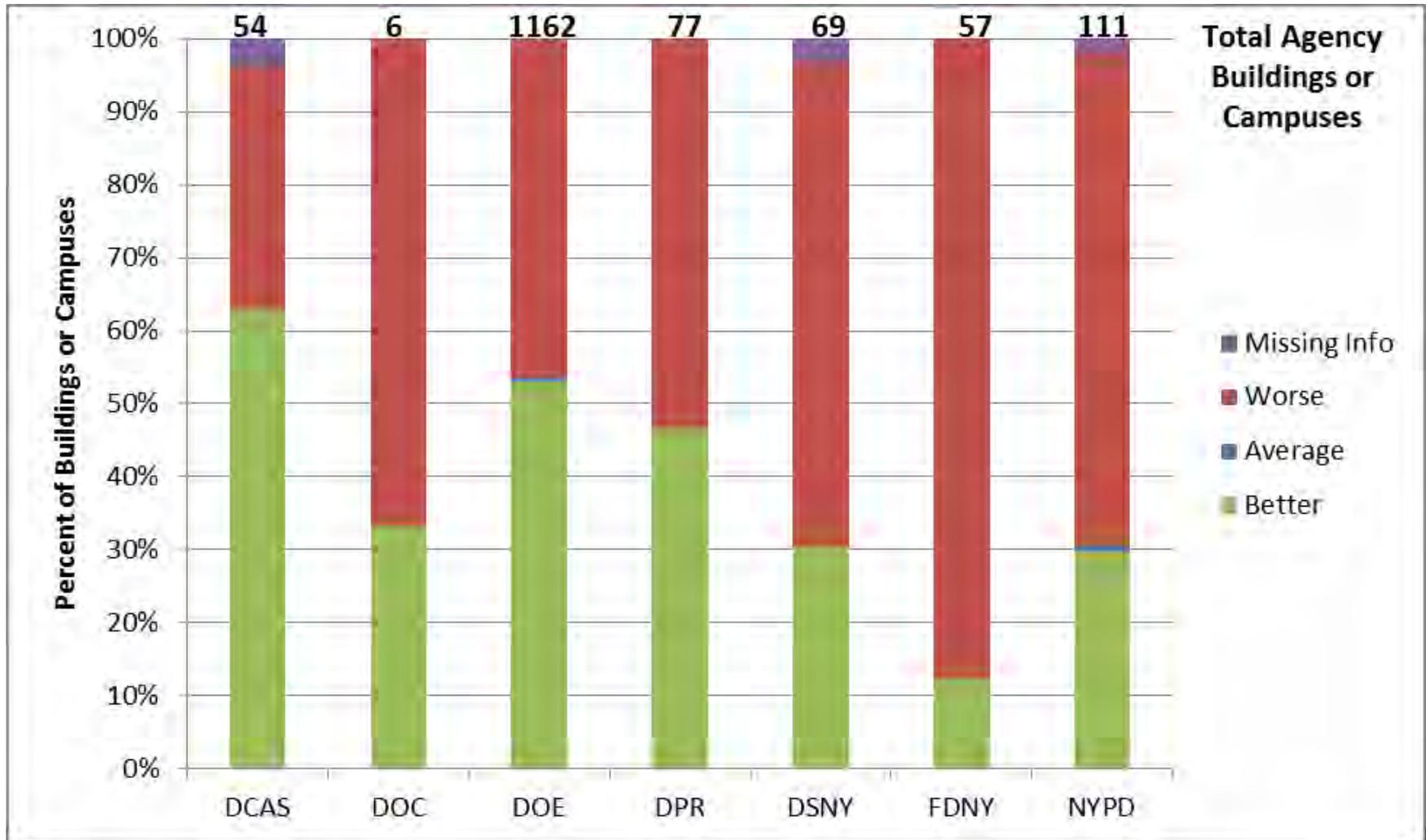
Library EUI ratings



Office Benchmark scores

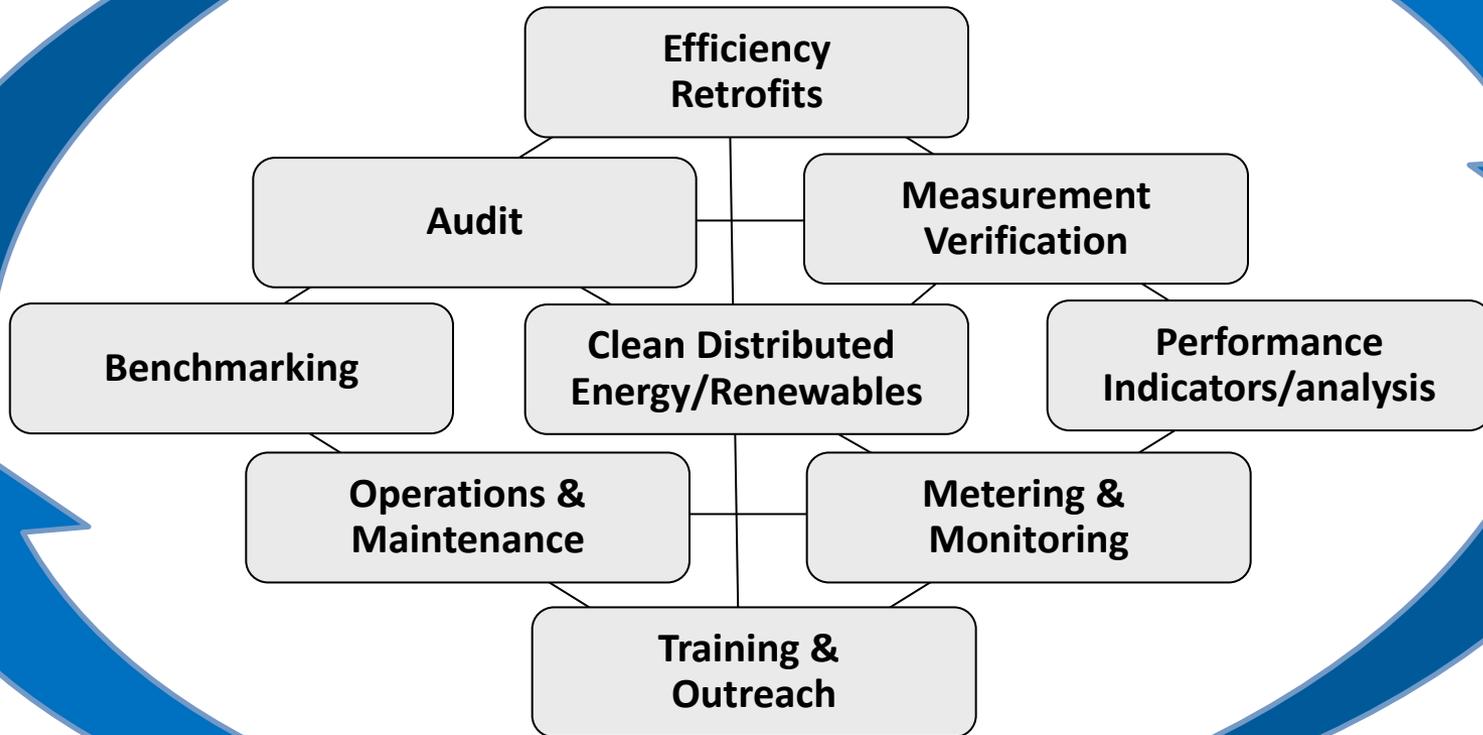


# Agency-wide building performance compared to national average (by buildings/campuses), 2010



# Role of Benchmarking in 30x17 Strategy

The 30 x17 strategy is an integrated, data-driven approach based on several key programs. These programs rely on quality benchmark information. The ultimate goal is to drive better energy management decision-making across the City.



# Role of Benchmarking in 30x17 Strategy

## Audits and Retrofits

Use results to prioritize energy audits and to implement cost-effective retrofit measures.

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## Operations and Maintenance (O&M)

Retrofit efforts tied to improved O&M and retro-commissioning as well as targeted training and outreach.

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## Performance Analysis

Identify the impact that factors such as efficiency investments, building management and occupant behavior have on energy use through year-to-year analyses.

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## Metering and Monitoring

Continue data quality improvements through sub-metering and the SEPTS tracking system.

# Next Steps

Ongoing improvements in information sources and data quality will ensure that we have the most accurate benchmark information possible.

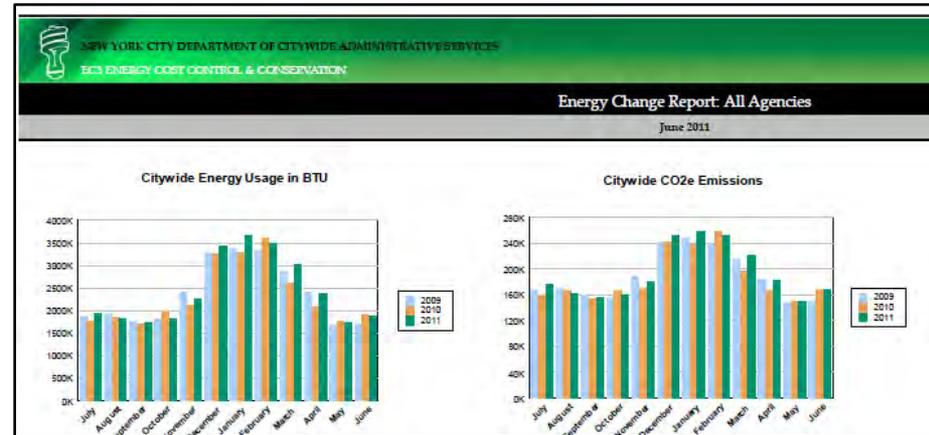
## Information Sources

### Current

- EC3
- City agencies building data sets
- Agency building management team knowledge

### Upcoming

- SEPTS automated benchmarking
- Sub-metering through Energy Enterprise Metering System



## Ongoing Data Quality Improvements

- ✓ Campuses
- ✓ Mixed-use buildings
- ✓ Heating fuel oil data
- ✓ Energy meter associations



Salvatore J. Cassano  
*Fire Commissioner*

Edward S. Kilduff  
*Chief of Department*

John A. Benanti  
*Deputy Fire Commissioner*

Joseph Mastropietro  
*Assistant Fire Commissioner*

## ***FDNY Utilization of Energy Management Operations and Maintenance (O&M) Tools***

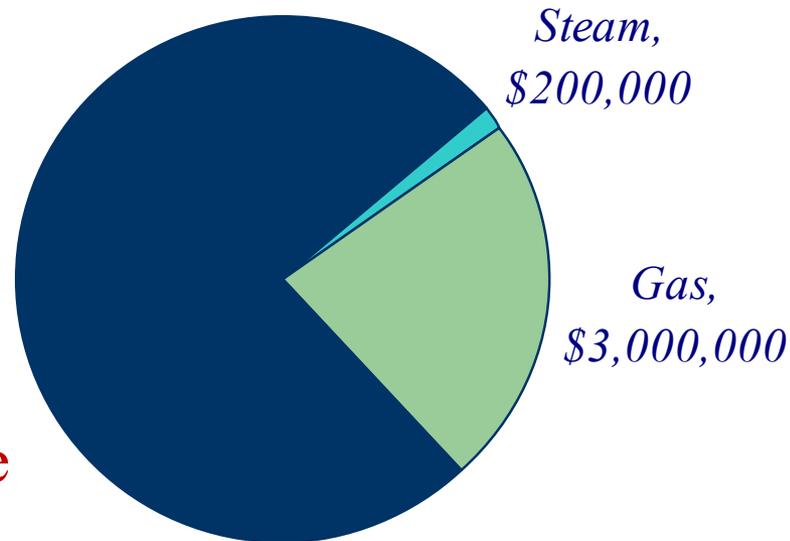
By  
Tarek Khalil  
*Energy Manager, Bureau of Facilities Management*

## FDNY is committed to managing its energy use

FDNY is committed to upgrading our network of facilities to reduce our energy consumption & GHG emissions through:

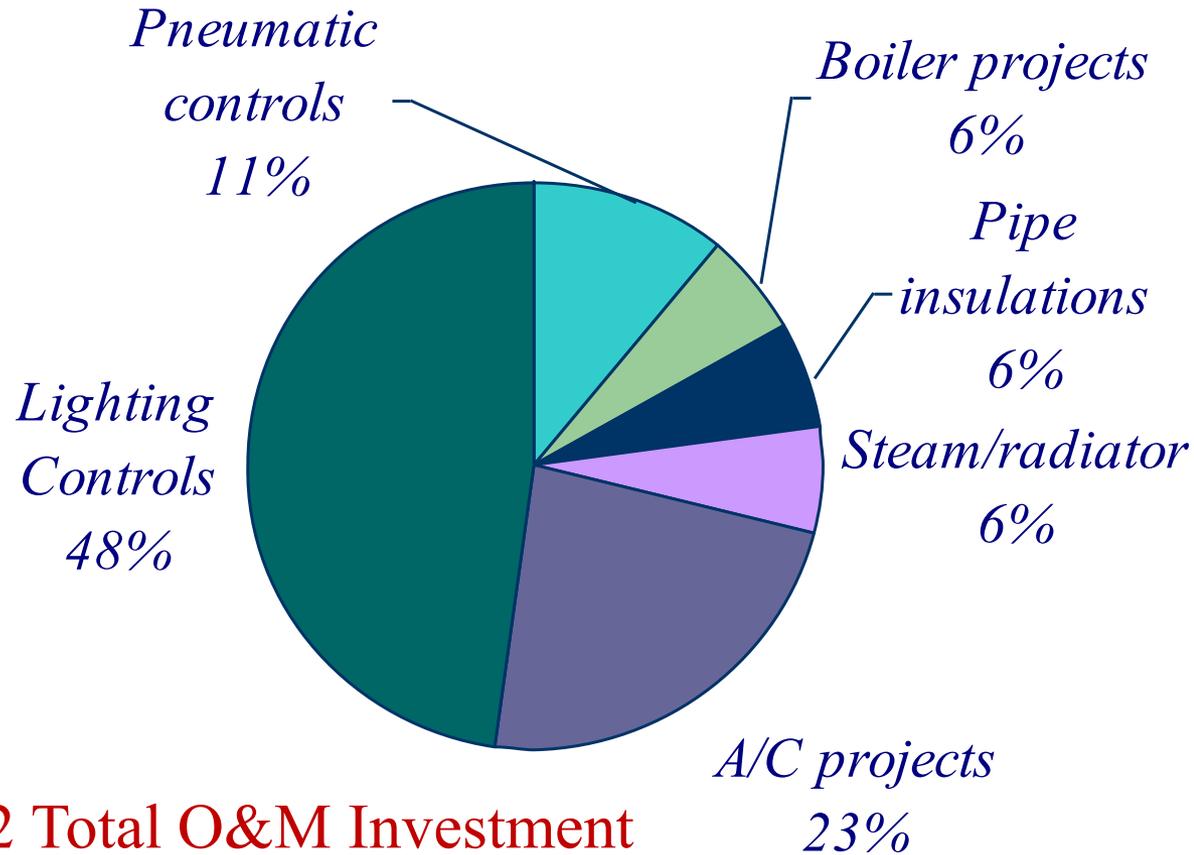
- efficient heating and cooling systems
- lighting and electrical distribution systems
- upgrading building envelopes
- solar thermal
- improved O&M

*Electricity,  
\$10,000,000*



**FY11 Total Energy Use  
\$13.2 million**

## FDNY O&M Investment for FY12



**FY12 Total O&M Investment**  
**\$875,000**

## FY12 O&M Investment Breakdown

Work Type	Energy Type	Expected Savings
Air Conditioning Tune-Ups	Electricity	30 – 50%
Lighting Controls	Electricity	10 – 20%
Boiler Tune-Ups	Gas	5 - 10%
Steam trap/Radiator Repairs	Gas	15 – 20%
Pneumatic Controls	Electricity	10% +
Pipe Insulation	Electricity & Gas	5 – 10%



## FDNY Operations & Maintenance Plan

- Retrofit and Maintain Existing Infrastructure
  - Preventative maintenance utilizing CMMS
    - Deploy using FDNY staff and contractors
  - Identify & Invest in high return O&M projects
  - Improve operational strategies
- Increased Management Reporting
  - Establish metrics and identify trends
  - Monitor performance versus goals
  - Develop performance reports for upper management
- Increase Agency Energy Awareness
  - Increase consumption analysis through BMS & EC3
    - Identify facility deviations and develop corrective action
  - FDNY newsletter highlighting energy conservation
  - Building Operator Training



## Outreach and Training



- Energy Reduction Contest
  - All firehouses and EMS stations
  - One firehouse winner per borough
  - One EMS winner
  - Winner receives 52” inch flat screen television
  - Rules & Regulation Compliance
  - Additional duties and tasks
- Newsletter
  - Energy Incentive Alignment Program
- Placards
  - Occupancy Sensors
- Training for skilled trade
  - Building Operators Certification: 11 tradesmen
  - Solar Thermal: 11

## Motivate Energy Conservation with Incentives



BUREAU OF EMS  
EMS OPERATIONS ORDER 2011-127  
July 1, 2011

### ELECTRICAL CONSUMPTION REDUCTION CONTEST

#### 1. GENERAL INFORMATION

1.1 As part of the PlaNYC initiative, the Fire Department has been mandated to reduce energy consumption at all EMS stations. As an incentive for lowering their electrical consumption, the Department will be offering one (1) EMS station the opportunity to win a 52" High Definition Flat Screen Television.

1.2 The prize will be awarded to the EMS station that achieves the greatest overall annual reduction in electrical consumption for the period of July 2011 to June 2012. Energy consumption must be reduced without effecting operations and with minimal risk to the safety and health of its occupants.

1.3 The Department will compare electrical energy consumption with the same time period for the previous year. Due to this comparison, only the following stations will be able to compete in the contest. Stations co-located with hospitals and/or other agencies do not have separate records that the Department can compare; however all Station Commanding Officers are encouraged to reduce energy consumption at their facilities.

#### 2. PARTICIPATING STATIONS

Station 15	Station 17
Station 18	Station 19
Station 22	Station 23
Station 26	Station 32
Station 38	Station 39
Station 40	Station 44
Station 45	Station 47
Station 52	Station 54
Station 55	Station 57
Station 58	

#### 3. ATTACHMENTS

- 3.1 NYC Cooling Season Guidelines 2011
- 3.2 2011-12 Heating Season Guidelines

As part of the PlaNYC initiative, the Fire Department has been mandated to reduce energy consumption at all the EMS stations. ***As an incentive for lowering their electrical consumption, the Department will be offering one (1) EMS station the opportunity to win a 52" High Definition Flat Screen Television.***



## Energy Tips in FDNY's Newsletter



FIRE DEPARTMENT • CITY OF NEW YORK  
Salvatore J. Cassano, Fire Commissioner  
Edward Silduff, Chief of Department

EMPLOYEE BULLETIN  
BUREAU OF PERSONNEL RESOURCES  
October 13, 2011 • Volume XXI • Issue No. 11

[www.nyc.gov/fdny](http://www.nyc.gov/fdny) & [www.fdnr.org](http://www.fdnr.org)

Confidence on the outside begins by living with integrity on the inside.  
—Brian Tracy

### II. ANNOUNCEMENTS

#### ENERGY INCENTIVE ALIGNMENT PROGRAM

Did you know that the Fire Department consumed over \$9.5 million in electrical use in FY 11? At the start of the current Fiscal Year 2011, The New York City Department of Citywide Administrative Services (DCAS) had enacted the "Energy Incentive Alignment Program" throughout all city agencies as part of Mayor Bloomberg's PlaNYC initiative. This new program makes each agency responsible for its own electrical usage by setting an electricity usage budget based on prior fiscal years.

**Pros:** If the Fire Department operates under the DCAS budgeted electrical usage, the difference would be applied into the Fire Department's budget for further energy related work.

**Cons:** However, if the Fire Department fails to operate within the DCAS budgeted electrical usage, the difference would be payable to DCAS out of the Fire Department's operating budget.

Based on previous FY 11 energy data, the highest consumer of electricity in the Fire Department was 9 MetroTech (\$1.2 million) of the Department's total usage. Every FDNY employee can help in reducing this usage.

So what can we do at our workplace to reduce electrical consumption?

Turn it off. Task lights and desk lamps consume a lot of energy. If every employee at 9 MetroTech turns off their task lights when not in use, the Fire Department can save money. How much you ask? An estimated \$29,000 can be reduced annually, which is over 2% of 9 MetroTech FY 11 usage!  
**Be smart. Be a watt watcher.**

Turn it off. Task lights and desk lamps consume a lot of energy. If every employee at 9 Metrotech turns off their task lights when not in use, the Fire Department can save money. How much you ask? An estimated \$29,000 can be reduced annually, which is over 2% of 9 Metrotech's FY11 usage!  
**Be smart. Be a watt watcher.**

## Placards to inform equipment users

### Local Law 48: Section 9.4.1.2: “Vacancy Mode”

**THE LIGHTS IN THIS ROOM ARE CONTROLLED BY AN AUTOMATIC SWITCH THAT SENSES MOTION.**

- The lights are off as soon as you enter the room.
- To turn the lights on while you are in the room, use the “lights on” switch beside the door.
- Call Facilities Management at 718-999-HELP(4357) if there is a problem with the lights.



## Establish Agency-wide Electricity EUI Targets

FY12 Target EUI:	43Kbtu/ft <sup>2</sup>
FY11 Actual EUI:	50 Kbtu/ft <sup>2</sup>
Agency Objective:	Decrease EUI by 14 percent

### Case Study

<i>Facility:</i>	<i>Engine 82 / Ladder 31</i>
<i>Borough:</i>	<i>Bronx</i>
<i>Year Constructed:</i>	<i>1904</i>
<i>Number Floors:</i>	<i>Two</i>
<i>Area:</i>	<i>8,974 Square Feet</i>
<i>Electrical Consumption:</i>	<i>134,320 Kwhr (FY '11)</i>
<i>Existing building EUI:</i>	<i>51.18 kBtu/ft<sup>2</sup></i>



## Reduce O&M costs through new technology

At Engine 89 / Ladder 50 the Department has installed Light Emitting Diode (LED) technologies which have reduced power usage by approximately 50 percent while eliminating the newly Federally mandated requirements for the proper handling and disposal of Universal and Electronic Waste.





DEPARTMENT OF SANITATION NEW YORK CITY

# How DSNY Uses the O & M Planning Application Tool

John Duggan, CEM

Building Engineer

Manhattan Borough Repair Shop



DEPARTMENT OF SANITATION NEW YORK CITY

The NYC Department of Sanitation is totally committed to reducing greenhouse gases as stated in PlaNYC 2017/2030 instituted by Mayor Bloomberg.





DEPARTMENT OF SANITATION NEW YORK CITY

**NYC** Citywide  
Administrative  
Services

Energy  
Management



26<sup>th</sup> Street Repair Shop



DEPARTMENT OF SANITATION NEW YORK CITY



Upgraded Lighting



DEPARTMENT OF SANITATION NEW YORK CITY



Rapid Rollup Door at DSNY 26<sup>th</sup> Street Repair Shop



DEPARTMENT OF SANITATION NEW YORK CITY

**Operation and Maintenance Program**

Department of Citywide Administrative Services

Energy Management Plan

Manhattan Borough Repair Shop

(640 West 26<sup>th</sup> Street, New York, NY, 10001)



New York, NY, January 4<sup>th</sup>, 2010

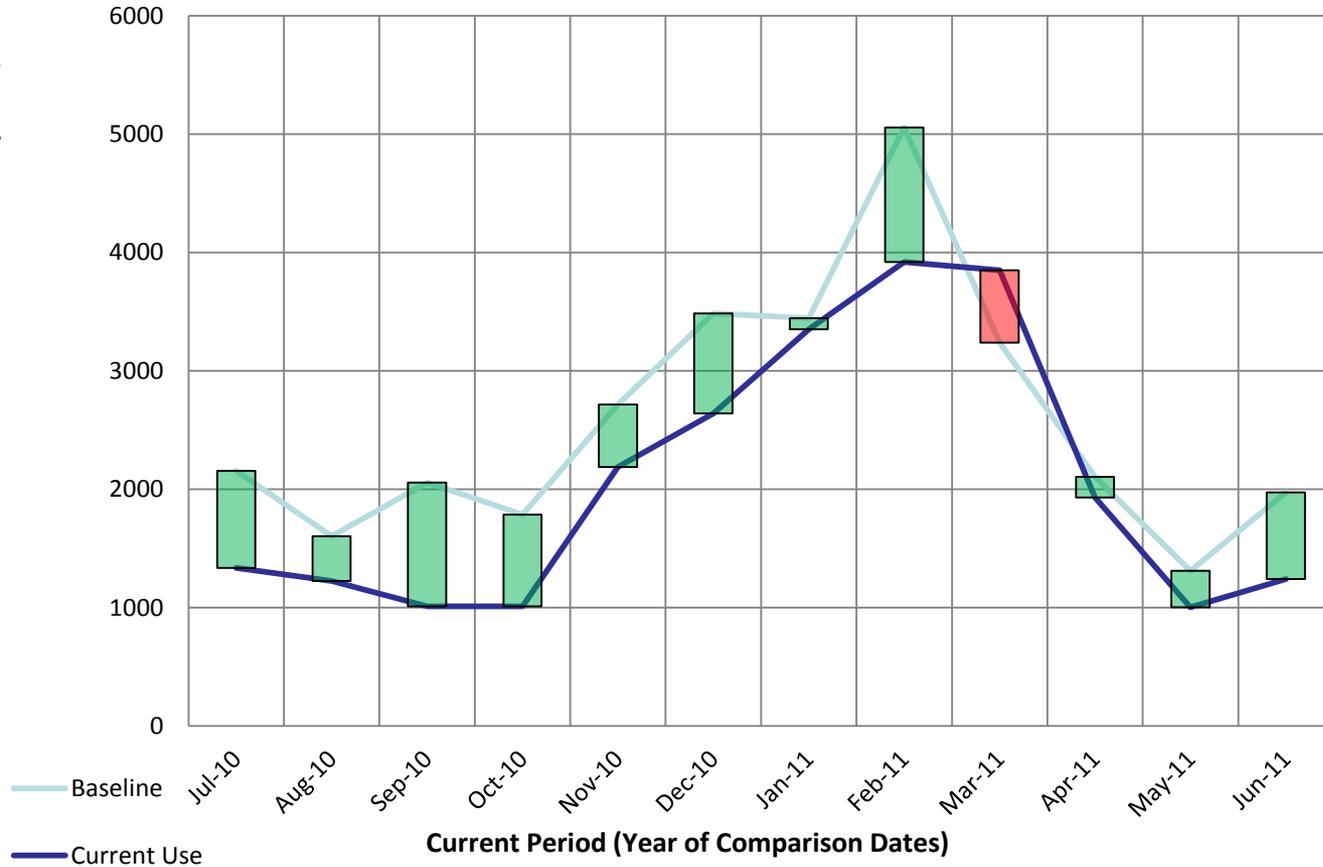
# Dept. of Sanitation Operations & Maintenance Program



# Current vs Baseline Energy Consumption (MMBTUs)

DEPARTMENT OF SANITATION NEW YORK CITY

Consumption (MMBTUs)



Current vs baseline energy concept



## DEPARTMENT OF SANITATION NEW YORK CITY

<i>Fuel</i>	<i>Targets</i>	<i>Target Energy Use (MMBTUs)</i>	<i>Actual Energy Use (MMBTUs)</i>	<i>Actual Percent Above/Below</i>
Electricity (kWh)	Baseline/Actual	17,438	12,078	-31%
	5%	16,566	5% Target Met	
	10%	15,694	10% Target Met	
	15%	14,822	15% Target Met	
Distillate Fuel Oil (U.S. Gallons)	Baseline/Actual	0	0	
	5%	0	Fuel Not Used	
	10%	0	Fuel Not Used	
	15%	0	Fuel Not Used	
Residual Fuel Oil (U.S. Gallons)	Baseline/Actual	0	0	
	5%	0	Fuel Not Used	
	10%	0	Fuel Not Used	
	15%	0	Fuel Not Used	
Natural Gas (Therms)	Baseline/Actual	13,495	12,631	-6%
	5%	12,820	5% Target Met	
	10%	12,146	10% Target Not Met	
	15%	11,471	15% Target Not Met	
Steam (Mlbs)	Baseline/Actual	0	0	
	5%	0	Fuel Not Used	
	10%	0	Fuel Not Used	
	15%	0	Fuel Not Used	
Total	Baseline/Actual	30,933	24,709	-20%
	5%	29,386	5% Target Met	
	10%	27,840	10% Target Met	
	15%	26,293	15% Target Met	

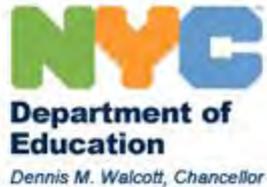
O & M Planning Application- *Building Fuel Consumption*



## DEPARTMENT OF SANITATION NEW YORK CITY

Current Performance (Emissions)				
Fuel	Targets	Target CO <sub>2e</sub> (metric tons)	Actual CO <sub>2e</sub> (metric tons)	Actual Percent Above/Below
Electricity (kWh)	Baseline/Actual	1,791	1,241	-31%
	5%	1,702	5% Target Met	
	10%	1,612	10% Target Met	
	15%	1,523	15% Target Met	
Distillate Fuel Oil (U.S. Gallons)	Baseline/Actual	0	0	
	5%	0	Fuel Not Used	
	10%	0	Fuel Not Used	
	15%	0	Fuel Not Used	
Residual Fuel Oil (U.S. Gallons)	Baseline/Actual	0	0	
	5%	0	Fuel Not Used	
	10%	0	Fuel Not Used	
	15%	0	Fuel Not Used	
Natural Gas (Therms)	Baseline/Actual	716	670	-6%
	5%	680	5% Target Met	
	10%	644	10% Target Not Met	
	15%	609	15% Target Not Met	
Steam (Mlbs)	Baseline/Actual	0	0	
	5%	0	Fuel Not Used	
	10%	0	Fuel Not Used	
	15%	0	Fuel Not Used	
Total	Baseline/Actual	2,507	1,911	-24%
	5%	2,382	5% Target Met	
	10%	2,257	10% Target Met	
	15%	2,131	15% Target Met	

O & M Planning Application- *Current Emissions Performance*



Volkert (Yogi) Braren, Division of School Facilities

**How DCAS resources are helping  
DOE to train 1,000+ school facility  
managers in energy efficient  
building operations**

# Who is taking BOC training?

80 Building Managers

Temco (subcontractor) employed Custodian Engineers

65 DSF managers

Oversee BM and CE activity

860 Custodian Engineers

Members of the IUOE local 891 Union

1,005 completers total at the DSF LIC site, projected

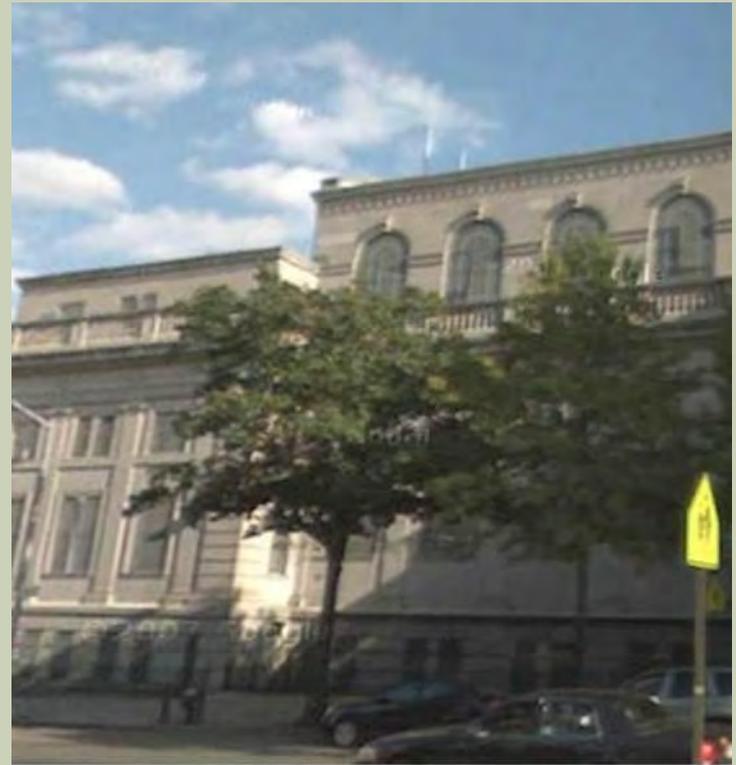


**How NYPD partnered with DCAS  
on a cutting-edge energy  
efficiency retrofit project**

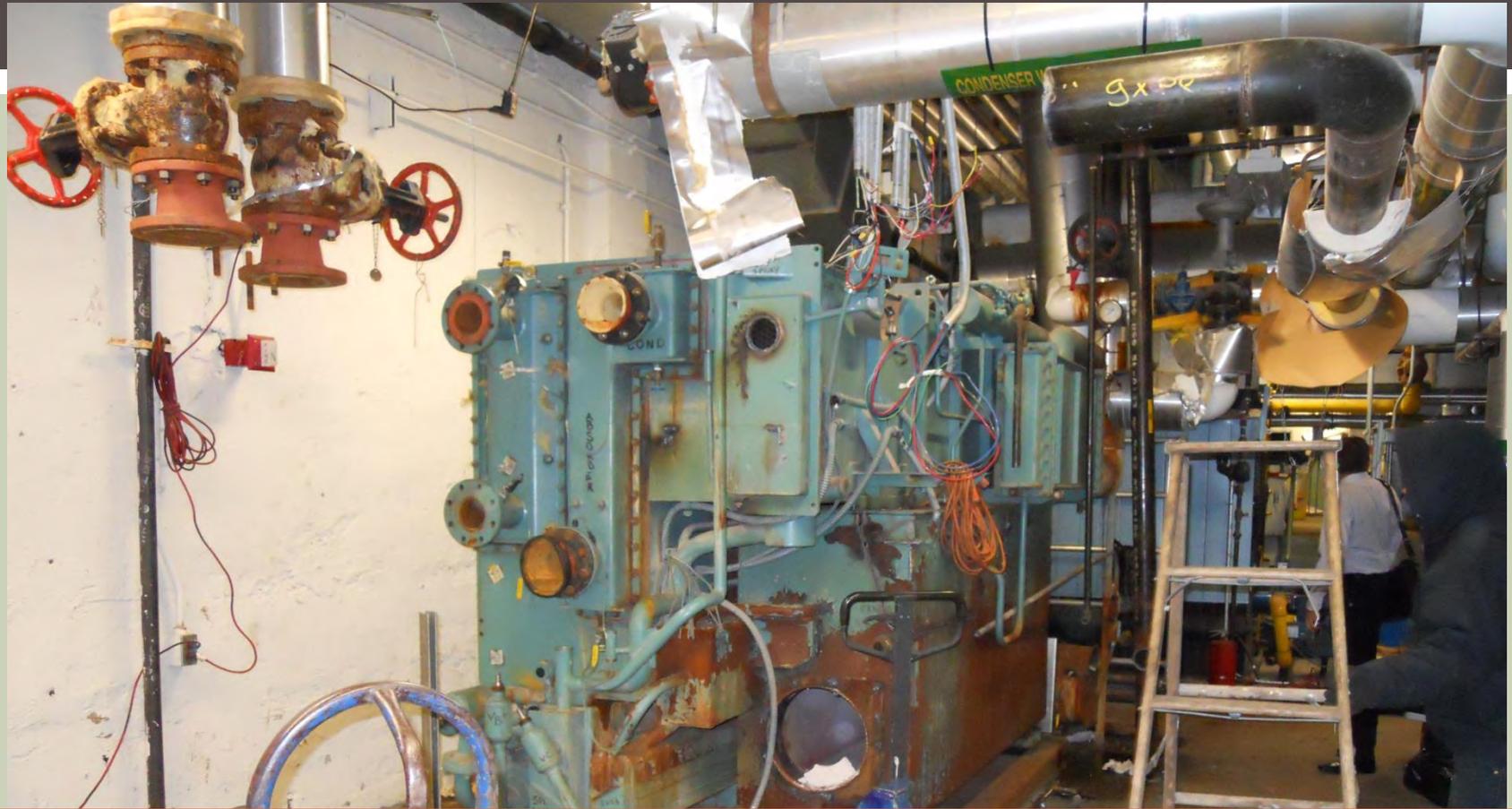
**Jay Rahhali,  
NYPD Energy  
Manager**

## LOCATION: NYPD'S APPLICANT PROCESSING DIVISION

- APD primary function is to select qualified candidates for NYPD
- APD processes > 100,000 candidates/year
- Formerly Sunset Park Courthouse (Brooklyn)
- 27,000 sq. ft.



## PROBLEM: APD NEEDED A NEW CHILLER



- Existing chiller: 230 ton natural gas-fired chiller that had reached the end of its useful life
- High maintenance, Unreliable, and frequently out of order
- Low Kw/ton and High energy cost

# SOLUTION: DCAS & NYPD PARTNERSHIP

## SOLUTION

- NYPD partnered with DCAS through ENCORE contract
- NYPD funded project cost of \$1.9 mill

## GOALS OF THE PROJECT

- Reduce energy use and CO<sub>2</sub>e emissions
- Increase reliability
- Reduce operating and maintenance costs



# PROJECT DETAILS

Chilled water pumps



Ice making chiller

- Installation of cutting-edge, custom-made ice making chiller
- High efficiency 90-ton water-cooled chiller has effective capacity of 140 tons
- New chiller is smaller and more efficient than old 230-ton chiller
- Reduction in CO2 emissions
- Annual savings of \$50,000

# WHAT IS ICE STORAGE?



- Makes ice at night to cool the building during the day.
- Ice stored in thousands of dimpled plastic balls immersed in steel tank filled with glycol solution
- During the day, super cold glycol solution is pumped to a chilled water heat exchanger
- Chilled water is then distributed to air handlers throughout building for space cooling
- Other NYC LEED certified green buildings use this technology:
  - Bank of America headquarters
  - Hearst Building on 57th Street

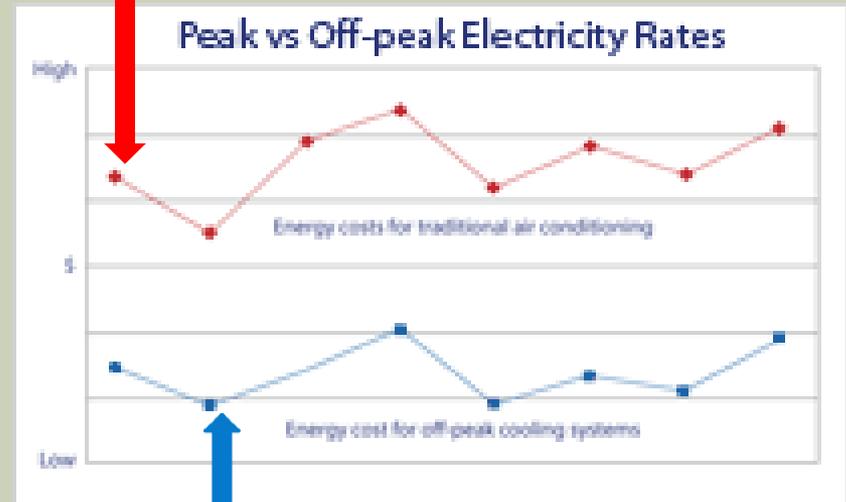
# ICE STORAGE SYSTEMS TAKE ADVANTAGE OF OFF-PEAK ELECTRICITY RATES

Off-peak cooling **makes ice at night**, when **electricity prices are at their lowest**, and uses that ice to provide cooling for air conditioning or other processes during the day.

To add to these savings, AC equipment operates at higher efficiencies at night due to cooler outdoor operating conditions, generating even further energy and cost savings while extending the expected life of the equipment.

At APD, the ice storage system has **shifted ~100 kW of electrical demand from on-peak to off-peak** during the cooling season.

Energy Costs for Traditional Air Conditioning



Energy Costs for off peak cooling systems

# MULTIPLE BENEFITS OF ICE STORAGE TECHNOLOGY AT NYPD

- Reduced maintenance requirements
- Eliminated the need for 24-hr licensed operator...reduced NYPD personnel costs
- Use saved labor hours to perform other duties
- Reduced electrical demand usage
- Reduced total chiller KWH
- Increased reliability
- Decreased downtime
- Lowered chiller capacity from 230-ton to 90-ton
- Saves money and has a good ROI



# How DOT is partnering with DCAS to **green** the fleet

Galileo Orlando, **DOT**

# DOT's greener fleet

- DOT, through PlaNYC, purchased 12 electric screeds manufactured by Carlson.
- Replaced 12 diesel-fired screeds:
  - eliminating emissions,
  - reducing worker exposure,
  - improve quality.
- Procured 7 Chevrolet Volts, extended range electric vehicles
- Added 2 pure electric Ford Transit Connects
- E-Rides and E-Stars

# Electric Screeds

- Screeds funded by ARRA and PlaNYC funds
  - Screed cost - \$94,994 (\$1.139M total)
  - ARRA funding - \$810,000
  - Balance matched by PlaNYC funds (\$329,000)

Before



After



# Diesel-powered screeds

- Consumed over 21,000 gallons of diesel yearly
- Required over 3000 barrels, or 126,000 gallons, of crude oil

- Released over 460,000 lbs of CO<sub>2</sub> per year and 125,000 lbs of particulate carbon
- Equivalent to eliminating more than 40 automobiles from the road.<sup>1</sup>





C

CARLSON  
EZIV

Made In USA

Made In USA

12' CLEARANCE





# Volts and Transit Connects



- 3 Volts being used as part of in-house car sharing program



- 2 Transit Connects outfitted for use in Meter Collections



- 2 E-Rides

# Get Energized!



How Parks Partners with DCAS to Promote  
Energy Conservation Education at its Facilities

David Barker, Director, Sustainability Initiatives

# Park Facilities



**Swimming Pools**



**Recreation Centers**



**Ice Rinks**



**Zoos**



**Office Buildings**



NYC Parks  
Sustainable  
Parks

# A Plan for Sustainable Practices within NYC Parks

Abridged Version



# Sustainable Parks Plan



# Education and Outreach

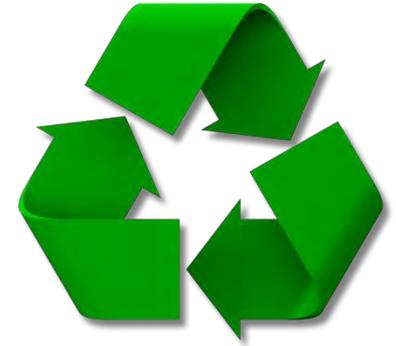
# Green Guru Network

## 30 Gurus at 17 facilities





# Green Guru Responsibilities



- Answer questions regarding energy consumption, recycling, composting, and general sustainability practices.
- Encourage good sustainable behavior among staff members
- Attend sustainability meetings as necessary to report on concerns and successes.



# Green Guru Goals

Gurus set goals that are specific to their work environments:

“Work with district staff on proper fleet inspections, to ensure our vehicles and equipment are in optimal working order for efficient fuel consumption”

- Bonnie Williams

“Give out Birdie light switch stickers to all Manhattan District Supervisors for posting in comfort stations”

- Jeanette Emmarco

# Energy Conservation Education

- Tune-up tickets
- Sustainability “tune-ups”
- Signage
- DCAS-funded Kill-a-Watt meters
- Facility walk-throughs with Energy Manager
- Present at staff meetings on EIAP
- Curriculum through internal training center
- Technical training through DCAS offerings

# Tune-up Tickets



When not in use  
turn off the juice

Please remember to:

---

---

*XO, the Earth*



**COME CELEBRATE IN THE ARSENAL**

# **HALLOGREEN**

**FRIDAY, OCT 28  
3RD FL GALLERY  
1—5PM**



**LEARN TIPS TO GREEN YOUR  
HALLOWEEN**

**LEARN HOW TO KILL VAMPIRE AND  
PHANTOM ELECTRICITY LOADS**

**REDEEM GREEN TIX FOR TREATS**

**RECYCLE YOUR OLD COSTUMES,  
BATTERIES, AND PLASTIC BAGS**

**PLEDGE GREEN FOR A TREAT!**

Brought to you by Sustainable Parks  
Make a Green Pledge today!



# Sustainability Tune-Up

## Recommended Action Items for Your Office

### Energy

#### **LIGHTING**

- Switch off lighting when not needed or not in use
- Use task lights instead of overhead lights
- Post "Turn the Lights Off" Birdie Stickers near wall switches

#### **EQUIPMENT & APPLIANCES**

- Plug all appliances into a central power strip, and turn off the strip at end of the day
- Unplug all appliances when not in use (cell phone chargers, coffee pots, etc)
- Turn off monitors and shut down computers at day's end

#### **HEATING/COOLING**

- Set thermostats to 68 degrees in the winter and 72-75 during the summer (but always consider health needs first)
- When it's hot outside, keep window shades lowered to reduce heat indoors
- In the winter, open blinds to allow sunlight to naturally heat your office, and close blinds at night to reduce heat loss
- Make sure all windows/doors are closed when the AC/heat is on
- Unplug all desk fans at the end of the day



- “Bring used grocery bags to the park for dog walkers to pick up after their pets”

- Margot Perron, Van Cortlandt Park Administrator

# Green Pledge Program

846 pledges received to date

# Green Gurus: Successes and Challenges

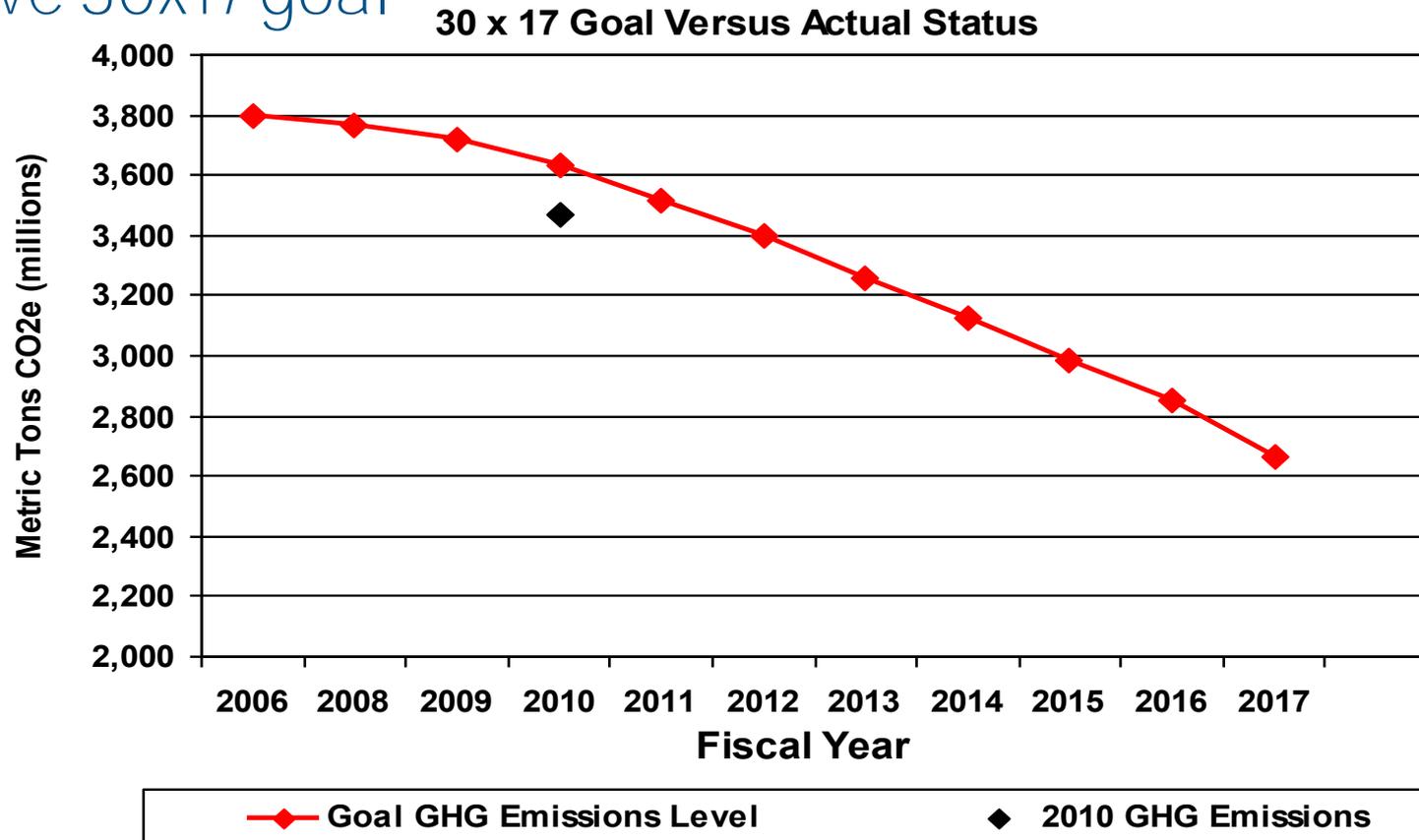
## Successes

- Most Gurus self-motivated
- Pledge recruitment
- Sharing Guru activities to generate ideas
- Tapping agency expertise for guest speakers
- Adding “green” component to existing agency events

## Challenges

- Interaction w/ facilities staff
- Accountability
- Logistics of regular mtgs
- Keeping staff engaged
- Managing expectations

# GHG Emissions are decreasing at a rate necessary to achieve 30x17 goal



## To date, decrease primarily from:

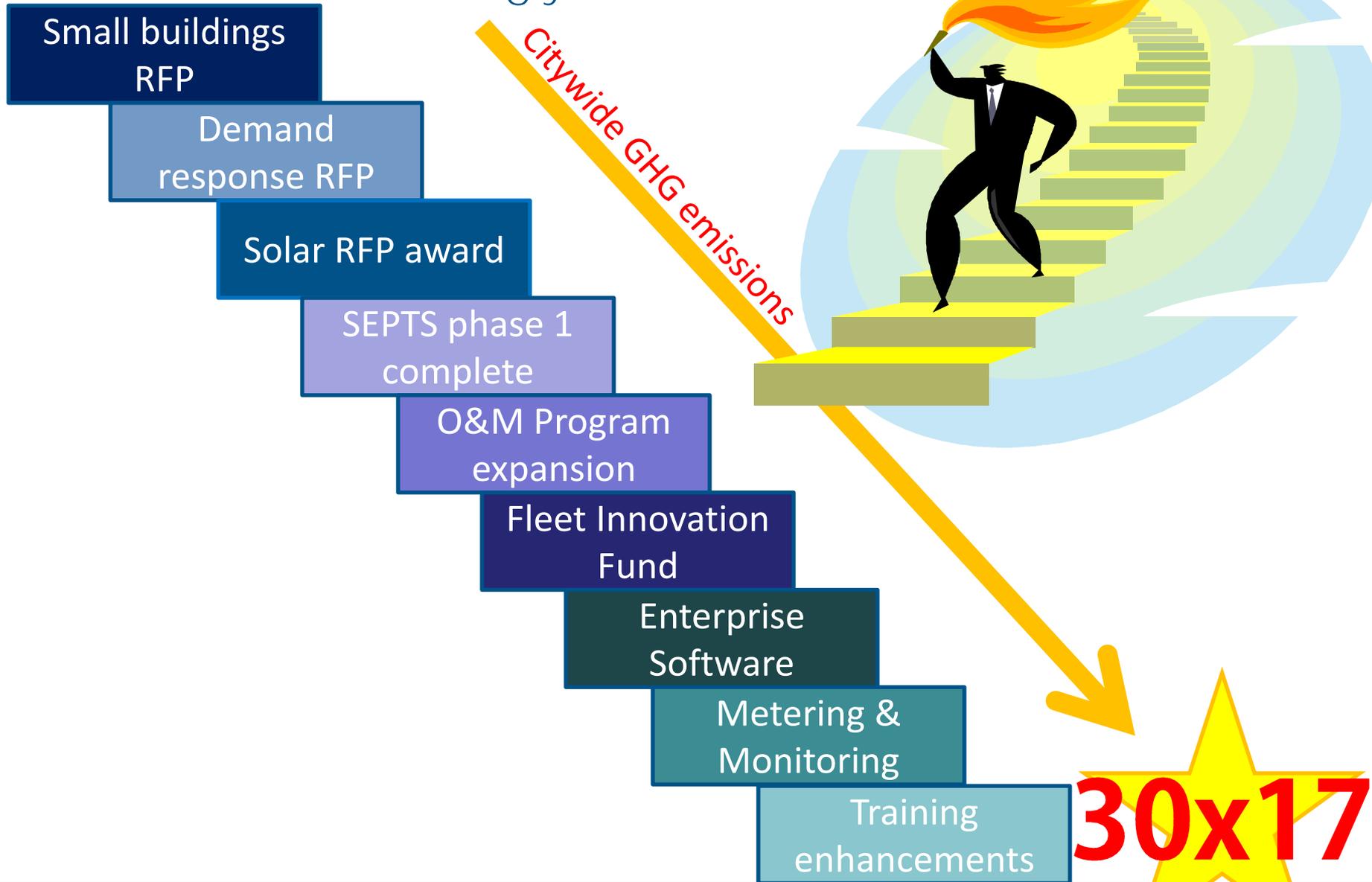
- More efficient energy generation
- Less heating oil used
- Reduced solid waste export emissions
- Improved streetlight efficiency

## Future decreases expected from:

- Energy savings from retrofits
- Improved operations & maintenance of buildings
- Heightened energy awareness among building occupants



We are developing even more ways to support emissions reductions in the coming year



# Renewables

- Solar RFP
- ARRA-funded solar PVs
- Piloting solar hot water systems
- Other renewables identified in energy audits

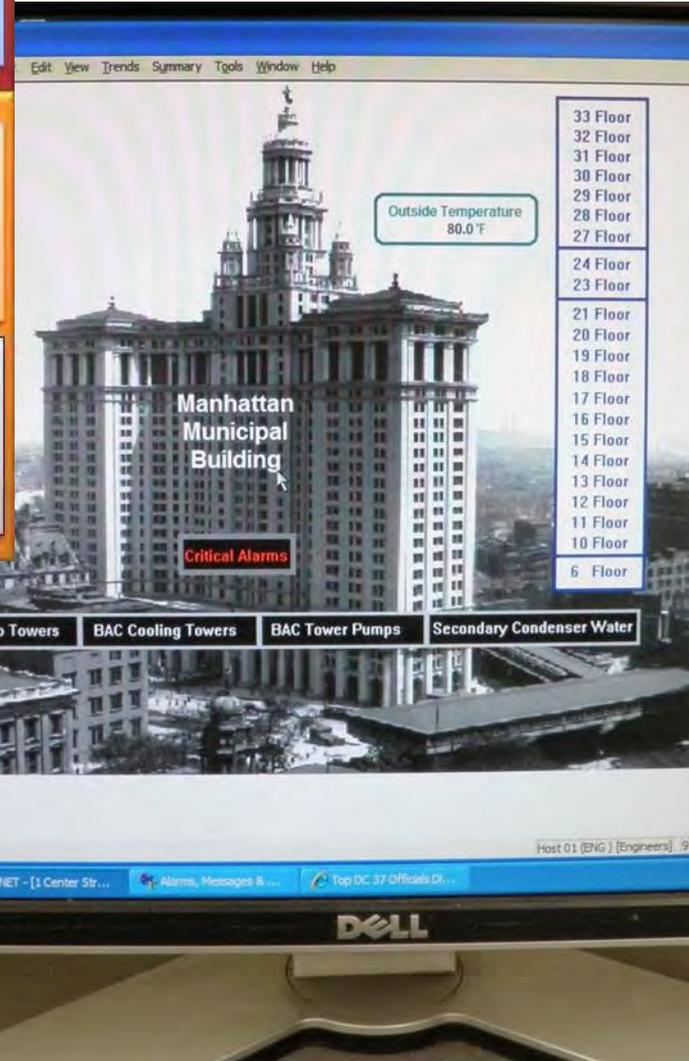
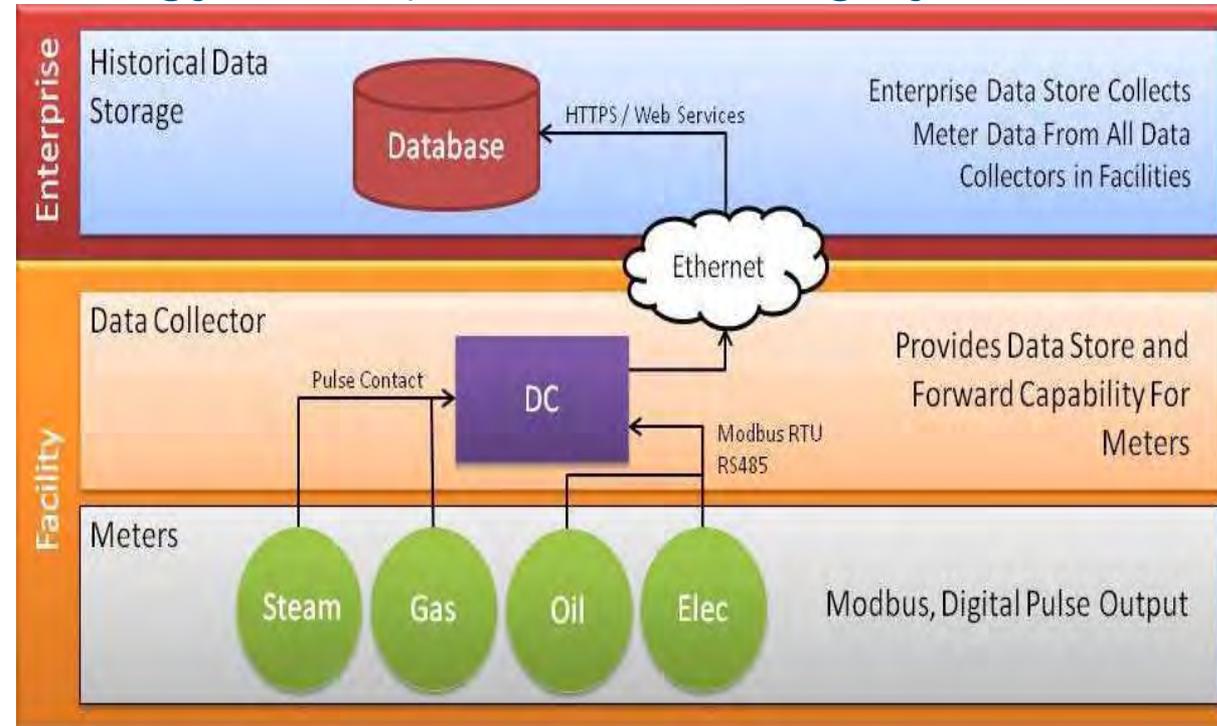


New York Hall of Science – solar PV



Measuring roof for solar HW system

# Energy enterprise metering system



- Captures all-source energy consumption
  - Real Time measurements
  - Accepts multiple protocols
- Operates on secure wireless network
- Dashboards delivered through SEPTS
- Piloted 125 meters in 48 Facilities

# Enhancements to the energy management training program

## Continuing...

- BOC Level 1, at both CTC and the DOE facility in Long Island City
- BOC Level 2
- CEM

## Developing...

- Blended BOC Level 1
  - Fewer hours overall
  - Some content moved online for less classroom and commuting time
- Excel and math prep courses
- Energy Management modules for trades
- Energy Awareness video for all City staff

## Evaluating...

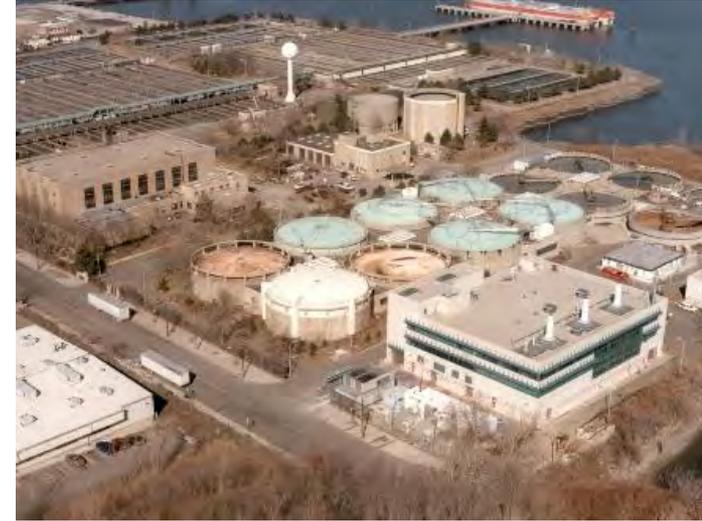
- Evaluation of training programs and other O&M activities to determine effectiveness in terms of energy savings

# Non-building emissions reductions



Replacing standard cobrahead lighting fixtures throughout the City

Reducing methane emissions at sewage plants like Bowery Bay Wastewater Treatment Plant in Queens



Greening the fleet by transitioning to alternative fuel vehicles like the DSNY Chevy Volt



DSNY Hybrid Electric Street Sweeper

NYC – where government goes green™

# DEM Team – we're here to help!

## Data Tools, O&M, Training & Outreach, Renewables, Fleet

Val Slobodyan	– Data Integrity and Benchmarking
Ellen Ryan	– SEPTS
Mike Dipple	– Operations & Maintenance Program
Gwyn Kishlansky	– O&M Support
Sarah Mencher	– Training and Outreach
Emily Dean	– Cogeneration and Renewables
Emily Small	– ARRA funding and grants reporting
Melissa Wright-Ellis	– Fleet, Capital Planning, Budgeting
Jason Bocchinfuso	– Administration, General support

## Audits & Retrofits

Pat Impollonia
Maria Ibrahim
Richard Applebaum
Reza Zeynali
John Loli
Steve Lochner
Chris James
Jacques Amar
Migdalia Paredes

## EC3 and Energy Billing

Susan Cohen
Stuart Barth
Richard Risickella
Margaret Wiley
Marilyn Steeps
Vadim Fridkin
Myra Cruz

Keep up the  
good work!