

Benchmarking New York City's Municipal Buildings

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BuildingEnergy 11
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The City's efforts to reduce its GHG emissions is a major component of PlaNYC, NYC's sustainability plan



10 Sustainability Goals

- Improve air quality
- Clean, reliable energy
- Climate action
- ...and more

To achieve these goals,

- City government to lead by example
- Reduce GHG emissions from government operations 30% by 2017
- 1.68 million ton reduction

TO IMPLEMENT, FIRST HAD TO UNDERSTAND KEY CHALLENGES

LACK OF ORGANIZATION & PRIORITIZATION

SCALE & COMPLEXITY

- >300,000 Employees
- 4,000 Buildings
- Peak Demand 1100 MW
- ~\$900 m Energy Bill
- 27,000 Vehicles

LACK OF INFORMATION

- 20 Operating agencies
- Diverse set of buildings
 - Age varies**
 - Size varies**
 - Type varies**

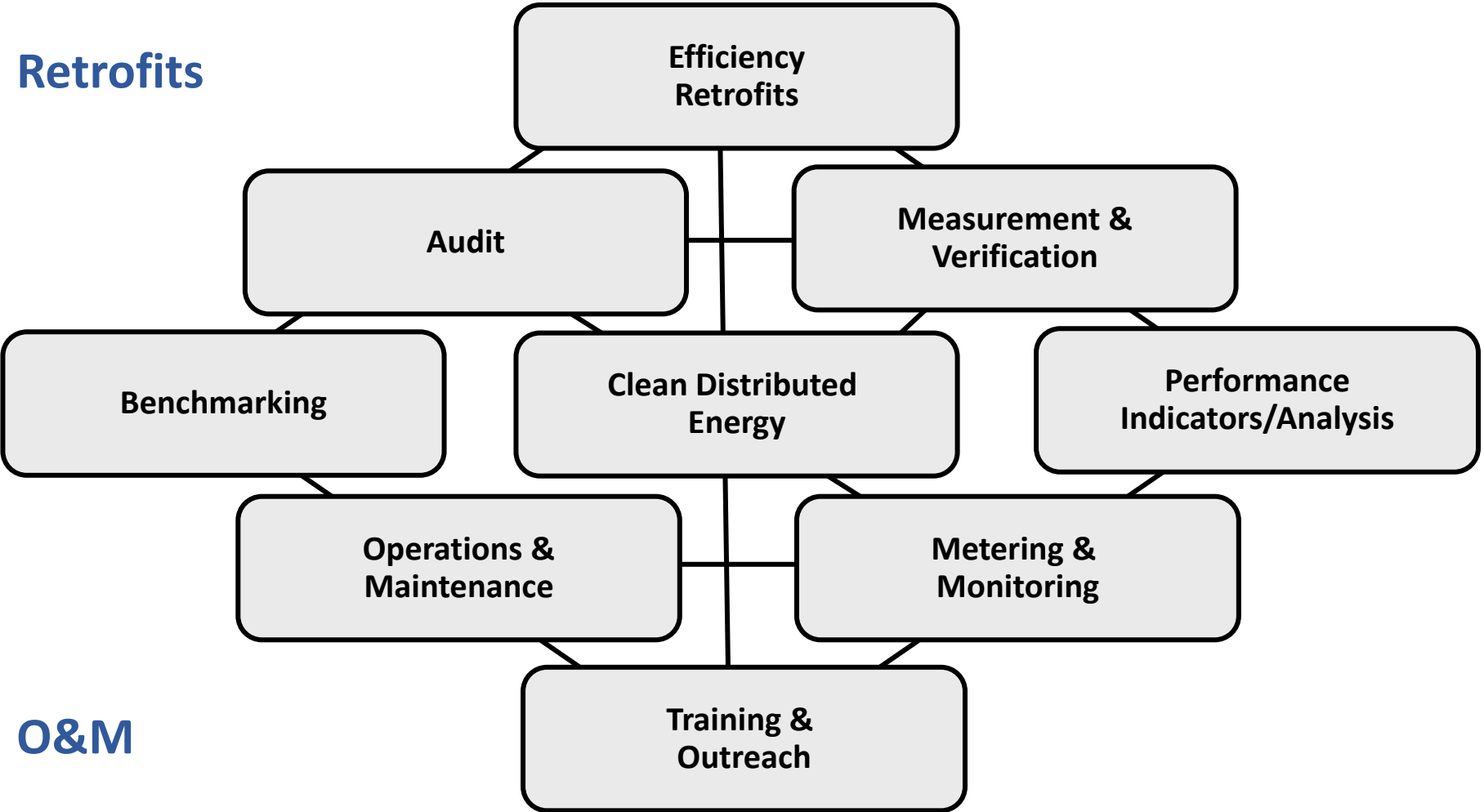
MOST OF THE CITY'S EFFICIENCY OPPORTUNITIES LIE IN EXISTING BUILDINGS

- Over half of 30x17 reductions will come from the City's 4,000 existing buildings
 - Retrofitting building systems
 - Improving operations and maintenance (O&M) of facilities
- Given scale and diversity of buildings and scarcity of resources, implementation follows a strategic, data-driven approach...



LEVERAGE FUNDING COMMITMENT TO GO FURTHER

Retrofits



O&M

BENCHMARKING: DEFINITION AND STATUS

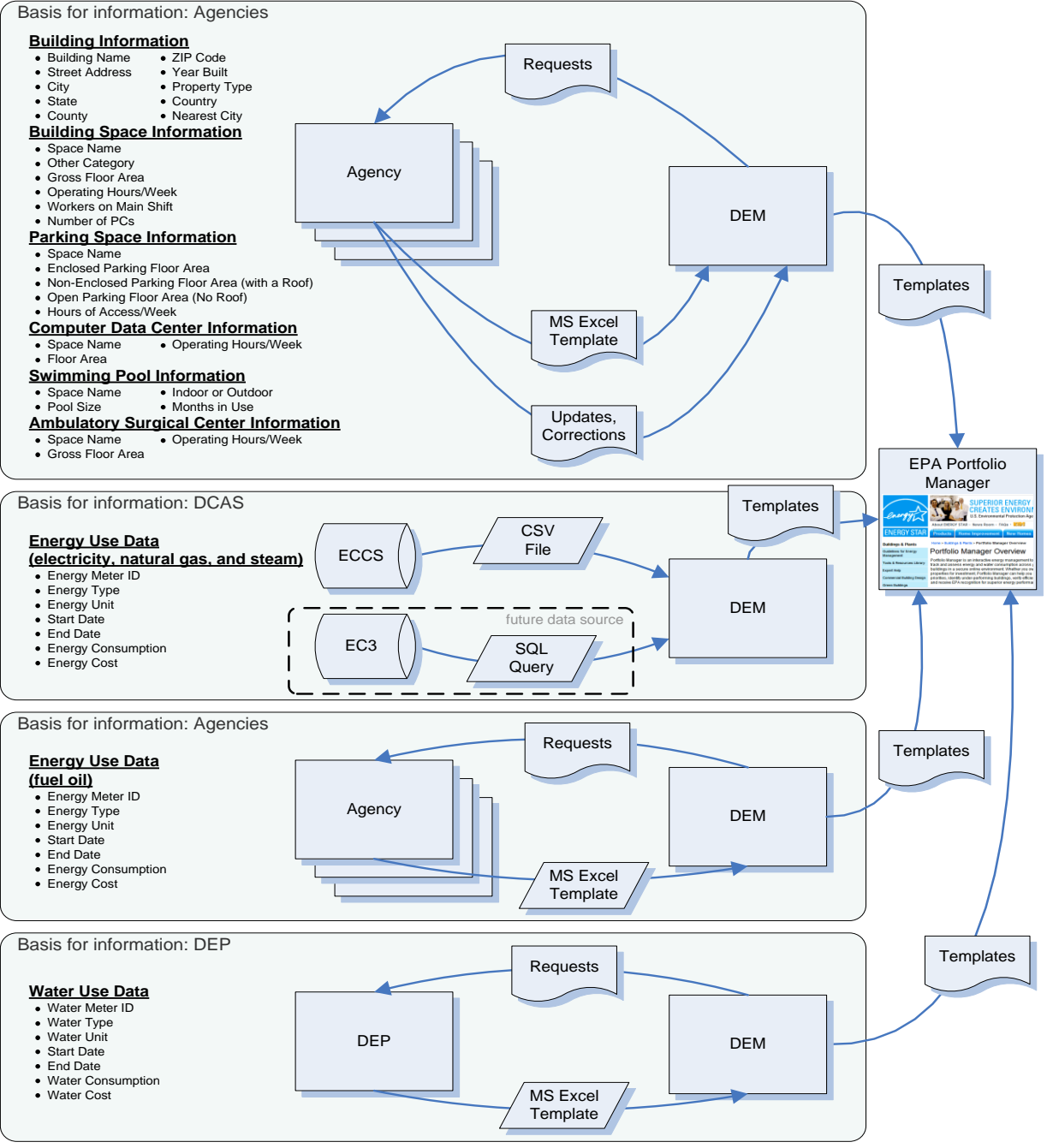
EPA PM

- Uses energy data and building variables to produce outputs, including benchmarking score (1-100)
- Score indicates performance relative to similar buildings nationwide (weather normalized); uses CBECS data as basis for comparison
- Not all buildings can get a score; all buildings get EUI, GHGe, etc.

STATUS

As required by Local Law 84 of 2009, the City completed energy benchmarking of all City-owned buildings over 10,000 square feet in May 2010

PLANNING STAGE



COLLECTING DATA

Microsoft Excel - 2009-06-26 EPA_Template_DSNY (sent to DSNY 6.26.09).xls

File Edit View Insert Format Tools Data Window Help Adobe PDF

Type a question for help

100%

Security...

Arial 10 B I U

P10 525-545 E 73rd St

| | A | N | O | P | Q | R | S | T | U | V | W |
|----|---|--------------------------------|---|----------------------|-----------|-------|-------------|-------------|-------|---------------|---------|
| 1 | Facility Name for the EPA website | | | | | | | | | | |
| 2 | | Internal Agency Facility ID | Facility Name | Street Address | City | State | ZIP Code | Boro ugh | Block | Lot Number | BIN |
| 4 | 0100665 - Manhattan 1 District Garage | | Manhattan 1 District Garage | 297 West St. | Manhattan | NY | 10013 | 1 | 595 | 87 | 1010354 |
| 5 | 0100666 | | | 650 West 57 Street | Manhattan | NY | 10019 | 1 | 1104 | 1 | 1087609 |
| 6 | 0100667 | | | 650 Pier 99 | Manhattan | NY | 10019 | 1 | 1109 | 99 | 1076222 |
| 7 | 0100669 - Manhattan 6 District Garage | | Manhattan 6 District Garage | 606 West 30th St. | Manhattan | NY | 10001 | 1 | 675 | 39 | 1012279 |
| 8 | 0100671 - Bronx 7 and Bronx 8 and Manhattan 8 District Garage | | Bronx 7 and Bronx 8 and Manhattan 8 District Garage | 423 West 215th St. | Bronx | NY | 10034 | 1 | 2212 | 1 | 1082036 |
| 9 | 0100672 | | | 685 9 Avenue | Manhattan | NY | 10036 | 1 | 1057 | 35 | 1079066 |
| 10 | 0100673 | | | 525-545 E 73rd St | Manhattan | NY | 10021 | 1 | 1485 | 15 | 1046288 |
| 11 | 0100676 | | | 80 Henry Street | Manhattan | NY | 10002 | 1 | 275 | 3 | 1079607 |
| 12 | 0100677 | | | 7 North Moore Street | Manhattan | NY | 10013 | 1 | 190 | 47 | 1002174 |
| 13 | 0100680 | | | 223 East 26 Street | Manhattan | NY | 10010 | 1 | 907 | 15 | 1082142 |
| 14 | 0100683 | | | 427 East 87 Street | Manhattan | NY | 10128 | 1 | 1567 | 13 | 1050588 |
| 15 | 0100684 | | | | | | | 1 | 1587 | 27 | |
| 16 | 0100685 - Manhattan 11 District Garage | | Manhattan 11 District Garage | 343 East 99th St. | Manhattan | NY | 10029 | 1 | 1671 | 1 | 1052640 |
| 17 | 0100687 | | | 134 Madison Street | Manhattan | NY | 10002 | 1 | 274 | 6 | 1079605 |
| 18 | 0100688 | | | 128 West 17 Street | Manhattan | NY | 10011 | 1 | 792 | 53 | 1014588 |
| 19 | 0100689 | | | 136 West 20 Street | Manhattan | NY | 10011 | 1 | 795 | 66 | 1014738 |
| 20 | 0100690 | | | 468 West 126 Street | Manhattan | NY | 10027 | 1 | 1966 | 106 | 1059555 |
| 21 | 0100691 | | | | | | | 1 | 2101 | 100 | |
| 22 | 0100695 | | | 786 12 Avenue | Manhattan | NY | 10019 | 1 | 1103 | 44 | 1027163 |
| 23 | 0100696 - Manhattan 10 District Garage | | Manhattan 10 District Garage | 110 East 131st St. | Manhattan | NY | 10037 | 1 | 1779 | 1 | 1054511 |
| 24 | 0100697 | | | | | | | 1 | | | |
| 25 | 0100759 | | | 177 East 123 Street | Manhattan | NY | 10035 | 1 | 1772 | 31 | 1054433 |
| 26 | 0100897 - Manhattan 12 District Garage | | Manhattan 12 District Garage | 301 West 215th St. | Manhattan | NY | 10034 | 1 | 2196 | 1 | 1064488 |
| 27 | 0100989 | | | 155 1 Avenue | Manhattan | NY | 10003 | 1 | 451 | 7502 | 1006416 |
| 28 | 0101131 | | | 44 Beaver Street | Manhattan | NY | 10004 | 1 | 29 | 73 | 1000850 |
| 29 | 0101173 - Manhattan 3 District Garage | | Manhattan 3 District Garage | South St. Pier 36 | Manhattan | NY | 10004 | 1 | 241 | 13 | 1805208 |
| 30 | 0101188 - Manhattan 7 District Garage | | Manhattan 7 District Garage | West 57 St. Pier 97 | Manhattan | NY | 10019 | 1 | 1109 | 20 | 1076211 |
| 31 | 0101212 | | | 1 East 12 Street | Manhattan | NY | 10003 | 1 | 570 | 7501 | 1009373 |
| 32 | 0101332 - Manhattan Boro Repair | | Manhattan Boro Repair | 640 West 26 Street | Manhattan | NY | 10001 | 1 | 670 | 50 | 1012267 |
| 33 | 0101359 | | | 657 West 20 Street | Manhattan | NY | 10004 | 1 | 676 | 2 | 1012222 |

Facilities

UPLOADING TO EPA PORTFOLIO MANAGER

| Group Averages | |
|---|---|
| Baseline Rating: 72 Facilities Included: 40 | Current Rating: 63 Facilities Included: 39 |
| Change from Baseline: Group Adjusted Percent Energy Use (%): 14.4% Facilities Included: 11 | |
| Averages are weighted by Total Floor Space. More about Baselines More about Change from Baseline: Adjusted Energy Use | |

Average data for agency

Reports

- [Add](#) a Property
- [Import](#) Facility Data Using Template
- Work with Facilities**
 - [Update](#) Multiple Meters
 - [Share](#) Facilities
- Reporting and Analysis**
 - New!** [Generate](#) Reports and Graphs
 - [Request](#) Energy Performance Report
- Apply for Recognition**
 - [Apply](#) for the ENERGY STAR ENERGY STAR Leaders
- Automated Benchmarking**
 - [Get Started Now](#)

Agency selector

View selector

GROUP: **DCAS** [Create Group](#) | [Edit Group](#) | [View All](#) VIEW: Performance: Environmental [Create View](#) | [Edit View](#) | [View All](#)

[Download](#) in Excel Search Facility Name:
 Results 1 - 41 of 41 All # A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

| Facility Name | Current Rating (1-100) | Current Source Energy Intensity (kBtu/Sq. Ft.) | Baseline Rating | Baseline Source Energy Intensity (kBtu/Sq. Ft.) | Change from Baseline: Adjusted Energy Use (%) | Change from Baseline: GHG Emissions (MtCO ₂ e) |
|---|------------------------|--|-----------------|---|---|---|
| DCAS - 0101214 - Manhattan Criminal Court | 93 | 132.8 | | N/A | N/A | -161.58 |
| DCAS - 0101001 - Emigrant Savings Building | 88 | 147.9 | | N/A | N/A | -432.81 |
| DCAS - 0301111 - Office Building - 345 Adams St | 88** | 180.0 | 78 | N/A | N/A | N/A |

EUI

CHALLENGES AND LIMITATIONS

BUILDING DATA CHALLENGES

- Agencies often struggled to provide complete, accurate data
- Use of EPA default values
- Mixed-use spaces
- Partially leased facilities

ENERGY DATA CHALLENGES

- “Campus” approach for groups of buildings without sub-metering
- Lack of fuel oil data

LIMITED SCORE ELIGIBILITY

- Not all building types eligible for an EPA score

NEXT STEPS: OVERCOMING CHALLENGES AND MOVING FORWARD

- **SEPTS (Sustainability, Energy, and Property Tracking System)**
 - A single, central, web-based database for key data and reports, consistent across City agencies (TRIRIGA software)
- A partnership between DCAS and other agencies to collect, track, and report on characteristics of existing buildings and capital projects, including energy use and environmental performance
- SEPTS will use **ABS (Automated Benchmarking Service)** to communicate with EPA Portfolio Manager

PROCESS: OVERVIEW OF BENCHMARKING STEPS

PLAN

1. Planning
2. Collect data and prepare templates
3. Meet with agency

COLLECT DATA

4. Receive data from agency
5. Verify data
6. Upload data to Access DB
7. Link facilities with energy data

UPLOAD TO EPA PM

8. Prepare and send template to EPA
9. Address EPA comments
10. Send revised template to EPA for uploading

REVIEW RESULTS

11. Review benchmarking results
12. Share benchmarking results with agencies

NEW PROCESS: OVERVIEW OF BENCHMARKING STEPS

PLAN

- ~~1. Planning~~
- ~~2. Collect data and prepare templates~~
- ~~3. Meet with agency~~

COLLECT DATA

4. Receive data from agency
- ~~5. Verify data~~
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REVIEW RESULTS

11. Review benchmarking results
- ~~12. Share benchmarking results with agencies~~ **Benchmarking results available to agencies on SEPTS**



LESSONS LEARNED: BENCHMARKING A LARGE PORTFOLIO

- 1. Pursue automated benchmarking**
- 2. Ensure clear communication, expectations with building managers**
- 3. Provide clear data definitions**
- 4. Create tracking system**
- 5. Install submeters when possible**

Questions?

AAkers@DCAS.nyc.gov

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

