



ENERGY STAR® Specification Updates

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Agenda



ENERGY STAR Appliance Overview

Product Specific Updates

- Residential Dishwashers
- Clothes Washers
- Room Air Conditioners
- Residential Refrigerators-Freezers

Scoping New Program Opportunities

Questions

ENERGY STAR Appliance Overview

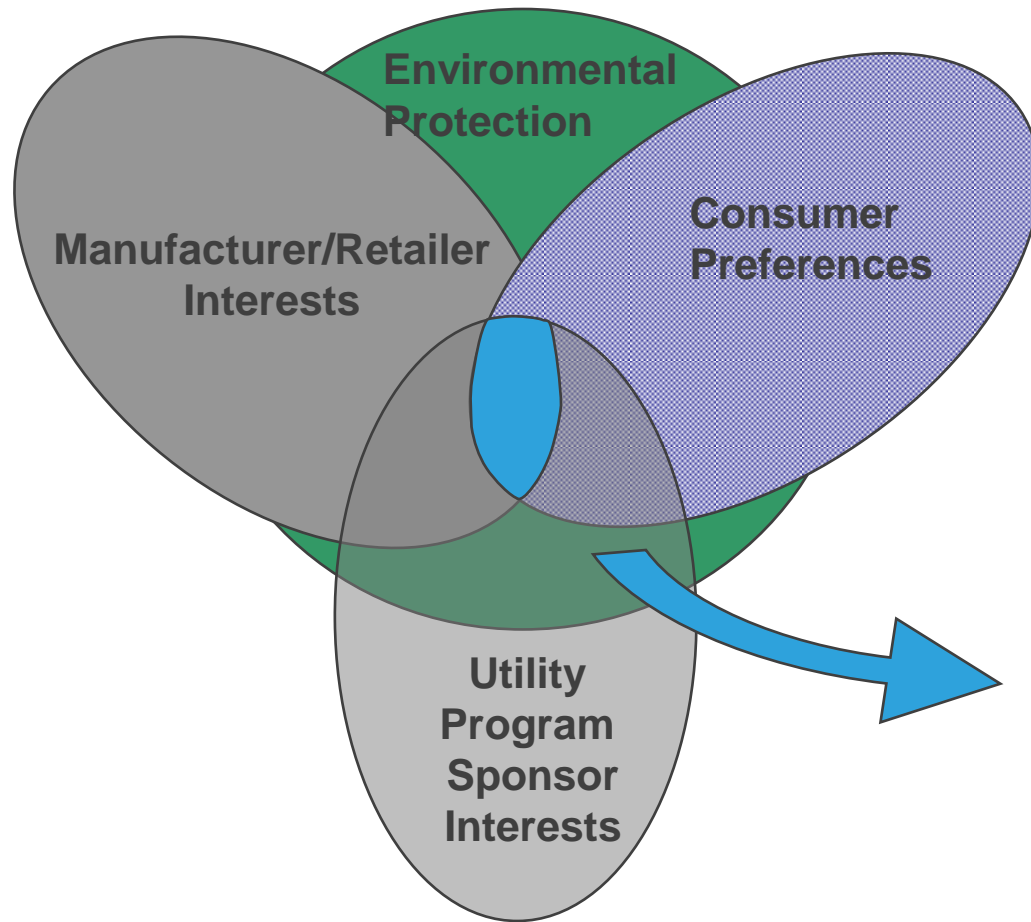
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ENERGY STAR's Focus



Cost-effective

No Sacrifice in
Performance

Government backed

**Consumer
is Key**

ENERGY STAR Guiding Principles



- ENERGY STAR criteria are designed to balance a varied set of objectives, including:
 - Significant energy savings
 - Cost effective
 - Energy consumption that can be measured and verified with testing
 - Equivalent functionality and performance
 - No proprietary technologies
 - Label provides meaningful differentiation

Maintaining Brand Integrity through Regular Spec Revisions



- 2009 EPA-DOE Memorandum of Understanding (MOU) establishes one trigger for specification reviews.
 - *“For appliances and other product categories with longer-lived product models, specifications will be reviewed for a possible revision at a **minimum of every three years** or once the market share for ENERGY STAR qualifying products reaches **about 35%.**”*

Source: www.energystar.gov/mou

- Additional factors driving specification revisions:
 - Federal Standards
 - Innovation

Specification Development Cycle

Specification Development Cycle



Specification Transitions

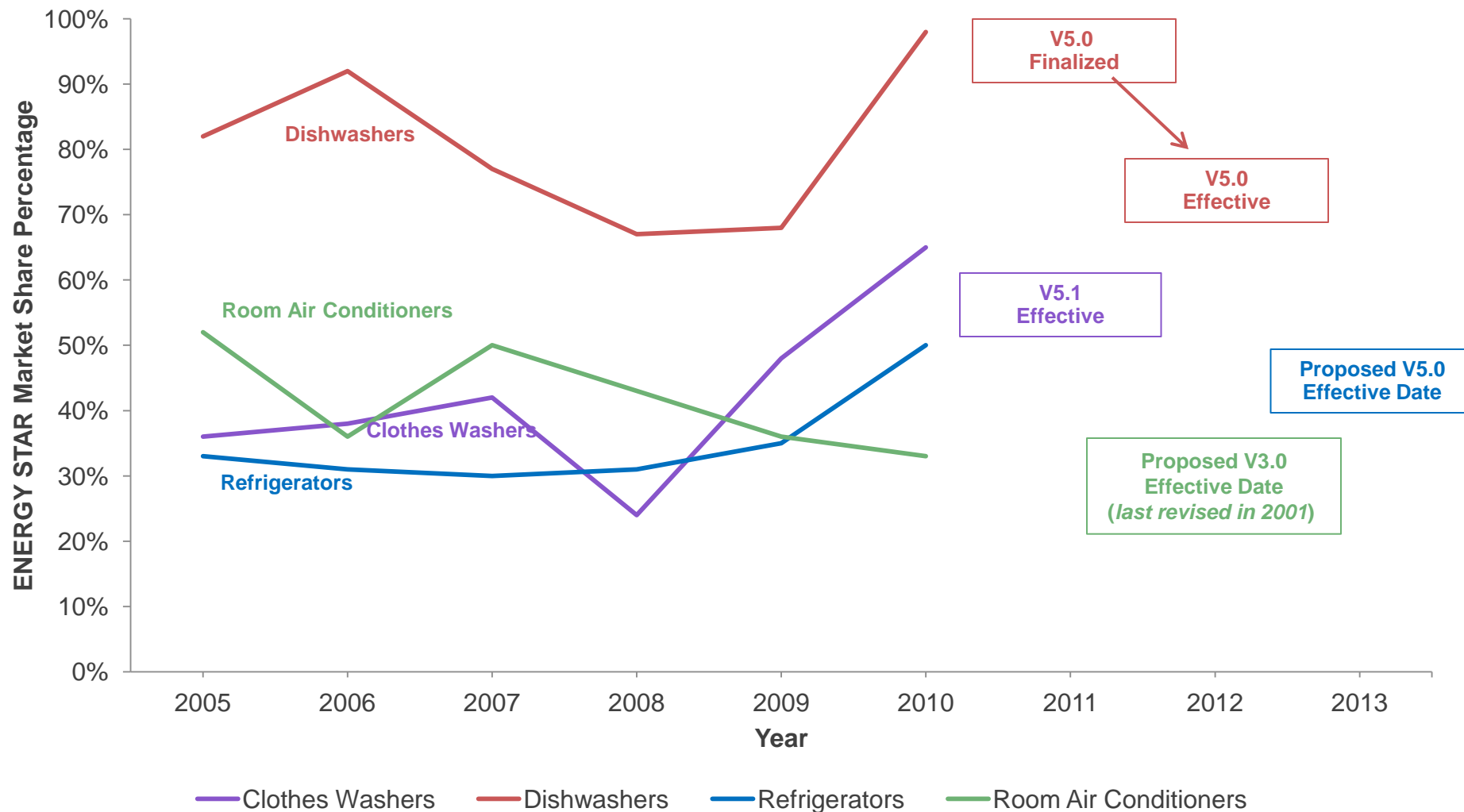
- EPA shares its partners' desire for a smooth transition from one ENERGY STAR specification version to the next.
- EPA provides partners with time between the completion of a specification and its implementation date to allow for transition of collateral material.
- EPA also intends for this period to allow models that will not meet the new requirements to transition off the shelves.
 - When consumers buy ENERGY STAR labeled products, they expect them to meet the latest requirements.

Specification Transitions



- With this in mind, EPA has established the following timeline:
 - Effective immediately after a spec is final, manufacturers can elect to have CB certify eligible products to the new version.
 - 4 months before the new specification becomes effective, CBs are instructed to no longer certify product submittals to older specification. (Reminders will be shared with CBs and manufacturers.)
 - EPA will share with retail partners a list of products that meet new specification in advance of the effective date.

ENERGY STAR Appliance Market Share Data



Note: 2010 Unit Shipment Data available: www.energystar.gov/usd

Appliance Spec Development at a Glance



Residential Dishwashers

- Version 5.0 takes effect January 20, 2012.
- A Tier 2 is scheduled for January 1, 2014 that will address cleaning performance. Cleanability test is under development.

Clothes Washers

- Criteria changed on January 1, 2011 (Version 5.1).
- New requirements for Combination All-In-One Washer-Dryers are being developed.
- Commercial Clothes Washers criteria are being revised.

Room Air Conditioners

- Version 3.0 specification under development.

Residential Refrigerators-Freezers

- Version 5.0 specification under development.

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Residential Dishwashers



- EPA finalized Version 5.0 earlier this year; new criteria go into effect January 20, 2012

Product Type	Tier 1		Tier 2	
	Water (gallons per cycle)	Energy (kWh per year)	Water (gallons per cycle)	Energy (kWh per year)
Standard	≤ 4.25	≤ 295	TBD	TBD
Compact	≤ 3.50	≤ 222	TBD	TBD

Also, Cleaning Performance
(Tier 2 Only): TBD

Product Availability



- As of November 2011, a total of 243 standard dishwashers are eligible for the V5.0 criteria
 - This is double the number of eligible models since V5.0 was finalized
 - Includes 12 manufacturers and over 25 brands
- In addition, 20 compact dishwashers are eligible for V5.0 criteria
- *Note: Partners that have certified to V4.1, that meet the criteria for V5.0, should inform their CB as soon as possible that they want those products certified to the new specification – an e-mail reminder was sent to manufacturing partners last week.*

Deployment Timeline for V5.0

- EPA finalized V5.0 in April 2011.
- Effective immediately, manufacturers could have CB certify products to V5.0.
- As of September 20, 2011 CBs were instructed to no longer certify new products to V4.1.
 - NOTE: Existing qualifications to Version 4.1 remain valid for purposes of ENERGY STAR qualification, until January 20, 2012.
- EPA will share preliminary list of models certified to V5.0, with retailers in December.
- As of January 20, 2012 any product shipped with ENERGY STAR label must meet V5.0 requirements.

Dishwasher Tier 2



- A Tier 2 is scheduled to become effective January 1, 2014. Will include a minimum requirement for dishwasher cleanability.
 - Will help ensure ENERGY STAR dishwashers continue to live up to consumers' expectations.
- DOE is developing an ENERGY STAR test procedure for cleanability. Initial thoughts were shared with stakeholders for comment/feedback during a September 2011 ENERGY STAR webinar.
- Plan to continue ongoing work with stakeholders on how to best address and encourage “smart grid” or “connected” functionality as part of this next specification.

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Clothes Washers

- On January 1, 2011:
 - New criteria became effective:
 - $MEF \geq 2.0$
 - $WF \leq 6.0$
 - New Third Party Certification requirements
- Since January 1st, 386 models (residential & commercial) have been qualified to new specification.
 - All third-party certified.

Combination Washer-Dryers



- Combination (All-in-One) Washer Dryers (W/Ds) wash and dry a load in a single drum.
- Since 2010, EPA has worked with stakeholders to identify a pathway for these products to demonstrate efficiency on a whole-product basis, enabling them to be eligible for ENERGY STAR.
- EPA has proposed the following requirements for Combination W/Ds in a Draft 1:
 - Drying Energy Efficiency Requirement: Combined Energy Factor (CEF) ≥ 2.5 .
 - Reporting of clothes dryer water usage.
 - Maintain current clothes washer performance requirements: MEF ≥ 2.0 and WF ≤ 6.0 .
- EPA anticipates completing this revision by end of the year.

Commercial Clothes Washers



- Federal minimum standards for CCW change on January 8, 2013.
 - Levels will exceed current ENERGY STAR levels.
- As a result, EPA initiated a spec revision in 2011 and proposed the following levels:
 - $MEF \geq 2.2$
 - $WF \leq 4.5$
- Completion of this revision anticipated by the end of the year.
- Proposed effective date of January 8, 2013 to harmonize with timing of new standards.
- Changes for Commercial Washers and Combination W/D will be consolidated into a final Version 6.0.

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Room Air Conditioners



- ENERGY STAR levels for most classes of RACs have been in place since 2001.
- EPA launched specification development effort in late 2010, to develop Version 3.0.
 - New energy criteria have been proposed, strengthening minimum EER from 10% more efficient to 15% more efficient, than the Federal standard.
 - New requirements encouraging “intelligent” energy-saving features:
 - Energy Saver Mode, Clean Air Filter Reminder.
 - Criteria around “Connected” functionality under development.
- Proposed Effective Date: October 2012

“Connected” opportunity for RACs



- EPA sees opportunity to apply ENERGY STAR's longstanding commitment to the consumer as various aspects of “smart grid” are extended to end-use products.
- RAC Opportunities:
 - Appealing target for peak shaving/shifting
 - Connectivity via HAN offers opportunity to unlock additional energy-savings:
 - Real-time feedback on energy use / cost for RAC
 - Alerts/reminders for filter
 - Remote control
 - Interoperability

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Refrigerators and Freezers

V5.0 Spec Development



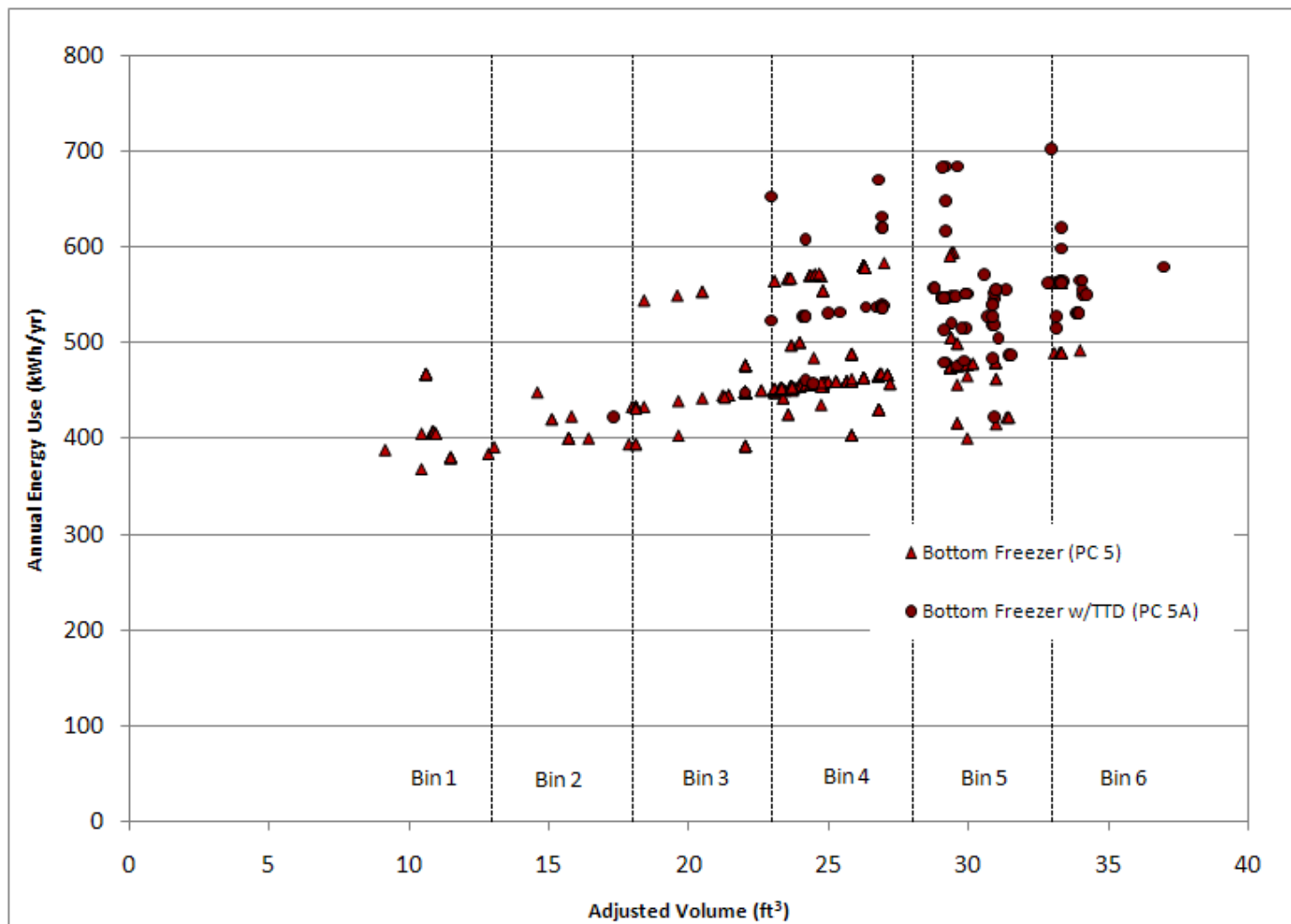
- EPA launched specification revision in July 2011.
- A Framework document was shared with stakeholders that outlined possible changes for Version 5.0:
 - Changes to the approach of setting maximum annual energy use criteria.
 - Simplified product class structure enabling the program to better differentiate top performers for consumers.
 - Tougher requirements for the very largest products.
 - Possible future requirement around foam blowing agents (many of which are potent GHGs).
 - Considerations on addressing new opportunities from “smart grid” functionality.

Overview of Draft 1 Proposed Energy Criteria

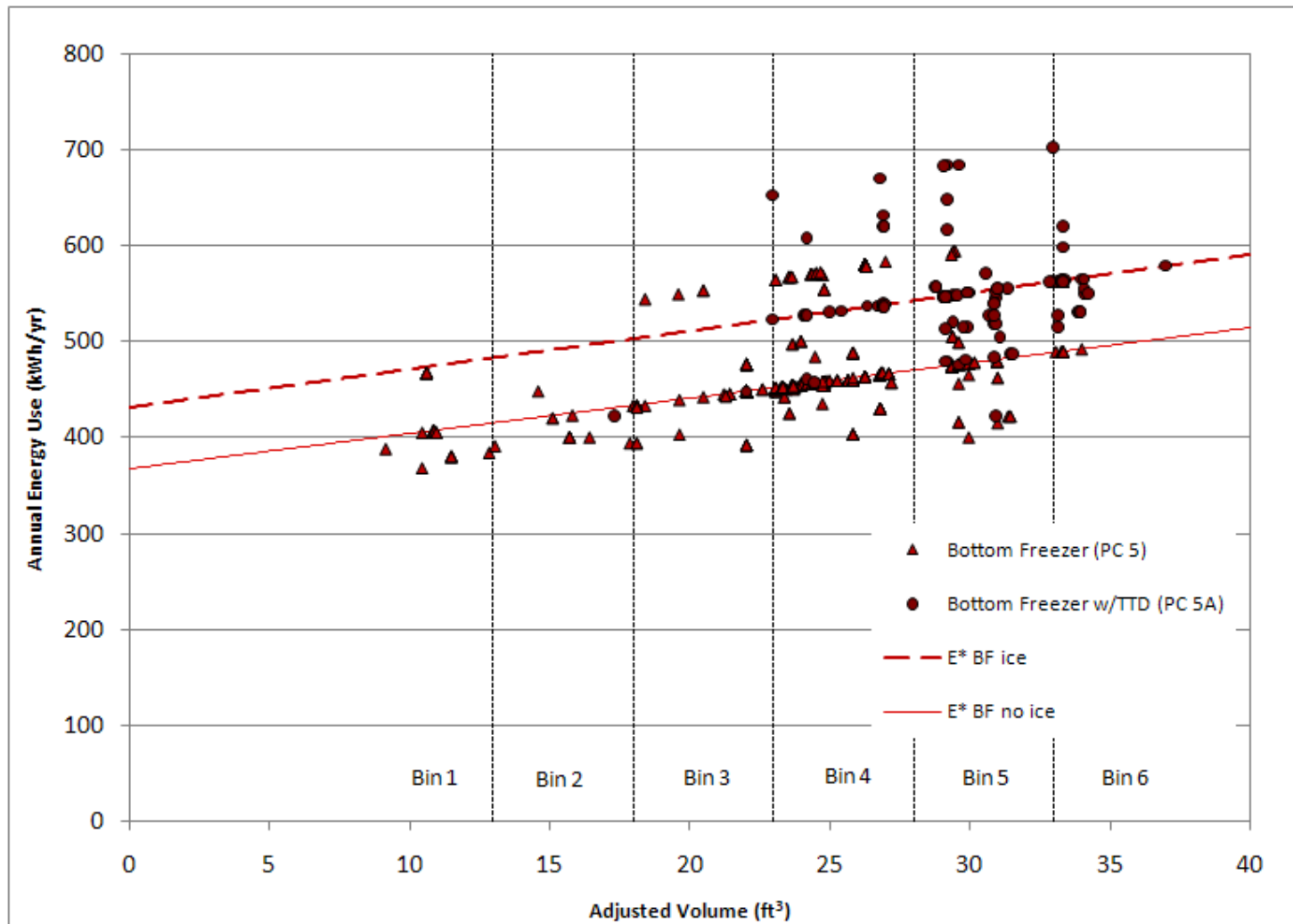


- Refrigerators and Refrigerator-Freezers:
 - Proposed levels recognize best performing side by sides, bottom freezers and top freezers
 - Functional Adders proposed to provide some additional energy allowance where needed (e.g., through the door ice)
 - Levels become gradually more challenging for largest units
- Freezers
 - Revised level for each of the three types of freezers (e.g., manual and auto defrost upright freezers, chest freezers)
- Compact Refrigerators & Freezers
 - Some revisions proposed; identified levels offer continuity across full-size and compact sizes

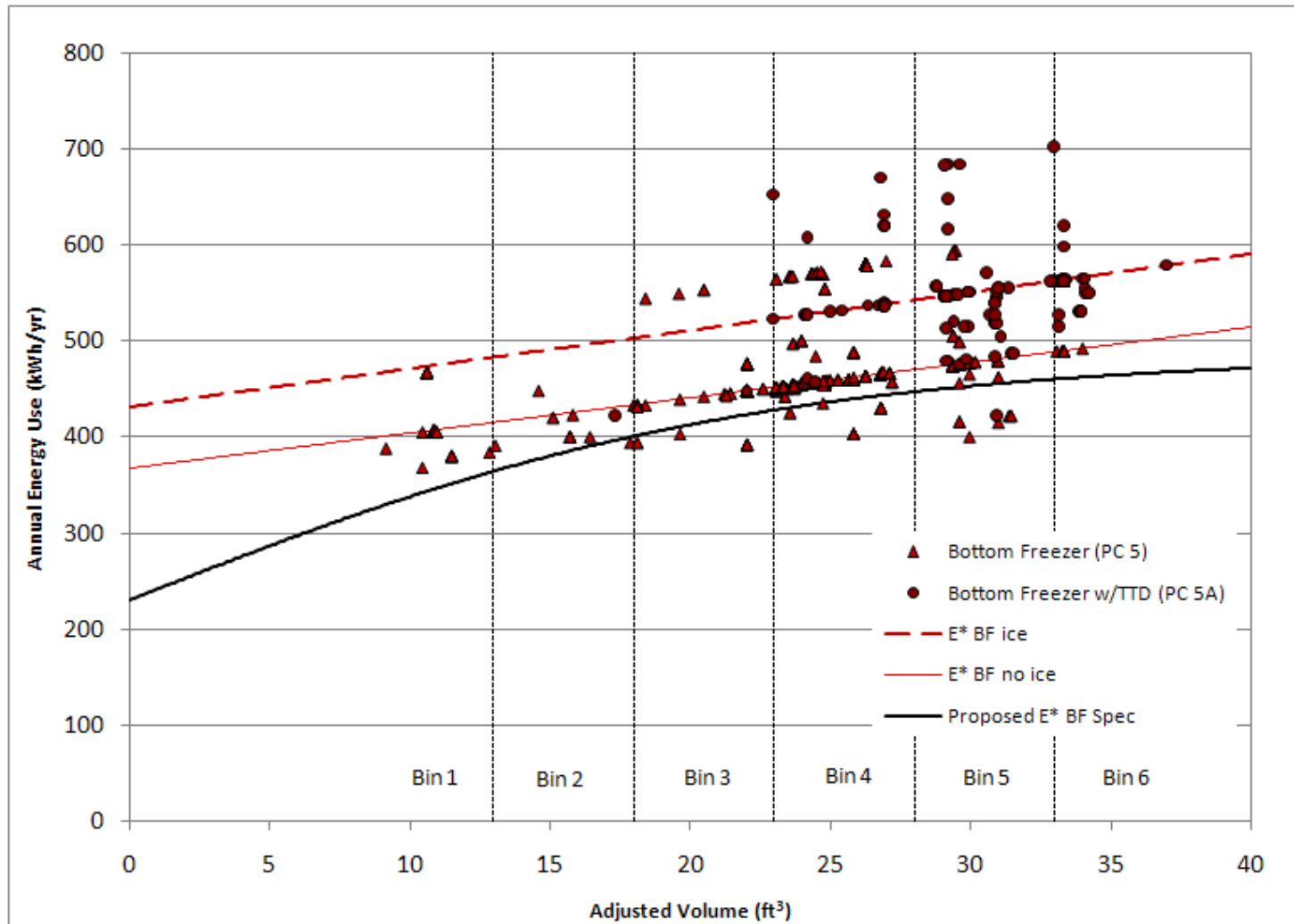
Example: Bottom Freezers



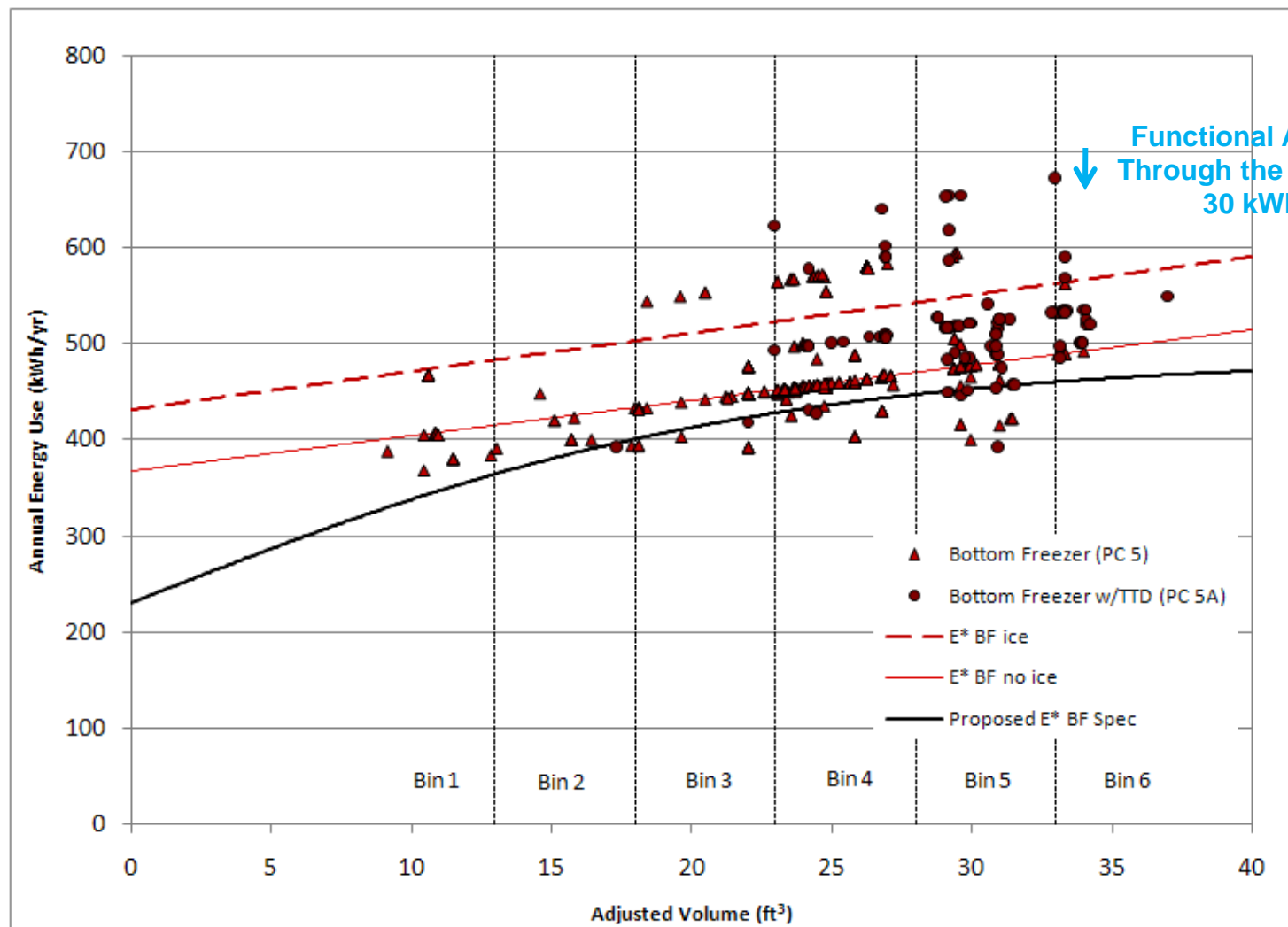
Example: Bottom Freezers



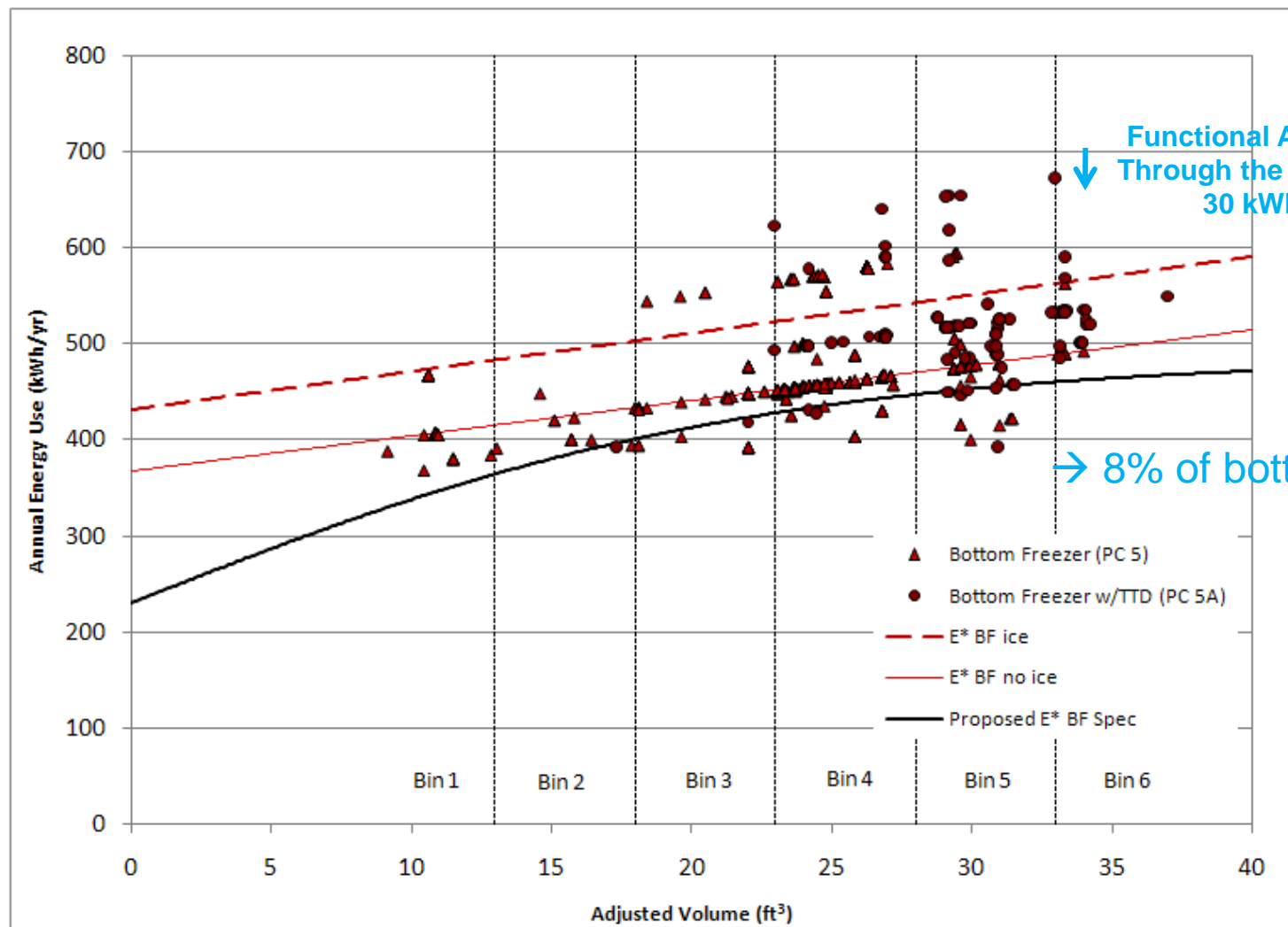
Example: Bottom Freezers



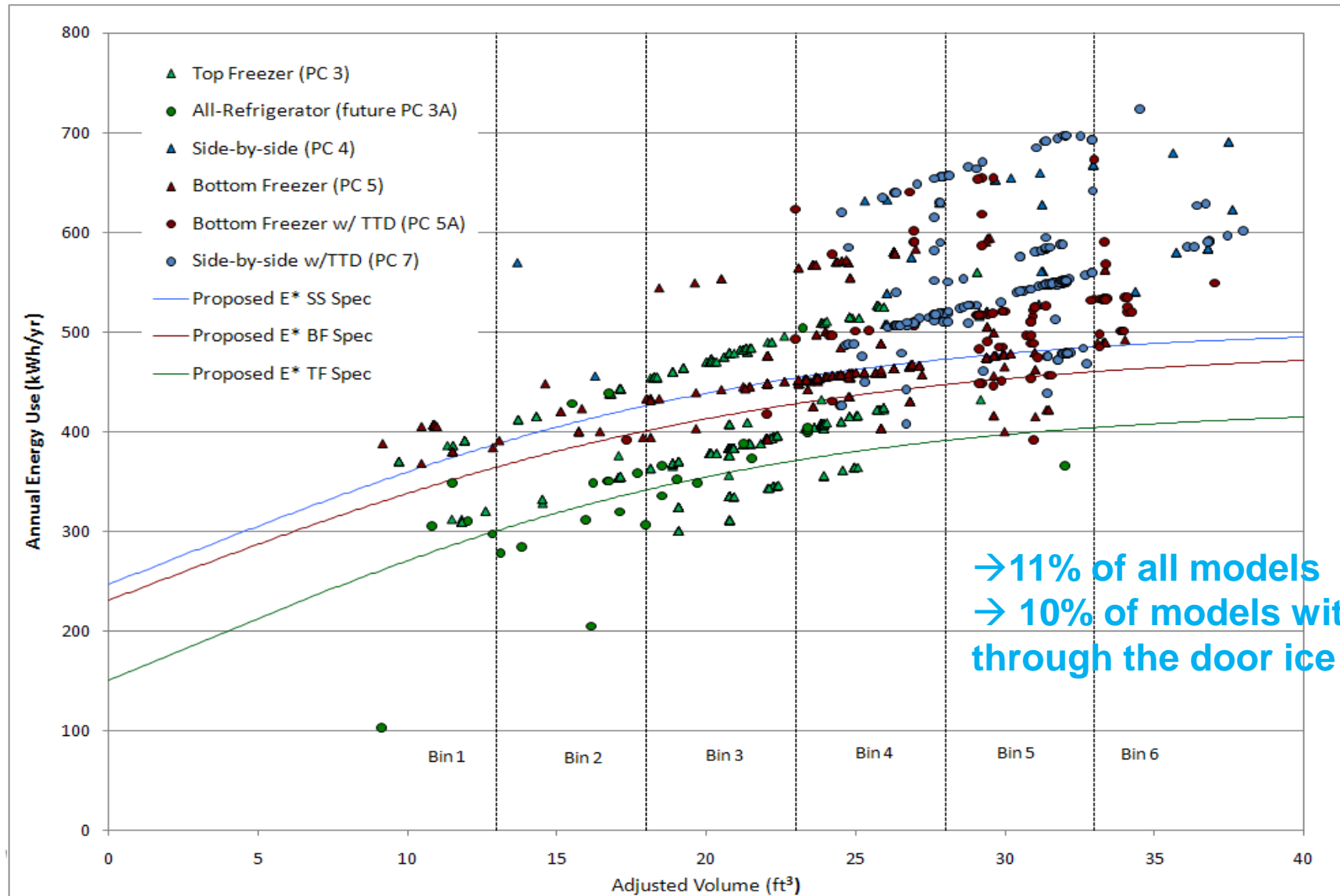
Example: Bottom Freezers



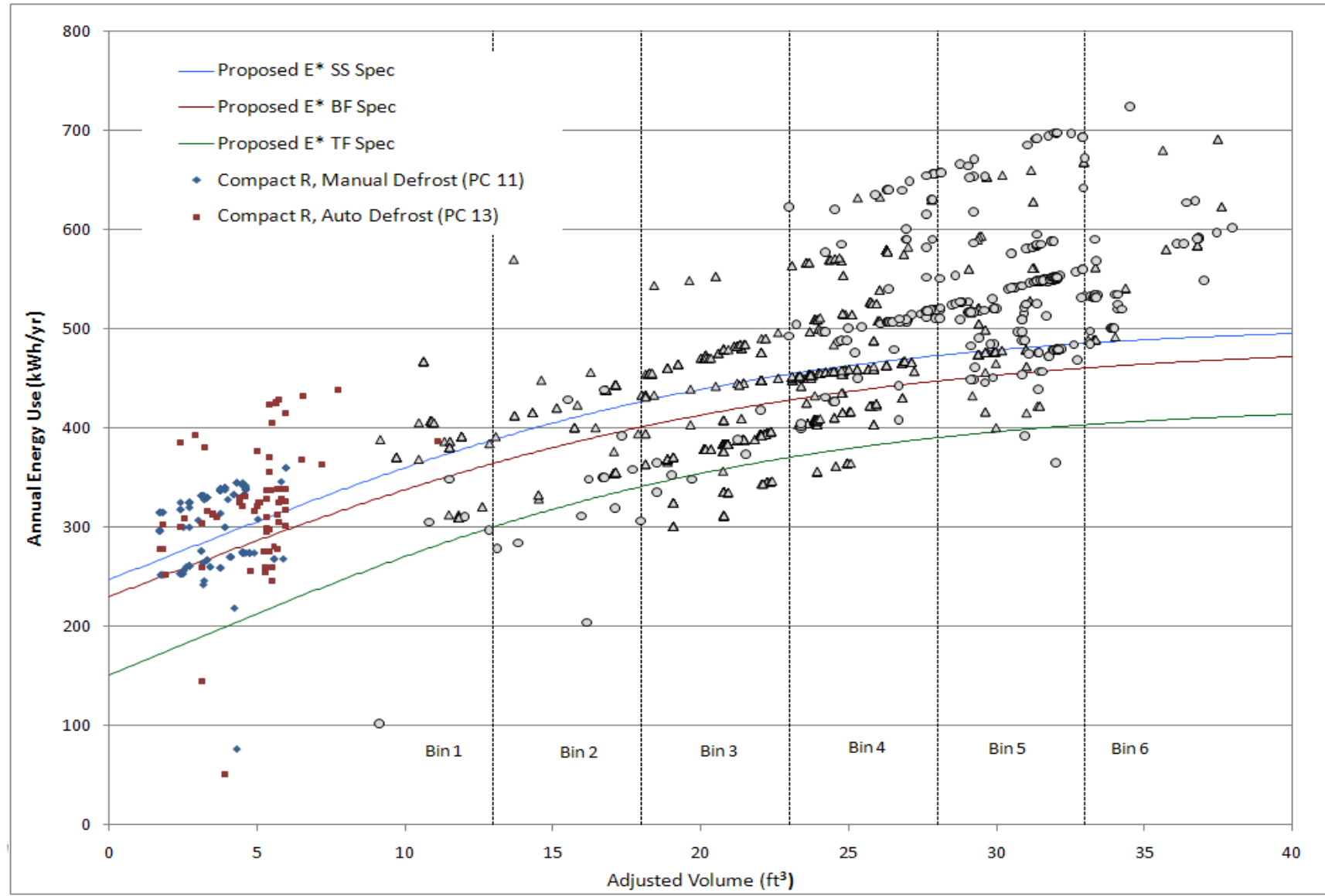
Example: Bottom Freezers



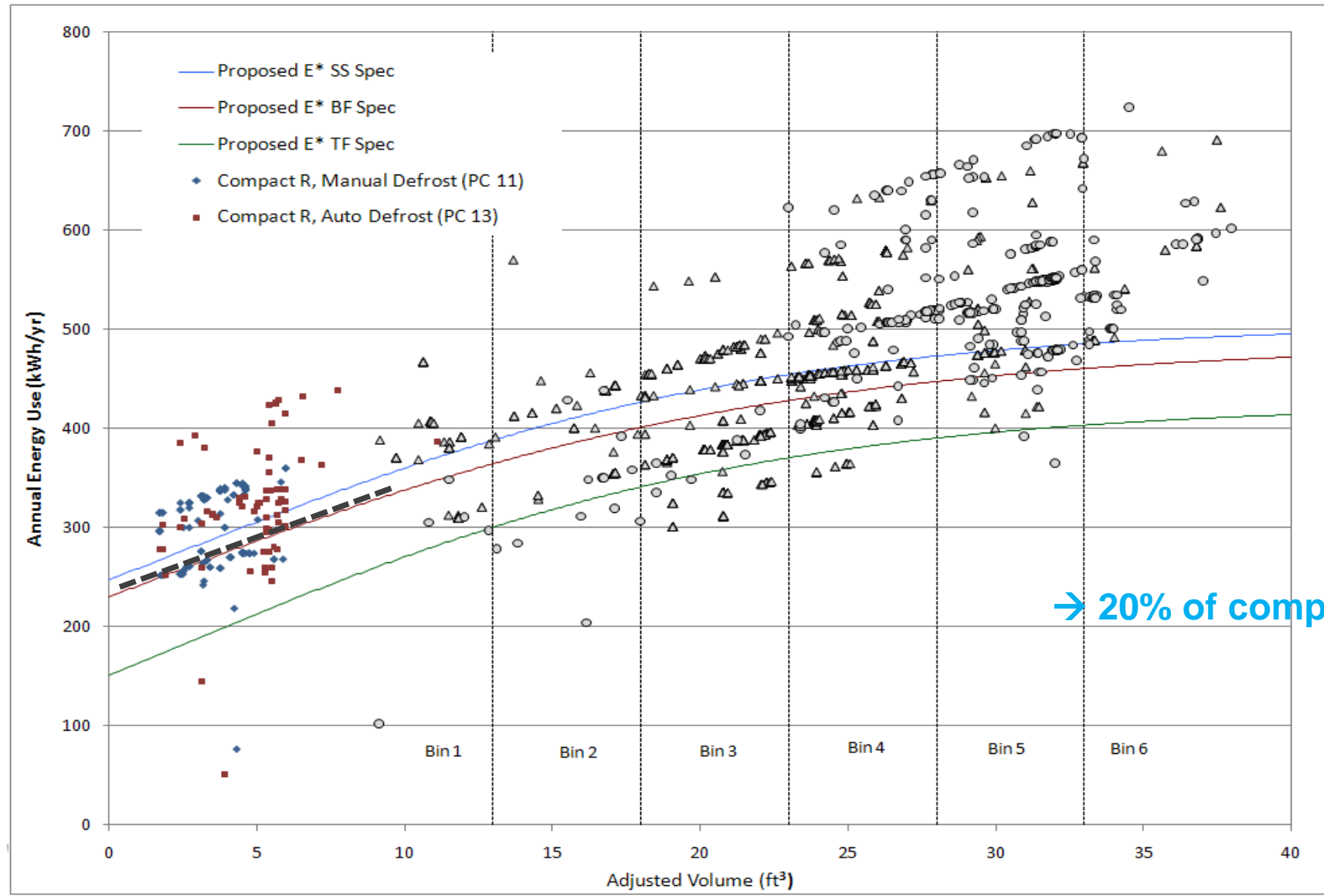
Proposed Criteria for Full-Size Refrigerators



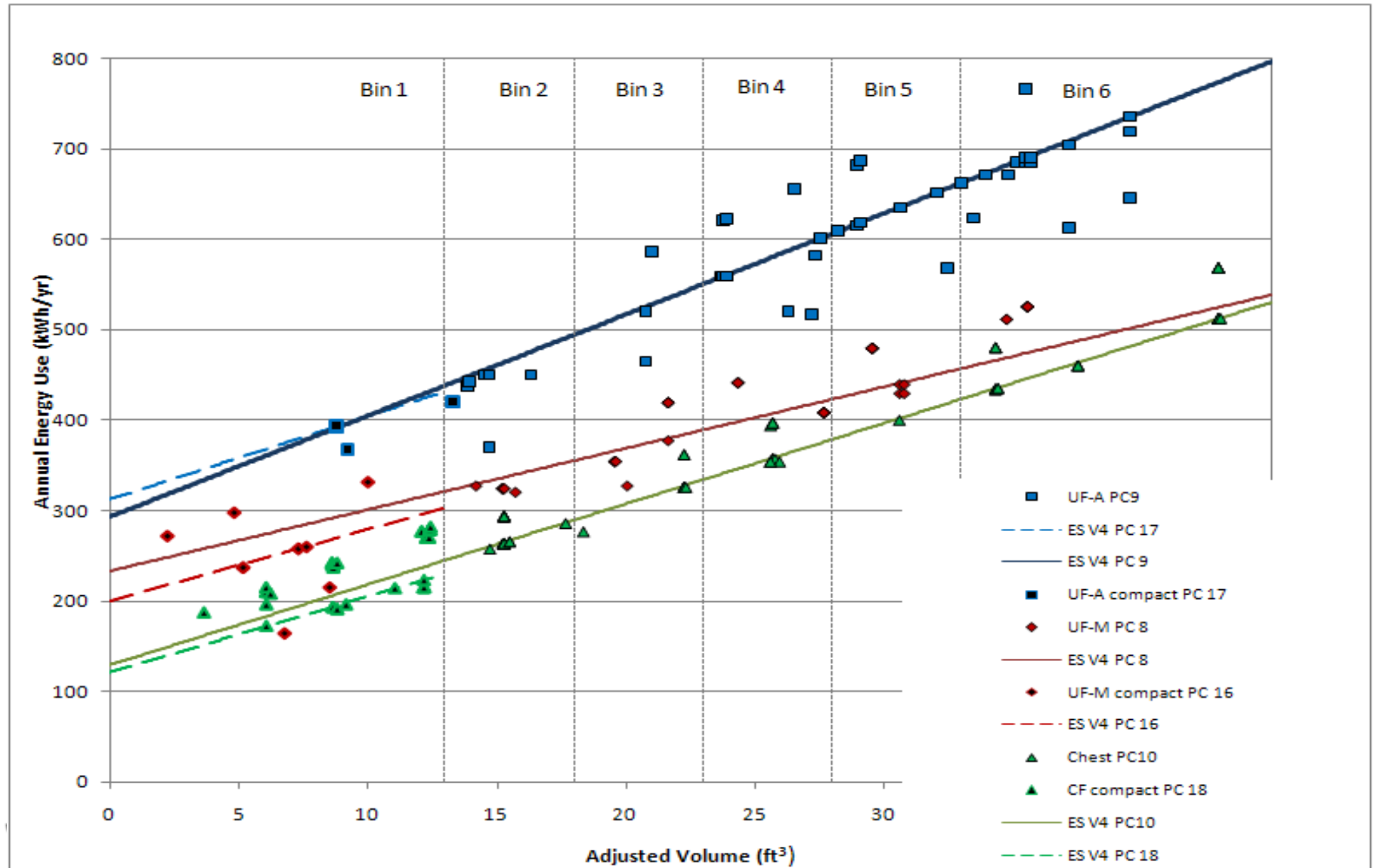
Proposed Criteria for Compact Refrigerators



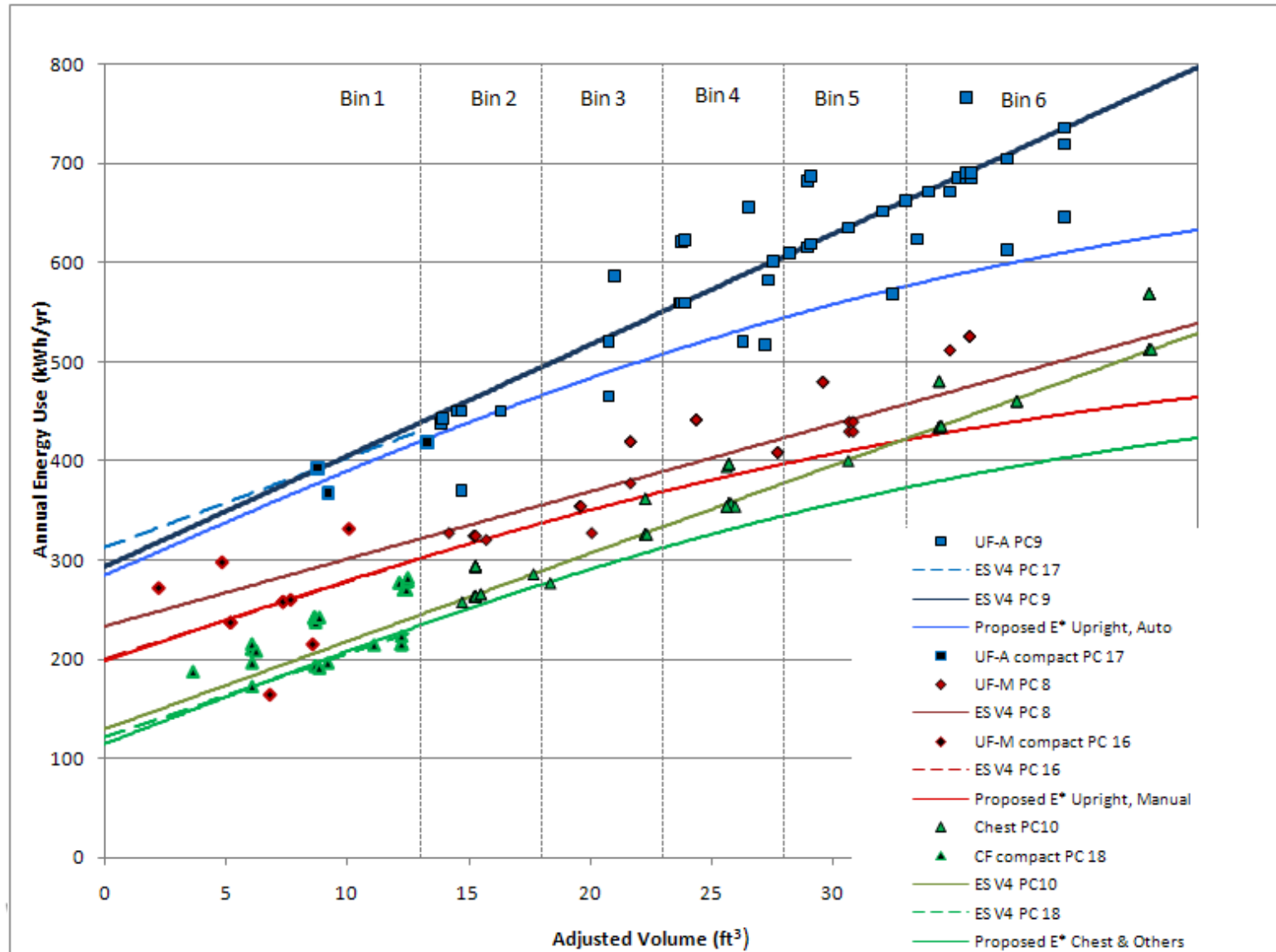
Proposed Criteria for Compact Refrigerators



Proposed Criteria for Freezers



Proposed Criteria for Freezers



“Connected” Opportunities

- In Draft 1, EPA has proposed has proposed a set of near term value attributes for consumers, based on discussions with stakeholders.
 - Feedback on product’s energy consumption
 - Alerts
 - Remote control
 - Interoperability
- EPA’s proposed Demand Response (DR) functionality based upon recommendations made in “Smart Appliance” petition.
 - Future-oriented; programs/pricing/infrastructure not yet in place

Proposed Approach



- For “connected” products that deliver both both consumer-oriented enhancements and demand response functionality, EPA is considering two complementary approach:
 - Highlighting functionality on the ENERGY STAR qualified product list
 - Allowance towards minimum energy requirement

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Scoping New Opportunities



- Purpose of ENERGY STAR Scoping:
 - An initial snap-shot of the market, technology, industry, and savings potential of various products not covered by the ENERGY STAR program.
- In 2011, EPA number of appliances, including:
 - Dryers
 - Vacuums
 - Cooking
 - Countertop Appliances
- Scoping reports being published on ENERGY STAR website: <http://www.energystar.gov/scoping>



Thoughts on 2011 Scoping

- Most promising opportunities: clothes dryers and vacuums.
 - EPA plans to coordinate with industry and launch spec development efforts in 2012.
- Countertop appliances such as coffee makers and toaster ovens, look to offer relatively small savings opportunity.
 - For cooking: further test procedure work needed to enable further assessment of induction; additional data on cooking behaviors needed.
 - EPA commercial food service team continuing to evaluate opportunity for commercial coffee makers.
- Feedback on scoping reports welcome and encouraged.

Opportunity: Clothes Dryers

- Single largest end use of energy in residential sector; No voluntary or mandatory labeling programs exist, or no utility incentives are offered
- Changes to test procedure and advancements in technology are opening up new opportunities; leveraging efforts of EPA Emerging Tech Award and Super Efficient Dryers Initiative.
 - Looking at a *two step approach* for potential ENERGY STAR program
- Initial estimates of near-term savings opportunity ranges from \$47 (gas) to \$114 (electric) savings over lifetime. CO₂ emission reductions of 141 million lbs CO₂ (1st year, 25% market penetration)
- *Next Steps:* Continued stakeholder engagement, framework document in early 2012 and call for data to inform spec-setting
- **More during Thursday session *Focus on Laundry: Residential Clothes Dryer Opportunities* (8 a.m.)**

Opportunity: Vacuums

- Significant savings and CO₂ emission reduction opportunity on a national basis.
 - Scoping report considered both residential and commercial use
- Initial savings estimates suggest \$7-15 savings over lifetime for residential; larger per-unit lifetime savings of \$46-91 in commercial applications
 - Market data shows annual sales ~ 28 million units
- Initial estimate of emission reductions of at least 140 million lbs CO₂ (1st year, 25% market penetration)
- *Next Steps:* Additional stakeholder engagement and work to identify and/or development ENERGY STAR test procedure

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