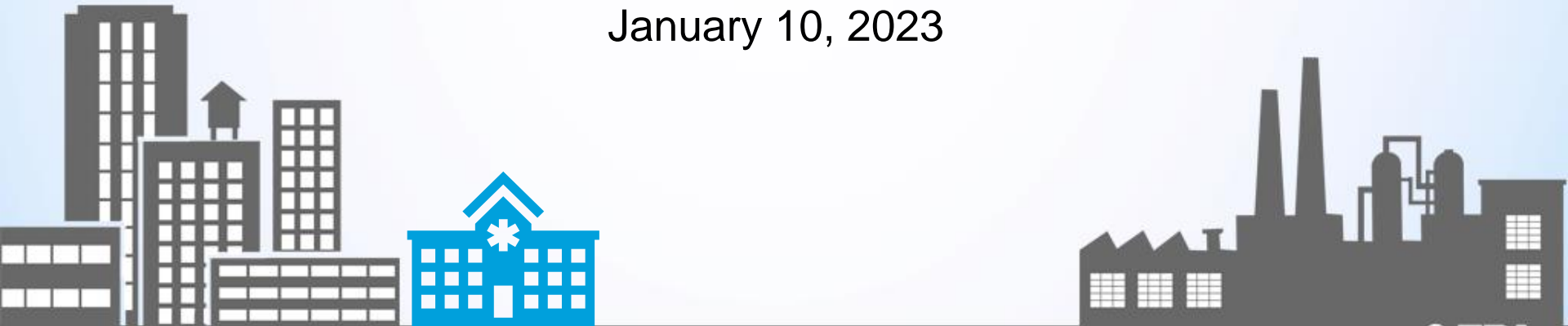




Proposed 1-100 ENERGY STAR Score for Convenience Stores

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Proposed 1-100 ENERGY STAR Score for Convenience Stores

- Convenience stores are energy intensive and, with more than 148,000 convenience stores in the United States, they offer a tremendous opportunity to save energy and reduce emissions.

Presentation Agenda:

- What's New
- Overview of ENERGY STAR Score and Program
- Details of New Proposed Convenience Store Score
- Score Preview
- Request for Comment

What's New:

- EPA has developed a new 1-100 ENERGY STAR score for U.S. convenience stores
- Score Preview Metric – Available now
 - Preview of a property's new score
- Public Comment Process
 - Online web form live following Webinar

1-100 ENERGY STAR Score and Certification

1-100 ENERGY STAR Score

- 1-100 Score to assess energy performance relative to peers
 - Normalize/adjust for climate, weather, and business activities to compare buildings as though they have the same conditions
- Percentile Interpretation
 - 75 indicates that a convenience store is more energy efficient than 75% of similar properties nationwide - comparative, national benchmark
- Certification available to top performers (score ≥ 75)

Property types with 1-100 ENERGY STAR scores



Bank Branch



Barracks*



Courthouses



Data Centers



Distribution Centers



Financial Offices



Hospitals



Hotels



K-12 Schools



Medical Offices



Multifamily Housing



Office Buildings



Residence Hall/Dormitory*



Retail Stores



Senior Living Communities



Single-Family Homes*



Supermarkets



Warehouses



Wastewater Treatment Plants*



Wholesale club/ Supercenters



Worship Facilities

1-100 ENERGY STAR Score Calculation

- Source Energy Use Intensity (Source EUI) is the metric evaluated
- Based on characteristics you enter about your building, such as its size, location, number of workers, etc... results of a regression model are used to estimate how much energy we expect a building with the same characteristics to use (average performance)
 - Expected EUI = $\text{Coefficient}_1 \times \text{Characteristic}_1 + \text{Coefficient}_2 \times \text{Characteristic}_2 + \text{etc...}$
 - Coefficients represent the average effect of each operational characteristic on EUI
- Your actual energy use is compared to the expected energy use (energy efficiency ratio)
 - actual energy use < expected energy use means the building is considered more efficient
- A lookup table is used to assign a 1-100 score based on your building's efficiency ratio

ENERGY STAR Score	Cumulative Percent	Energy Efficiency Ratio	
		≥	<
100	0%	0.0000	0.6225
99	1%	0.6225	0.6588
98	2%	0.6588	0.6826
97	3%	0.6826	0.7008
96	4%	0.7008	0.7159

Score Development Process

- **Analyze building survey data**
 - Must be high quality and nationally representative
- **Develop regression models**
 - Estimate the relationship between different business activities (operating hours, weather) and energy use.
 - Those that explain the variation in energy use
 - Used to produce an estimate of the expected energy use for each sample property based on its experienced business activities.
- **Compare actual energy use with expected energy use from the model**
 - If actual energy use is less than the expected energy use, the building is considered more efficient
 - Ratio of actual to expected energy use = energy efficiency ratio
- **Create score lookup table**
 - The cumulative distribution of efficiency ratios is plotted for all survey data, and a best-fit curve is determined
 - Used to calculate lookup table with energy efficiency ratio ranges at each percentile (i.e. ENERGY STAR Score)

Convenience Store Score

Convenience Stores

Convenience Store: The ENERGY STAR Score for Convenience Stores applies to buildings used for the sale of a limited range of items such as groceries, toiletries, newspapers, soft drinks, tobacco products, and other everyday items. Some of these buildings will also sell cooked-to-order foods as well as fuel.

Data Source



- The new score was developed based on data from an industry survey conducted by the National Association of Convenience Stores (NACS) for the 2019 calendar year.
 - Detailed information on building characteristics, use details, energy use, and water use
- 152 convenience stores provided complete responses to all fields considered necessary for the analysis (building size, key use details, energy usage, etc.)

Convenience Store Data Summary

	10 th Percentile Value	Average	90 th Percentile Value
Convenience Store Size (Square Feet)	3,312	4,431	6,426
Source EUI (kBtu/ft ²)	590	972	1,353

Census Region	Observations
Northeast	16
Midwest	52
South	46
West	38

Survey Weights

- Analysis of the convenience store survey data showed that the distribution of facilities across certain size ranges did not reflect the national population.
- In order to properly account for this stratification, survey sample weights were constructed to reflect the probability of being selected within each group. Observations were weighted by convenience store gross floor area groups. Within each group, the weight of an individual observation was computed as:

$$\text{Observation Weight} = \frac{\text{Total Size of Population in Group}}{\text{Number of Responses in Group}}$$

Operating Characteristics Evaluated

Analysis was performed on various combinations of variables to identify statistically significant operating characteristics that best explain variance in energy use

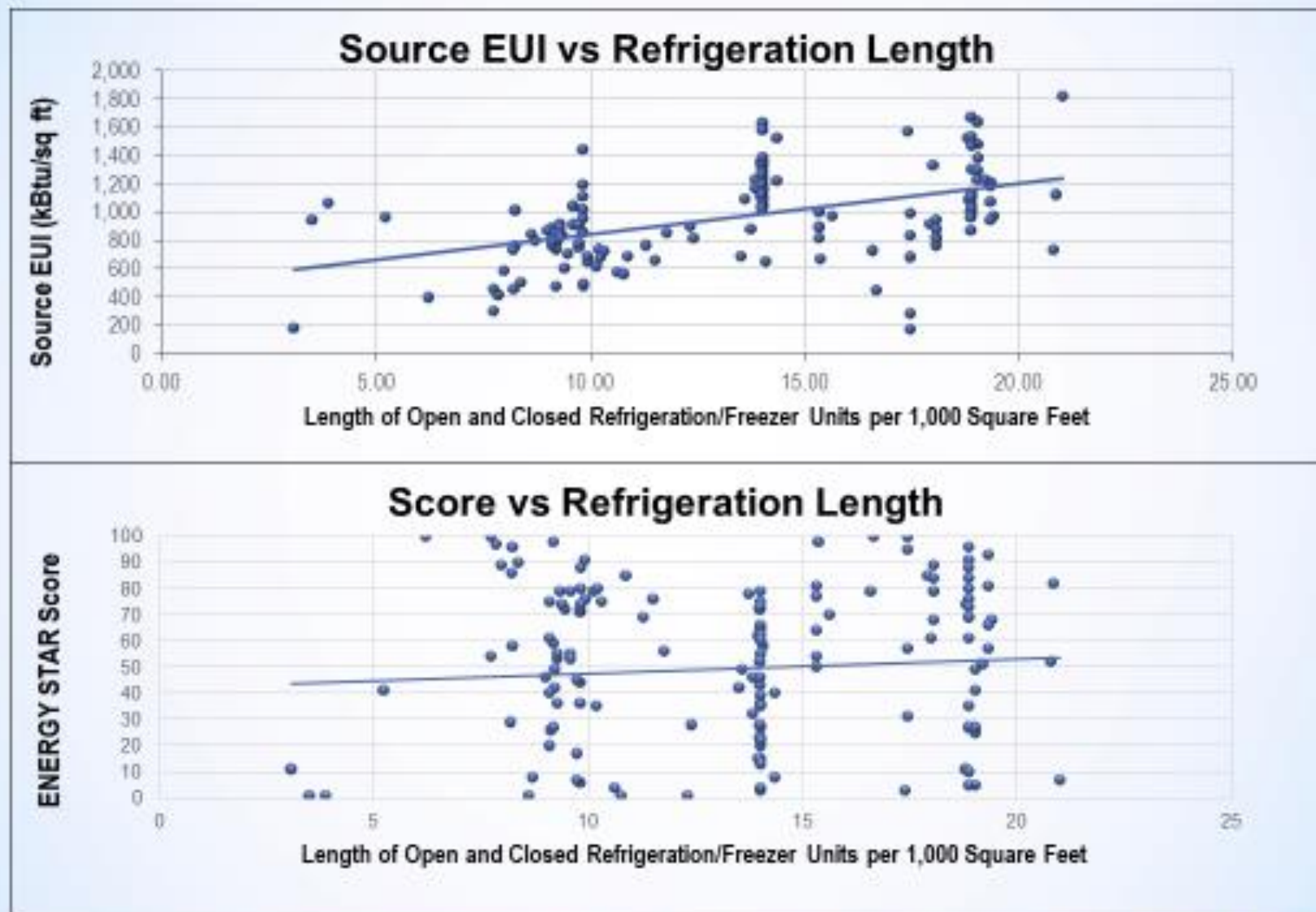
NACS fields were reviewed and considered for inclusion in the model. Those fields include:

- Gross Floor Area
- Weekly Hours with Customer Occupancy
- Full-Time Equivalent Employees
- Food Service
- Seating Area
- Heating Degree Days
- Cooling Degree Days
- Percent which can be Heated
- Percent which can be Cooled
- Ice Dispensers
- Display/Buffer Cases
- Number of Customers
- Fuel Gallons Sold
- Various Cold Merchandising and Display Equipment
- Various Walk-in refrigeration
- Various types of Cooking Equipment
- Various types Heating and Warming Equipment
- Various types of Beverage Dispensers

Adjustments in the New Convenience Store Model

- Number of Full-Time Equivalent Workers per 1,000 Square Feet
- Cooking Equipment Units Per 1,000 Square Feet
- Number of Heating and Warming Equipment Units per 1,000 Square Feet
- Length of Open and Closed Refrigeration/Freezer Units per 1,000 Square Feet
- Percent of Gross Floor Area which is Walk-in Refrigeration
- Heating Degree Days × Percent which can be Heated
- Cooling Degree Days × Percent which can be Cooled

Adjustments (Need and Impact)



New Use Detail Definitions

Number of cooking equipment units is the count of equipment used for cooking of food products. This count should include all conventional, convection, impinger, and retherm ovens, as well as fryers and grills. Smaller pieces of equipment such as toasters, microwaves, and rapid cook ovens should not be included in this count.

Number of warming/heating equipment units is the count of pieces of equipment used to continuously hold food products at a warm temperature. This includes heated merchandiser cases, warming drawers, and hot dog rollers. This equipment should be operational and warming food for a majority of the time the store is open to the public.

Score Preview

- “ENERGY STAR Score Preview for Model Updates” – Metric available now for Convenience Store
 - Allows user to view a preview before official launch
 - understand score mechanics. Set up property for an accurate score
 - Prepare for launch of score
 - Provide feedback
- **Update all required use details** before reacting to the preview
- Three ways to access score preview in Portfolio Manager
 - Add the Score Preview to a Custom Report
 - Create a "Dashboard View" on your My Portfolio Page
 - Select this metric on the Summary Tab chart (Easiest if you just have one property)
- FAQ on score preview with instructions - <https://energystar-mesa.force.com/PortfolioManager/s/article/What-is-the-Score-Preview-metric>

Score Preview – Report Option

- Detailed view for multiple buildings

Score Preview Demo								
Date Downloaded: 12/21/2022 02:31 PM EST								
Date Generated: 12/21/2022 02:29 PM EST								
Number of properties in report: 1								
Property Id	Property Name	Parent Property Id	Parent Property Name	Year Ending	ENERGY STAR Score Preview for Model Update	Site Energy Use (kBtu)	Source Energy Use (kBtu)	Site EUI (kBtu/ft ²)
19184788	Convenience Store	Not Applicable: Standalone Property	Not Applicable: Standalone Property	12/31/2018	86	1140000	2877000	380



Score Preview – Dashboard Option

- Quick view for multiple buildings

The screenshot displays the ENERGY STAR Portfolio Manager interface. At the top, the logo and navigation links are visible. The main content area is divided into several sections:

- Properties (552)**: A summary box with an "Add a Property" button.
- Source EUI Trend (GJ/m²)**: A line chart showing energy usage from 2008 to 2018. The y-axis ranges from 0 to 3. A "Change Metric" link and a "Refresh Chart" button are present.
- Dashboard**: A section for metrics current as of 12/27/2022 12:30 PM EST. It includes a search box and a "Refresh Metrics" button.
- Table**: A table listing properties with columns for Name, Energy Current Date, ENERGY STAR Score Preview for Model Updates (highlighted in yellow), ENERGY STAR Score, and Primary Property Type - Portfolio Manager-Calculated.

Name	Energy Current Date	ENERGY STAR Score Preview for Model Updates	ENERGY STAR Score	Primary Property Type - Portfolio Manager-Calculated
Convenience Store 19184788	12/31/2019	86	NA	Convenience Store with Gas Station
County Demo 2476133	09/30/2010	NA	61	Office
Demo K-12 Building 1921102	02/28/2009	NA	76	K-12 School
Demo Office 6015282	05/31/2016	NA	NA	Office

At the bottom of the table, there are navigation controls: "First", "Previous", "Page 1 of 1", "Next", "Last", a dropdown menu set to "100", and "View 1 - 4 of 4". Below the table, it says "Properties (552) (Count includes 59 child properties. Expand carets to view.)" and a "Download Data Table" button.

Score Preview – Summary Table

- Simplest view for single property

The screenshot displays the Energy Star Portfolio Manager interface for a single property. The top navigation bar includes the Energy Star logo, the text 'PortfolioManager', and user options like 'Welcome', 'Account Settings', 'Notifications', 'ENERGY STAR Notifications', 'Contacts', 'Help', and 'Sign Out'. Below this is a 'MyPortfolio' section with tabs for 'Sharing', 'Reporting', 'Recognition', 'Admin', and 'Processing'. The main content area features a 'Convenience Store' property card with address '321 Education Way, Cook County, IL 60304', 'Map It' link, 'Portfolio Manager Property ID: 19184788', and 'Year Built: 1950'. A 'Change Metric' link is present. A 'Weather Normalized Source EUI (kBtu/ft²)' box shows 'Current: 959.0 (61.83% higher than median.)' and 'Baseline: 959.0 (61.83% higher than median.)'. Below this is a 'Summary' section with tabs for 'Details', 'Energy', 'Water', 'Waste & Materials', 'Goals', and 'Design'. A 'Refresh to see Source EUI Trend' box contains a blank chart for years 2011-2021. A 'Metrics Summary' table is shown on the right, with the 'ENERGY STAR Score Preview for Model Updates' row highlighted in yellow.

Convenience Store
 321 Education Way, Cook County, IL 60304 | [Map It](#)
 Portfolio Manager Property ID: 19184788
 Year Built: 1950
[Edit](#)

Weather Normalized Source EUI (kBtu/ft²) Why not score?
Current: 959.0
 (61.83% higher than median.)
Baseline: 959.0
 (61.83% higher than median.)

Summary | Details | Energy | Water | Waste & Materials | Goals | Design

Refresh to see **Source EUI Trend**
[Change Metric](#)

Metric	Dec 2019 (Energy Baseline)	Dec 2019 (Energy Current)	Change
ENERGY STAR Score Preview for Model Updates	86	86	0.00 (0.00%)
Source EUI (kBtu/ft ²)	959.0	959.0	0.00 (0.00%)
Site EUI (kBtu/ft ²)	380.0	380.0	0.00 (0.00%)
Energy Cost (\$)	Not Available	Not Available	N/A
Site Energy Use (kBtu)	1,140,000.0	1,140,000.0	0.00 (0.00%)
Natural Gas Use (kBtu)	180,000.0	180,000.0	0.00 (0.00%)



Public Comment Process

- Webpage with additional resources on the convenience store score and a form to submit comments directly to EPA
- Intended to
 - Allow for transparency regarding stakeholder feedback and EPA responses
 - Encourage engagement and useful feedback from stakeholders before finalization
 - Allow the team to address concerns more effectively

Public Comment Process – Convenience Store Questions of Particular Interest

- Do you have concerns about your (or other stakeholders') ability to collect the use detail information necessary to receive an ENERGY STAR score? If so, which use details do you feel will present a particular challenge and why?
- Does the model adjust for the appropriate business characteristics that explain the variation in energy use among convenience stores? If not, please explain any factors that you think are missing from the score calculation, or why those included in the current model may not be needed.
- Do you have any other comments on the ENERGY STAR score for convenience stores, the analysis performed to develop the score, or the benchmarking and certification process?
- Do you have comments on how the ENERGY STAR program can better serve convenience stores in their efforts to improve energy performance?

Public Comment Process – Submissions Form

- Review additional materials and submit your comments to EPA:
https://www.energystar.gov/buildings/benchmark/understand_metrics/score_updates/convenience_stores

Submit Comments on the New 1-100 ENERGY STAR Score for U.S. Convenience Stores

Note: EPA will not respond to comments individually. If you have a question, please visit our [helpdesk](#).

Your name

Organization

Email address

Your role:

Building Owner/Manager

Service & Product Provider

In general, do you support EPA's new 1-100 ENERGY STAR score for U.S. convenience stores?

Yes

No

Please share your comments in the box below.

Upload:

Recap of Timeline

- **January 10th** –
 - Proposed score for convenience store released
 - Score preview metrics available
 - Public comment process open
- **February 10th** –
 - Public comment closes and EPA begins review
- **~April/May**
 - Comments published with EPA responses
 - Score is launched -or- second round of revisions/comments starts