ENERGY STAR®
Refrigerated Beverage Vending Machines

Version 4.0 Draft 1 Stakeholder Webinar

September 25, 2018

Agenda

- Welcome and Introductions
- General Overview of the ENERGY STAR Program
- Purpose of Revision
- Activities to Date
- Review of Changes to the Draft 1 Proposal
- General Discussion & Questions
- Timeline & Next Steps

Introductions

Presenters
Tanja Crk, U.S. EPA ENERGY STAR Program

Adam Spitz, ICF

Stephanie Johnson, U.S. Department of Energy

Facilitator
Zenia Montero, ICF

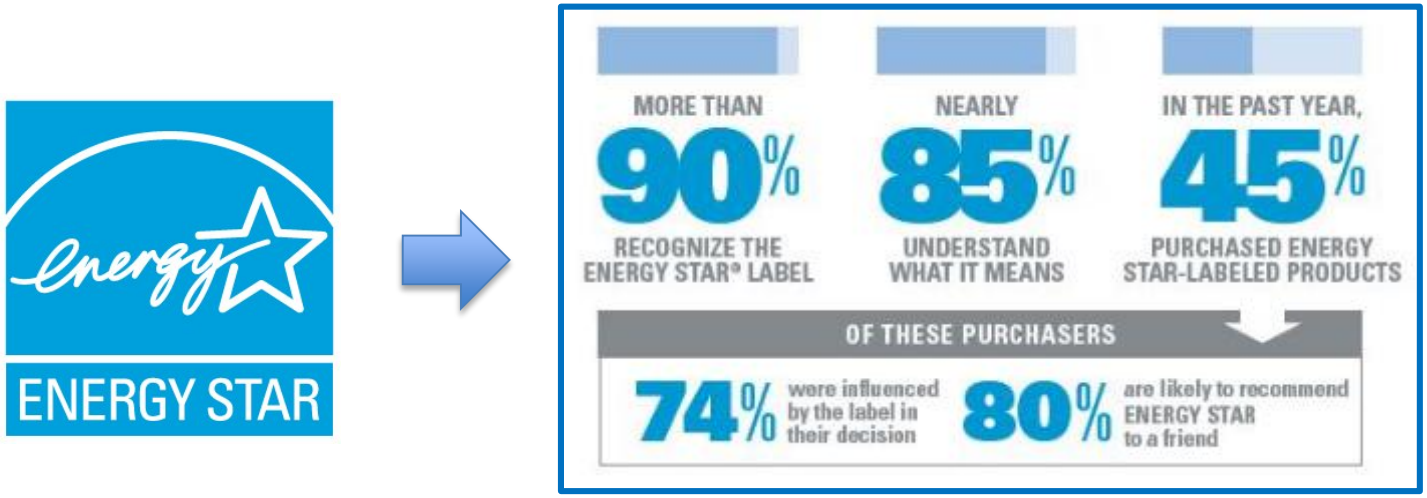
General Overview of the ENERGY STAR Program

What is ENERGY STAR?

The simple choice for energy efficiency.

- Since 1992, a voluntary **partnership** among government, business, and consumers to save money and protect our environment through superior **energy efficiency**
- Products that have earned the ENERGY STAR meet strict **energy-efficiency guidelines** set by the U.S. EPA
- Influential and **trusted brand** recognized by over **90 percent of Americans**
- Available across **75+ product categories**

Why Leverage the ENERGY STAR Mark?

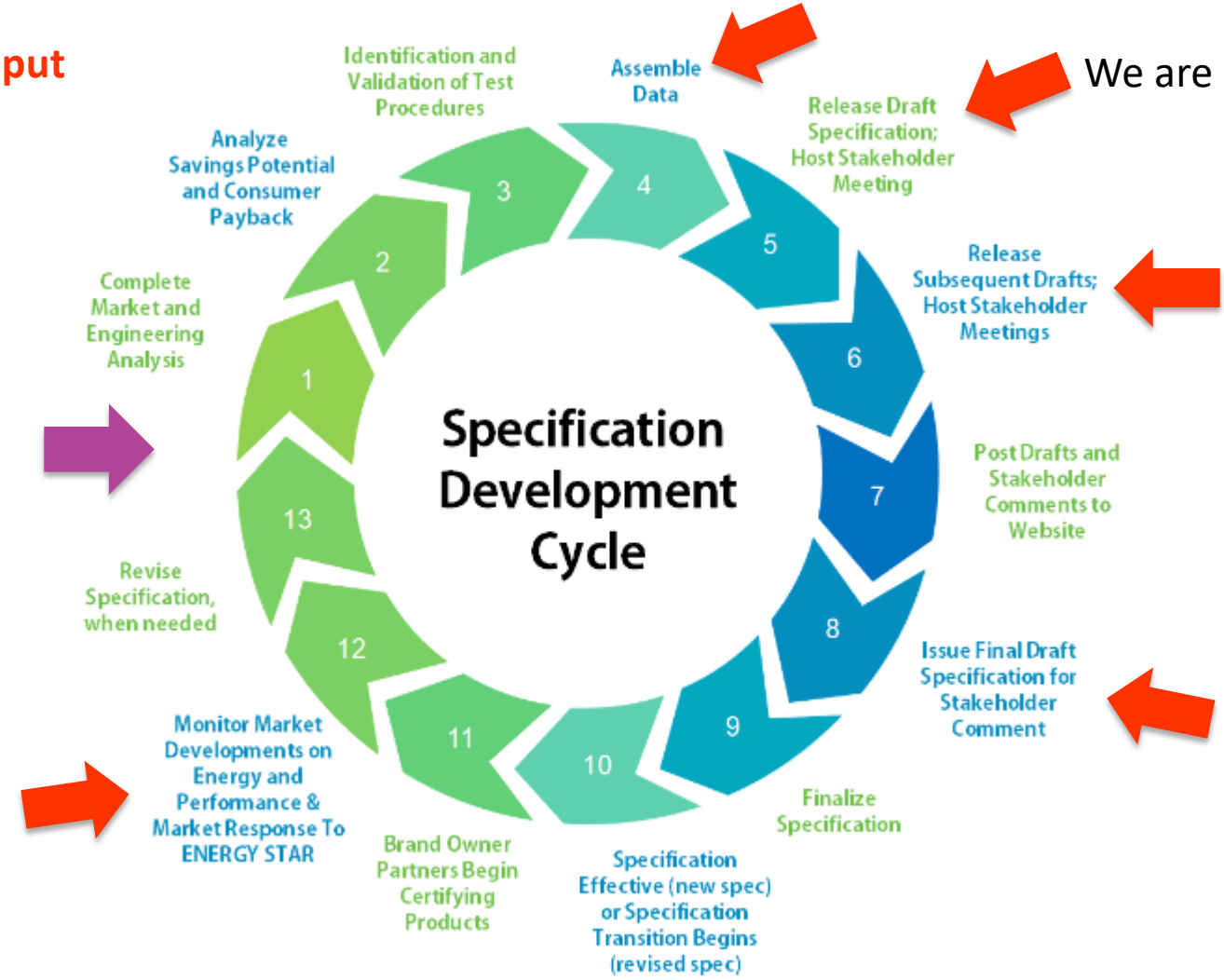


- **Utilities** offer **rebates** on ENERGY STAR equipment
- **Saves** end-users **energy**, **water**, and **money**
  - Savings over a products lifetime are typically greater than any potential incremental cost

ENERGY STAR Specification Development Process

Stakeholder Input

Industry data needed to explore new ENERGY STAR categories



Certifying Products as ENERGY STAR

- To ensure **consumer confidence** and protect the investment of ENERGY STAR partners, EPA requires all products be **third-party certified**.
  - Once a Partnership Application is submitted, you must submit product data to an EPA-recognized certification body (CB).
  - More information can be found here: www.energystar.gov/3rdpartycert.
- Once an EPA-recognized CB has reviewed and certified your first product, you will be notified that you may proceed with **labeling your product** and relevant **collateral material**.
- Newly certified models offered for sale in the U.S. will be posted on the **ENERGY STAR Product Finder**.

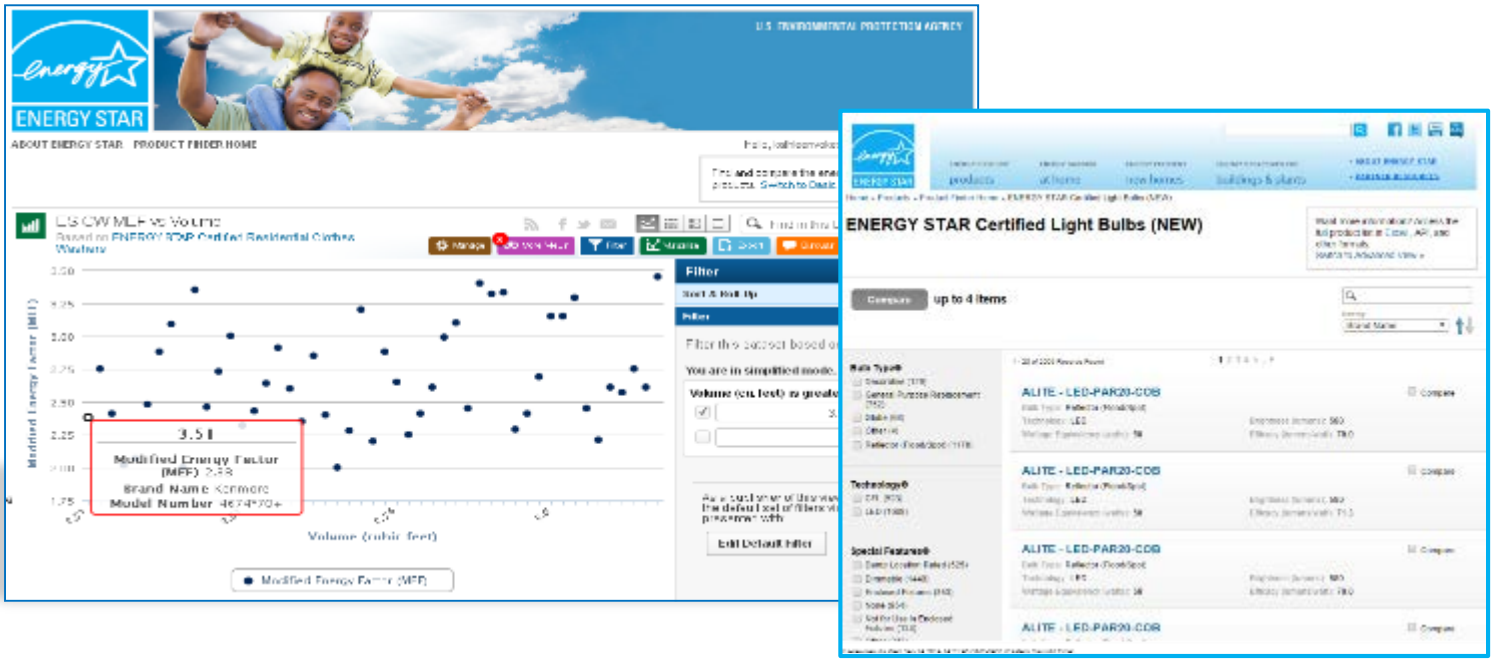
ENERGY STAR Program Requirements

- Comply with the ENERGY STAR Brand Guidelines

- For Brand Owners:
  - Participate in **third-party verification testing** through a EPA-recognized CB
    - Manufacturers **may be** selected for verification testing, which occurs annually
  - Provide **annual unit shipment data** no later than **March 1** of the following year for all products certified as ENERGY STAR to assist EPA in measuring the impact of ENERGY STAR in the marketplace
    - Additional information can be found here: www.energystar.gov/unitshipmentdata

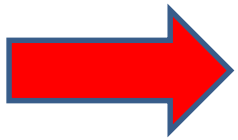
ENERGY STAR Product Finder

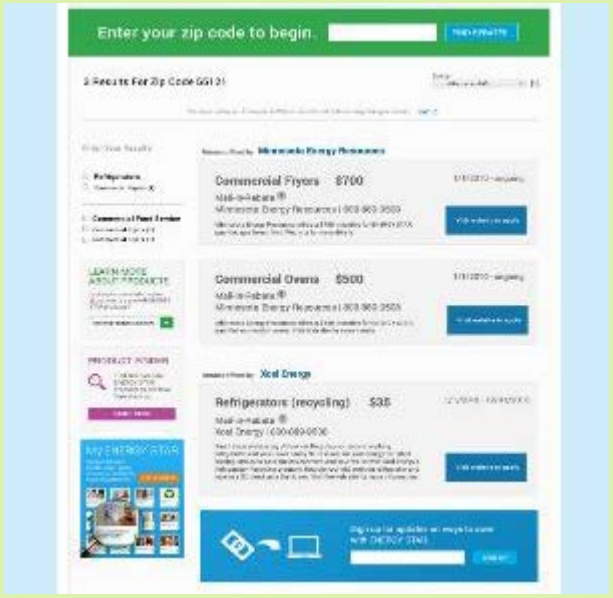
- Find products by filtering by product type, features, and technology
- Compare product features for up to four items
- View, filter, export and more with the advanced view
- Learn more at: www.energystar.gov/productfinder



ENERGY STAR Rebate Finder

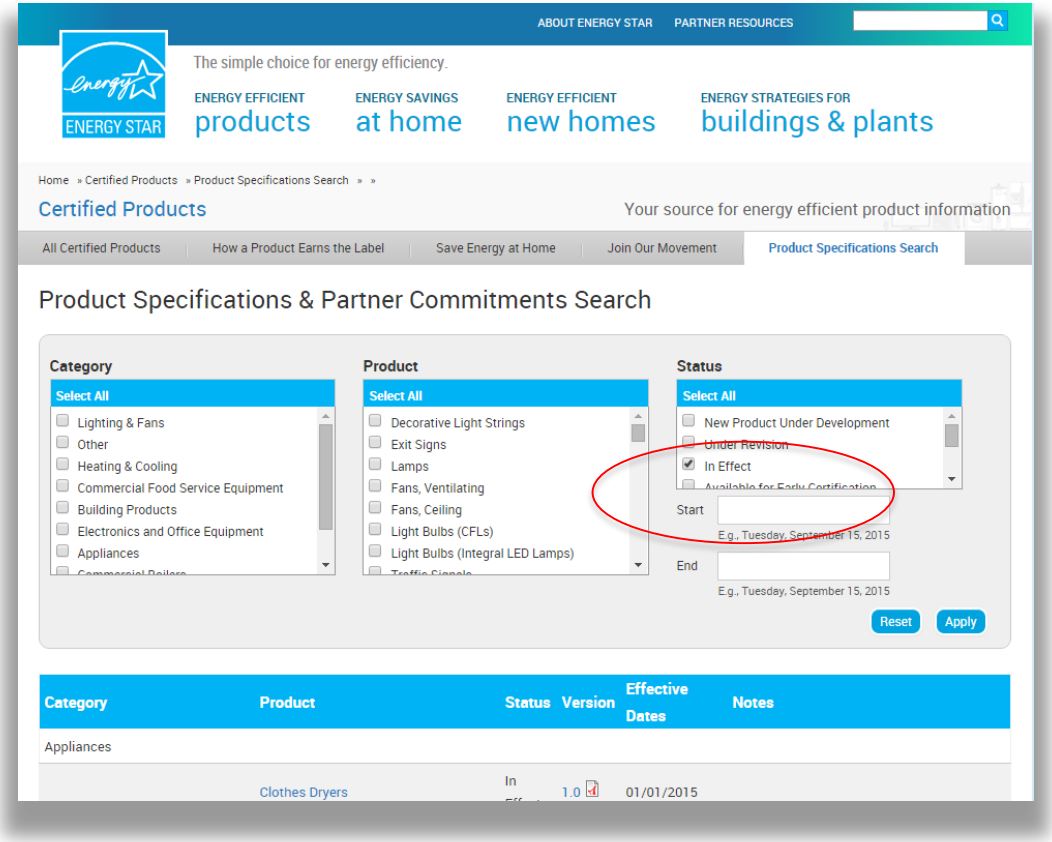
- Easily accessible, user-friendly search tool to find ENERGY STAR rebates
- Search by entering your zip code and/or selecting the product category
- Learn more at: www.energystar.gov/rebatefinder





ENERGY STAR Specification Search Tool

- Search for key product performance requirements
- Find information on current specifications & effective dates
- Identify new specifications under development
- Review all ENERGY STAR specifications at: www.energystar.gov/specifications



Purpose of Revision

Guiding Principles That May Impact Timing of Specification Revisions

- Significant increase in ENERGY STAR market penetration
- Change in Federal minimum efficiency standards
- Technological advancements
- Product performance or quality concerns
- New or improved test procedure

Purpose of Revision

- Amend terms and definitions to align with DOE's final rule
- Expand scope to include combination type machines
- Lower the Maximum Daily Energy Consumption (MDEC) levels (kWh/day)

DOE Harmonization

- DOE Test Procedure Final Rule
  - Published July 31, 2015 (80 FR 45758)
  - Incorporated by reference new industry standards
  - Clarified existing test procedure and established separate new test procedure to determine compliance with amended standards
  - Established methods to address new equipment features:
    - Accessory low-power mode
    - Refrigeration low-power mode
- DOE Energy Conservation Standards Final Rule
  - Published January 8, 2016 (81 FR 1028)
  - Amended standards for Class A and Class B equipment
  - Established new standards for Combination A and Combination B vending machines

Activities to Date

Refrigerated Beverage Vending Machine Version 4.0 Specification

- **Version 4.0 Draft 1 Specification**
  - September 10, 2018
- **Draft 1 Webinar**
  - September 25, 2018
- **Draft 1 Comments Due Date**
  - October 9, 2018

Product Development Website:

https://www.energystar.gov/products/spec/vending_machines_specification_version_4_0_pd

Review of Changes to the Draft 1 Proposal

Draft 1 Terms and Definitions

- Class A and Class B Refrigerated Beverage Vending Machines
- Combination A and Combination B Vending Machines
- Standard Product
- Food Vending Machines
- Rebuilt Refrigerated Beverage Vending Machines
- Low Power Mode
- Accessory Low Power Mode
- Refrigeration Low Power Mode

Approach for Determining Version 4.0 Levels

- **Building the Dataset**
  - EPA developed a data set that is based on products that will meet the DOE 2019 levels
    - Energy performance data sources:
      - ENERGY STAR Product Finder and Department of Energy's Compliance Certification Database for Refrigerated Beverage Vending Machines
    - 48 unique models
      - Class A: 26 models
      - Class B: 22 models

Approach for Determining Version 4.0 Levels, cont.

- **Determining Performance Levels**
  - Consistent with DOE and how the Agency set the current ENERGY STAR performance levels, EPA is proposing a linear approach, which evaluates the relationship between energy use and refrigerated volume based on the performance data
    - This approach will ensure that ENERGY STAR products offer significant savings when compared to standard models

Draft 1 Certification Criteria

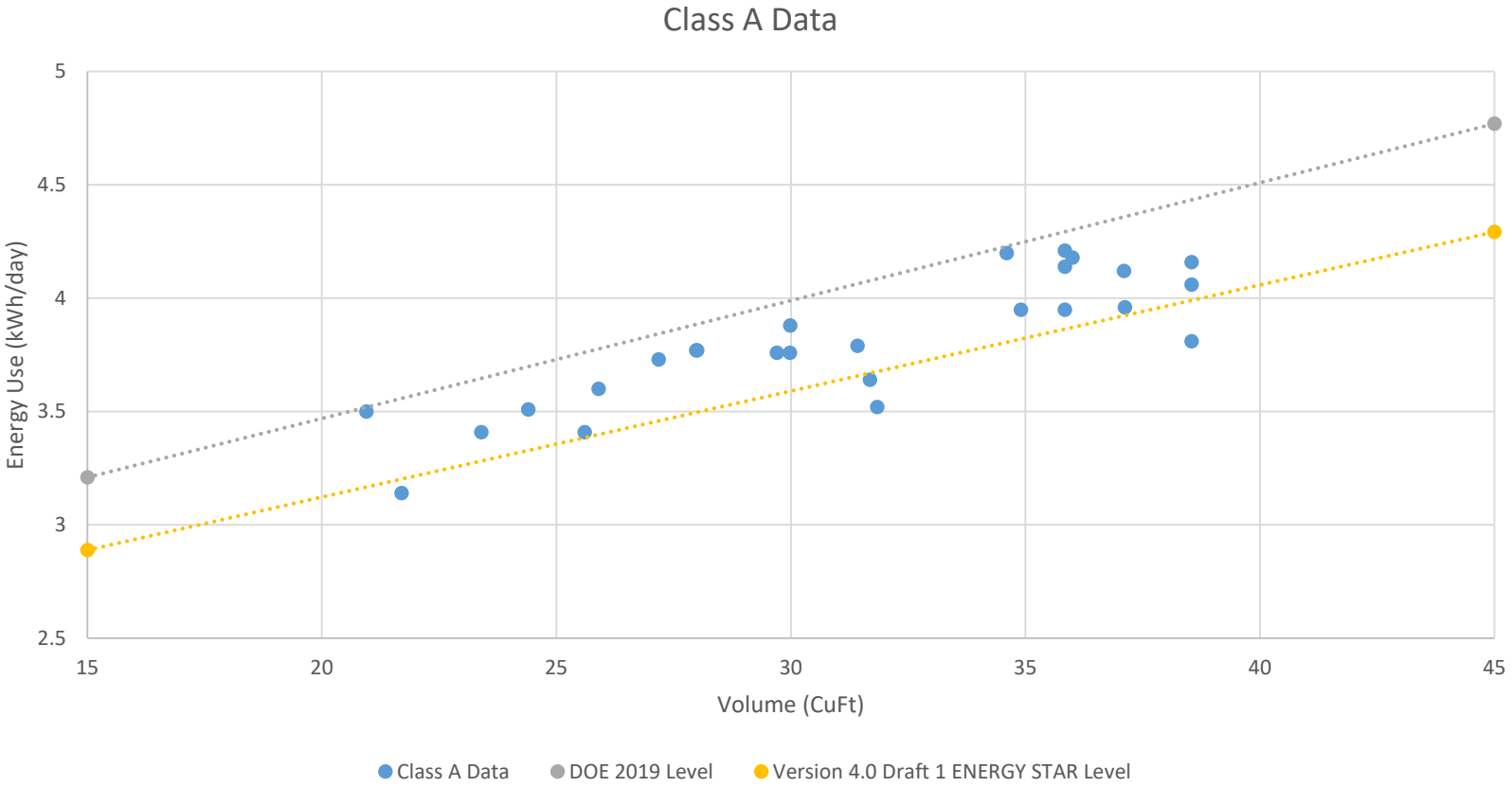
Maximum Daily Energy Consumption (MDEC): To certify for ENERGY STAR, refrigerated beverage vending machines shall consume equal to or less than the MDEC values, in kWh/day, obtained using the equations below:

- Class A – New and Rebuilt Machines: 0.0468**V** + 2.187
- Class B – New and Rebuilt Machines: 0.0442**V**+1.87
- Combination A – New and Rebuilt Machines: 0.0774**V** + 2.394
- Combination B - New and Rebuilt Machines: 0.09435**V** + 1.734

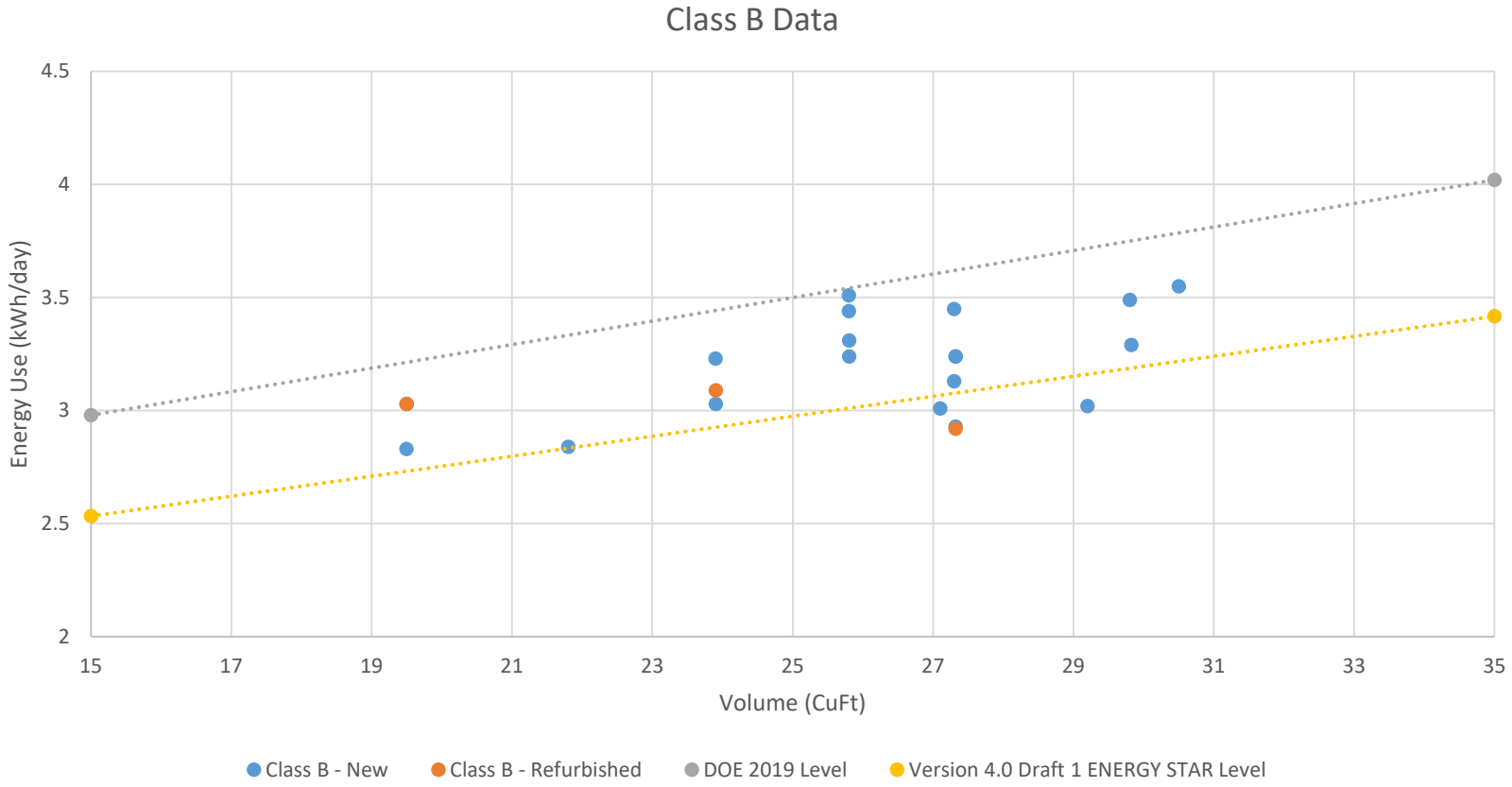
- And -

(1) Refrigeration low power mode, (2) accessory low power mode, or (3) whole machine low power state.

ENERGY STAR Refrigerated Beverage Vending Machines Levels: Class A



ENERGY STAR Refrigerated Beverage Vending Machines Levels: Class B



ENERGY STAR Refrigerated Beverage Vending Machines Levels: Combination A and B

- Energy performance levels for eligible Combination type machines were based on set percentages more stringent than DOE
  - Combination A 10% beyond DOE standard level
  - Combination B 15% beyond DOE standard level

Food Vending Machines

- **Food Vending Machine**: A refrigerated food vending machine that holds and/or prepares mechanically distributed refrigerated food products or a combination of refrigerated food product(s) and refrigerated bottled and/or canned beverage products.

- If EPA were to expand scope beyond refrigerated beverage vending machines to include food vending machines, a separate ENERGY STAR test method would be developed to assess the energy performance of those models as there is currently no DOE test procedure for that equipment.

Food Vending Machines, cont.

- EPA requests feedback on how a food vending machine test method should differ from the existing DOE test procedure for beverage vending machines.

- EPA requests comment on the potential need for sub-definitions within food vending machines to address differences in available operating temperatures and configurations, and their corresponding appropriate test methods and energy consumptions.

Refrigerants

- **Low-GWP Refrigerants**
  - EPA encourages manufacturers to consider the early adoption of climate-friendly hydrocarbon refrigerants
  - Based on market research and DOE's final rule analysis, transitioning to low-GWP refrigerants can result in energy savings or gains, depending on the refrigerant type and overall system design

General Discussion and Questions

Next Steps and Timeline

- Stakeholder comments on Draft 1 due October 9, 2018
  - Send to vendingmachines@energystar.gov
    (Moderated by Zenia Montero)
- EPA anticipates this specification to be finalized by the end of 2018
- Version 4.0 specification effective date approximately 9 months after final

Contacts

U.S. EPA ENERGY STAR Program

- Tanja Crk, Product Manager, Crk.Tanja@epa.gov

ICF

- Adam Spitz, Technical Specialist, Adam.Spitz@icf.com
- Zenia Montero, Associate, Zenia.Montero@icf.com

U.S. Department of Energy

- Stephanie Johnson, Stephanie.Johnson@EE.Doe.Gov