



ENERGY STAR® Imaging Equipment Stakeholder Meeting: Draft 1 Version 1.1 Specification

May 7, 2008

Christopher Kent, U.S. EPA
kent.christopher@epa.gov

Welcome and Introductions

Christopher Kent, U.S. EPA

Overview



- Welcome and Introductions
- Meeting Goals
- Agenda Review
- ENERGY STAR Update

Meeting Goals



- Present details on proposed revisions made in Draft 1 Version 1.1 specification
- Present data analysis performed on developing draft specification limits
- Gain feedback on key topics to reach resolution in preparation for final specification
- Agree to process to finalizing specification

Today's Agenda



- 9:00 a.m. Welcome & Introduction
- 9:10 a.m. EU perspective
- 9:20 a.m. Overview of Draft 1
- 9:30 a.m. Ricoh presentation
- 9:50 a.m. ITI presentation
- 10:10 a.m. TEC Test Procedure
- 10:30 a.m. Break
- 10:40 a.m. EPS and DFE guidance

Today's Agenda (*cont.*)



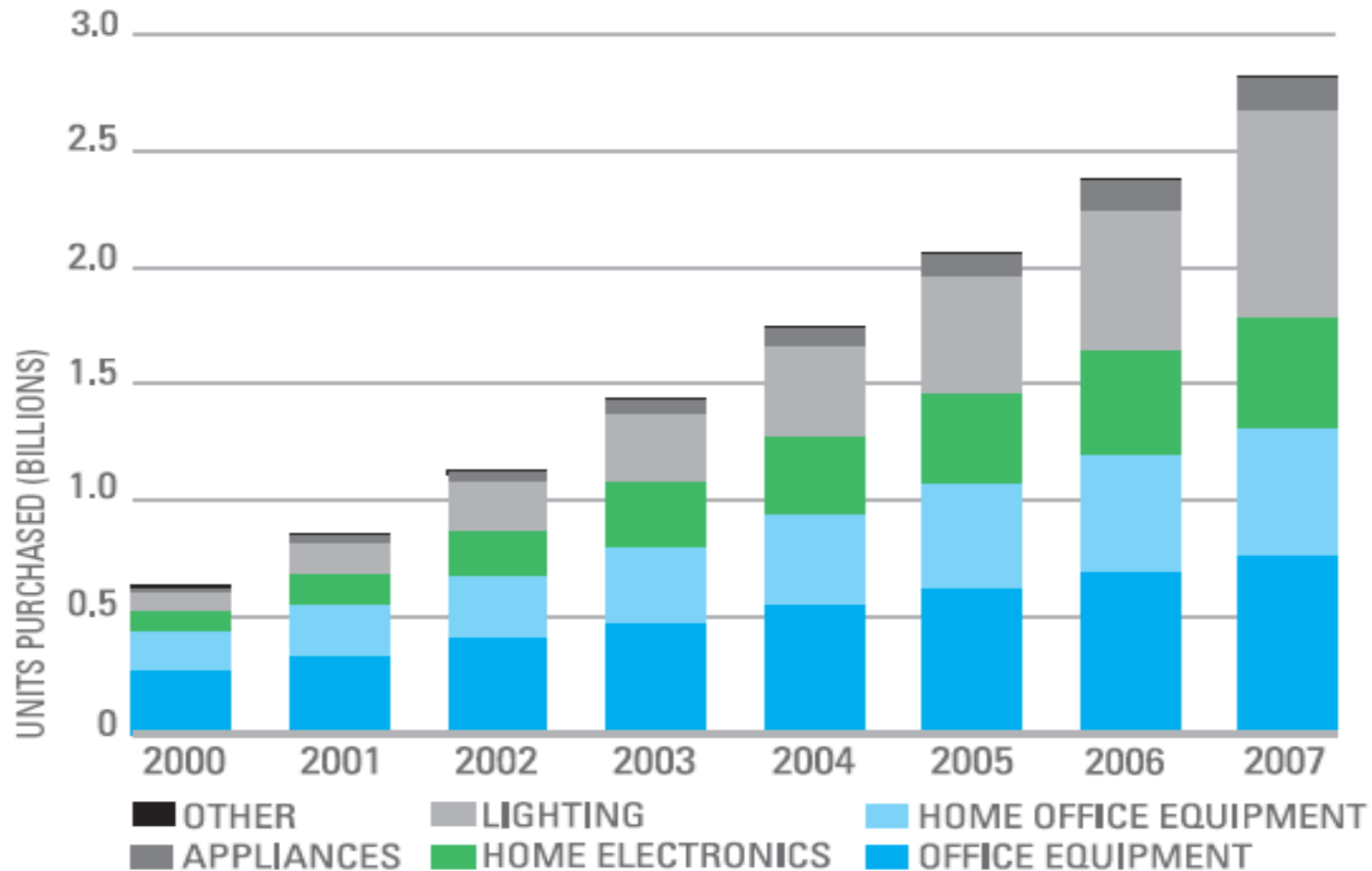
- 10:55 a.m. Standby requirement
- 11:10 a.m. Proposed changes to OM requirements
- 12:10 p.m. Lunch to be brought back to conference room
- 12:45 p.m. Proposed changes to TEC requirements
- 1:45 p.m. Administrative updates
- 2:00 p.m. Break
- 2:10 p.m. Conclusion
- 2:30 p.m. Meeting Adjournment

Overview



- ENERGY STAR is the government-backed symbol for energy efficiency
 - Identifies products in more than 50 categories that use less energy without sacrificing quality or performance
 - ENERGY STAR qualified products are an easy, convenient solution to energy and cost concerns
- In 2007, with the help of ENERGY STAR, Americans saved \$16 billion on their utility bills
 - Enough energy in 2007 alone to avoid greenhouse gas emissions equivalent to those from 27 million cars

ENERGY STAR purchased

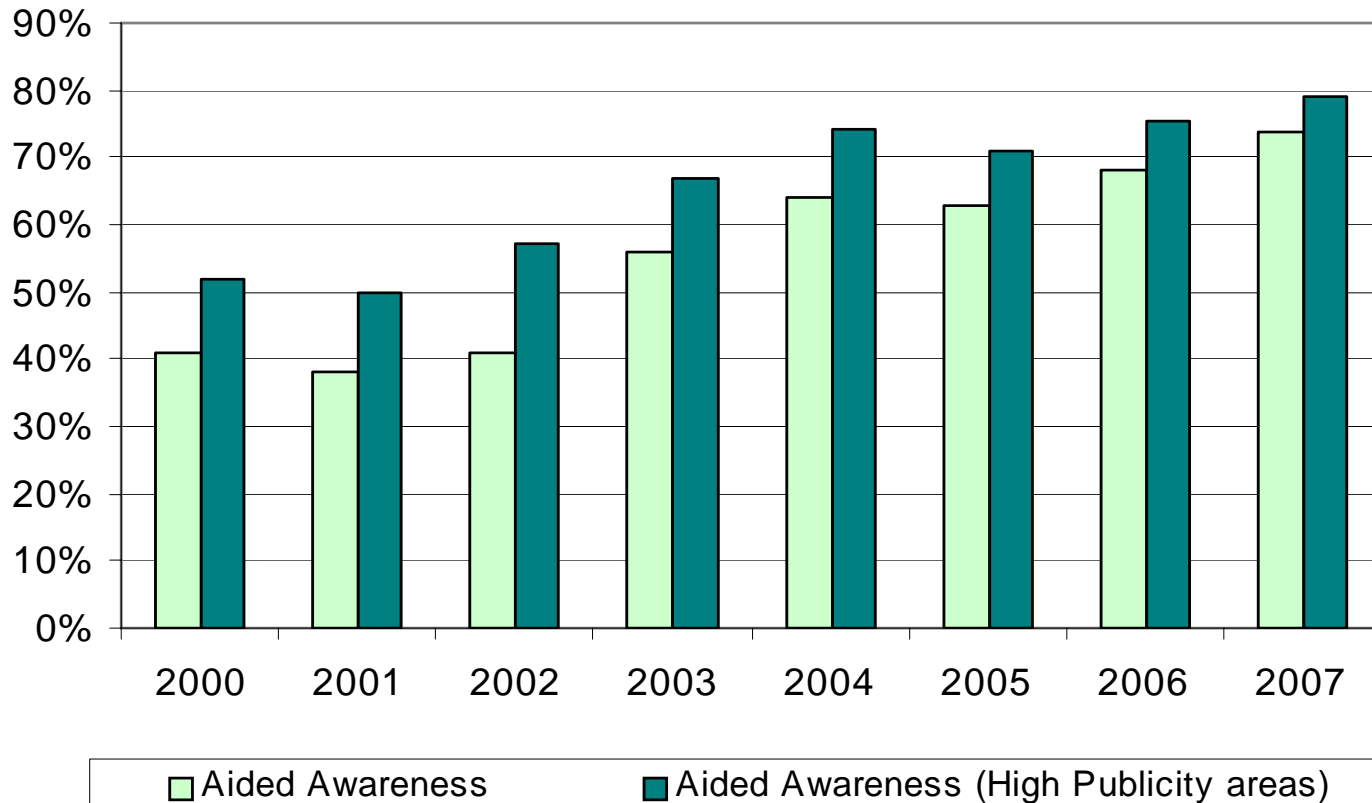


More than 2.5 Billion ENERGY STAR qualified products purchased since 1992

Awareness of ENERGY STAR



Awareness of ENERGY STAR



Awareness is even greater--nearly 80%--in areas where there have been sustained promotions of ENERGY STAR by local energy efficiency program administrators. (CEE DRAFT findings)

Imaging Equipment Program



- As of March, 2008, 35 partners have qualified over 1,700 products under Tier 1

	# of Qualified Products	Number of Partners
MFDs	678	22
Printers	636	20
Copiers	164	16
Scanners	150	8
Digital Duplicators	80	4
Fax Machines	56	8
Mailing Machines	6	1
	1770	

ENERGY STAR Update



- Tier 1 effective date: April 1, 2007
- Tier 2 effective date: [April 1, 2009](#)
- ENERGY STAR, a voluntary program, awards the [top 25%](#) of the market in terms of energy efficiency
- Availability of all ENERGY STAR imaging equipment products in the U.S. under Tier 1
 - TEC products: 48%
 - OM products: 51%
 - Market information from Better Buys for Business (an independent consumer guide that lists all available imaging equipment models in the United States)

V1.1 Timeline



11/21/07 – V1.1 Launched and Request for data on non qualified models

1/11/08 – due date – OM

2/11/08 – due date – TEC

12/11/07 – Specification Initiation Web Meeting

3/19/08 – Qualified Products Family Data review

4/10/08 – V1.1 draft specification distributed

EU Perspective

Jan Viegand

Overview of Draft 1 Version 1.1 Specification

Christopher Kent, U.S. EPA

Key changes from Version 1.0



- Proposed new Tier 2 TEC lines
 - Modified lines capture approximately 25% of products available
- Proposed new Tier 2 Sleep requirements for OM products
 - Sleep requirements were adjusted to capture approximately 25%
- Elimination of the power supply output rating (PSOR) adder
 - Power supply size does not directly provide functionality to products

Key changes from Version 1.0 (*cont.*)



- Guidance on imaging products sold with External Power Supplies (EPSs) and Digital Front Ends (DFEs)
 - Imaging products must use components that are capable of meeting the respective ENERGY STAR specifications
- New Tier 2 Standby requirement for large format OM products and mailing machines AND small or standard format OM products with fax capability
 - 1.0 Watt

What is NOT changing



- Major modifications to test procedures
 - Minimal retesting of products
- Standby levels for small or standard format OM products without fax capability
- Duplexing requirements
- Maximum default delay time to Sleep requirements
- OM and TEC approaches and product classification
 - OM 1 to 8
 - TEC 1 to 4

Recovery Time

Kousuke Ito, Ricoh Americas Corporation

ITI Perspective

Chris Saunders, Lexmark International

Clarifications to TEC Test Procedure

Bruce Nordman, LBNL

Network Communication



- On some imaging devices, receipt of each SNMP packet induces a higher power state for a duration of time that leads to significant energy use in many computing environments
- Windows PCs by default generate a SNMP packet every 10 minutes to each printer they are connected to
 - Apparently some imaging equipment tested with SNMP sending disabled on the connected PC
- Existing test procedure based on assumption that being connected to a network might increase energy use, but that non-job traffic would not
- Possible resolutions for products with this behavior
 - Require that the connected PC on Ethernet (or WiFi) send an SNMP packet at least once every 10 minutes throughout the test. Require retesting for V1.1 when result would change significantly

Measuring Recovery Time



- Recovery time not specified in V1.0
- EPA added measurement to test procedure; agreed to monitor
 - Active0: time to 1st sheet exiting unit from Ready
 - Active1: time to 1st sheet exiting unit from Sleep (or possibly Off)
 - Active2: time to 1st sheet exiting unit from Ready
- Analysis of measured recovery time may indicate confusion with test procedure:
 - Active1 – Active0: 17% negative values

Measuring Recovery Time (cont.)



- Possible Resolutions
 - Continue as planned
 - No problem that 17% of values are negative?
 - Stakeholder suggestion: Active1 – Active2
 - 7% of values are still negative
 - Uncertainty of what is being measured
 - Clarify actions taken during test
 - Define recovery time and report through OPS
- Use recovery time data — need comparison of as-shipped to as-used delay times in conjunction with recovery time

Testing for duplex only equipment



- Some very high-speed models image both sides simultaneously
 - Are designed for applications in which duplexing is norm
 - Simplex speed is half of duplex speed
 - Results in dramatic change in TEC limit when simplex speed used as index
- Proposed resolution
 - For products that image both sides simultaneously, allow them to be measured at duplex ipm rather than simplex

10 Minute Break

EPS and DFE Guidance and Standby Requirements

Christopher Kent, U.S. EPA

EPSs and DFEs



- Imaging products that make use of External Power Supplies (EPSs) and External Digital Front Ends (DFEs) must use components that are capable of meeting the respective ENERGY STAR specifications in effect on the **imaging equipment product's date of manufacture**
- The following slides depict which versions of the ENERGY STAR specifications apply and when they apply

EPSs and DFEs (cont.)



05/2008

11/2008



Equip.	Spec
IE	1.0
EPS	1.1
DFE	4.0

**All dates refer to the imaging equipment's date of manufacture*

*** Presumes that DFEs are covered by the computer specification*

EPSs and DFEs (cont.)



05/2008

11/2008

04/2009

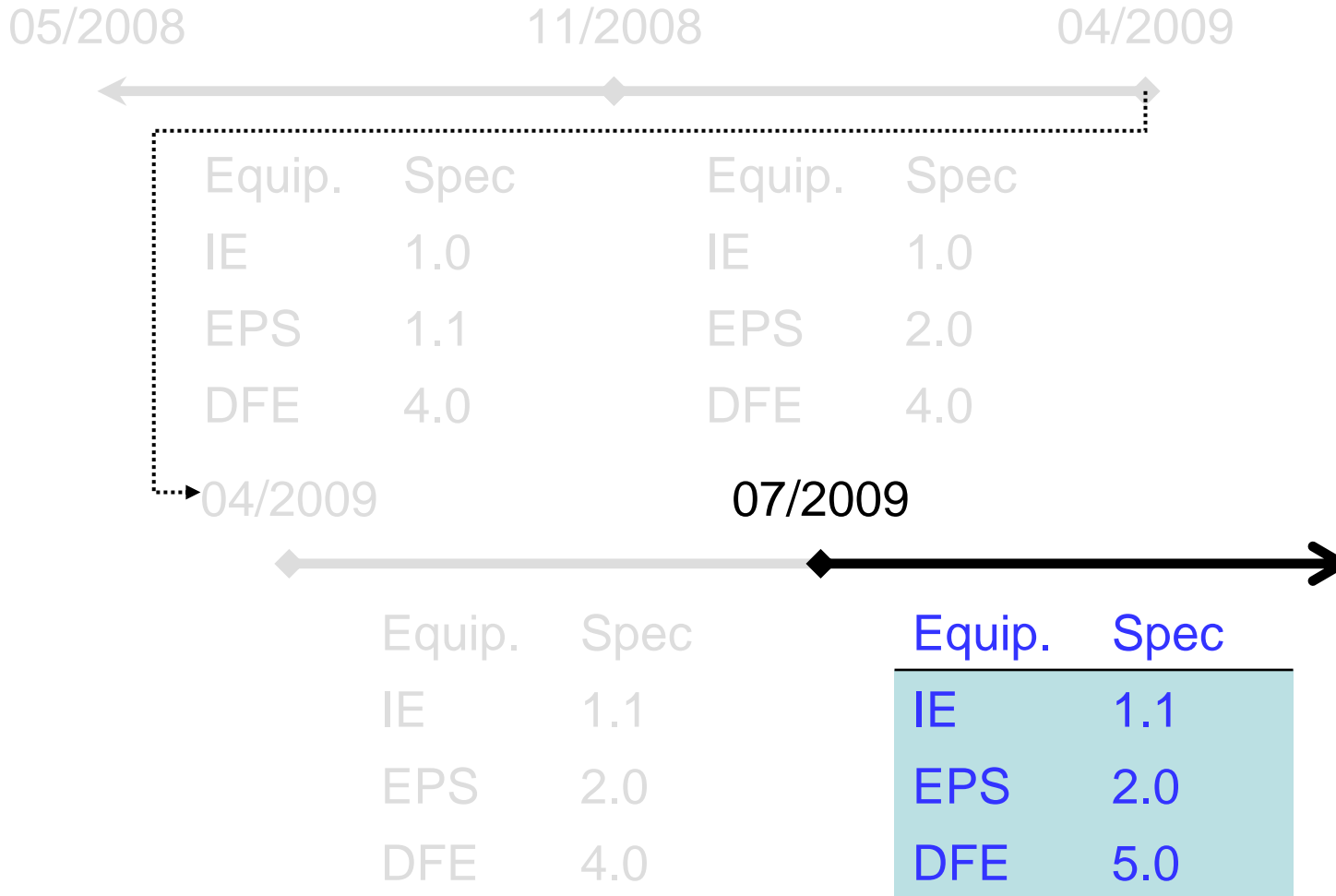


Equip.	Spec	Equip.	Spec
IE	1.0	IE	1.0
EPS	1.1	EPS	2.0
DFE	4.0	DFE	4.0

**All dates refer to the imaging equipment's date of manufacture*

*** Presumes that DFEs are covered by the computer specification*

EPSs and DFEs (cont.)



**All dates refer to the imaging equipment's date of manufacture*

*** Presumes that DFEs are covered by the computer specification*

EPSs and DFEs (cont.)



05/2008

11/2008

04/2009



Equip.	Spec	Equip.	Spec
IE	1.0	IE	1.0
EPS	1.1	EPS	2.0
DFE	4.0	DFE	4.0

04/2009

07/2009



Equip.	Spec	Equip.	Spec
IE	1.1	IE	1.1
EPS	2.0	EPS	2.0
DFE	4.0	DFE	5.0

**All dates refer to the imaging equipment's date of manufacture
Presumes that DFEs are covered by the computer specification*

EPSs and DFEs (*cont.*)



- Effective dates of new specifications
 - November 2008: EPS 2.0
 - April 2009: Imaging Equipment 1.1
 - July 2009: Computer 5.0
- In some cases partners may have to re-qualify imaging products
- If DFE is desktop-derived server, may be covered under new spec for computer servers, effective December 2008

Standby OM Products



- Small and standard format OM products: Standby requirement to remain the same as Tier 1
- Large format OM products and mailing machines: Standby requirement 1.0 W for Tier 2
- Based on comments received on draft specification, the removal of the standby adder for fax capability be removed
 - So recommend that standby be 1 watt – for all OM products, regardless of whether the product has a fax capability

Standby OM Products (cont.)



Product Type and Size Format	Standby (W)	
	Tier 1	Tier 2
All Small Format and Standard-size OM Products without Fax Capability	1	1
Standard-size OM Products with Fax Capability	2	1
All Large Format OM Products and Mailing Machines	N/A	1

OM Requirements

Bijit Kundu, ICF International

Tier 1 OM Products



To determine the availability of ENERGY STAR products in the market under Tier 1

1. Determined the total number of OM products available in the U.S.
 - Independent consumer guides to determine market data
 - Market data grouped by product type, marking technology, size format, and color capability
2. Compared market data to ENERGY STAR product data
 - Collapsed products belonging to families based on
 - Stakeholder feedback
 - Similar data, such as model numbers

	Market Info	ENERGY STAR Tier 1	
	Total Products	Qualified Products	% Qualified
OM1	48	11	23%
OM2	72	54	75%
OM3	63	39	62%
OM4	27	6	22%
OM5	75	14	19%
OM6	64	14	22%
OM7	108	88	81%
OM8	27	20	74%
OM Total	484	246	51%

- These percents formed the basis of how EPA modified existing requirements for OM products.

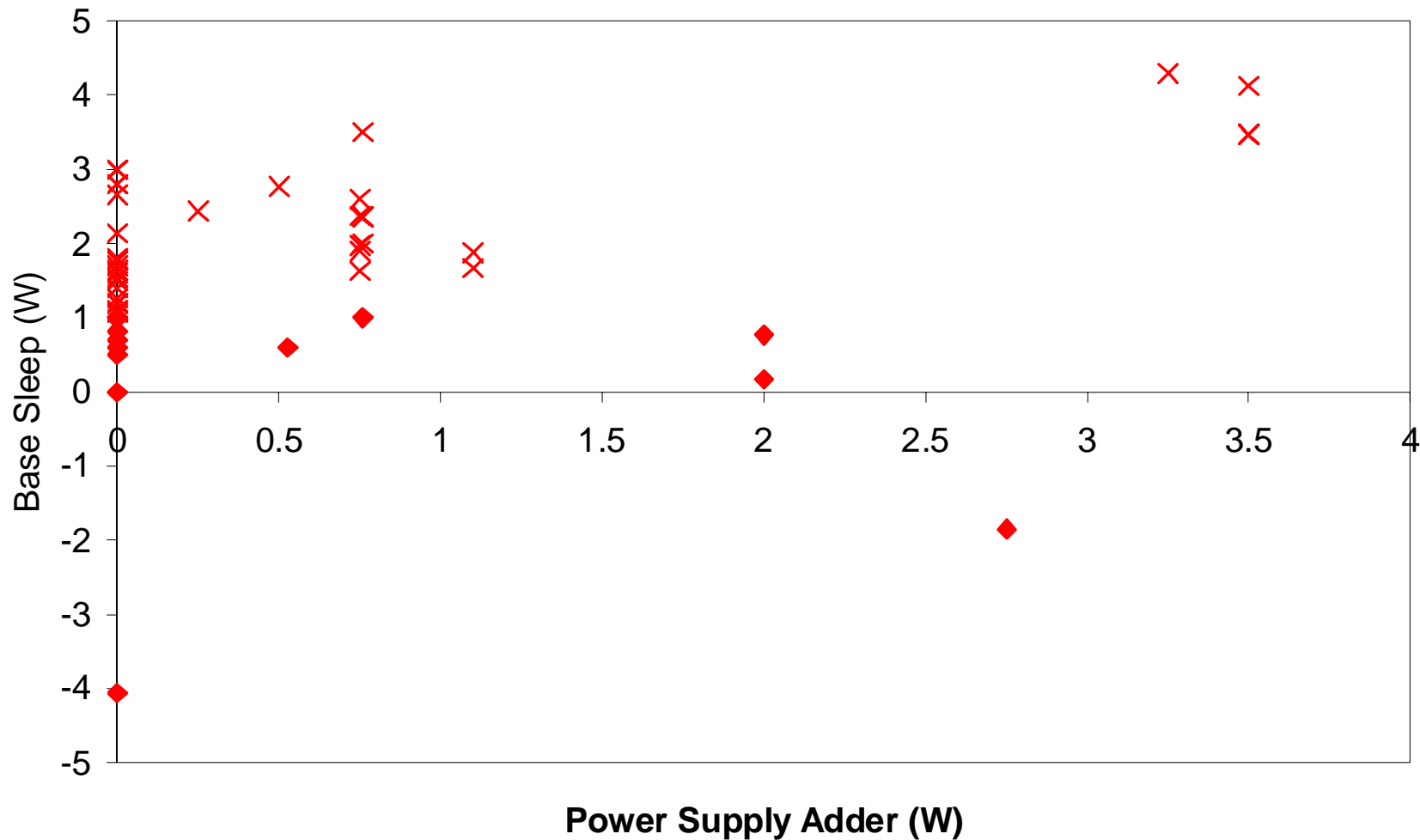
PSOR Adder



- Secondary adder based on power supply has been taken out of the analysis of OM products
- Power supply size does not directly provide functionality to products
- Calculating the base power of OM products using PSOR adder made some values negative
- Based on some comments, EPA is open to receiving evidence from stakeholders showing that the PSOR is needed *in some form* for some OM product types
 - Only IF data supports need

OM2 Tier 2: Sleep = 1 W

◆ Qualified (base without PSOR) × Non Qualified (base without PSOR)



Other Adders



- Based on stakeholder comments considering adding “fax modem” adder under “Wired < 20 MHz” interface
 - Primary: 0.3 W
 - Secondary: 0.2 W
- Based on stakeholder comments considering combining Cold Cathode Fluorescent Lamp (CCFL) and non-CCFL adders because the lamps should be off in sleep mode

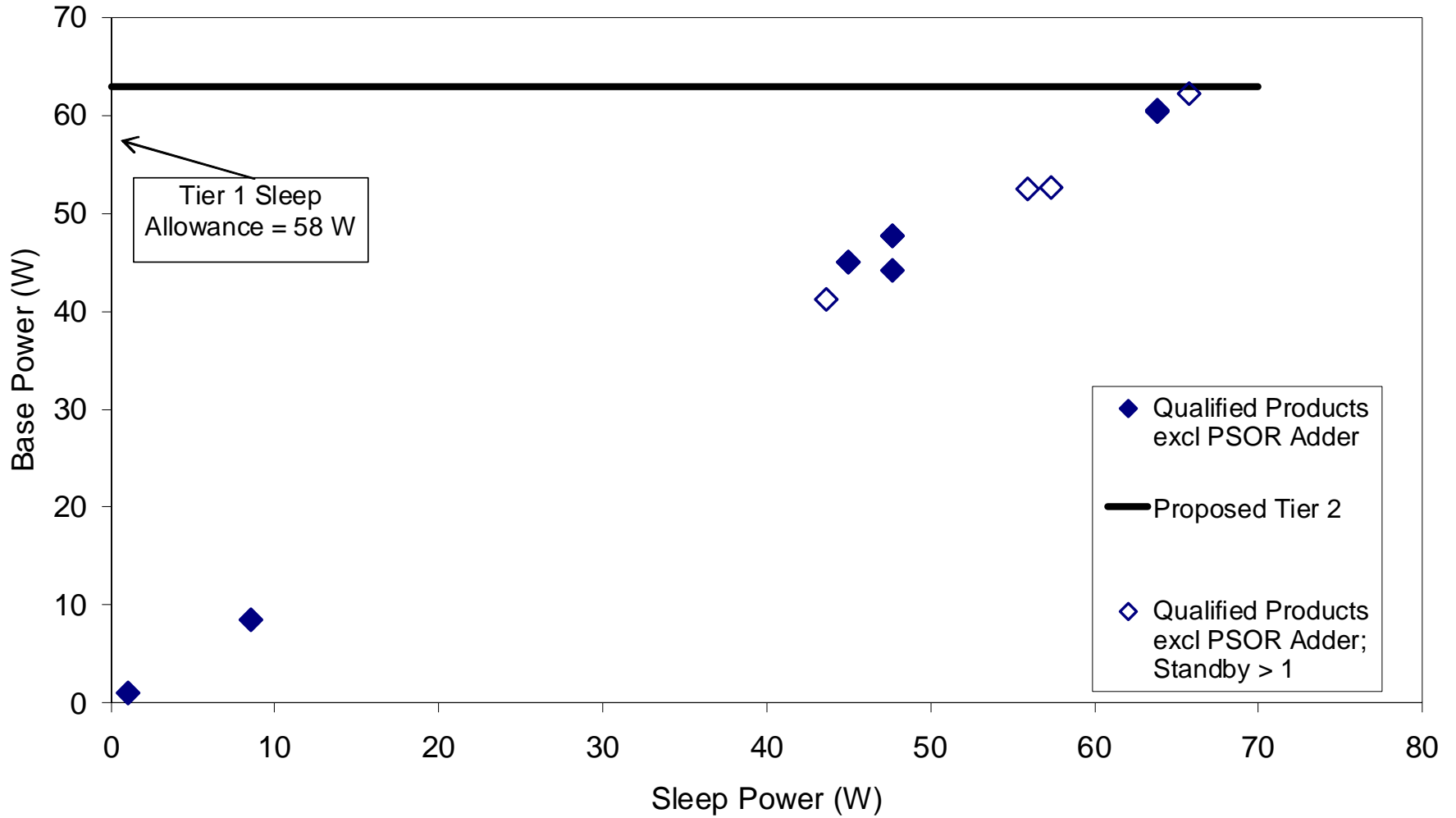
OM1



- Products: Copiers, MFDs
- Size Format: Large
- Marking Technology: Color DS, Color TT, DT, Mono DS, Mono EP, Mono TT, Color EP, SI
- Tier 1
 - Sleep Allowance: 58 W
 - Qualified Products: 11 (23%)

PSOR Adder (W) (n =7)	
Min	0.225
Max	239.5
Ave	90.63

OM1



OM1 (*cont.*)



- Sleep level effectively not changed in order to qualify all currently qualified products
- Sleep Allowance: 63 W
 - Tier 2 Sleep allowance higher than Tier 1 to account for elimination of PS adder
- ES Qualified Products: 7 (15%)
 - 4 products meet the Sleep allowance but do not meet the proposed new Standby requirement (1 W)
- Manufacturers with Qualifying Products: 2

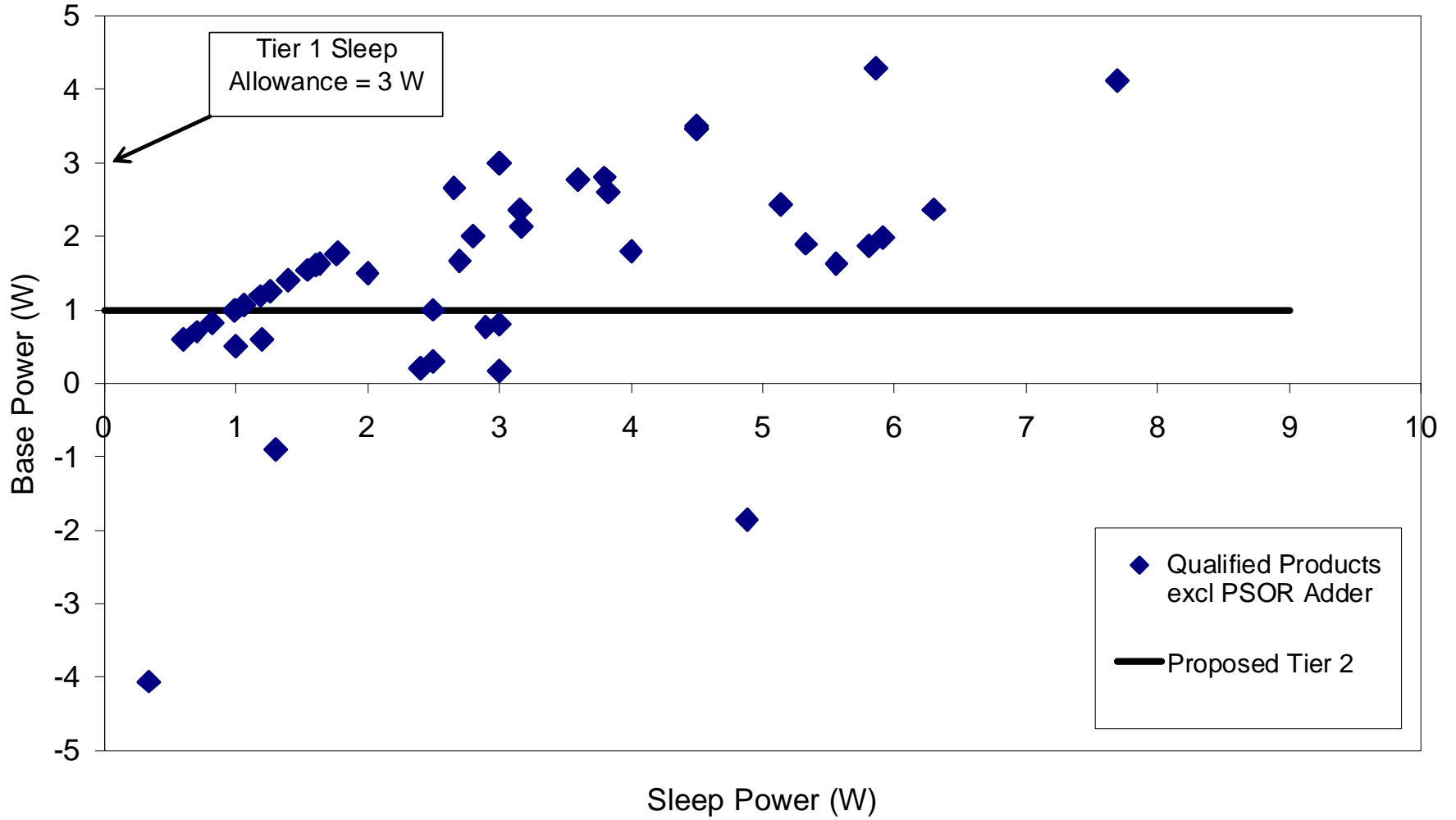
OM2



- Products: Fax Machines, MFDs, Printers
- Size Format: Standard
- Marking Technology: Color IJ, Mono IJ
- Tier 1
 - Sleep Allowance: 3 W
 - Qualified Products: 54 (75%)

PSOR Adder (W) (n =23)	
Min	0.25
Max	3.5
Ave	1.52

OM2



OM2 (*cont.*)



- Sleep Allowance: 1 W
- ES Qualified Products: 17 (24%)
 - 8 MFDs
 - 9 Printers
- Manufacturers with Qualifying Products: 4

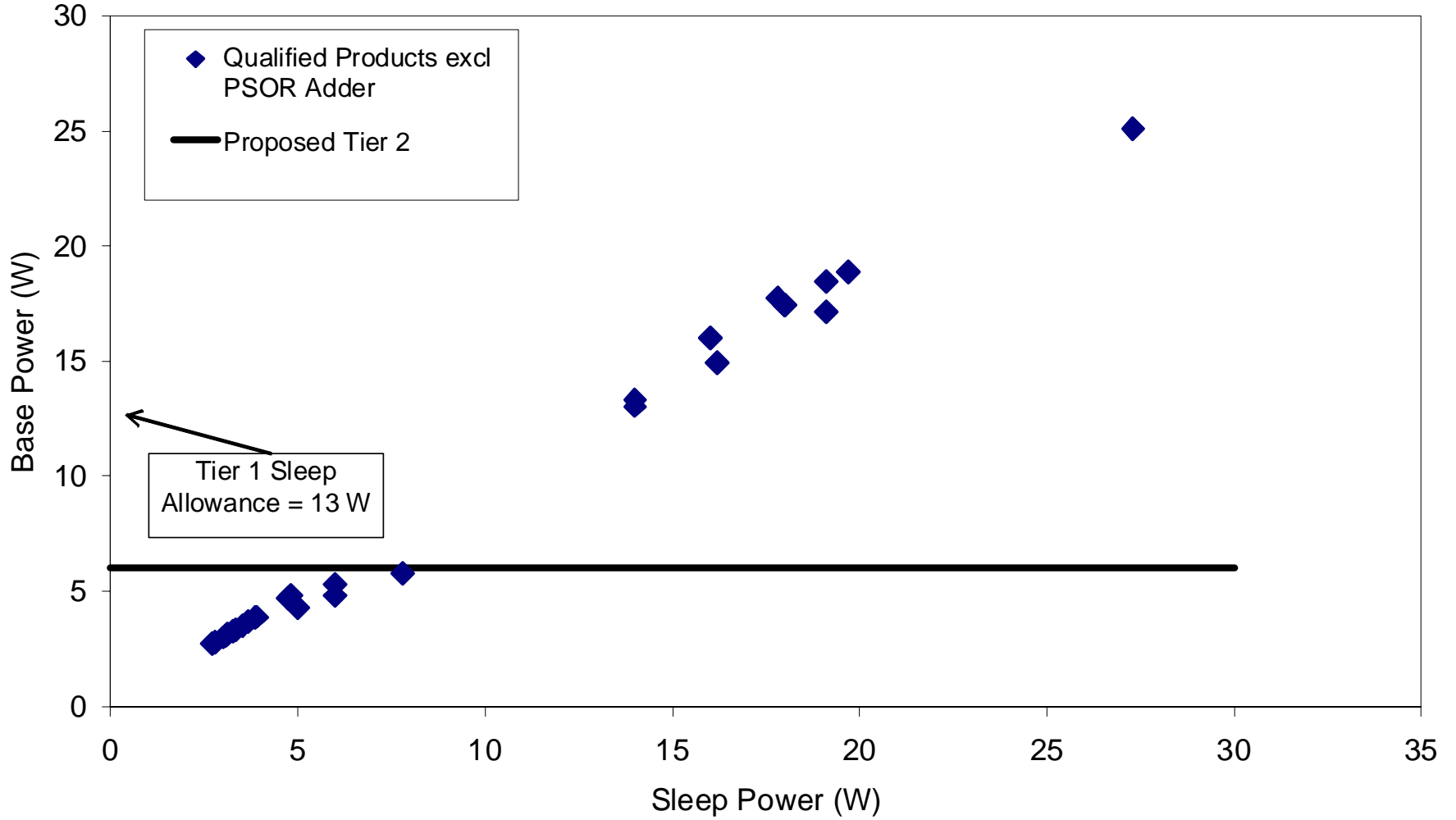
OM3



- Products: MFDs, Printers
- Size Format: Large
- Marking Technology: Color IJ, Mono IJ
- Tier 1
 - Sleep Allowance: 13 W
 - Qualified Products: 39 (62%)

PSOR Adder (W) (n =21)	
Min	2.92
Max	18.8
Ave	9.85

OM3



OM3 (*cont.*)



- Sleep Allowance: 6 W
- ES Qualified Products: 21 (33%)
 - 1 product meets the Sleep allowance but does not meet the proposed new Standby requirement (1 W)
- Manufacturers with Qualifying Products: 3

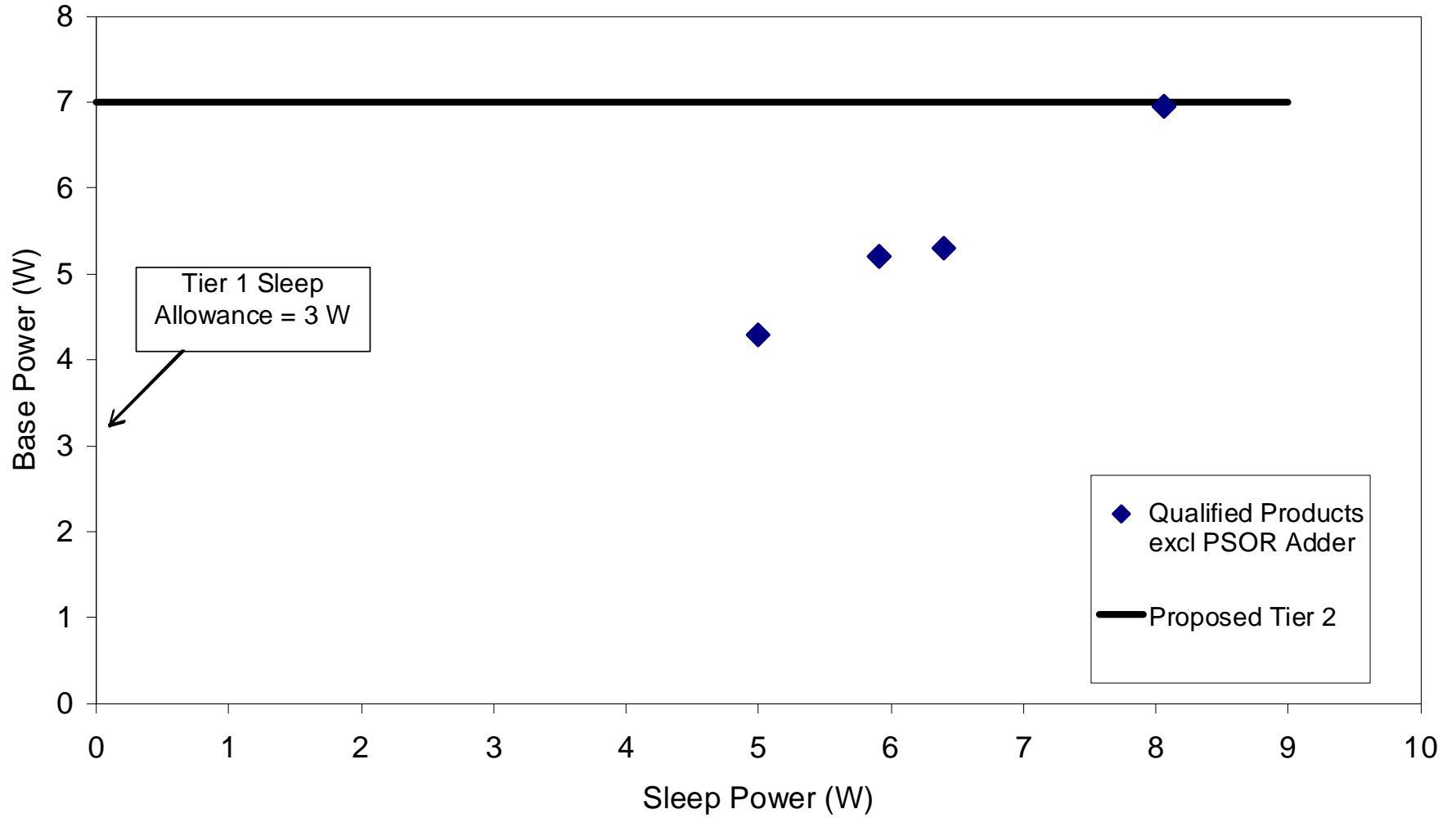
OM4



- Products: Mailing Machines
- Size Format: N/A
- Marking Technology: DT, Mono EP, Mono IJ, Mono TT
- Tier 1
 - Sleep Allowance: 3 W
 - Qualified Products: 6 (22%)

PSOR Adder (W) (n =6)	
Min	1.53
Max	6.06
Ave	3.95

OM4



OM4 (*cont.*)



- Sleep level effectively not changed in order to qualify all currently qualified products
- Sleep Allowance: 7 W
 - Tier 2 Sleep allowance higher than Tier 1 to account for elimination of PSOR adder
- ES Qualified Products: 6 (33%)
- Manufacturers with Qualifying Products: 1

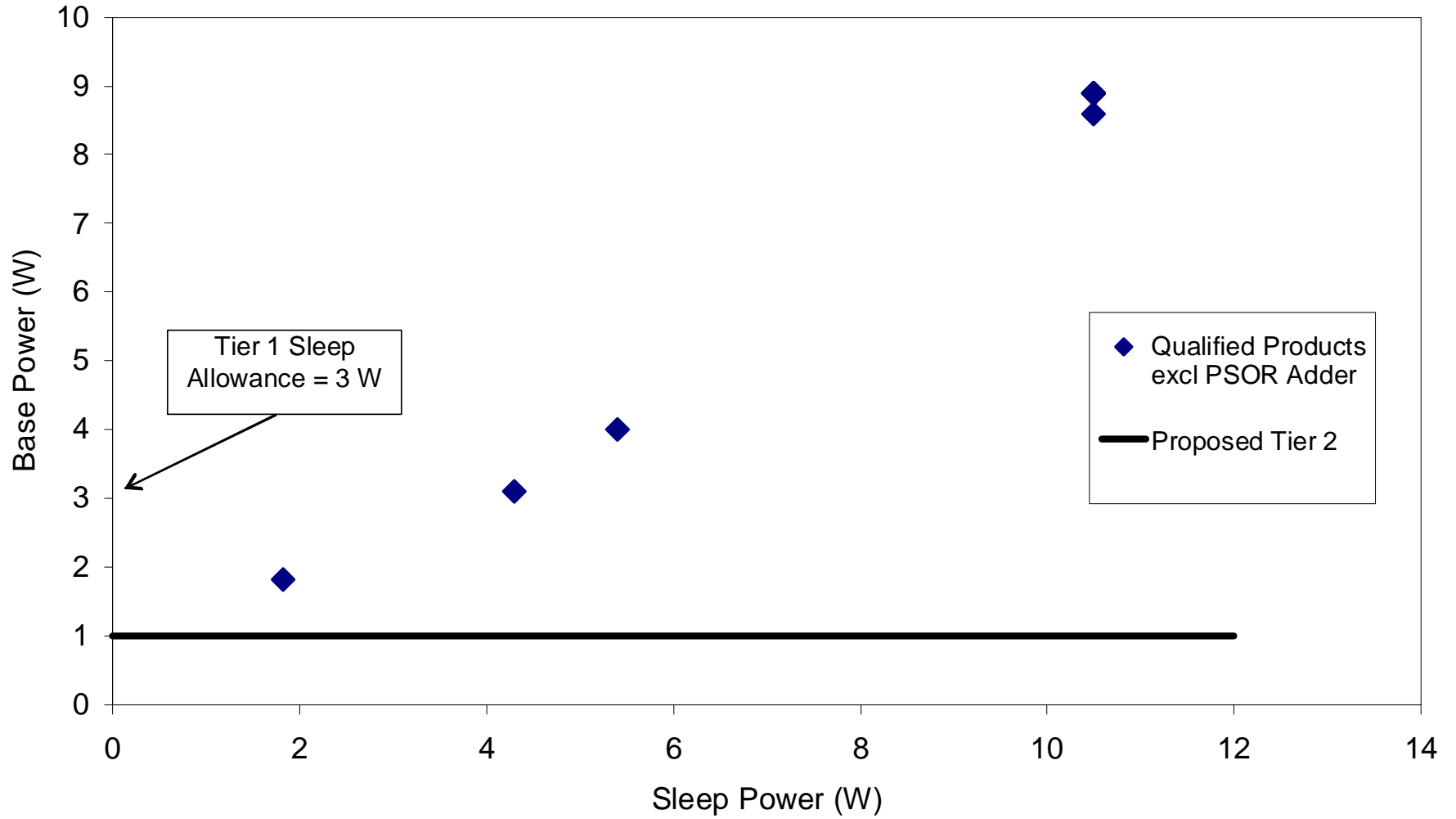
OM5



- Products: Printers
- Size Format: Small Format
- Marking Technology: Color DS, DT, Color IJ, Color Impact, Color TT, Mono DS, Mono EP, Mono IJ, Mono Impact, Mono TT, Color EP, SI
- Tier 1
 - Sleep Allowance: 3 W
 - Qualified Products 14 (19%)

PSOR Adder (W) (n =13)	
Min	1.18
Max	7.75
Ave	6.26

OM5



OM5 (cont.)



- Sleep Allowance: 1 W
 - EPA proposes to set this Sleep level the same as OM2, as products are similar in function as those under OM2, only smaller

QUESTION to stakeholders: Are the products that fall into this category use the same technologies that fall under OM2?

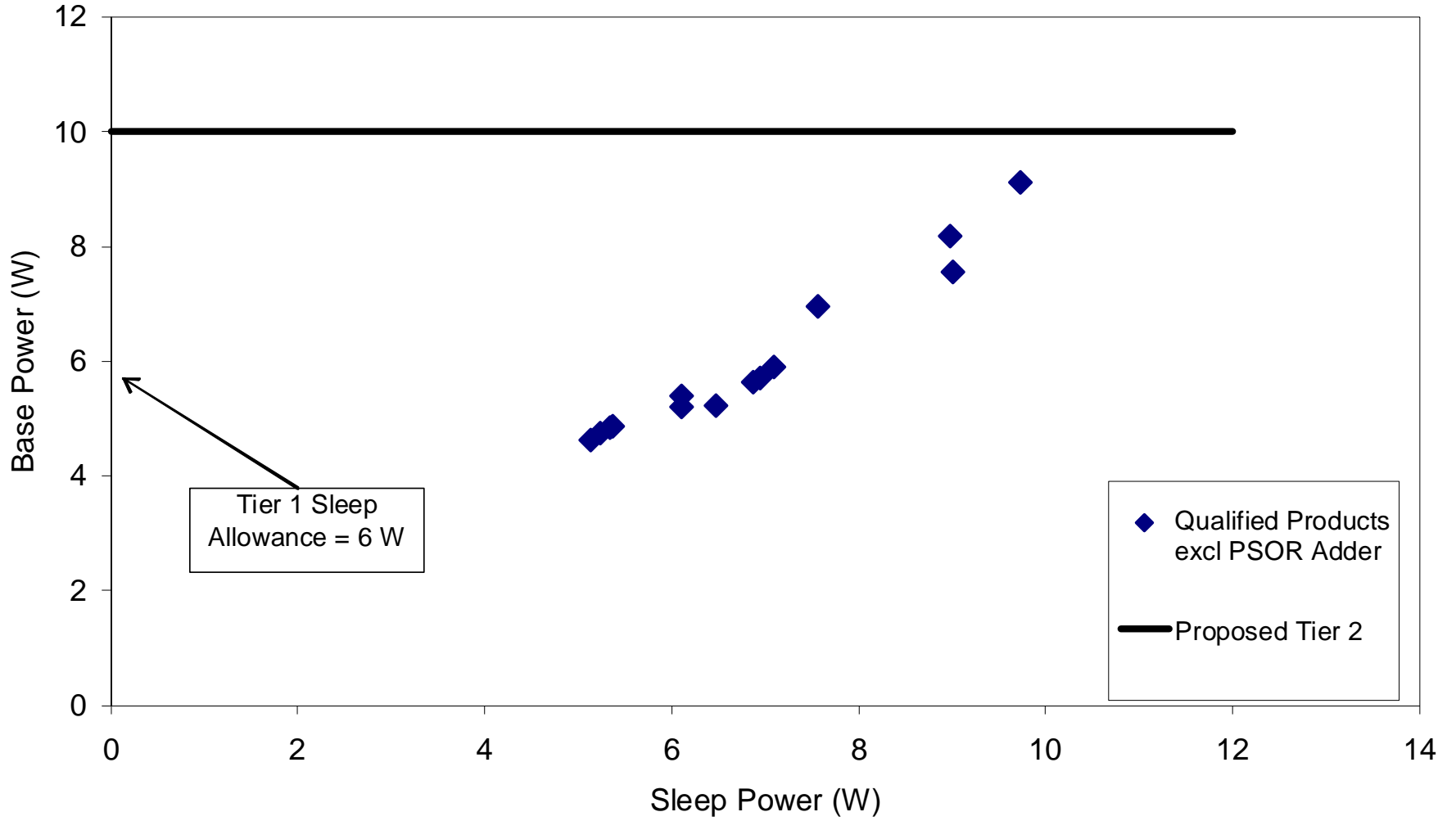
OM6



- Products: Printers
- Size Format: Standard
- Marking Technology: Color Impact, Mono Impact
- Tier 1
 - Sleep Allowance: 6 W
 - Qualified Products: 14 (22%)

PSOR Adder (W) (n =12)	
Min	2.98
Max	7.60
Ave	3.05

OM6



OM6 (cont.)



- Sleep level effectively not changed in order to qualify all currently qualified products
- Sleep Allowance: 10 W
 - Tier 2 Sleep allowance higher than Tier 1 to account for elimination of PSOR adder
- ES Qualified Products: 14 (22%)
- Manufacturers with Qualifying Products: 4

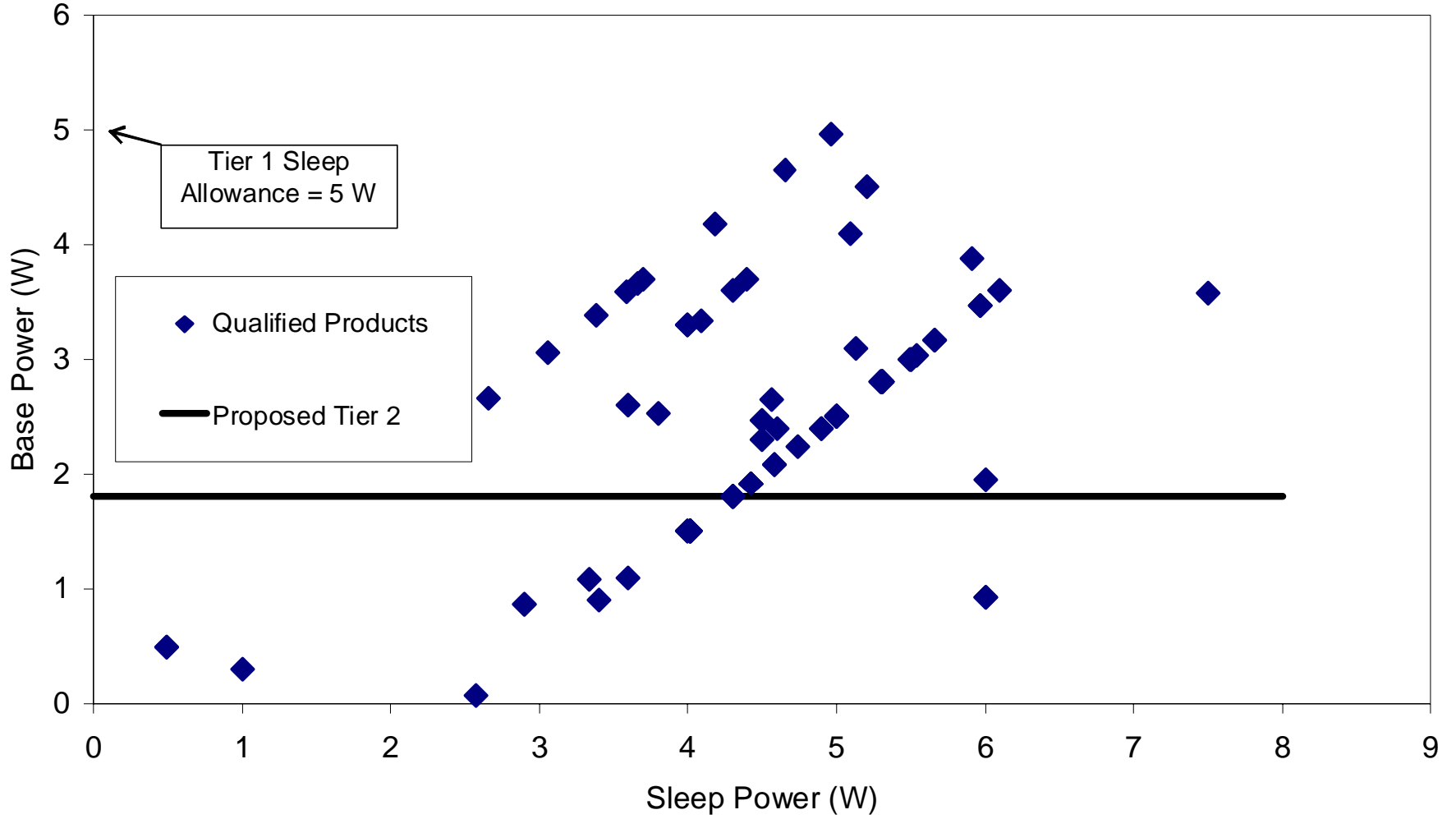
QUESTION to stakeholders: Are the products that fall into this category use the same technologies that fall under OM2? If so, EPA will consider setting this Sleep level the same as OM2 (1 W).

OM7



- Products: Scanners
- Size Format: Large, Small, Standard
- Marking Technology: N/A
- Tier 1
 - Sleep Allowance: 5 W
 - Qualified Products: 88 (81%)

OM7



OM7 (cont.)



- Sleep Allowance: 1.8 W
- ES Qualified Products: 26 (24%)
 - Two products meet the Sleep allowance but do not meet the proposed new Standby requirement (1 W)
- Manufacturers with Qualifying Products: 7

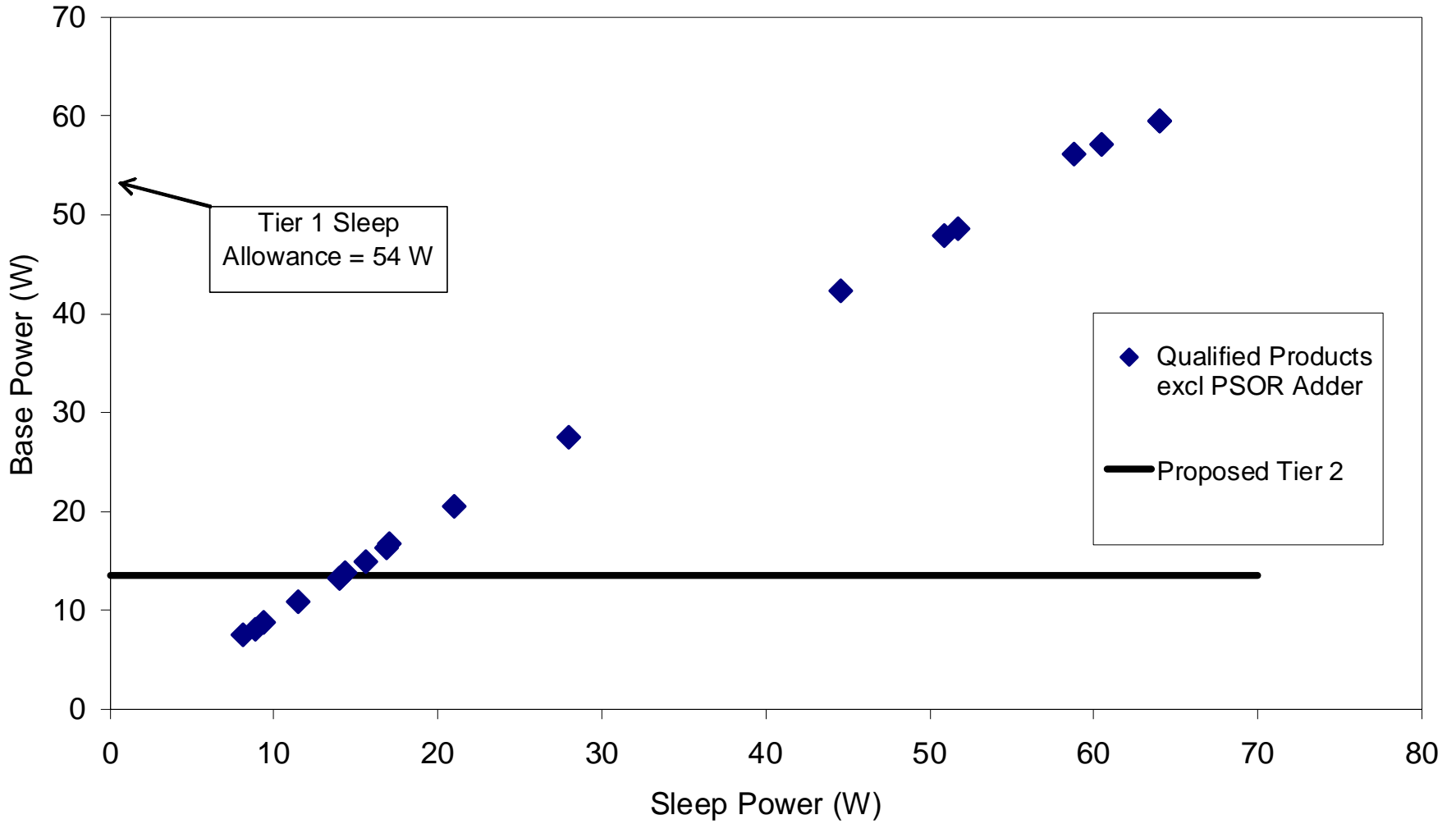
OM8



- Products: Printers
- Size Format: Large
- Marking Technology: Color DS, Color Impact, Color TT, DT, Mono DS, Mono EP, Mono Impact, Mono TT, Color EP, SI
- Tier 1
 - Sleep Allowance: 54 W
 - Qualified Products: 20 (74%)

PSOR Adder (W) (n =15)	
Min	3.05
Max	229.5
Ave	39.97

OM8



OM8 (*cont.*)



- Sleep Allowance: 13.5 W
- ES Qualified Products: 6 (22%)
 - One product meet the Sleep allowance but do not meet the proposed new Standby requirement (1 W)
- Manufacturers with Qualifying Products: 3

Next Steps



- Consider if PSOR adder, in some form, may be applied to some specific OM products
- Consider revisiting data analysis based on specific stakeholder input and discussion
- Prepare Draft 2 Sleep levels

LUNCH BREAK

Please be back to the room by 12:45pm

TEC Requirements

Bruce Nordman, LBNL

Goals



- Maintain existing division of products into four TEC tables
- Keep a logical relation among TEC lines as in Tier 1
 - e.g. common slopes, intercepts
 - This a starting point, not an absolute requirement
- Aim for simple formulae (e.g. linear segments)
- Strive for 25% qualification at all broad speed ranges

Challenges



- 25% qualification goal
 - A challenge given other goals
 - At time of drawing Draft 1 lines, only total number of non-qualifying models known, not speed of each non-qualifying product. Don't know qualifying rate for speed ranges
 - These lines presume that the non-qualifying products have the same distribution as the data for the qualifying models shown.

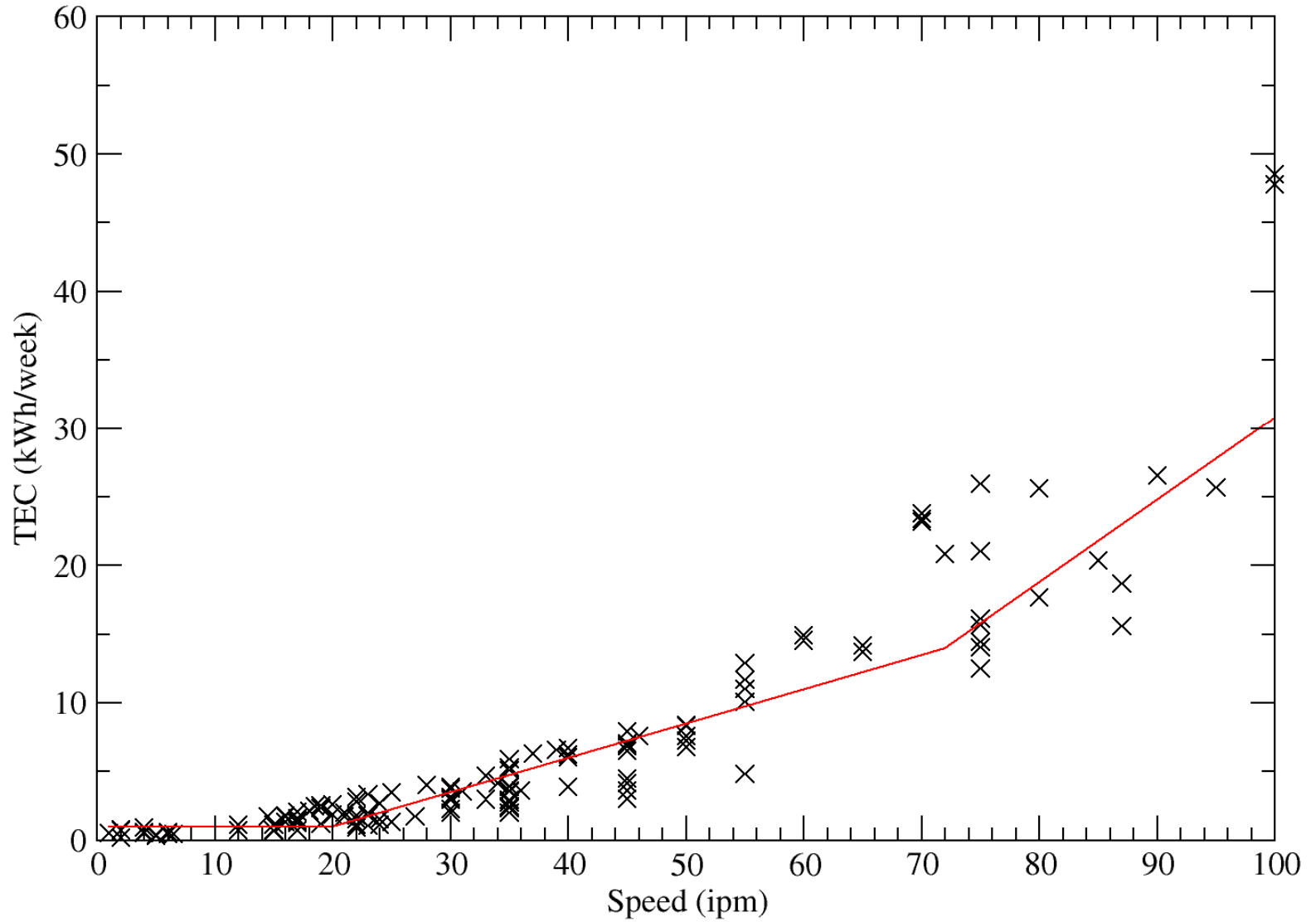
Challenges (*cont.*)



- Very high speed products — > 100 ipm
 - Few products
 - 25% line likely to depart from tendency below 100 ipm
 - As before, digital duplicator models will not be considered in setting 25% line
- “Floor” - point at which specification does not try to go past
 - Tier 1 had 1.5 kWh/week “floor” for TEC1 products
 - Draft 1 has a 1.0 kWh/week floor for all TEC products (1.0 only a round number - has no other significance)

TEC 1

proposal 1 spec line

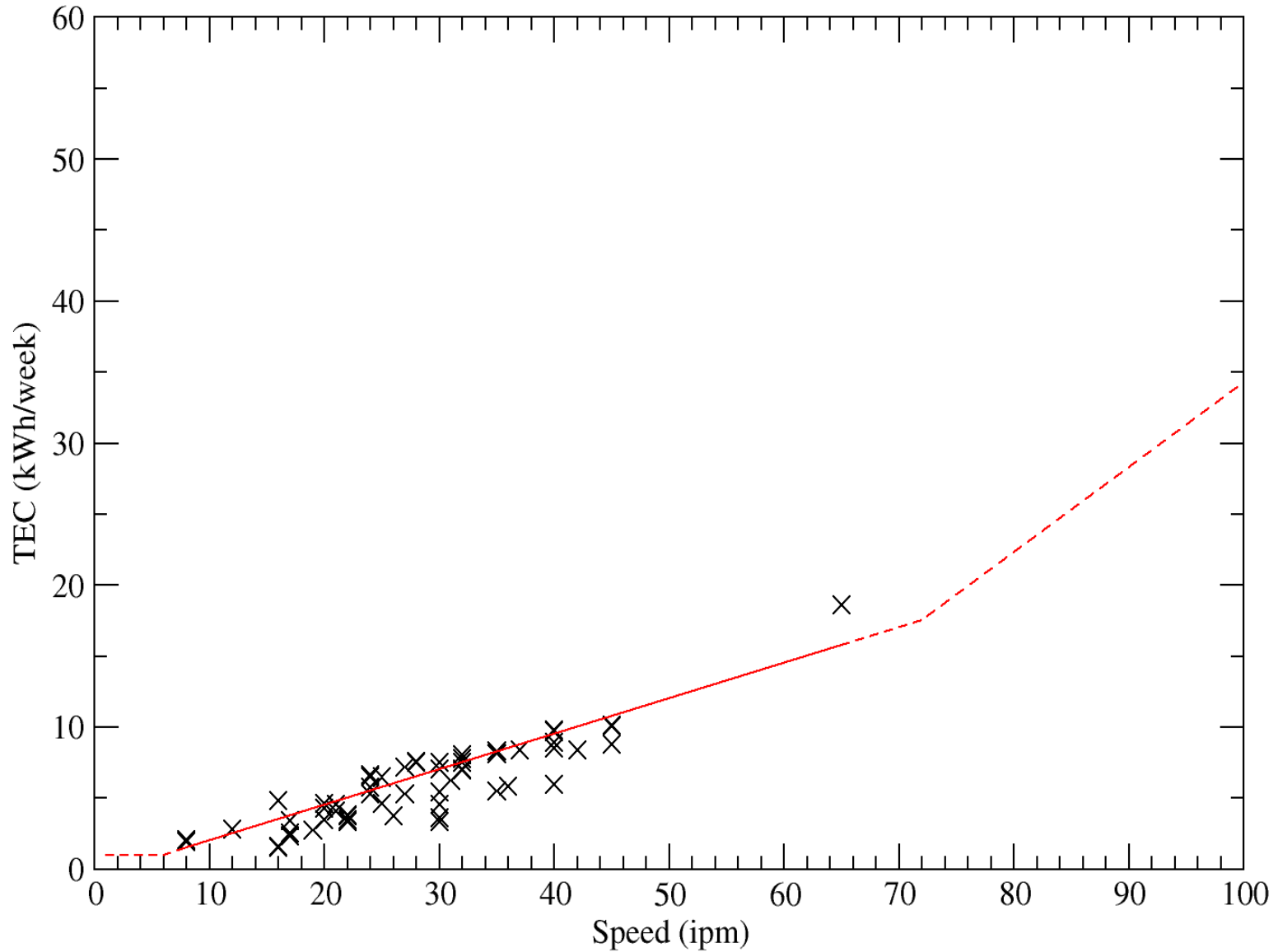


TEC 1: Tier 1 % qualified - 43

proposed Tier 2 - 22%

TEC 2

proposal 1 spec line

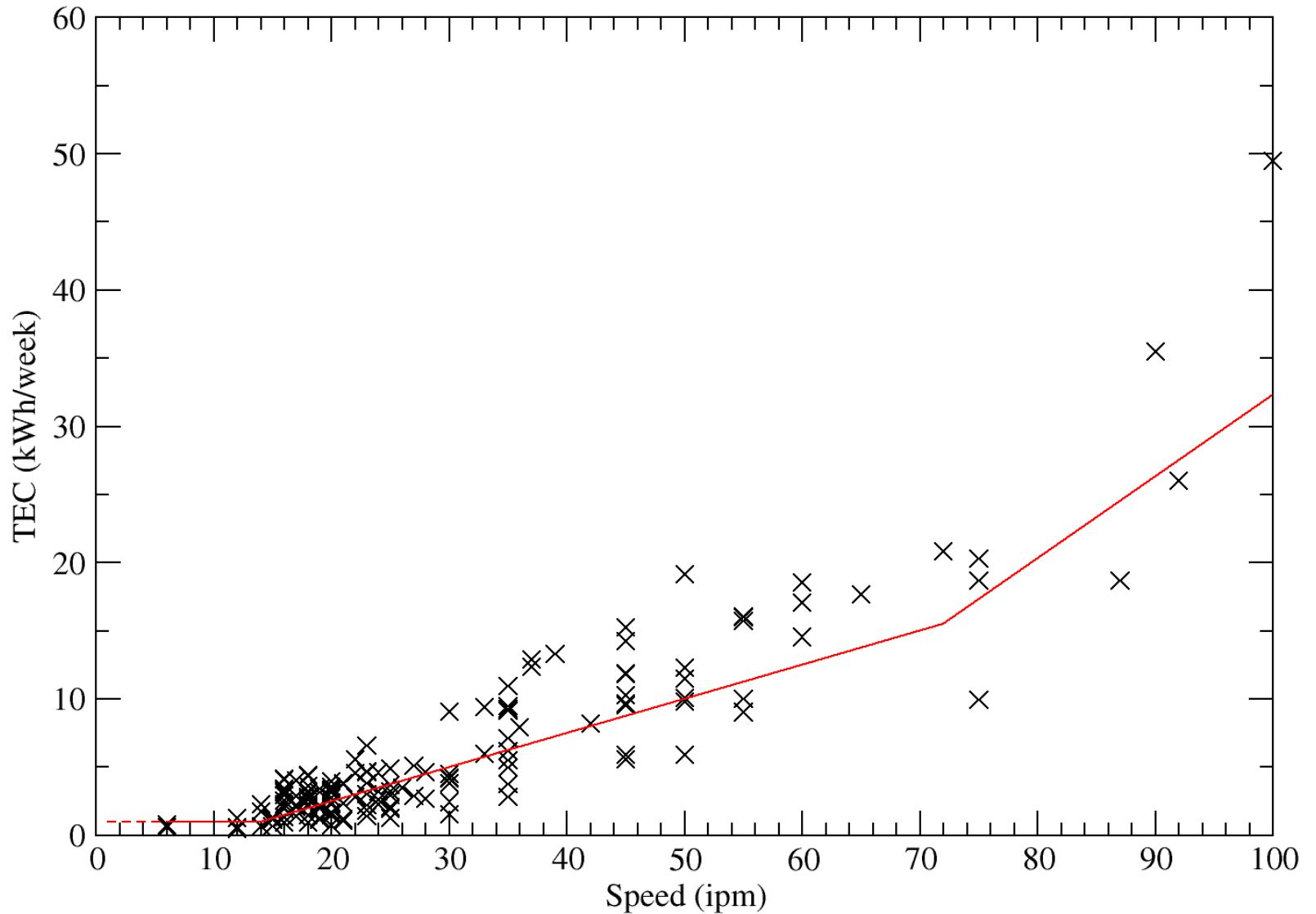


TEC 2: Tier 1 % qualified - 38

proposed Tier 2 - 24%

TEC 3

proposal 1 spec line

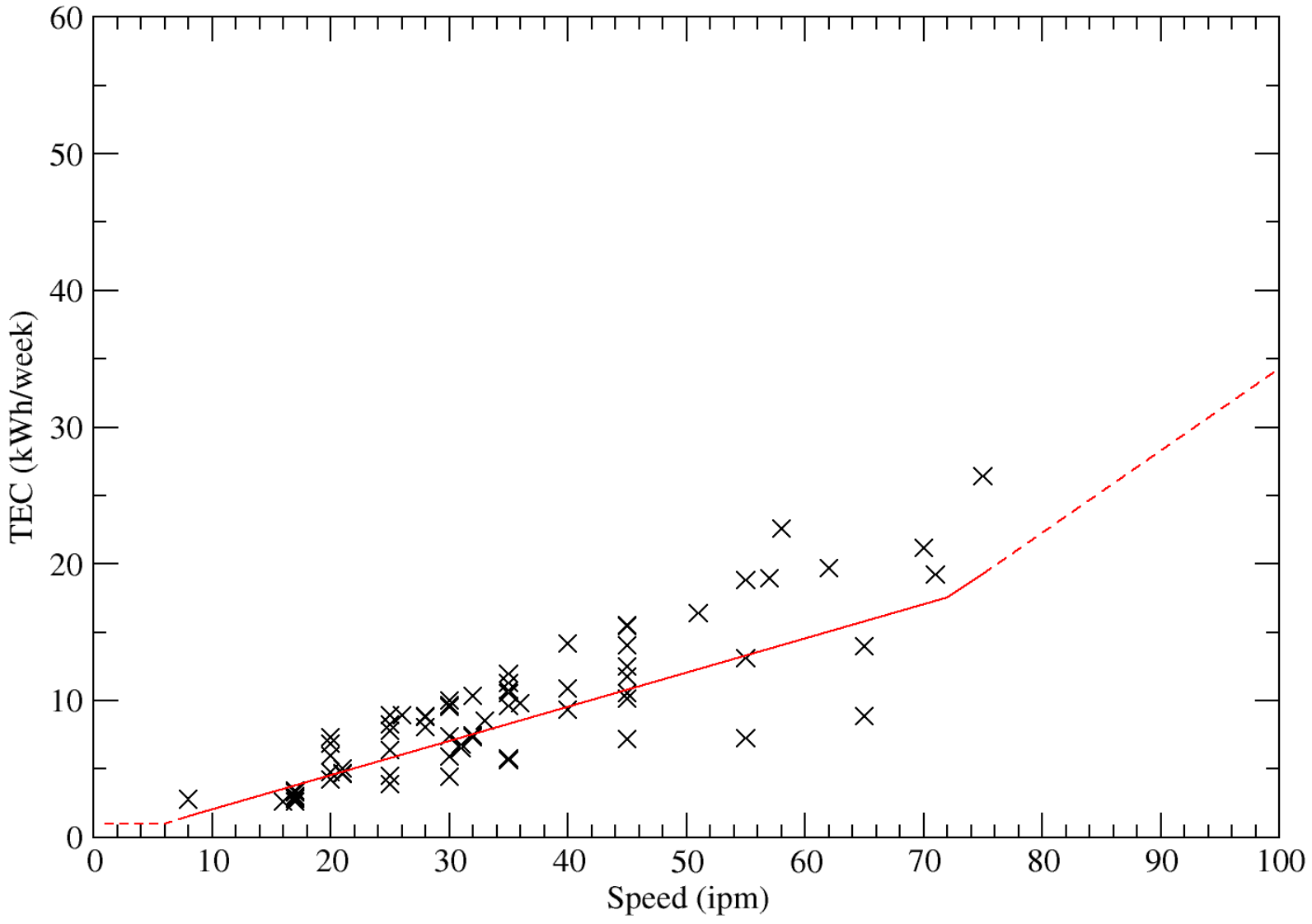


TEC 3: Tier 1 % qualified - 53

proposed Tier 2 - 24%

TEC 4

proposal 1 spec line

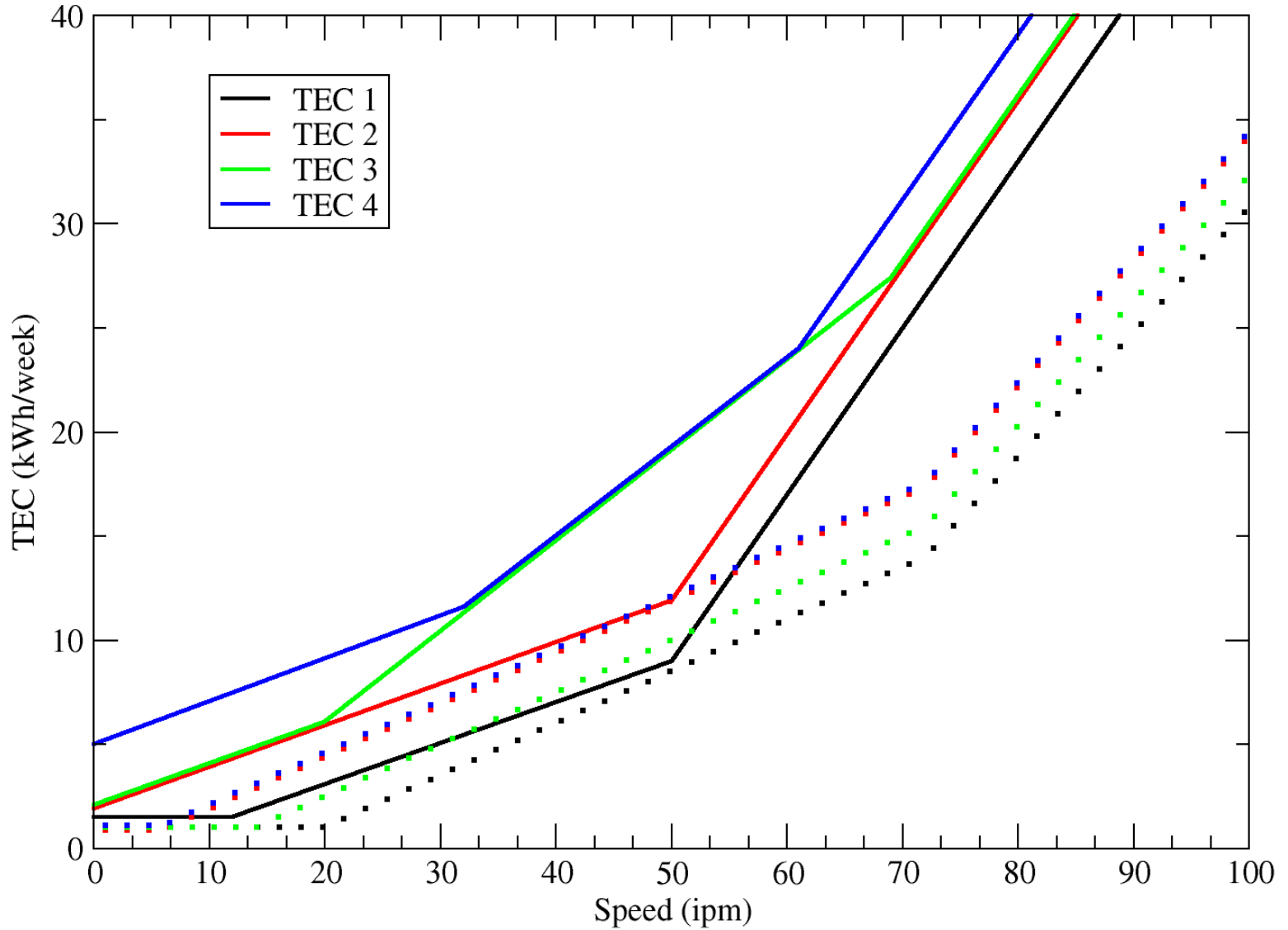


TEC 4: Tier 1 % qualified - 63

proposed Tier 2 - 26%

TEC analysis

Tier 1 vs. initial Tier 2 proposal



Next Steps



- Incorporate non-qualifying model speeds to assess qualifying rate across various speed ranges
- Consider if any functions significantly affect energy use of similar speed products within a TEC category
- Consider application of “floor” concept to each TEC table
- Consider revisiting data analysis based on specific stakeholder input and discussion
- Address products > 100 ipm — or not?
- Prepare Draft 2 lines

Administrative Updates

Christopher Kent, U.S. EPA &
Darcy Martinez, ICF International

Auto Archiving in Find a Product (FAP)



- Products with a date of manufacture > 2 years are hidden from FAP
- Partners may “show” products in FAP by reactivating through OPS

Find ENERGY STAR Qualified Imaging Equipment

Standard Capability:

Copying

Printing

Scanning

Faxing

Size Format:

Continuous Form?:

Color Capability:

Marking Technology:

Product Speed:

Brand:

Model Name/Model Number:

All similar model numbers will be found.
Enter only the first few digits for the best results

Results per Page:

Submitting Unit Shipment Data (USD)



- IE partners with qualified products in 2008 will be required to submit calendar year 2008 data by 3/31/09
- Submission through a third party is encouraged
- Partners that do not meet the submission deadline risk suspension, and ultimately, termination of their partnership.
- Information is available at www.energystar.gov/usd

Submitting Unit Shipment Data (USD) (cont.)



United States
ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

ENERGY STAR Computer Monitor Partner
Unit Shipment Data
Office of Atmospheric Programs

NAME OF MANUFACTURER: _____

DATE OF SUBMISSION: _____

SUBMITTED BY (NAME): _____

Reporting Period: CALENDAR YEAR 2007 (JAN. TO DEC.)

Computer Monitor Product Type	ENERGY STAR® U.S. Unit Shipments (REQUIRED)	Total U.S. Unit Shipments (ENERGY STAR + Non-ENERGY STAR) (REQUESTED)
CRT Monitor		
LCD Monitor		
Total		

Submission Deadline: March 31, 2008

Please submit by mail, email, or fax to:
Elliott Reclor
ICF International
1725 Eye Street, NW
Suite 1000
Washington, DC 20006
unitshipmentdata@icf.com
Fax: (202) 862-1144

ITI members may submit data to:
Ken Salts
ksalts@itic.org
Fax: (202) 638-4922

Any information submitted to EPA for which a claim of confidentiality is made will be safeguarded according to the Agency policies set forth in Title 40, chapter 1, part 1, subpart B - Confidentiality of Business Information (see 40 CFR part 2; 41 FR 26902, September 1, 1976; amended by 43 FR 40000, September 8, 1978; 43 FR 42251, September 20, 1978; 44 FR 17674, March 23, 1979).

Reporting Product Data under V1.1



- EPA will reevaluate reported products to determine qualification with V1.1
- Some new data points may be needed from partners, e.g. Standby power for large format devices and mailing machines
- New data points shall be provided through OPS
- With the elimination of grandfathering, products with a date of manufacture after 4/1/09 must meet the V1.1 spec to be considered ENERGY STAR qualified

10 Minute Break

Conclusion

Christopher Kent, U.S. EPA

- EPA reexamines IDC data for use in determining total number of available models.
- EPA prepares to publish TEC data for qualified products by circulating a proposed disclaimer explaining it is a ranking mechanism.
- By 5/14, industry suggests to EPA a metric that can be used to convey recovery time information to consumers.
- EPA redraws specification lines considering additional failures due to changes in EPS specification.
- EPA evaluates pass rate of proposed specification lines by speed bin to ensure approximately 25% is achieved.

Next Steps (cont.)

- EPA schedules a conference call to discuss further the treatment of DFEs in the IE spec.
- Industry sends data to suggest appropriate power level for proposed fax adder.
- EPA considers recovery time issues with different types of scanner lamps.
- Industry suggest for what products and in what form a PSOR adder may still be needed.
- EPA explores auto-notification to manufacturers of products that may be auto-archived in near future.
- Revisit manufactures of products with negative incremental recovery time values to determine if there is any misunderstanding.



Next Steps (cont.)

- EPA explores error notification system in OPS if Active0 is greater than Active1.
- EPA prepares responses to all comments received on Draft 1.
- EPA publishes ITI, Ricoh, and EC presentations to the ENERGY STAR Web site.
- EPA confirms that Active0 and Active1 times are available on www.energystar.gov for stakeholder review.
- EPA explores publishing a list of recently-delisted products as a result of V1.1 effective date.
- EPA explores having a new field in OPS so products may have customized fields to determine when a product is archived.
- EPA confirms that USD notifications will be more clear regarding the applicable product category.

Initial Timeline for Imaging Equipment Specification Revision



April 10, 2008

Distribute Draft 1 Version 1.1 specification

May 7, 2008

Stakeholder meeting to discuss Draft 1 specification

May 21, 2008

Distribute draft Final Version 1.1 specification

July 1, 2008

Distribute Final Version 1.1 specification

May 1, 2008

Partner comments due on Draft 1

May 14, 2008

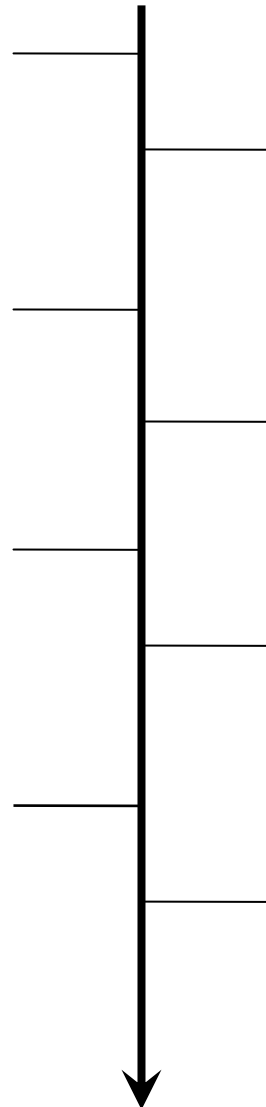
Partner comments due from meeting

June 11, 2008

Partner comments due on draft Final Version 1.1

April 1, 2009

Version 1.1 effective date



Alternate Timeline # 1 for Imaging Equipment Specification Revision



May 7, 2008

Stakeholder meeting to discuss Draft 1 specification

May 21, 2008

Deadline for industry-submitted market data

June 9, 2008

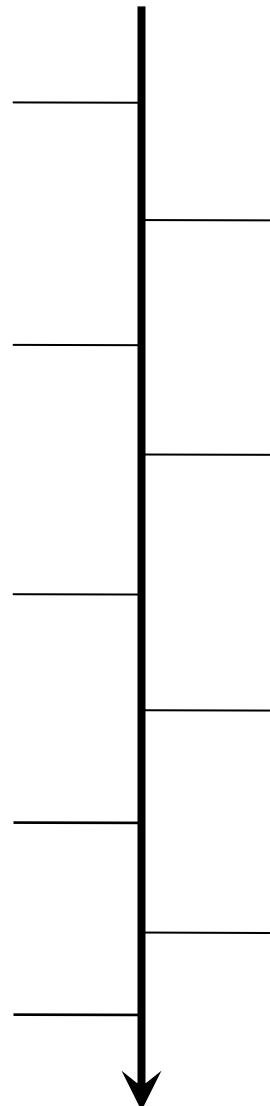
Stakeholder comments due on Draft 2

June 26, 2008

Stakeholder comments due on Final Draft

April 1, 2009

Version 1.1 effective date



May 14, 2008

Stakeholder comments due from meeting

May 28, 2008

Distribute Draft 2

June 16, 2008

Distribute Final Draft

July 1, 2008

Distribute Final Version 1.1 specification

Alternate Timeline # 2 for Imaging Equipment Specification Revision



May 7, 2008

Stakeholder meeting to discuss Draft 1 specification

May 21, 2008

Deadline for industry-submitted market data

June 18, 2008

Stakeholder comments due on Draft 2

July 16, 2008

Stakeholder comments due on Final Draft

April 1, 2009

Version 1.1 effective date

May 14, 2008

Stakeholder comments due from meeting

May 28, 2008

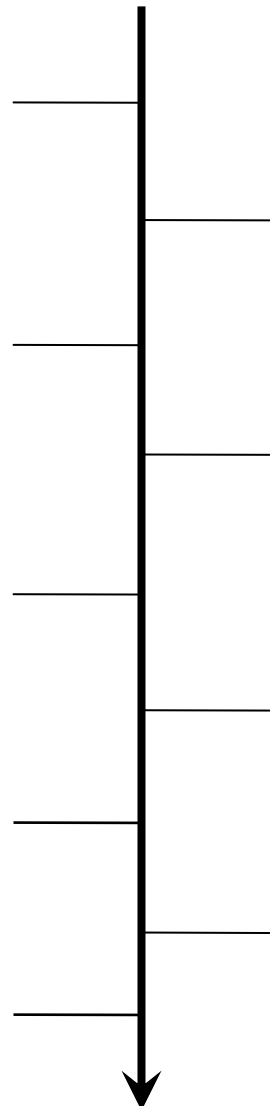
Distribute Draft 2

June 25, 2008

Distribute Final Draft

July 21, 2008

Distribute Final Version 1.1 specification



Outstanding questions?

Contact Information



Christopher Kent
ENERGY STAR Program
202 343 - 9046
kent.christopher@epa.gov

Darcy Martinez
ICF International
202-862-1234
dmartinez@icfi.com

Bijit Kundu
ICF International
202-862-1157
bkundu@icfi.com

Bruce Nordman
Lawrence Berkeley National Laboratory
510-486-7089
bnordman@lbl.gov