

One City: Built to Last

LL87 Energy Audit Data Collection Tool Webinar

NYC

Mayor's Office
of Sustainability

NYCTM

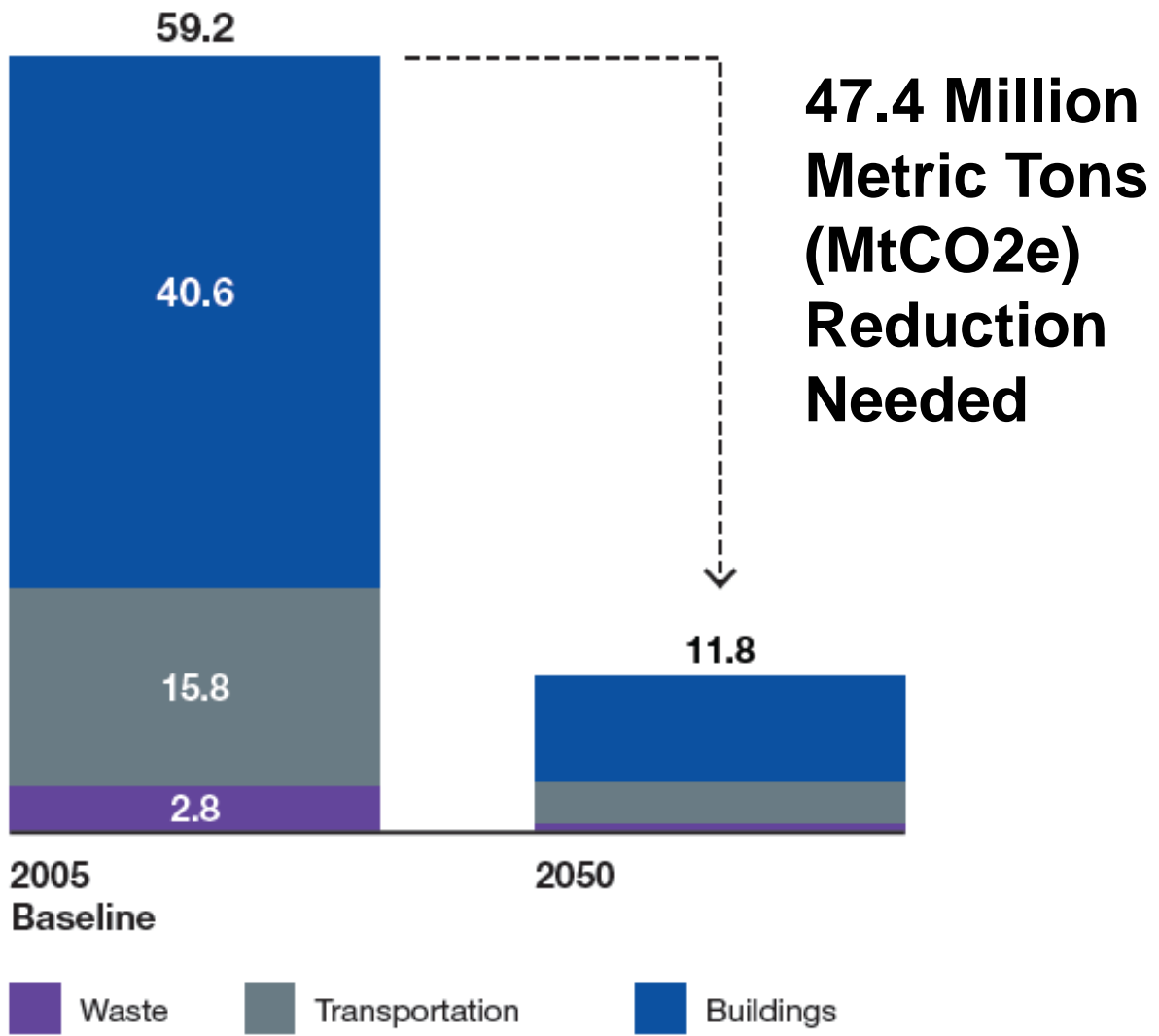
Buildings

LL87 Energy Audit Data Collection Tool Webinar

Agenda

- NYC Updates- *10 minutes*
 - Ross MacWhinney, NYC Mayor's Office of Sustainability
- Asset Score Tool and Audit Template Overview and Demo- *50 minutes*
 - Harry Bergman, US Department of Energy
 - Chris Balbach, Performance Systems Development
 - Nora Wang, Pacific Northwest National Laboratory
 - Supriya Goel, Pacific Northwest National Laboratory
- Q&A
20 minutes

New York City's 80 x 50 Commitment



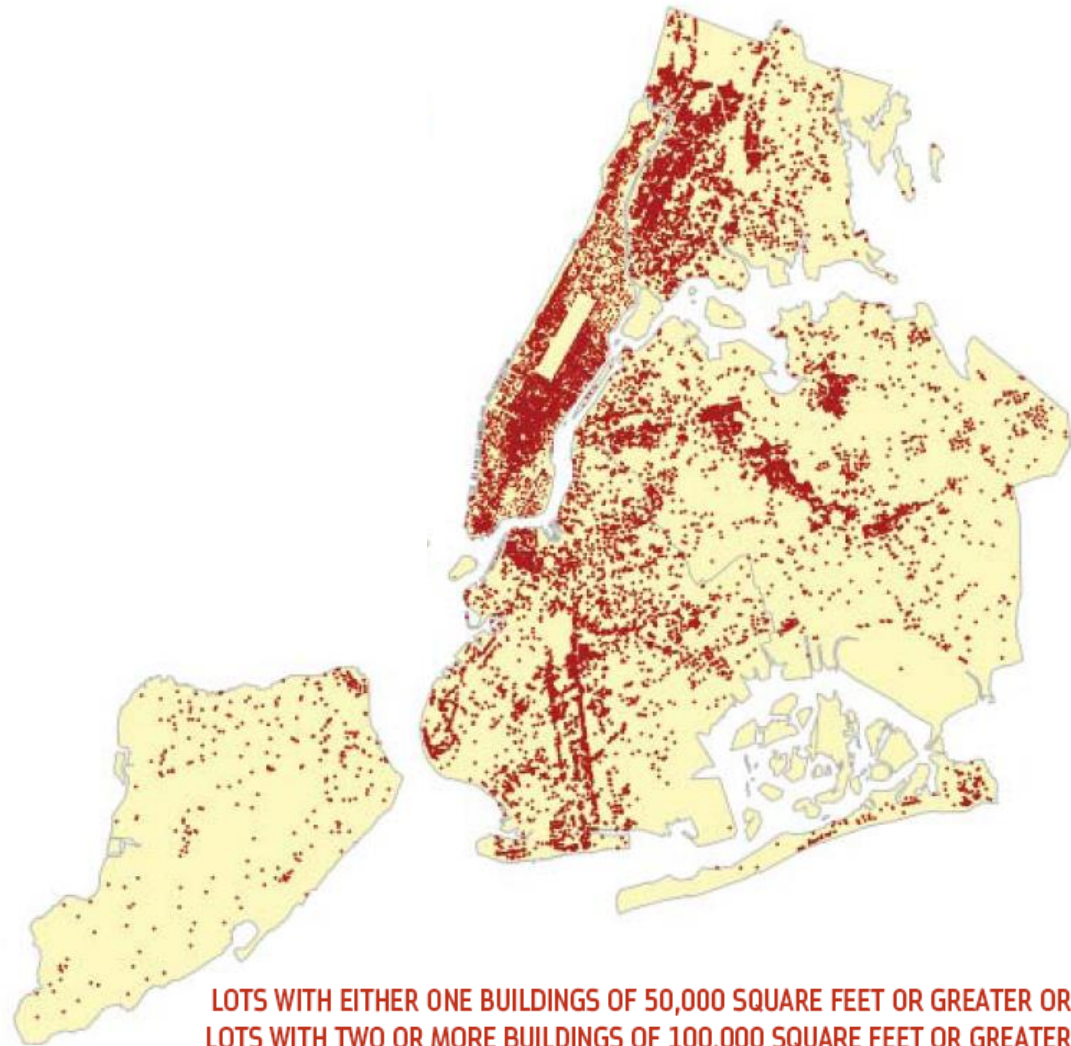
*GHG emissions from electricity production (Energy) is included in Buildings and Transportation

The Greener, Greater Buildings Plan

THE NEW YORK CITY

GREENER, GREATER BUILDINGS PLAN

- 1** New York City Energy Code
- 2** Benchmarking
- 3** Audits and Retro-commissioning
- 4** Lighting Upgrades and Sub-metering



LL87 of 2009: Energy Audit and Retro-commissioning

Update	Expected Timing
Engaged with energy auditors, US Department of Energy (DOE) and Pacific Northwest National Laboratory (PNNL) to develop first iteration of U.S. Department of Energy's Asset Score Audit Template (Audit Template) <i>(San Francisco, Berkeley, Atlanta, Los Angeles)</i>	Complete
Allow DOE's Audit Template for compliance with energy audit reporting requirements (along with excel-based reporting tool)	2018 reporting period
Update DOE's Audit Template based on feedback received during 2018 reporting period	2018 reporting period
Release second version of DOE's Audit Template	End of 2018
Require DOE's Audit Template as the Energy Audit Data Collection Tool (no excel-based reporting tool allowed)	2019 reporting period
Updates to retro-commissioning requirements and data collection tool	TBD

Data Tools Overview –Building Energy Asset Score’s Audit Template



U.S. DEPARTMENT OF
ENERGY

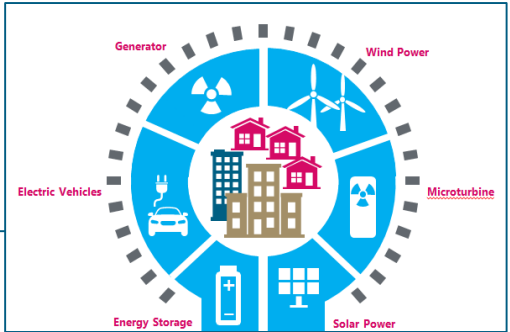
Energy Efficiency &
Renewable Energy

Harry Bergman, Fellow, US Department of Energy
Nora Wang, Pacific Northwest National Laboratory
Supriya Goel, Pacific Northwest National Laboratory

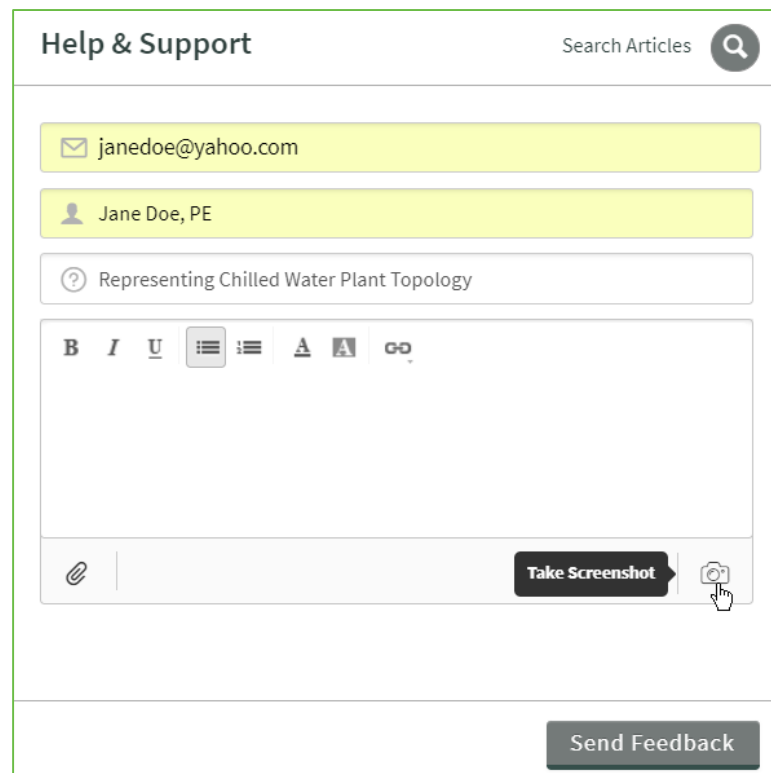
Guiding Principles for BTO's Work with Data Tools

Focus on tools that –

- ✓ Help cities make better energy-related decisions
- ✓ Support cities' goals
 - Consult with cities regarding most critical, relevant needs
- ✓ Can be used independently by cities
 - With little or no TA
 - Easily enhanced by private sector partners
- ✓ Build on what's already working
- ✓ Leverage DOE/national labs' areas of expertise



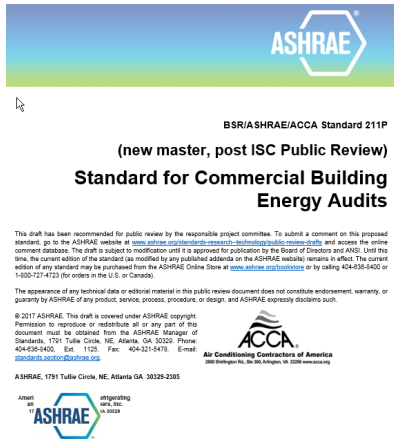
- **Help Desk Provider**
 - Performance Systems Development of NY, LLC
 - Rapid Response
- **Help Desk**
 - User's Guide
 - Community Forum
 - Support Ticket process



The screenshot shows a web form titled "Help & Support" with a search bar for "Search Articles". The form contains several input fields: an email field with "janedoe@yahoo.com", a name field with "Jane Doe, PE", and a subject field with "Representing Chilled Water Plant Topology". Below these fields is a rich text editor with a toolbar containing icons for bold (B), italic (I), underline (U), bulleted list, numbered list, text color, background color, and link. At the bottom of the form, there is a "Take Screenshot" button and a "Send Feedback" button.

[NEW SUPPORT TICKET](#)

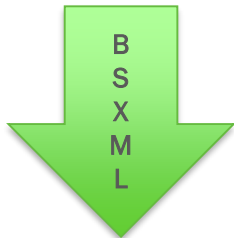
Audit Template and BuildingSync



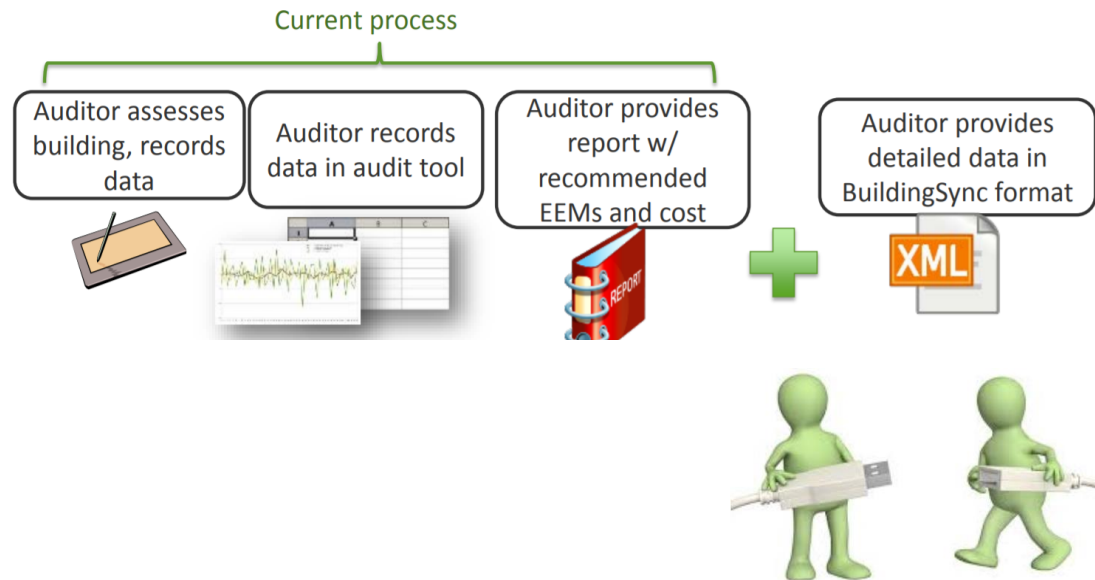
- Audit Template : Web based platform for audit data reporting
- Align with new development of industry standard (ASHRAE/ACCA Standard for Commercial Building Energy Audits).
- Integration of BuildingSync XML allows for seamless data transfer



**Asset Score
Audit Template**



**Other
Tools**

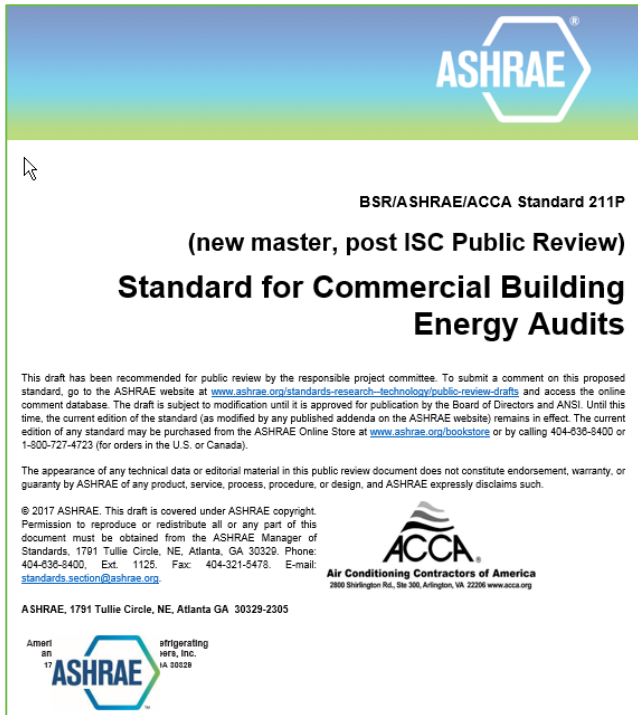


Credit: NREL, 2018

ASHRAE Standard 211–2018 (and forms) **Now Available**

Mandatory Reporting Forms (.xlsx)

- Purchase through ASHRAE Bookstore



ASHRAE

BSR/ASHRAE/ACCA Standard 211P
(new master, post ISC Public Review)
Standard for Commercial Building Energy Audits

This draft has been recommended for public review by the responsible project committee. To submit a comment on this proposed standard, go to the ASHRAE website at www.ashrae.org/standards-research-technology/public-review-drafts and access the online comment database. The draft is subject to modification until it is approved for publication by the Board of Directors and ANSI. Until this time, the current edition of the standard (as modified by any published addenda on the ASHRAE website) remains in effect. The current edition of any standard may be purchased from the ASHRAE Online Store at www.ashrae.org/bookstore or by calling 404-836-9400 or 1-800-727-4723 (for orders in the U.S. or Canada).

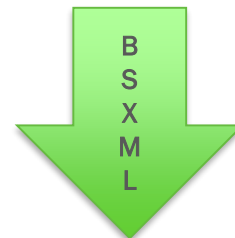
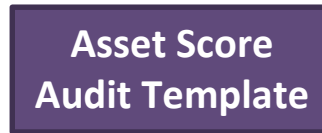
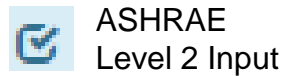
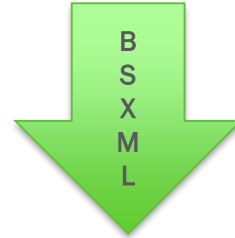
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ASHRAE, 1791 Tullie Circle, NE, Atlanta GA 30329-2305

ASHRAE | **AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS**

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- Normative Forms: (Free)

– <https://xp20.ashrae.org/211-2018>

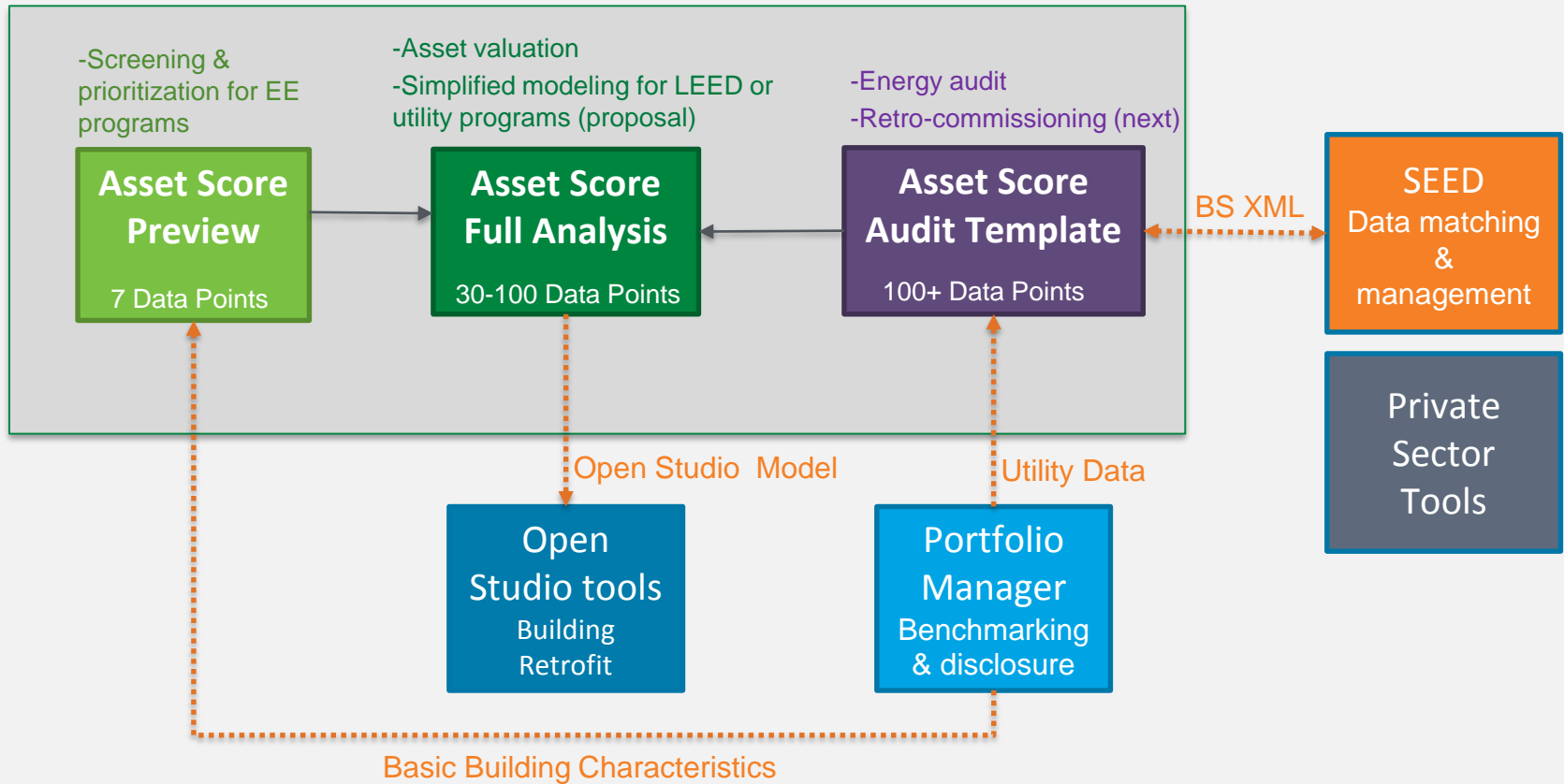
Mandatory Reporting Requirements for Level 1 and Level 2 Energy Audits

These forms are mandatory for Level 1 and Level 2 energy audits. See Normative Annex C to Standard 211 for additional information.

	A	B	C
1	Instructions		
2			
3	The following forms are the minimum required reporting requirements for Level 1 and Level 2 Energy Audits.		
4			
5	All sheets labeled "All" are to be completed for Level 1, 2, and 3 Energy Audits		
6	All sheets labeled "L1" are to be completed for Level 1 Energy Audits		
7	All sheets labeled "L2" are to be completed for Level 2 and Level 3 Energy Audits		
8			
9	user input	Cells shown in blue highlight like this require user input.	
10	calculated	Cells shown in green highlight will update automatically.	
11	*	Cells shown with an asterisk are required inputs for the Asset Score tool.	
12			
13	The reporting forms may be duplicated and modified to adapt to unique combinations of fuel sources, onsite generation, or delivered energy.		
14			
15	Set Units below to IP or SI, forms will update accordingly.		
16	Units	IP	<---<---<---<--- needs implementing
17			
18	Specific Notes on Select Tabs		
19	All - Building	General building and energy use parameters.	
<p>Instructions All - Building All - Metered Energy All - Delivered Energy All - Annual Summary All - Graphs</p>			

Audit Template – Asset Score

Asset Score TOOL KIT



BuildingSync

ENERGY STAR®
PortfolioManager®

OpenStudio

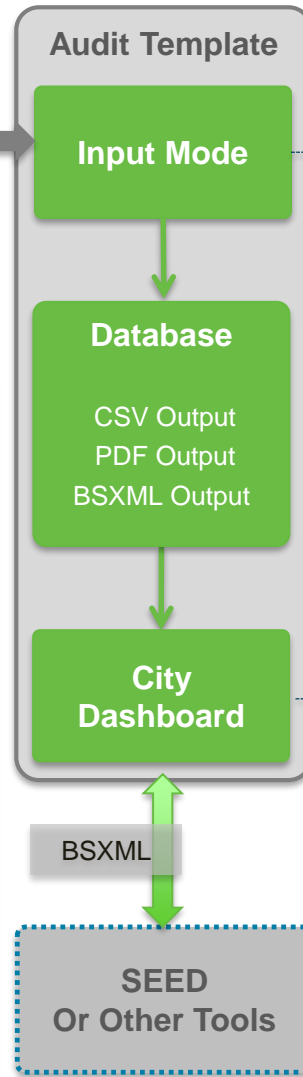
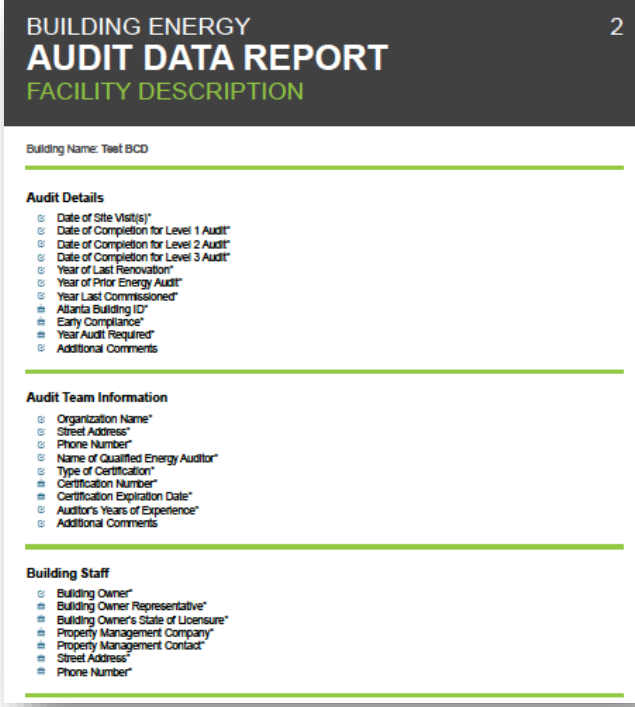
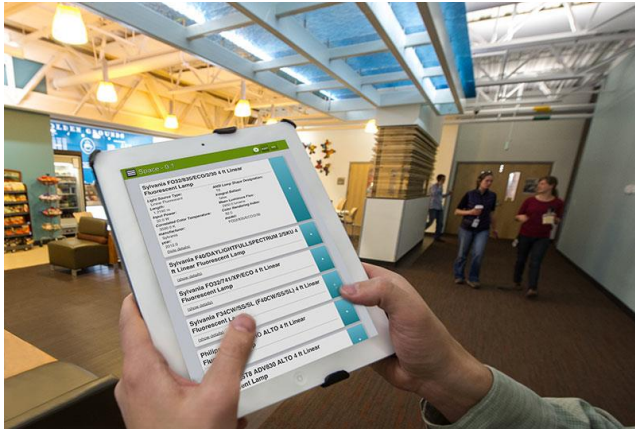


SEED
STANDARD ENERGY EFFICIENCY DATA
PLATFORM™
U.S. DEPARTMENT OF ENERGY

Why Audit Template

- Leverage Asset Score's existing software capability
 - Standardizing inputs and outputs
 - Automating error checking
 - Verifying required fields
 - Seamless data transfer to other tools
 - Easy access to previously entered audit reports
 - Easy sharing and transferring building records
 - Obtaining Asset Score Report
- Align with new development of industry standard (ASHRAE/ACCA Standard for Commercial Building Energy Audits).

How Audit Template Works



Auditors

1. Choose City
2. Perform Audit
3. Submit

City Admins

- Mark Compliance
- Download Reports
- Track Progress

Audit Template Tool: Getting Started

- Select 'Audit Reporting Tool'
- Select 'NYC EER Report'

The screenshot shows the top navigation bar with 'Release 2018.3.0.2193' and 'Version AssetScore_Rails_development_2193'. The main header features the 'U.S. DEPARTMENT OF ENERGY' logo and 'Energy Efficiency & Renewable Energy'. A 'Help Desk' button is visible. The main content area has a 'New Building' button and a dropdown menu labeled 'Audit Reporting Tool'. The 'NYC Energy Efficiency Report' option is highlighted with a red box. Below this are several preview cards for different building types, each with a 3D model and a rating: 'Community Center Preview Seed Model RATED 4.0-7.0', 'Senior Center Preview Seed Model RATED 5.0-8.0', 'Parking Garage (Heated Only) Preview Seed Model RATED 4.0-8.0', and 'WA State Compliance Building EDITING'.

The screenshot shows the 'BBL Property' form. The 'BBL Property Information' section includes fields for 'Property Name' (Property 1), 'Borough' (Bronx), 'Tax Block' (12345), and 'Tax Lot' (1234). A 'Save' button is at the bottom right. The 'Building Information Numbers' section contains a table with columns: BIN, Building Name, Address, City, State, Zip Code, and EER. The table lists two buildings: 'Building 1 on BBL' and 'Building 2 on BBL', both with BIN 1234567, address 123 Street, city NYC, state NY, zip code 10111, and EER A. An 'Add Building' button is at the bottom left of the table.

BIN	Building Name	Address	City	State	Zip Code	EER
1234567	Building 1 on BBL	123 Street	NYC	NY	10111	A
1234567	Building 2 on BBL	123 Street	NYC	NY	10111	A

Audit Template Tool: At a Glance

The screenshot shows the top navigation bar with 'BUILDING ENERGY Asset Score', release and version information, and the U.S. Department of Energy logo. Below the navigation are tabs for 'BUILDINGS', 'CITIES', 'MANAGE', 'ADMIN', and 'HELP'. A 'Help Desk' button and a user profile icon are also present. The main content area displays a 'Building 1...' header with several icons. A 'Validation Errors' section contains a message: 'Please review each section of the forms. Items marked with a [checkmark icon] correspond to ASHRAE Level II inputs, and items marked with a [briefcase icon] correspond to city inputs. A [star icon] indicates a field that is required for city reporting.' Below this is a checkbox for 'Hide fields that are not required'. A yellow warning box states: 'Click the Save button for each section to save your data. You may lose information if you leave these reporting pages without saving.' A 'Download' menu is open, showing options: 'Download:', 'CSV (In-Progress)', 'PDF (In-Progress)', 'XML (In-Progress)', and 'Convert to Asset Score'.

Reports available for download

The screenshot shows a form with several fields. The 'System Type' field is highlighted with a brown box and contains 'Indirect Fired - Storage'. The 'Location of Equipment' field is a dropdown menu with 'Please select' and an 'N/A' checkbox. The 'Venting Type' field is highlighted with a brown box and contains 'Forced Draft', with an 'N/A' checkbox. The 'Approximate Year Installed' field contains '2008' and an 'N/A' checkbox. The 'Fuel Source' field contains 'Natural Gas' and an 'N/A' checkbox. The 'Efficiency Units' field contains 'Et' and an 'N/A' checkbox. Annotations on the right side of the form explain the icons: a red star icon for 'Required Input', a blue checkmark icon for 'ASHRAE L2 Input', and a blue briefcase icon for 'City Input'. Arrows point from these icons to the corresponding fields: the red star points to 'System Type', the blue checkmark points to 'System Type', the blue briefcase points to 'Venting Type', and another red star points to 'Approximate Year Installed'.

Audit Template Tool: At a Glance

- **Submit to City**
 - Attachment capability for EERC1 Professional Certification

The screenshot displays a web application interface for submitting a report to the City. At the top, a dark navigation bar contains the text 'BBL test- Buildin...' and several icons including a back arrow, a blue 'BBL' button, an information icon, a document icon, a folder icon, a triangle icon, a cloud icon, a ribbon icon, and a refresh icon. Below the navigation bar, the main content area has a dark background. The title 'Submit to City' is prominently displayed at the top of this section, with a help icon (question mark) to its right. Underneath the title, the following building information is listed: 'NYC BBL test- Building 1 on BBL', 'BIN: 1024660', '234 West 42 Street', 'New York, NY 10101', 'BBL: 1-01011-0010', and 'Report Type: New York City Report'. A horizontal line separates this information from the 'Report Submission Instructions' section. This section contains a numbered list of six steps: 1. Review building inputs for accuracy - address any issues marked with a warning icon; 2. Download an XML, CVS, or PDF report containing the building inputs entered for your records, if desired; 3. Upload the following documents in the "Submission Attachments" box below: A. PDF of the ASHRAE Level 2 audit report provided to the building owner; B. PDF of the signed and completed EERC1 Professional Certification: Energy Auditor and Owner Statements; 4. Select the Submit to City button which will forward your submission to New York City Department of Buildings; 5. You will receive an email with the Building Name, Submission ID, and Submission Date; 6. Email a copy of this email and the Retro-commissioning Data Collection Tool (Excel) and EERC2 Professional Certification: Retro-commissioning Agent and Owner Statements (PDF) to the NYC Department of Buildings to complete the LL87 submission. Below the instructions is a 'Submission Attachments' section with a blue header. It features a form with a dropdown menu labeled 'This attachment is related to:' with the selected value 'Cooling Tower, Single Speed, Constant Speed'. Below this is a 'Description:' text area. At the bottom of the form, a file named 'retro-Cx_reporting_tool.pdf (151 KB)' is listed. A note at the bottom right of the form states 'Allowed file types are: png, gif, jpg, jpeg, pdf'. At the bottom left of the interface, there is a 'Previous Tab' button with a left-pointing arrow. At the bottom right, a 'Delete' button is partially visible.

Audit Template: Generating an Asset Score

Building Asset Data Includes:

- ✓ Building attributes (stories, conditioned space, orientation, age, etc.)
- ✓ Building envelope (roof, insulation & air sealing, windows, foundation)
- ✓ Building equipment (HVAC, lighting, hot water, etc.)



Building Performance Data Includes:

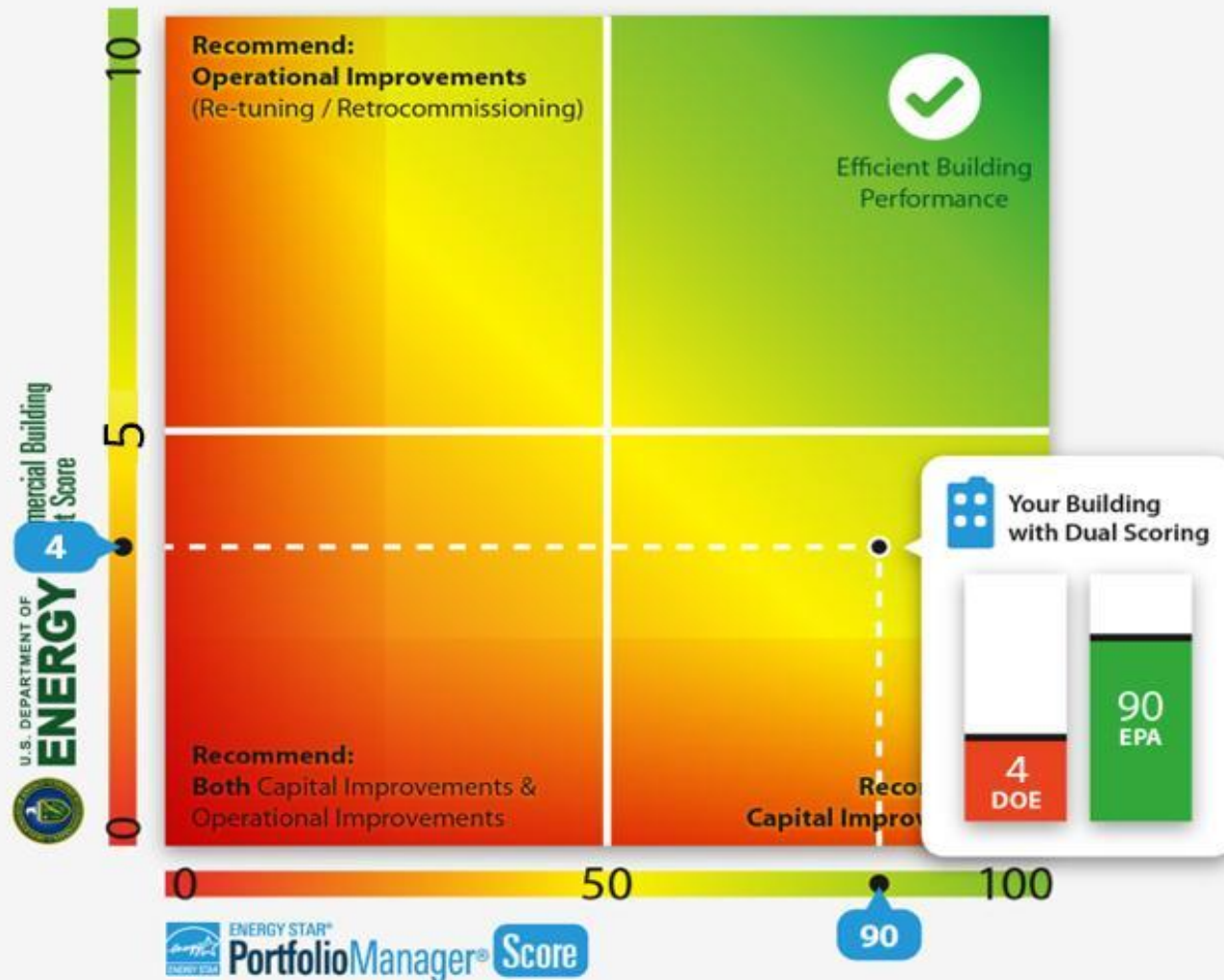
- ✓ Occupant behavior (hours of operation, occupant density, etc.)
- ✓ Actual energy usage (metered data by fuel type)
- ✓ Actual energy spend (utility bills, etc.)



How your building *should* perform based on construction

How your building *actually* performs based on use

Asset Score vs. ENERGY STAR Portfolio Manager



Credit: Performance Systems Development

Audit Template Tool: Helpful Links

How to access the tool:

<https://buildingenergyscore.energy.gov/>

Resources:

[Audit Template Quick Start Guide](#)

[Audit Template Sample PDF Report](#)

Questions/Comments

NYC Mayor's Office of Sustainability

buildingenergy@cityhall.nyc.gov

NYC Department of Buildings

LL87Questions@buildings.nyc.gov

U.S. Department of Energy

[DOE Building Energy Data & Analysis Tools](#)

PNNL

asset.score@pnnl.gov