ENERGY STAR. The simple choice for energy efficiency.

ENERGY STAR®
Distribution Transformers Draft 2 Specification Webinar

August 11, 2016

ENERGY STAR Products Labeling Program

Meeting Details

- Webinar slides and related materials will be available on the Distribution Transformers Product Development Web page:
  - www.energystar.gov/NewSpecs
  - *Follow link to "Version 1.0 is in Development" under "Transformers"*

- Audio provided via teleconference:

  Call in: +1 (877) 423-6338 (U.S.)
  +1 (571) 281-2578 (International)
  Code: **773366** #

  - Phone lines will remain open during discussion
  - Please mute line unless speaking

Meeting Objectives

- Recap the Draft 1 Specification and the stakeholder feedback
- Review the resulting analysis and proposed approach
- Receive feedback on ENERGY STAR's Draft 2 in terms of the:
  - Specification
    - Energy savings criteria
    - TOC reporting
  - Third-party certification

Agenda

Time	Topic
1:00–1:45	**Introductions and Recap of Draft 1**
1:45–3:00	Analysis and Draft 2 Specification Proposal
3:00–3:15	Third-Party Certification
3:15–4:00	Next Steps and Wrap-up

Introductions

Verena Radulovic

U.S. Environmental Protection Agency

Matt Malinowski

ICF International

Emmy Phelan

ICF International

Mahesh Sampat

EMS International Consulting, Inc.

Recap of Specification Development: Guiding Principles of Specification Development

- Cost-effective efficiency
- Performance maintained or enhanced
- Significant energy savings potential
- Efficiency improvements are achievable with non-proprietary technology
- Product differentiation and testing are feasible
- Labeling can be effective in the market

Specification Development Cycle

We are here

Timeline thus Far

Event	Date
Scoping Report Published	*February 2014*
Distribution Transformers Launch	*December 2014*
Distribution Transformers Launch Webinar	*January 14, 2015*
Draft 1 Specification Released	*July 2015*
Draft 1 Specification Webinar	*August 20, 2015*
Draft 2 Specification Released	*July 2016*
Draft 2 Specification Webinar	**August 2016**

Stakeholder Feedback to Draft 1 Specification

- Data-driven process, relying on stakeholder feedback to propose levels that recognize top performers in the market
- All proposals are validated through specification drafts and open comment periods
- EPA has heard the following stakeholder feedback in regards to Draft 1 and used it to inform Draft 2

Stakeholder Feedback to Draft 1 Specification

- **Definitions**
  - Transformer: A stakeholder recommended that the term 'insulated wire' be replaced with 'insulated conductor' to not limit manufacturer's choice of conductor to just insulated wire.
  - Operational Power States: A stakeholder noted that the definition of No Load loss should read: "those losses that are incident to the excitation of the transformer at rated voltage."

EPA will continue to align with the definitions presented in the Department of Energy Final Rule Energy Conservation Program: Energy Conservation Standards for Distribution Transformers, 78 FR 23384.

Stakeholder Feedback to Draft 1 Specification

- **Scope**
  - Stakeholders suggested a few changes to the scope, like excluding single phase units larger than 500 kVA as well as limiting the scope to units with only one kVA rating listed on the nameplate

EPA appreciates these suggestions however, EPA will continue to propose a scope that aligns with the DOE Final Rule in order to maintain harmonization with the products covered.

Stakeholder Feedback to Draft 1 Specification

- **Load Factor**
  - Load Factor vs. Capacity Factor terminology: Two stakeholders recommended that EPA use the term load factor over capacity factor and that a definition be added for this term.

EPA agrees with this recommendation and will use the term load factor moving forward.

Stakeholder Feedback to Draft 1 Specification

- **Load Factor Increments**
  - Load Factor Increments: Several stakeholders noted that there is no need for so many load factors – it could be burdensome and not yield much benefit because utilities do not operate with such precision.

	Number of Phases:	Single-phase			Three-phase	
	Capacity (kVA Rating):	25	50	500	150	1500
Efficiency at Specified Capacity Factor (%)	10%	TBD	TBD	TBD	TBD	TBD
	15%	TBD	TBD	TBD	TBD	TBD
	20%	TBD	TBD	TBD	TBD	TBD
	25%	TBD	TBD	TBD	TBD	TBD
	30%	TBD	TBD	TBD	TBD	TBD
	35%	TBD	TBD	TBD	TBD	TBD
	40%	TBD	TBD	TBD	TBD	TBD
	45%	TBD	TBD	TBD	TBD	TBD
	50%	TBD	TBD	TBD	TBD	TBD
	55%	TBD	TBD	TBD	TBD	TBD
	60%	TBD	TBD	TBD	TBD	TBD
	65%	TBD	TBD	TBD	TBD	TBD
	70%	TBD	TBD	TBD	TBD	TBD

Stakeholder Feedback to Draft 1 Specification

Percentage Energy Savings over Minimum DOE-compliant Design at Utility Specified Load Factor (%)		
< 30% Load Factor	30–40% Load Factor	> 40% Load Factor

EPA has revised the approach and will be using three load factor ranges for setting efficiency criteria: less than 30%, between 30% and 40%, and greater than 40% load factor. How EPA decided on these ranges will be discussed further in this presentation.

Stakeholder Feedback to Draft 1 Specification

- **kVA Sizes**
  - Stakeholders requested clarification for calculating efficiency criteria at kVA sizes not listed in the Draft 1 Specification.

EPA has revised the approach and has provided criteria for all IEEE standard kVA sizes in the Draft 2 Specification.

- **Basic Impulse Level**
  - A stakeholder requested that the efficiency requirements take BIL into account for safety and reliability reasons.

- To be consistent with the DOE Final Rule, no differentiation has been made
- EPA expects that all industry safety standards will be followed prior to certification for ENERGY STAR.

Stakeholder Feedback to Draft 1 Specification

- **Total Owning Cost (TOC)**
  - Stakeholders supported using a TOC approach that would fit into the current manufacturer and purchasing process. They also suggested the following:
    - Use of IEEE C57.12.33 for calculating TOC
    - Offer utilities a partnership status for participating

EPA:

- Supports the TOC purchasing practice and has incorporated it into Draft 2.
- Prefers to use IEEE PC57.120 because IEEE C57.12.33 has been sunset.
- Plans to engage utilities in terms of what incentives are needed to be put in place

Stakeholder Feedback to Draft 1 Specification

- **Alternate Proposal**
  - One stakeholder offered an alternative approach in which EPA would focus on the entire distribution network from substations to DTs, as opposed to focusing on a specific component

EPA appreciates this proposal and will look into it’s feasibility for the future.

Agenda

Time	Topic
1:00–1:45	Introductions and Recap of Draft 1
1:45–3:00	**Analysis and Draft 2 Specification Proposal**
3:00–3:15	Third-Party Certification
3:15–4:00	Next Steps and Wrap-up

Shift from Draft 1 to Draft 2 Specification

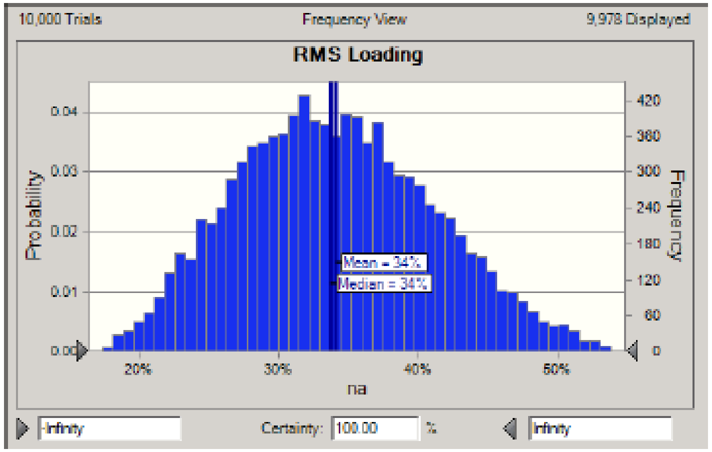
- Savings requirement at one of 3 load factor bins:
  1. Low or <30%,
  2. Mid or 30–40%, or
  3. High or >40%
- Cost effective energy savings
- Used DOE dataset, but supplemented where necessary and possible

- Requirements can be cost-effectively met by multiple core materials
- Promoting a TOC approach in purchasing—best practice

Load Factors – Analysis Methodology

- The average load factor is ~36% and the median is 33%.
- The distribution can be divided into thirds using the following bins
  - <30%
  - 30-40%
  - >40%

RMS Load for DL 1 – 50kVA 1P LI



Forecast:	RMS Loading
Statistic	Forecast values
Trials	10,000
Mean	34%
Median	34%
Mode	'---
Standard Deviation	7%
Variance	0%
Skewness	0.2336
Kurtosis	2.59
Coeff. of Variability	0.2065
Minimum	17%
Maximum	56%
Mean Std. Error	0%

Load Factors

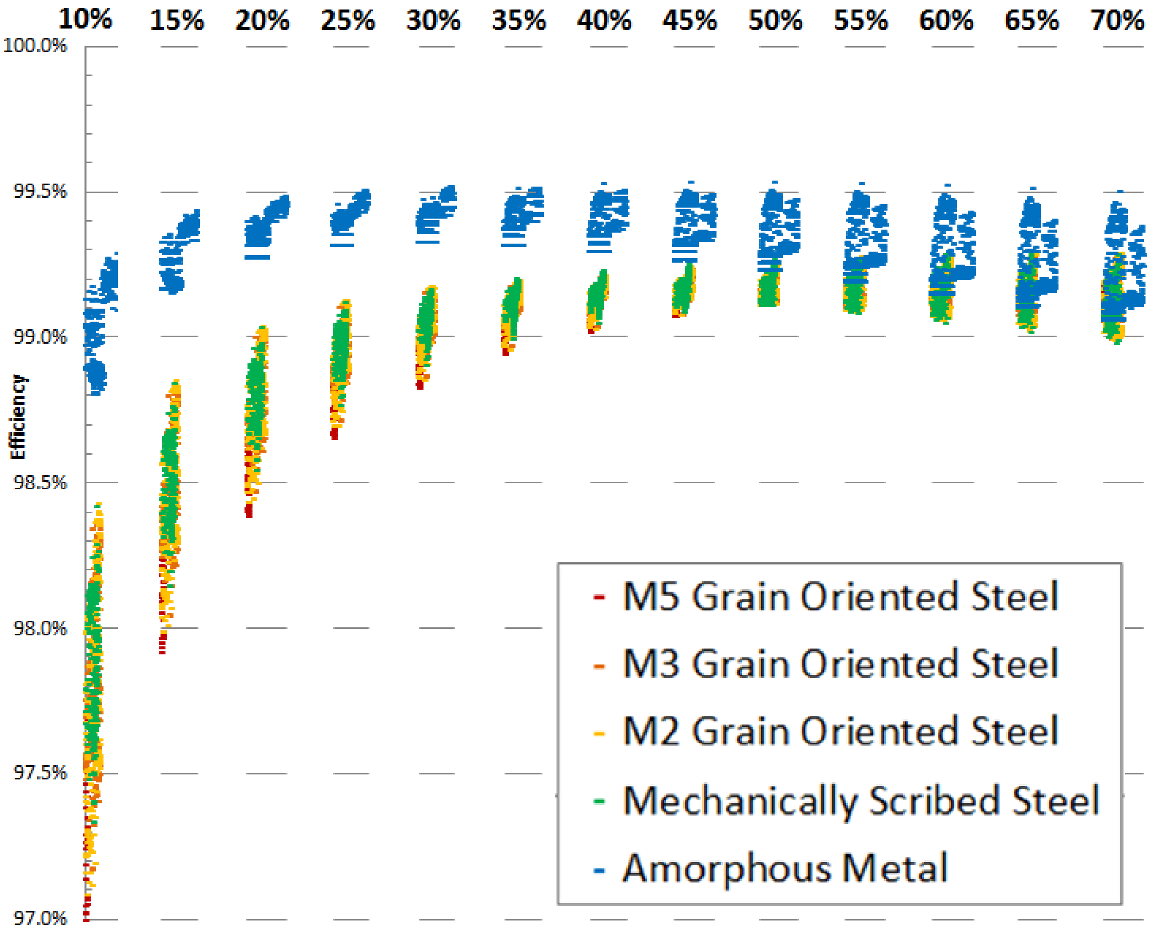
	Number of Phases:	Single-phase		
	Capacity (kVA Rating):	25	50	
Efficiency at Specified Capacity Factor (%)	10%	TBD	TBD	
	15%	TBD	TBD	
	20%	TBD	TBD	
	25%	TBD	TBD	
	30%	TBD	TBD	
	35%			
	40%			

Table 1: Minimum Percent Energy Saving at Operating Load Factors

				Percentage Energy Savings over Minimum DOE-compliant Design at Utility Specified Load Factor (%)		
Design Line	Number of Phases	Tank Shape	Capacity Range (kVA)	< 30% Load Factor	30–40% Load Factor	> 40% Load Factor
1	1	Rectangular	≤ 167	25%	12%	11%
2	1	Round	≤ 167	25%	12%	14%
3	1	Round	> 167	TBD	TBD	20%
4	3	Rectangular	≤ 500	25%	12%	19%
5	3	Rectangular	> 500	TBD	TBD	16%

Cost Effective Energy Savings – Analysis Methodology

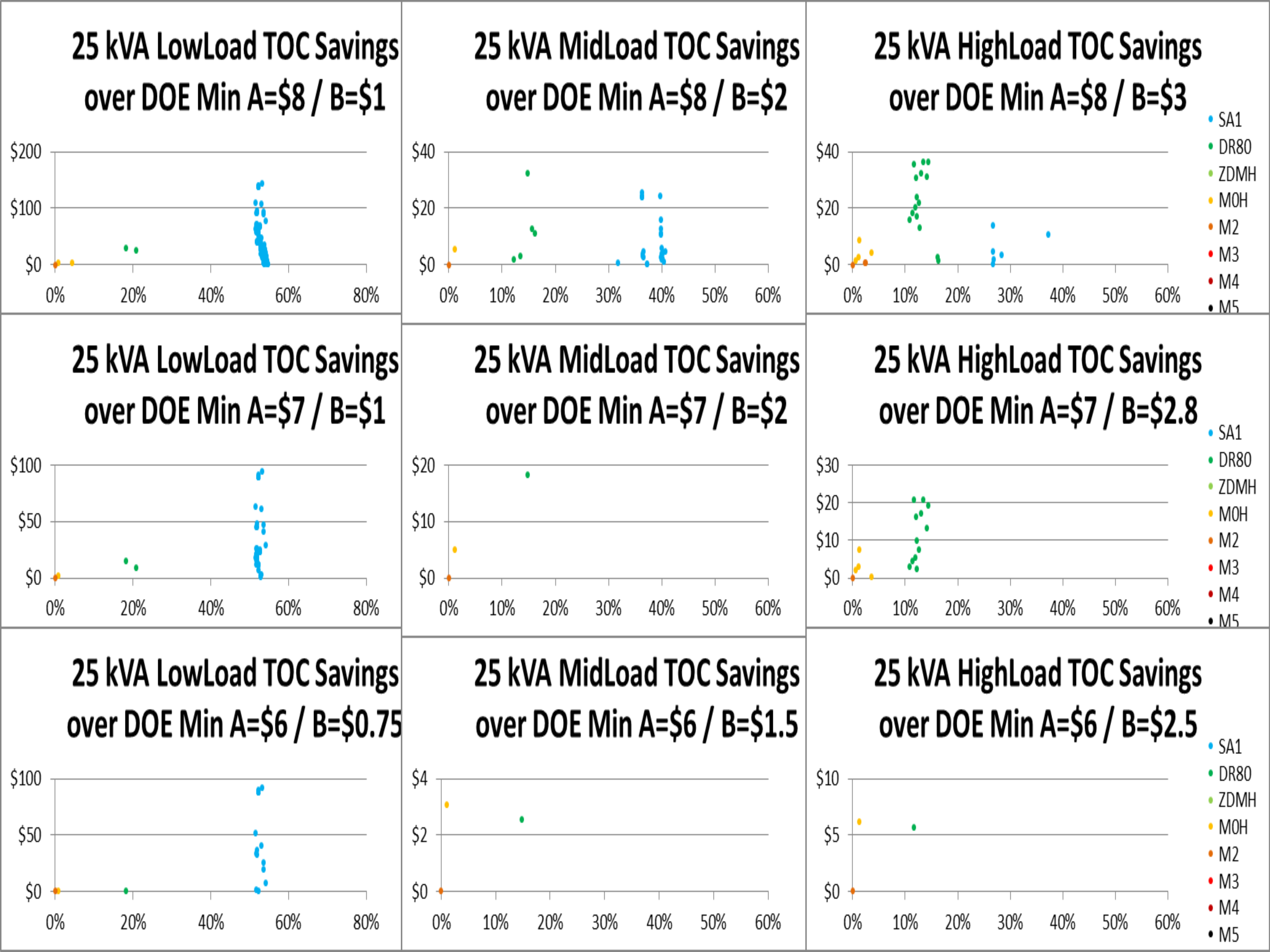
Draft 1:



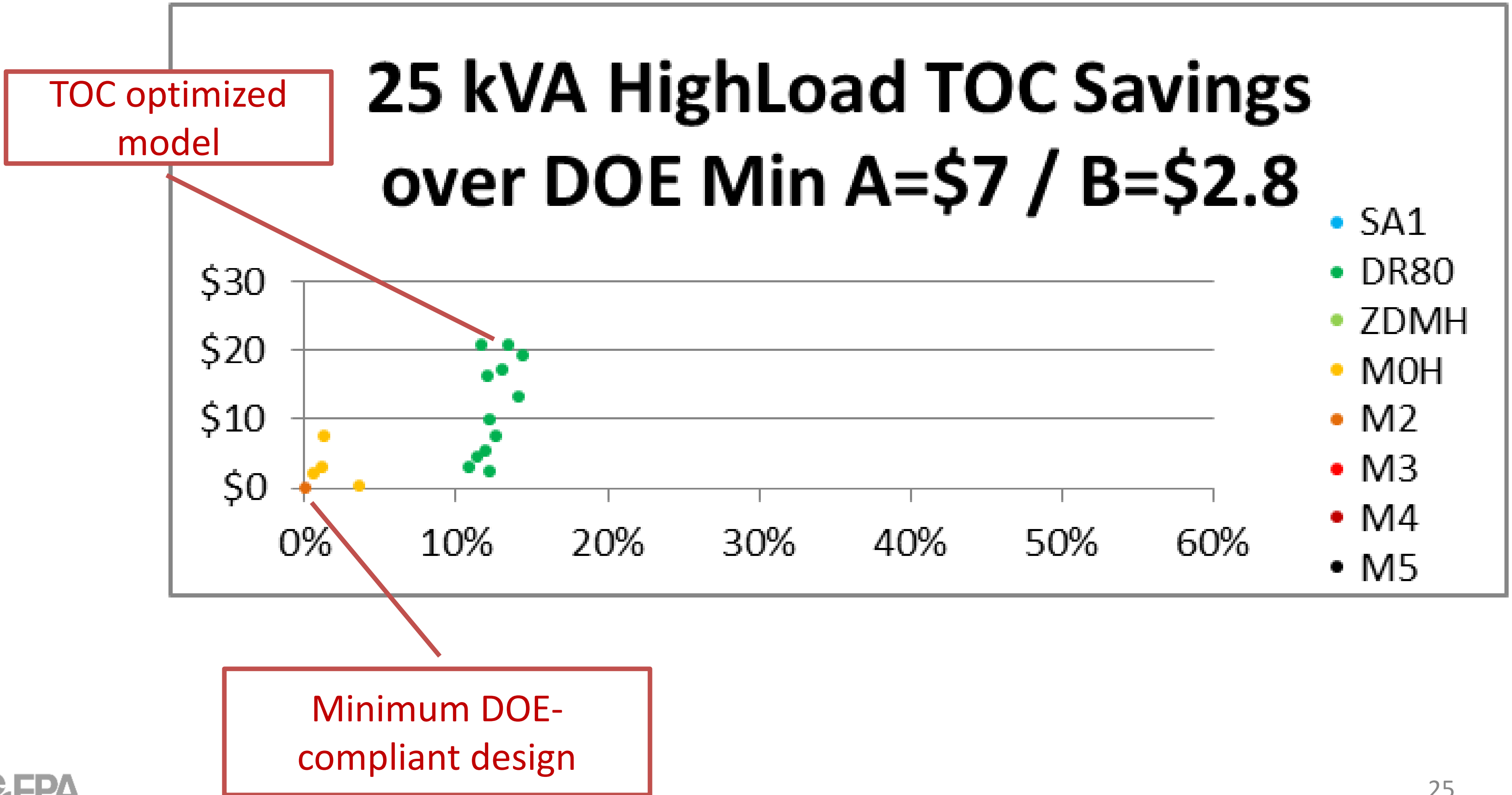
Cost Effective Energy Savings – Analysis Methodology

- EPA evaluated the energy and cost savings of models in the DOE dataset at low-, mid-, or high-load
- Based on stakeholder feedback, used a range of A and B factors
- Took into account the purchase price, and cost of losses

  - To determine the cost savings and percentage of loss savings achievable over the minimum DOE-compliant design

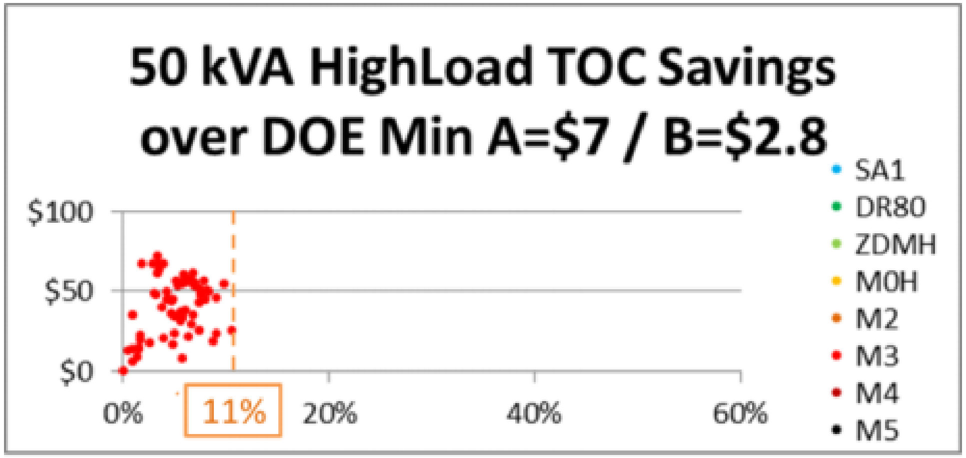

25 kVA LowLoad TOC Savings over DOE Min A=$8 / B=$1
$200
$100
$0
0%
20%
40%
60%
80%
25 kVA MidLoad TOC Savings over DOE Min A=$8 / B=$2
$40
$20
$0
0%
10%
20%
30%
40%
50%
60%
25 kVA HighLoad TOC Savings over DOE Min A=$8 / B=$3
$40
$20
$0
0%
10%
20%
30%
40%
50%
60%
SA1
DR80
ZDMH
M0H
M2
M3
M4
M5
25 kVA LowLoad TOC Savings over DOE Min A=$7 / B=$1
$100
$50
$0
0%
20%
40%
60%
80%
25 kVA MidLoad TOC Savings over DOE Min A=$7 / B=$2
$20
$10
$0
0%
10%
20%
30%
40%
50%
60%
25 kVA HighLoad TOC Savings over DOE Min A=$7 / B=$2.8
$30
$20
$10
$0
0%
10%
20%
30%
40%
50%
60%
SA1
DR80
ZDMH
M0H
M2
M3
M4
M5
25 kVA LowLoad TOC Savings over DOE Min A=$6 / B=$0.75
$100
$50
$0
0%
20%
40%
60%
80%
25 kVA MidLoad TOC Savings over DOE Min A=$6 / B=$1.5
$4
$2
$0
0%
10%
20%
30%
40%
50%
60%
25 kVA HighLoad TOC Savings over DOE Min A=$6 / B=$2.5
$10
$5
$0
0%
10%
20%
30%
40%
50%
60%
SA1
DR80
ZDMH
M0H
M2
M3
M4
M5

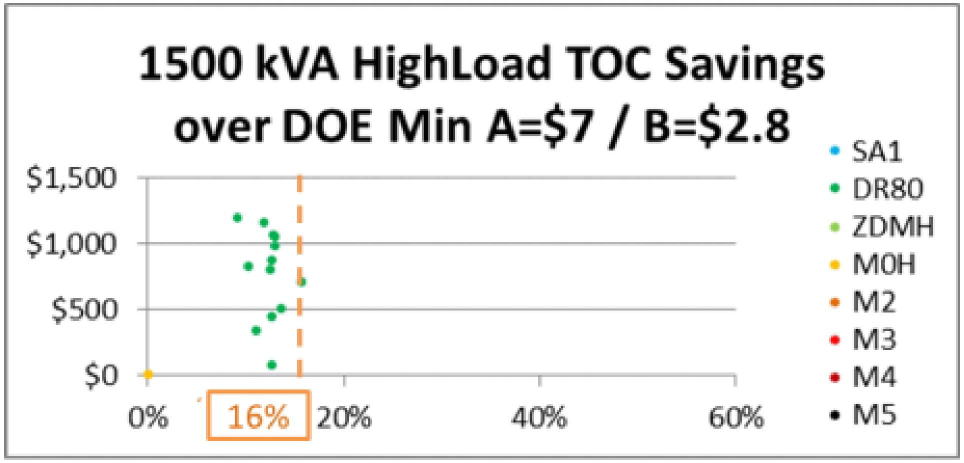
Analysis Detail



Efficiency Criteria – Analysis Methodology

- ENERGY STAR Requirement set at Maximum Savings over min DOE-compliant design
- For example:
  - A 50 kVA representative unit in Design Line 1 shows 11% energy savings with a positive TOC achievable with M3
  - A 1500 kVA unit in Design Line 5 shows 16% energy savings with a positive TOC achievable with DR80 steel:





Efficiency Criteria – Analysis Methodology

- For >40% load factor (continued):
  - EPA based the energy savings requirements on the highest savings achievable by a **positive** TOC design using non-amorphous core material (typically DR80) at evaluation factors of:
    - A = $7/Watt
    - B = $2.75/Watt

Table 1: Minimum Percent Energy Saving at Operating Load Factors

				Percentage Energy Savings over Minimum DOE-compliant Design at Utility Specified Load Factor (%)		
Design Line	Number of Phases	Tank Shape	Capacity Range (kVA)	< 30% Load Factor	30–40% Load Factor	> 40% Load Factor
1	1	Rectangular	≤ 167	25%	12%	11%
2	1	Round	≤ 167	25%	12%	14%
3	1	Round	> 167	TBD	TBD	20%
4	3	Rectangular	≤ 500	25%	12%	19%
5	3	Rectangular	> 500	TBD	TBD	16%

EPA

Dataset – Analysis Methodology

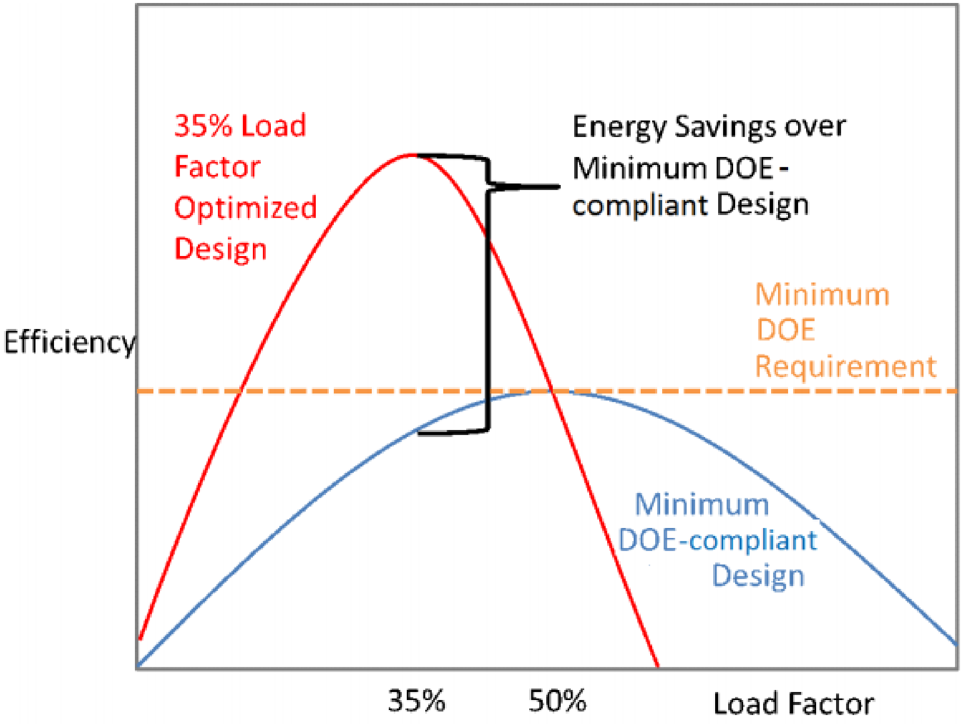
- For High load factor (> 40%):
  - EPA used the DOE 2013 Final Rule dataset
  - These were supplemented with designs using M0H and DR80 to reflect progress since DOE dataset was developed
  - Efficiency and cost calculated by scaling the DOE-developed ZDMH models:
    - M0H core losses = ZDMH
    - M0H costs = 1.3x M3 or 0.89x ZDMH
    - DR80 core losses = 0.8x ZDMH
    - DR80 costs = 1.125x ZDMH

Low and Mid Load Factors (≤ 40%)

- DOE 2013 Final Rule dataset had most designs optimized around 50% load factor, so may not be representative
- EPA analyzed models in dataset optimized for ~20% and ~35% load factors to determine potential savings
- Supplemented with theoretical calculations and stakeholder information

Theoretical Calculations

- Design optimized for 35% load factor that, *at a minimum*, meets the DOE requirement at 50% load factor
  - This would provide 0% energy savings over minimum DOE-compliant design at 50% load factor but positive energy savings at a lower load factor
  - Minimum DOE-compliant design just meets DOE requirement at 50% load



- Same analysis repeated at 20% load

Efficiency Criteria – Analysis Methodology

- The 35% and DOE-minimum designs were developed by:
  - Setting core losses = winding losses at 35% load factor
  - Setting total losses at 50% load factor =

$\frac{Capacity}{2} \times \frac{1-eff}{eff}$, where *eff* is the DOE efficiency requirement.

- Results:
  - 12% energy savings at 35% load factor
  - 25% savings at 20% load factor

  (Over the minimum DOE-compliant design)

Efficiency Criteria – Analysis Methodology

- Stakeholders confirmed 25 kVA designs providing similar savings at 20% and 35% load factors

Source	Core Loss (W)	50% Winding Loss @ 55°C (W)	100% Winding Loss @ 85°C (W)	Peak Eff. Load Factor*	Savings over DOE Min. Design	
					20%	35%
Min cost Design	66	66	286	50%	–	–
Design 1	44	89	384	35%	25%	12%
Design 2	52	81	349	40%	16%	7%
Design 3	47	84	363	37%	21%	11%
Design 4	51	82	355	39%	17%	8%
Design 5	52	81	351	40%	15%	7%
Design 6	44	84	370	36%	25%	14%
Design 7	43	89	393	35%	25%	12%
Design 8	44	88	389	35%	24%	12%

Theoretical Design

Additional Modeled Designs from DOE and Stakeholders

- Data for DR80 that EPA received also proved cost-effective down to evaluation factors: A = $6/W, B = $0.75/W

Proposed Efficiency Criteria

Table 1: Minimum Percent Energy Saving at Operating Load Factors

				Percentage Energy Savings over Minimum DOE-compliant Design at Utility Specified Load Factor (%)		
Design Line	Number of Phases	Tank Shape	Capacity Range (kVA)	< 30% Load Factor	30–40% Load Factor	> 40% Load Factor
1	1	Rectangular	≤ 167	25%	12%	11%
2	1	Round	≤ 167	25%	12%	14%
3	1	Round	> 167	TBD	TBD	20%
4	3	Rectangular	≤ 500	25%	12%	19%
5	3	Rectangular	> 500	TBD	TBD	16%

- Manufacturers would use Equation 2 to calculate the percentage energy savings over a minimum-cost DOE-compliant design at intended load factor:

Equation 2: Percentage Energy Savings over Minimum-cost DOE-compliant Design

$$Savings = \frac{(LL_{DOE} \times L^2 + NL_{DOE}) - (LL_{TOC} \times L^2 + NL_{TOC})}{LL_{DOE} \times L^2 + NL_{DOE}} \times 100\%$$

Proposed Efficiency Criteria

- A model meeting the requirements at one of the load factors can become ENERGY STAR certified for that specific load factor.
  - Thus a model would need to be marketed as certified for use at the load factor(s) where it meets
- Equation 2 would be used by manufacturers when responding to a bid to illustrate energy savings of a TOC-optimized design
- Proposal to express requirements as a percentage better than a minimum DOE-compliant design
  - Having relative requirements would ensure longevity and relevance of a specification since materials are continuously improving
  - In addition, this requirement can be applied over a wider range of load factors and kVA capabilities

Proposed Efficiency Criteria – Request for Data

Table 1: Minimum Percent Energy Saving at Operating Load Factors

				Percentage Energy Savings over Minimum DOE-compliant Design at Utility Specified Load Factor (%)		
Design Line	Number of Phases	Tank Shape	Capacity Range (kVA)	< 30% Load Factor	30–40% Load Factor	> 40% Load Factor
1	1	Rectangular	≤ 167	25%	12%	11%
2	1	Round	≤ 167	25%	12%	14%
3	1	Round	> 167	TBD	TBD	20%
4	3	Rectangular	≤ 500	25%	12%	19%
5	3	Rectangular	> 500	TBD	TBD	16%

- EPA seeks feedback from stakeholders on >167 kVA and three-phase designs rated at >500 kVA.

Energy Savings of Proposed Approach

- The savings assumes the following for annual shipments, based on DOE estimated 2009 shipments:

DL	kVA	Annual Shipment	
		kUnits	MVA
1	50	184	7.1
2	25	500	14.2
3	500	2.4	0.68
4	150	33.4	8.56
5	1500	16.3	23.7
	2009 ship	736.1	54.24
	2001 ship	1000	80

Energy Savings of Proposed Approach

- To estimate the savings, EPA used:
  - An average kVA for each Design Line (from DOE TSD)
  - The energy saving targets specified in Draft 2
  - The total losses of a minimum-cost DOE-compliant unit

D2 Specification Energy Savings

DL	kVA	Annual Shipment		Avg. kVA	Total Loss of Minimum-cost DOE Unit (W)				Unit Energy Savings (W)		
		kUnits	MVA		@ 50%LF	@ 45% LF	@35% LF	@25% LF	>40% LF	30-40%	<30% LF
1	50	184	7.1	39	224.5	203.2	167.3	140.3	22.3	20.1	35.1
2	25	500	14.2	28	132.6	120.0	98.8	82.9	16.8	11.9	20.7
3	500	2.4	0.68	283	1281.5	1159.8	954.7	800.9	232.0	114.6	200.2
4	150	33.4	8.56	256	635.3	574.9	473.3	397.1	109.2	56.8	99.3
5	1500	16.3	23.7	1454	3920.4	3548.0	2920.7	2450.3	567.7	350.5	612.6

Energy Savings of Proposed Approach

- This equates to the following total power savings and energy savings annually, assuming that 50% are replaced and 100% are replaced

		Unit Energy Savings (W)			Annual Draft 2 Power Sav/Year (MW)			
DL	kVA	>40% LF	30-40%	<30% LF	>40% LF	30-40%	<30%LF	Total
1	50	22.3	20.1	35.1	0.68	1.82	1.06	3.56
2	25	16.8	11.9	20.7	1.85	3.92	2.28	8.05
3	500	232.0	114.6	200.2	0.07	0.11	0.06	0.24
4	150	109.2	56.8	99.3	1.10	1.71	1.00	3.80
5	1500	567.7	350.5	612.6	1.81	3.35	1.95	7.11
Total Power Sav in MW					5.50	10.90	6.35	22.76
Total Energy Sav annually in GWhr					48	96	56	199.36
Total Energy Sav-50% Replaced (TWhr)					0.77	1.53	0.89	3.19
Total Energy Sav-100% Replaced (TWhr)					1.54	3.06	1.78	6.38

Total Owning Cost - Proposal

- Encouraging manufacturers to highlight the total owning cost savings over the lifetime of the product, based on given no-load (*A*) and load (*B*) loss evaluation factors

Equation 1: Total Owning Cost

$$TOC = P + A \times NL + B \times LL_{85°C}$$

- ENERGY STAR intends for certified products to provide for the recovery of any additional upfront costs associated with efficiency within a reasonable amount of time.
- Promotion of TOC in the specification is replacing the need for an online purchasing tool.

EPA has cited the IEEE PC57.120 in regards to TOC and best practices and seeks feedback from stakeholders on this proposed approach.

Total Owning Cost - Proposal

- Manufacturers respond to utility RFPs by certifying designs that meet the ENERGY STAR criteria and providing the utility with those options using the TOC equation and the utility provided A and B factors for the specific application.
- This will ensure all models that are ENERGY STAR certified will guarantee that the purchaser will recover the initial investment.

Conclusion

- Using stakeholder feedback and the DOE dataset, EPA has chosen the approach to address the following concerns:
  - ENERGY STAR cost-effectiveness
  - Various steels being able to qualify for ENERGY STAR
  - Ensure the top performing products, that are optimized and right-sized for a specific application, will be able to be recognized

Agenda

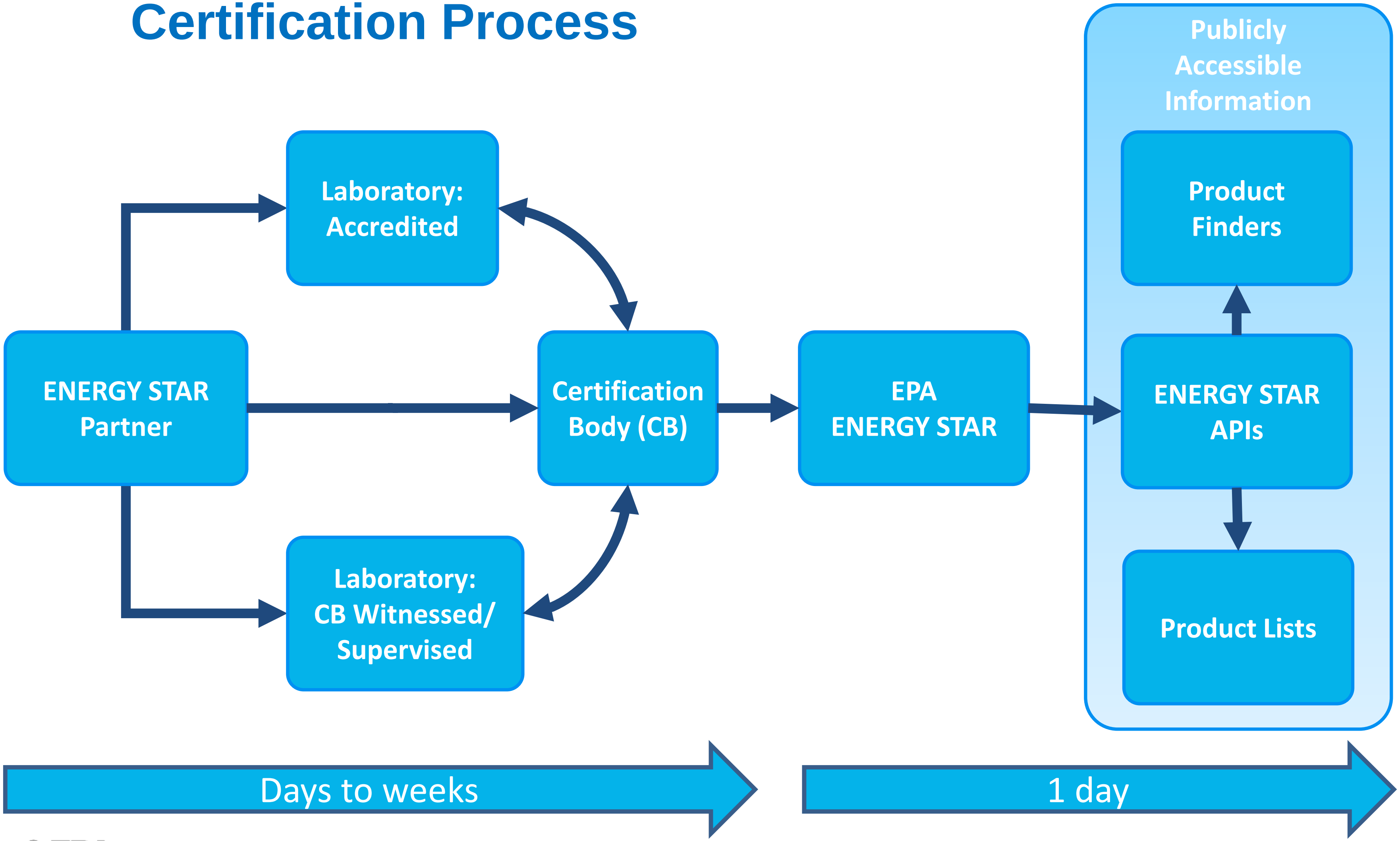
Time	Topic
1:00–1:45	Introductions and Recap of Draft 1
1:45–3:00	Analysis and Draft 2 Specification Proposal
3:00–3:15	**Third-Party Certification**
3:15–4:00	Next Steps and Wrap-up

Stakeholder Feedback to Draft 1 Specification

- **Certification and Verification**
  - Stakeholders had concerns regarding the cost and burden of the certification and verification process.

EPA has revised the certification and verification testing process that was laid out in the Draft 1 Specification and webinar. Transformer manufacturers will be allowed to follow the same laboratory testing procedures they use when reporting their product performance to DOE. As such, *manufacturers will be able to use both the same actual test results submitted to DOE as well as modeled results from the same alternative efficiency determination method (AEDM)* they currently use to demonstrate DOE compliance, allowing for more timely response to potential customers regarding ENERGY STAR status of design options.

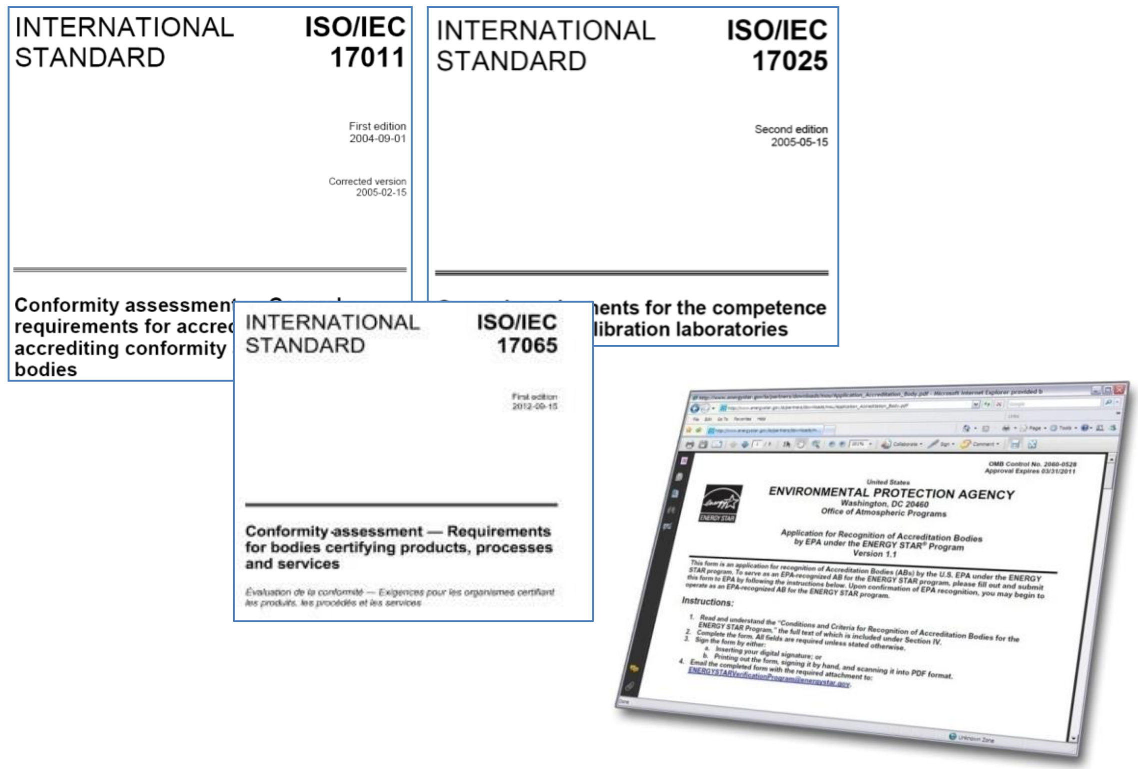
Certification Process



International Standards and EPA Recognition

EPA accepts and reviews applications for recognition on an ongoing basis

All ABs, CBs, and labs require EPA recognition



How can a manufacturer’s lab gain EPA recognition?

- If your lab is accredited to ISO/IEC 17025:
  - Inquire with your accreditor about adding the ENERGY STAR transformers test procedure to your scope of accreditation.
  - With an acceptable scope of accreditation, EPA will review lab applications within one week.
- If your lab is not accredited to ISO/IEC 17025:
  - Contact an EPA-recognized certification body about enrolling in their witnessed or supervised test lab (W/SMTL) program.
  - The CB will conduct its own assessment of your lab to the requirements of 17025 and may ask to witness the test procedure conducted at your facility.
  - Upon meeting the CB’s requirements for its W/SMTL program, the CB will submit your lab’s information to EPA directly. EPA will review the information and offer recognition within one week.

ENERGY STAR Recognized Bodies for Certification

Recognized Organizations

Type	*Total*
Accreditation Bodies	25
Certification Bodies	25
Laboratories (Accredited and W/SMTLs)	620
Accredited	292
SMTL	216
WMTL	112

Laboratories by Location

Country	*Accredited Laboratories*	*SMTLs*	*WMTLs*	*Totals*
Australia	1	0	0	1
Austria	0	1	0	1
Brazil	2	0	0	2
Canada	**12**	**12**	**7**	**31**
China	**80**	**41**	**24**	**145**
Denmark	0	0	1	1
Germany	8	4	4	16
Guatemala	1	0	1	2
Hong Kong	3	0	0	3
India	1	0	0	1
Italy	3	1	2	6
Japan	**16**	**14**	**5**	**35**
Malaysia	2	2	0	4
Mexico	0	9	1	10
Netherlands	2	1	1	4
New Zealand	0	2	0	2
Singapore	2	0	0	2
South Korea	**17**	**13**	**4**	**34**
Spain	2	0	0	2
Sweden	1	1	0	2
Taiwan	**40**	**3**	**14**	**57**
Turkey	0	4	0	4
United Kingdom	3	2	0	5
United States	**96**	**106**	**48**	**250**
Totals	**292**	**216**	**112**	**620**

Agenda

Time	Topic
1:00–1:45	Introductions and Recap of Draft 1
1:45–3:00	Analysis and Draft 2 Specification Proposal
3:00–3:15	Third-Party Certification
3:15–4:00	**Next Steps and Wrap-up**

Next Steps

Event	Date
Launch Webinar	January 14, 2014
Draft 1 Specification Issued	July 27, 2015
Draft 1 Stakeholder In-Person Meeting	August 20, 2015
Draft 2 Specification Issued	July 2016
Draft 2 Specification Webinar	August 11, 2016
Feedback on Draft 2 Due to EPA	August 16, 2016
Additional Draft Specifications Issued and Associated Stakeholder Webinars	Fall 2016
Final Specification Issued	Early 2017
Specification Effective	Early 2017

Next Steps

Event	Date
Launch Webinar	*January 14, 2014*
Draft 1 Specification Issued	*July 27, 2015*
Draft 1 Stakeholder In-Person Meeting	*August 20, 2015*
Draft 2 Specification Issued	*July 2016*
Draft 2 Specification Webinar	August 11, 2016
Feedback on Draft 2 Due to EPA	**August 16, 2016**
Additional Draft Specifications Issued and Associated Stakeholder Webinars	Fall 2016
Final Specification Issued	Early 2017
Specification Effective	Early 2017

Comments

- Again, comments and data are due on **August 16, 2016** to:

  DistributionTransformers@energystar.gov

- Unless marked as confidential, all comments will be posted to the EVSE product development page at http://www.energystar.gov/products/spec/distribution_transformers_pd
- Accessible through www.energystar.gov/NewSpecs and clicking on "Version 1.0 is in development" under "Transformers"

Open Discussion

- DOE and EPA would now like to open up the line for any general comments from stakeholders.

Thank you!

To be added to EPA's stakeholder listserve
to receive specification updates, please email:

DistributionTransformers@energystar.gov.

Verena Radulovic
Product Manager, ENERGY STAR
(202) 343-9845
Radulovic.Verena@epa.gov

www.energystar.gov/productdevelopment