Introduction to Building Energy Asset Score

Webinar
Tuesday, April 28, 2020
10:00 AM – 11:00 AM PDT

Presented by
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DOE Building Technologies Office Analysis Tools

Tools

BPD
BUILDING PERFORMANCE DATABASE

SEED
STANDARD ENERGY EFFICIENCY DATA PLATFORM

BUILDING ENERGY ASSET SCORE

BUILDING ENERGY AUDIT TEMPLATE

Schema

hpxml
data dictionary + transfer standard

Synch
BUILDING SYNCH

Brick Schema

Terms and Definitions

UBID
UNIQUE BUILDING IDENTIFIER

BEDES
BUILDING ENERGY DATA EXCHANGE SPECIFICATION

BTO's Building Energy Data subprogram:

www.energy.gov/eere/buildings/building-energy-data
Join Upcoming DOE Data Tool Training Webinars!

**Introduction to SEED** ([Register Here](#))
April 29, 3-4pm ET

Learn about the Standard Energy Efficiency Exchange Database (SEED) Platform, a central hub for building energy datasets located across multiple sources. SEED makes data collection, analysis, and sharing simpler and easier.

**Introduction to Audit Template** ([Register Here](#))
April 30, 1-2pm ET

Learn about Audit Template, a web-based tool for entering building energy audit data, performing data validation, exporting and sharing audit data, and submitting data to cities that have local energy audit ordinances. Register here.

**Introduction to SEED: Advanced Features** ([Register Here](#))
May 19, 3-4pm ET

Learn about SEED’s advanced capabilities, including GIS data integration, uploading interval and meter data, and the ability to connect with other tools such as Portfolio Manager, BuildingSync, Audit Template, and the Open Efficiency Platform.
Learning Objectives

• Awareness of the Asset Score tool
• Understand basics of data collection, tool navigation, data entry, and score reports
• Insight into tool best practices
• Know where to go for help and additional resources

Course Outline

I. Introduction to Asset Score
II. Data Collection
III. Using Asset Score: Entering Data and Generating Score Reports
IV. Demonstration
What is Asset Score?

- Free web-based tool for assessing the physical and structural energy efficiency of commercial and multifamily residential buildings
- Evaluates building energy “assets”: envelope and major energy-related systems and equipment
- Identifies opportunities to invest in energy efficiency upgrades

Available as part of the suite of analysis tools for commercial buildings sponsored by the U.S. Department of Energy Building Technologies Office:

https://www.energy.gov/eere/buildings/building-technologies-office
Why was the Asset Score Tool Developed?

• Expand nationwide awareness of opportunities to invest in building energy upgrades.
• Quick, easy to use tool to help guide energy improvement decisions and investments.
• Help make your job easier and faster
• Thousands of potential savings identified to date by both private and public sector organizations

Note: Asset Score was not intended as a replacement for building energy usage benchmarking or building energy audits, but a complimentary tool.
Asset Score vs. ENERGY STAR

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
Using Asset Score and ENERGY STAR for Portfolio Assessment

Scores are not directly comparable

however

Using both provides powerful information that can identify energy upgrades and improvements in building operations

Case Study:
Seattle Building Tune-Up Accelerator Program

What Does the Asset Score Tool Do?

• Generates an energy **asset score** - a simple energy efficiency rating that enables comparison among buildings

• Produces an asset **score report** which includes:
  o Total estimated building energy usage and energy use by end use under standard operating conditions
  o An energy efficiency assessment of the building’s individual systems
  o Opportunities to upgrade building efficiency
Asset Score Scale

Key components:

• Shaded 10-point gradient represents a building's efficiency
• Current Score
• Potential Score
• Estimated savings

A score of 10 represents a building where the lowest expected energy usage using current energy efficiency technologies, which can be modeled using the Asset Score tool; would qualify it to be considered a high-performance building.
How does Asset Score Work?

- Energy simulation using building energy modeling engine (EnergyPlus)
- Normalizes for building operations, occupancy and tenant behavior
How Do I Score a Building?

- Collect Building Data During “Assessment” Phase
- Enter Data into the Asset Score Tool
- Submit to generate an Asset Score Report

Asset Score Data Collection Forms:

Download from the Asset Score Resources page: https://buildingenergyscore.energy.gov/resources
Let’s get started!

Example Building:

Example Building - Mixed Use
123 Example Street
Chicago, IL 60601

<table>
<thead>
<tr>
<th>Building Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Name</td>
</tr>
<tr>
<td>Year Completed</td>
</tr>
<tr>
<td>Total Area</td>
</tr>
<tr>
<td>Address Zip</td>
</tr>
<tr>
<td><strong>Use Type</strong></td>
</tr>
<tr>
<td>Sqft/geometry</td>
</tr>
<tr>
<td><strong>Envelope</strong></td>
</tr>
<tr>
<td>Roof Type</td>
</tr>
<tr>
<td>Wall Type</td>
</tr>
<tr>
<td>Window Type</td>
</tr>
<tr>
<td>Window-to-wall Ratio</td>
</tr>
<tr>
<td>Floor Type</td>
</tr>
<tr>
<td><strong>Lighting</strong></td>
</tr>
<tr>
<td>Lighting Type</td>
</tr>
<tr>
<td>Fixture details</td>
</tr>
<tr>
<td><strong>HVAC</strong></td>
</tr>
<tr>
<td>System Type</td>
</tr>
<tr>
<td>HVAC details</td>
</tr>
</tbody>
</table>
Connect and log in to Asset Score

Register for an account and log in:

https://buildingenergyscore.energy.gov

Getting Started: Collect building data, register for an account, log in, select the Asset Score tab from the home page, create a building, input data and submit for a score. View the Quick Start Guide for details.
Steps 1-3: Input Data

Step 1: Input Basic Building Information
Step 2: Identify Building Use Types
Step 3: Create Inventory of Building Features
Step 4: Create a 3-D Image of the Building
Step 5: Assign Use Types and Components

- Drag and drop assets onto blocks
- Click blocks to add details for surfaces, lighting, HVAC, water heaters
Step 6: Score Building and Review Score Report

- Review inputs and address warnings (if needed)
- Select Score button
- Preview preliminary recommendations and modify if desired
- Wait for Email notification or monitor Home page status icons
- Download report
- Return to edit mode to edit as needed
- Duplicate building and score for comparative analysis
Asset Score Report

- Review score results and report sections
- See score report and building upgrade guides for details – available from the Resources page
Creating Contacts and Sharing Buildings

Share buildings with contacts:
- Add Contacts
- Share Buildings
Asset Score Suite of Tools: Audit Template

- Collect, store and report building energy audit data
- Includes fields present in an ASHRAE Level 2 audit
- Audit data report may be submitted to cities to demonstrate audit completion
- Report includes calculated tables and charts outlining building energy use

Introduction to the Audit Template
Tuesday, 4/30/20; 10:00 AM – 11:00 AM PDT
https://register.gotowebinar.com/register/1739469582854201100
Additional Resources

• Resources page
  buildingenergyscore.energy.gov/resources

• DOE Asset Score FAQ page
  energy.gov/eere/buildings/building-energy-asset-score-frequently-asked-questions

• Asset Score Help Desk
  help.buildingenergyscore.com

Center for Building Knowledge (CBK): Asset Score Training and Certification Program
www.assetscorecertificate.org

Thank you!