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NEEA External Power Supply Standard Evaluation: Final Report

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1 EXECUTIVE SUMMARY

On behalf of the Northwest Energy Efficiency Alliance (NEEA), TRC Energy Services (TRC) conducted an evaluation of NEEA's efforts to help establish the federal external power supply (EPS) standard. The study was conducted between Q4:2016 and Q1:2017.. The objectives of the study were to:

1. Qualitatively assess activities that NEEA conducted to help establish the EPS and the effectiveness of NEEA's efforts

2. Quantitatively assess the combined influence of all energy efficiency organizations on the energy savings from the adoption of this standard.

As our data sources, TRC used a literature review and interviews with a variety of stakeholders that were involved in the adoption of this standard, including NEEA staff, energy efficiency organizations, and manufacturers.[1]

NEEA's role in the EPS Standard: Overall, TRC found that NEEA played a small role in the development and adoption of this standard. This is because there were few barriers to this standard; once the DOE removed battery chargers for separate regulation, manufacturer opposition to the EPS standard was minimal. In addition, NEEA's contribution to the federal process is generally to provide technical comments or analysis, but there were few technical needs for this standard.

Effect of all efficiency stakeholder efforts: Overall, TRC found that the efforts of all energy efficiency organizations led to approximately 2-3% of the total energy savings from the EPS standard. These savings were primarily because the EPS standard was implemented 2.5 years (thirty months) earlier because of the stakeholder activities – including comments from the energy efficiency organizations and others recommending that the DOE develop separate standards for EPS and battery chargers. As a result, the compliance date for the EPS standard was February 10, 2016, while the battery charger standard compliance date was June 13, 2018. TRC's best point estimate is that 3% (2.6% before rounding, representing 0.024 quads) of the EPS standard 30-year savings (0.94 quads total) were due to energy efficiency organizations' activities.

TRC provides the following recommendations based on our findings. TRC made several of the same recommendations in a previous evaluation, for the Fluorescent Lamp Ballast Standard evaluation.

[1] Staff at the U.S. Department of Energy (DOE) and their consulting company (Navigant Consulting) declined requests for interviews. This is described as part of the study limitations.

- NEEA should conduct evaluations soon after standard adoption.[1] In order to ensure that as much information is captured as possible, if a full evaluation is not feasible under this proposed timeframe, NEEA or its contractor could conduct key stakeholder interviews shortly after the DOE adopts the standard. This allows stakeholders to provide information while they are more likely to be available and able to remember details of the standard development process. NEEA or its evaluator could use this data whenever the full evaluation takes place. Alternatively, NEEA could document activities and key contacts in a report shortly after the DOE adopts the standard that could be used in the full evaluation.
- NEEA C&S staff should improve documentation of NEEA and efficiency organization activities.[1] In addition to the previous recommendation, TRC recommends that NEEA Codes and Standards (C&S) staff document the DOE lead and the lead consultant contacts to support the evaluation.
- NEEA should make minor adjustment to the NEEA logic model.[1] TRC recommends that NEEA add "Lack of a suitable test standard" as a barrier, as well as activities meant to address this barrier, to the NEEA Logic Model for Standards Rulemaking Process shown in the Appendix (Section 6.1).

2 INTRODUCTION

2.1 Study Purpose

On February 10, 2014, the U.S. Department of Energy (DOE) published its final rule to adopt the "Energy Conservation Standards for External Power Supplies," which took effect April 11, 2014, with a compliance date of February 10, 2016. This standard set a new energy conservation requirement for external power supplies (EPS). As part of its standards program, NEEA supported this standard's development and adoption.

The scope of TRC's evaluation was to investigate the barriers to adoption for this standard, the activities that NEEA conducted, the activities that other energy efficiency stakeholders conducted, and the effectiveness of these activities. Based on the results, TRC provided two assessments:

1. A qualitative assessment of NEEA's influence in the establishment of the External Power Supplies Standard, which TRC developed based on the NEEA Standards Development Logic Model; and

2. A quantitative assessment of the savings from the standard due to all energy efficiency organizations, including NEEA.

[1] Refer to the NEEA Fluorescent Lamp Ballast Standard Evaluation: Final Report, dated June 8, 2016, for additional details on this recommendation.

2.2 Description of DOE Adoption Process

As background, TRC provides the following description of the DOE federal standard adoption process.

The DOE is the government agency responsible for developing and adopting national appliance energy standards. During the standard development process, the DOE seeks input from stakeholders, including comments regarding the feasibility of the proposed standard and its impact on consumers, manufacturers, and other stakeholders. Stakeholders can provide input during public meetings and comment periods, both of which occur after the public release of rulemaking documents. The DOE must address stakeholder comments and demonstrate that the benefit of a new or revised standard will exceed any burden that it may impose - e.g., that the energy savings (in dollars) from the new standard will exceed costs for implementation.

TRC developed Figure 1 to illustrate the general DOE standard development process and opportunities for stakeholder input.

Although DOE seeks input throughout the development process, a previous federal standard evaluation conducted by TRC[1] found that comments received at the initial stages are more likely to affect the direction of the development process and the final standard adopted. The DOE has a set timeline and limited resources, so it does not have opportunity to make significant changes to the standard or perform additional analysis in the latter stages of the process. Therefore, it is advantageous for stakeholders to be active during public meetings and comment periods between release of the rulemaking framework document and release of the Notice of Proposed Rulemaking (NOPR), rather than when the DOE releases the Notice of Data Availability (NODA).

[1] TRC 2016: NEEA Fluorescent Lamp Ballast Standard Evaluation: Final Report. https://neea.org/docs/default-source/reports/neea-fluorescent-lamp-ballast-standard-evaluation-final-report.pdf?sfvrsn=6

Figure 1. DOE Standard Development Process and Opportunities for Stakeholders' Influence

3 METHODOLOGY

This section provides an overview of the data collection activities and analysis methodology for this evaluation.

3.1 Data Collection Approach

To collect data for this evaluation, TRC:

1. Reviewed literature – primarily from the DOE, and
2. Gathered feedback from stakeholders involved in the rulemaking process for this standard, primarily through telephone interviews.

TRC's literature review included:

- DOE docketed comments from stakeholders
- DOE Notice of Proposed Rulemaking (NOPR) for the proposed test standard
- DOE Final Rule for the energy conservation standard and test standard
- DOE Preliminary and Final Technical Support Documents (TSDs)
- DOE Public meeting transcripts
- NEEA meeting notes

TRC conducted phone interviews with staff at various organizations that were active in the adoption of this standard. This included:

- The NEEA staff member that led NEEA's support of this standard, and NEEA staff involved in the 80 Plus Program[1],

[1] The 80 Plus Program is a voluntary certification program for internal power supplies. Some interviews suggested that the program may have influenced the EPS standard, and NEEA is a program sponsor. However, TRC did not find conclusive evidence that the 80 Plus Program influenced the EPS standard. Although some interviewees reported that many of the technical solutions pioneered for internal power supplies in the 80 Plus program were used to meet the challenges of the proposed EPS standard, the literature and feedback from other interviewees did not support this claim.

- Staff members from energy efficiency organizations that played a prominent role in supporting this standard's development. TRC interviewed staff from Kannah Consulting, a contractor for the California Investor Owned Utilities (IOUs); Natural Resources Defense Council (NRDC); Northeast Energy Efficiency Partnership (NEEP); California Energy Commission (CEC); and Ecos Research, a contractor for NRDC, CA IOUs, CEC, and NEEA.

- External power supply manufacturers and industry representative groups in phone interviews (two respondents) and via email (one respondent). TRC collected feedback from the Power Supply Manufacturers Association (PSMA), Power Tool Institute (PTI), and the National Electrical Manufacturers Association (NEMA).

Figure *2* summarizes the interview dispositions. As shown in this figure, TRC met the total number of target interviews. However, DOE staff and their consultants declined TRC's requests for interviews; we describe the resulting limitations in the next section, Section 3.2.

Figure 2. Number of Target and Completed Interviews by Stakeholder Category

Stakeholder Category	Target Interviews	Candidates Contacted	Completed Interviews
NEEA Staff	1-2	2	2
External Power Supply Manufacturers	2-3	10	3
Efficiency Stakeholder Groups Active in Adoption of this Standard	3-5	11	5
DOE Staff and Consultants	1-2	5	0
Total Interviews	7-12	28	10

3.2 Limitations of Data Collection Efforts and Analysis

The findings of this study have several limitations due to data collection challenges, as described below.

One overarching limitation was that the DOE adopted this standard in 2014, so stakeholders (including NEEA) conducted most of their efforts in 2012 and earlier. TRC repeatedly heard from interviewees that it was difficult to recall details regarding the barriers to the standard's adoption and the work of individual efficiency stakeholders. TRC also had difficulty reaching individuals who played a key role because of the time lag.

TRC provides specific limitations for each interviewee type below.

- DOE: The DOE declined TRC's interview requests for this study and recommended that TRC rely on DOE rulemaking documentation. (However, a DOE staff member did state that efficiency organizations are always helpful to support the adoption of federal standards.) Additionally, the staff member at DOE's consulting company (Navigant) that primarily supported this standard's development has since left Navigant, and TRC was not able to reach him. The lack of feedback from DOE and Navigant staff represented the most significant data limitation. To address this issue, TRC relied on DOE rulemaking

documents in which DOE addressed stakeholder comments to better understand the impact of efficiency stakeholders' activities.

- Manufacturers: TRC was able to collect feedback from several manufacturers, although all interviewees were from manufacturers that were proponents of the standard. The manufacturers that submitted comments opposing the standard, as well as the Association of Home Appliances Manufacturers (AHAM - which represent manufacturers as an industry) were unresponsive to TRC's interview requests. The manufacturers interviewed generally corroborated the findings from the literature – that there was not significant pushback from manufacturers on the proposed EPS standard.

- Efficiency stakeholders: TRC reached out to candidates from each of the identified efficiency stakeholder groups and was able to interview several of the key efficiency stakeholders for this standard. Several energy efficiency organizations did not respond to repeated requests, while others responded that they were not highly involved in this particular standard development and could not provide informative feedback. Because TRC interviewed several of the key efficiency stakeholders for this standard, the limitation from these interview declines was small.

Despite these limitations, TRC met the overall interview target and collected feedback from a variety of different stakeholders – including many that played a significant role in the development of this standard. In addition, TRC's literature review helped address these limitations, because documents such as docketed comments and meeting transcripts provided insights into barriers (e.g., concerns from manufacturers), activities (e.g., who helped address these barriers and how), and outcomes (e.g., how the DOE revised the standard). Consequently, TRC believes that the overall findings of this study are reliable.

3.3 Methodology to Assess NEEA's Influence

To assess NEEA's influence on the development and adoption of this standard, TRC compared the proposed activities from NEEA Standards Development Logic Model with activities that NEEA conducted, based on interviews and the literature review. TRC first identified barriers to the adoption of this standard, and then identified influential activities that addressed the barrier in which NEEA participated. Finally, TRC identified NEEA's role and contribution for each activity and output (e.g., primary support, main support, or minor support to the DOE).

3.4 Methodology to Estimate Energy Savings from All Efficiency Stakeholders

To estimate savings from all energy efficiency organizations' efforts in support of the standard, TRC first developed a qualitative assessment of the impact of energy efficiency organizations' efforts. TRC used the results of the literature review and interviews to understand the barriers to the adoption of the EPS standard, activities that all organizations conducted to address these barriers – including comments and data provided to the DOE and other stakeholders, and the outcome of these activities – such as reduced manufacturer opposition or changes in DOE's rulemaking.

TRC then translated this qualitative assessment into a quantitative framework, to approximate the significance of energy efficiency organizations' activities as a percentage of energy savings resulting from activities during the development and rulemaking process. TRC:

1. Estimated the energy savings resulting from activities during the development and rulemaking process. This reflects energy savings that may not have been realized without input from stakeholders, including the energy efficiency organizations.

2. Determined the role and significance of efficiency organizations' activities on the energy savings from the development and rulemaking process.

3. Multiplied the estimates from step 1 and step 2 to determine the impact of all energy efficiency organizations.

4 FINDINGS

This section provides:

1. The results of TRC's assessment of NEEA's activities in comparison to the NEEA Standard Standards Development Logic Model;
2. TRC's findings of the overall impact of all efficiency stakeholders' efforts, followed by the rationale for each input of the assessment, including interview and literature review results supporting each input.

4.1 NEEA Effectiveness Assessment Results: Rate NEEA's Impact/Effectiveness

Figure 3 summarizes the results of TRC's assessment of NEEA's influential efforts. TRC developed this figure using the NEEA logic model (provided in Section 6.1) as an assessment framework. Note that NEEA has one logic model for all standards rulemakings in they participate. . NEEA adapts its activities to suit the specific needs for each particular standard.

TRC took the assessment criteria from the NEEA logic model, and used our analysis to identify whether NEEA met each criterion. TRC identified logic model activities and outputs with a "Y" if NEEA accomplished the activity or output and "N" if NEEA did not. The figure also provides a rationale for whether NEEA accomplished each objective, and also describes where some activities may have been unnecessary for this standard.

Overall, NEEA was successful at accomplishing the majority of its planned activities from the logic model. The activities and outputs that NEEA did not pursue were primarily because this particular standard process did not require activities in all the areas within NEEA's logic model, given the minimal pushback to this standard from manufacturers.

Figure 3. Assessment of NEEA's Activities on the External Power Supply Standard

Barrier (Source)	**Manufacturer opposition**			**Lack of data with which to conduct the necessary analyses in a rulemaking**		**Lack of common interest among certain stakeholders**	**Insufficient funding/staff for US DOE to run standards processes**	**Insufficient market adoption of more efficient models prior to standard development**
Proposed Activity (NEEA logic Model)	Negotiation with manufacturers.	Attend public meetings held by DOE.	Analyze and critique organizations, manufacturers and rulemaking documents	Conduct primary research to create data for standards and test procedures.	Provide savings and economic analyses based on Northwest data.	Collaboration with other organizations under the umbrella of ASAP.	Encourage utilities to provide data and political support for standards.	Work with NEEA initiatives to increase market penetration and create paths from voluntary to mandatory requirements.
Accomplished by NEEA? (TRC)	N	Y	Y	N	N	Y	N	Y
Rationale/ explanation (TRC)	No significant pushback, so minimal negotiations needed. NEEA indirectly worked with manufacturers through collaboration with other efficiency organizations.	NEEA participated and commented during public meetings.	NEEA reviewed DOE and manufacturer documents and comments.	NEEA did not collect or provide primary data.	NEEA did not provide savings data for the Northwest.	NEEA submitted joint comments, and held on-going communication and meetings. There was a uniform position from organizations.	NEEA did not communicate directly with utilities, but this may not have been necessary. NEEA communicated with CA IOUs in support of standard, but CA IOUs participated without prompting.	NEEA supported development of an ENERGY STAR certification for EPS, and supported the state EPS standard in CA and OR.
Outputs (NEEA logic model)	Consensus-based proposals to submit to DOE or better general understanding of manufacturer positions and concerns	NEEA adds valuable information at each stage of the rulemaking process.		NEEA information/ analysis referenced in rulemaking proceedings/ documentation			Utilities are present at hearings/ publicly support new standards.	
Accomplished by NEEA? (TRC)	N/A	Y		Y			N/A	
Rationale/ explanation (TRC)	Not Applicable, because NEEA did not pursue this activity	NEEA provided comments in support of DOE and other efficiency organizations.		DOE rulemaking documentation references NEEA comments.			N/A: NEEA did not pursue this activity	

4.2 Influence of All Efficiency Stakeholders

Based on the data collection, TRC's impact assessment was that efficiency stakeholders had a low influence on this standard. The evidence suggests that the efficiency stakeholders played a supportive role, but not a central role, in the development of this standard. In addition, energy savings from the EPS standard development process were low, because the DOE generally adopted the standard that it originally proposed. The main change was the removal of battery chargers, which DOE regulated separately (at a later date).

As shown in Figure 4, some of the efficiency organizations' main activities and their impact on the DOE standard development process included the following:

- Efficiency stakeholders provided comments that assisted the DOE with maintaining the initially proposed efficiency levels, scope, and compliance date. This reduced manufacturer opposition to the standard in general.

- Efficiency stakeholders recommended and agreed with manufacturers to separate battery chargers and EPS into separate rulemakings. The proposed battery charger standard received substantial pushback from industry, and the DOE delayed its adoption beyond the initial DOE timeline. TRC believes that the support of energy efficiency organizations and manufacturers to separate the products ultimately led to an earlier adoption of an EPS standard than if the two appliances had remained as one standard.

- Manufacturers had minimal opposition to the proposed standard once DOE separated battery chargers; therefore, the DOE did not need significant support on specific topics from efficiency efficiency organizations. The main manufacturer concerns were the ability of specific products to meet the standard and the ability of the industry to meet the standard on time. For the products where there was resistance, efficiency stakeholders helped counter their opposition through data analysis and provided DOE with general support through written comments and participation at public meetings. The support of efficiency stakeholders helped the DOE maintain its original scope, but their support did not increase the proposed efficiency levels or products covered under the standard.

TRC translated this qualitative assessment into an energy savings estimate using the following approach. As an overview, TRC:

1. Estimated the energy savings resulting from all stakeholder activities during the development and rulemaking process. This reflects energy savings that may not have occurred without input from stakeholders, including the energy efficiency organizations. **TRC estimated that 8% of energy savings came from the development and rulemaking process.**

   This is a relatively low value, because the DOE generally adopted the standard that it first proposed. Partially because of comments from energy efficiency organizations, DOE ultimately split battery chargers into a separate standard. This reduced opposition to the EPS standard adoption. Consequently, compliance for the EPS standard occurred thirty months earlier (February 10, 2016) than the battery charger standard (June 13, 2018).

TRC calculated 8% by dividing thirty months by 30 years (the lifetime of energy savings from a federal appliance standard).[1]

2. Determined the role and significance of efficiency organizations' activities on the energy savings from the development and rulemaking process. TRC estimated that energy efficiency organizations were responsible for approximately 23% to 31% of savings from the development and rulemaking process, as explained in Figure 4.

3. Multiplied these estimates to determine the impact of all energy efficiency organizations: For the low end of the range: 8% x 23% = 2%, and for the high end of the range: 8% x 31% = 3%. TRC's best point estimate is the high end of this range, because the estimate of savings from the standard development process (8%) is calculated using only savings from activities that reduced the greatest barrier: manufacturer opposition to the proposed standard. There were other, less significant barriers that the energy efficiency organizations helped address that likely generated a small amount of additional savings. Thus, TRC estimated that 3% of all energy savings from the EPS standard was due to the influence of all energy efficiency organizations.[2]

The following sections provide a more detailed description of the method TRC used to estimate NEEA's impact/effectiveness of activities in the standard rulemaking and adoption.

4.2.1 Energy Savings from the Standard Development and Adoption Process

To estimate the percent of energy savings from the development and rulemaking process of the EPS standard, TRC considered the most influential activities by stakeholders. As shown in Figure 4, TRC found that the most influential activity by stakeholders (including energy efficiency organizations) was supporting the separation of battery chargers from the EPS standard. Implementation of the EPS standard took effect thirty months before the battery charger standard. Once the DOE removed battery chargers from the originally proposed standard (for EPS and battery chargers), manufacturer opposition to the EPS standard dropped significantly. Based on our data collection, TRC believes that if this split had not happened, implementation of a standard regulating EPS would have been delayed.

Because the DOE adopted the EPS standard earlier, the savings from the EPS standard increased (not just shifted earlier). This is because the normal market adoption (NOMAD) of the efficiency level set by the standard is lower in earlier years. In other words, a portion of the market already met the efficiency level of the EPS standard before the DOE adopted the standard, and the

[1] The value before rounding is 8.3%, which TRC used for the calculations. This report presents the estimate as 8% so as not to imply greater precision than was obtained.

[2] The values in this paragraph have been rounded to the nearest whole number, to reflect the precision of these estimates. Before rounding, the range is 1.7% to 2.6%, and the best point estimate is 2.6%, representing 0.024 quads of the total DOE 30-year savings (0.094 quads). For greater accuracy, TRC used 2.6% (not the rounded value) for estimating savings each year in Section 4.2.3.3.

standard does not influence this portion of the market. The DOE savings analysis for the EPS standard includes an estimate of NOMAD and reduces savings from the EPS standard to remove the share of the market that is already meeting (or is projected to meet) the efficiency level. In other words, DOE savings is net savings, because it adjusts for NOMAD. DOE analysis found that NOMAD increased from 2009 to 2013[1]. DOE analysis did not estimate the change in NOMAD after 2013. But given the trend of increased NOMAD from 2009 to 2013, TRC believes that NOMAD would have continued to increase to the year when the battery charger standard was adopted. Consequently, savings were higher for EPS because the DOE adopted it earlier, when NOMAD is lower.

TRC estimated the percent of savings from the standard development and adoption process by dividing thirty months by 30 years – the timeline over which DOE calculates savings from the standard:

Energy Savings from Standard Development Process (% of EPS Standard Savings) = 30 months / (30 years x 12 months/year) = 8%

Thus, TRC estimated that 8% of the standard's 30-year energy savings came from the standard development process. TRC considered using another method for estimating savings from the standard development process, but ultimately selected the method above. The appendix (Section 6.2) describes the alternative method and TRC's rationale for rejecting that method.

4.2.2 Significance of Efficiency Organizations' Activities on the Standard Development Process

This section describes the analysis framework that TRC developed to quantify the influence of efficiency organizations on the standard development process and provides an overview of the results in Figure 4. Following Figure 4, this section provides a description of the rationale for each input parameter in the figure.

4.2.2.1 Analysis Framework and Results

TRC used the following steps to estimate the influence of efficiency organizations on the standard development and adoption process.

a. **Identified and estimated the relative significance of the barriers** to adoption of the standard. TRC identified three barriers that were significant for standard development. Based on the importance of each barrier, TRC assigned a weighting factor to each so that their sum would total 100%:
   i. Manufacturer Opposition to More Stringent Standard (High: 70%),
   ii. Lack of Data Availability and Accuracy (Low: 20%), and

[1] The Energy Independence and Security Act (EISA) of 2007 directed DOE to complete a rulemaking to amend the Class A EPS standards by 2011 with a compliance date of 2013. Therefore, DOE used 2013 in it analysis as the first year of compliance for savings analysis in the NOPR. The DOE later modified the compliance year. .

iii. Lack of Accurate Test Standard and Metric (Very Low: 10%).

b. **Identified and estimated the significance of each efficiency stakeholder activity to overcome <u>each</u> barrier.** As one example activity, the energy efficiency organizations commented that the DOE should regulate EPS separately from battery chargers; TRC found that this activity had a medium significance in reducing the barrier, "Manufacturer Opposition to More Stringent Standards", and estimated its significance as 60% for addressing this barrier.

c. **Estimated the effectiveness of each efficiency stakeholder activity relative to all efficiency stakeholder activities to overcome <u>all</u> barriers**. Using our example activity above ("Recommending EPS be separated from battery chargers"), because TRC rated this activity as 60% of significance in addressing the first barrier, and this barrier was rated as 70% of significance for all barriers, TRC estimated that the significance of this energy efficiency organizations activity relative to all activities was 60% x 70% = 42%.

d. **Estimated the role of efficiency organizations in each activity relative to <u>all</u> participants to support DOE (i.e. primary, main support, or minor support).** TRC assumed that DOE is always accountable for at least 50% of the responsibility and is always the lead role; therefore, efficiency organizations can account for a maximum of 50% of the relative support. In addition, efficiency organizations were not the only participants in this standard rulemaking. A portion of energy savings is likely attributable to other participants, such as manufacturers. Using our example activity ("Recommending EPS be separated from battery chargers"), manufacturers, specifically the National Electrical Manufacturers Association (NEMA), led the movement to split battery chargers and EPS. To estimate efficiency organizations' relative effectiveness, TRC estimated efficiency organizations' role to address each barrier and applied a weighting to the significance of their activities. TRC calculated these weightings for each activity, depending on the number of stakeholders involved. For our example activity, efficiency organizations played a minor to main supporting role to the DOE (17 -33%) for separating the battery chargers and EPS rulemaking. Note that TRC had the most uncertainty with this step, because we were unable to speak with the DOE to understand the degree to which the efficiency organizations' activities influenced their final rulemaking. Consequently, TRC presents the percentage for this step as a range for some activities. For our example activity, the final estimated significance for this energy efficiency activity is 70% x 60% x (17-33%) = 7-14%.

e. **Estimated the total impact of efficiency organizations' activities.** For each activity, TRC estimated the significance of each activity to overcome all barriers (step c), and multiplied this by the relative role of the organizations (step d). TRC then summed the significance of all activities. TRC estimated the efficiency organizations' influence on the standard development process was **23 - 31%.**

Figure *4* presents results. TRC provides a supporting rationale for each input in this figure in the appendix (Section 6.3).

Figure 4. Impact Assessment of Efficiency Organizations' Activities for the External Power Supply Standard

Analysis Step	Barrier – Based on NEEA logic model	1. Manufacturer Opposition to More Stringent Standard			2 Lack of Data Availability and Accuracy	3. Lack of Accurate Test Standard and Metric	Total if applicable
a: Estimate significance each barrier	Significance	High			Low	Very Low	-
	Significance (%)	70%			20%	10%	100%
b: Estimate significance of each activity		Activities to Address Barrier 1			Activities to Address Barrier 2	Activities to Address Barrier 3	
	Activities Conducted by All Organizations	Supported separation of battery chargers and EPS standards.	Worked with manufacturers to establish incremental cost data and provided this to DOE.	Submitted comments and participated in public meetings to support DOE proposal, especially to maintain the scope and compliance date.	Analyzed and provided data to DOE on EPS for motor operated products. Also referenced data on energy savings associated with power factor.	Proposed alternative test method to DOE's initial proposal to better distinguish between indirect and direct operation for EPS.	-
	Results – i.e., DOE response	DOE ultimately split battery chargers into a separate rulemaking, used the recommended incremental costs from efficiency organizations and manufacturers, and maintained the initial proposed scope and compliance date. DOE originally used outdated cost data, but incorporated the organizations' more recent cost data. While this may have strengthened the cost analysis, the DOE did not revise the efficiency levels from the proposed standard.			DOE further investigated EPS for rotary products and ultimately decided to keep these within the scope of the standard.	DOE revised the test standard to incorporate portions of efficiency organizations' suggestions, but did not adopt the portion that would have captured additional products, which were ultimately regulated under the battery charger standard.	-

	Effectiveness of activity for addressing barrier	Medium	Low	Low	Low	Low	-
	Significance for each barrier (%)	60%	20%	20%	20%	20%	
c: Estimate significance across all barriers (a x b)	Significance across all barriers (%)	42%	14%	14%	4%	2%	-
d: Estimate significance of each activity in comparison to all participants' activities.	Efficiency Organizations' role (Primary, main, or minor support to DOE)	Minor to Main support: 1 of several (≥3) supporting effort, including manufacturers	Main support: 1 of few (<3) supporting effort	Main support: 1 of few supporting effort (<3)	Primary supporter, but not known if and how DOE used data	Primary support: only stakeholder supporting this effort	-
	Efficiency Organizations' Relative Role in Activity	17 - 33%	50%	50%	33%-50%	50%	-
e: Estimate Efficiency organizations' relative contribution	Significance of all efficiency organization activities relative to all	7 - 14%	7%	7%	1 - 2%	1%	**23 - 31%**

4.2.3 Estimate of Savings from Energy Efficiency Organizations

Using the results of the analysis for the energy savings due to the standard development process (described in Section 4.2.1) and for the efficiency organizations' influence on the standard development process (described in Section 4.2.2), TRC estimated savings from the efficiency organizations. This section describes our range of savings estimates, the best point estimate of savings, and recommendations for the timing of those savings claims.

4.2.3.1 Range of Savings Estimates

To estimate savings from energy efficiency organizations, TRC multiplied the energy savings from the standard development process (8%) by the estimate of efficiency organizations' influence in the standard development process (23-31%): For the low range of the estimate: 8% x 23% = 2%, and for the high range of the estimate: 8% x 31% = 3%. Thus, TRC estimated that 2-3% of all energy savings from the EPS standard was due to the influence of all energy efficiency organizations.

4.2.3.2 Best Point Estimate

To select a best point estimate, TRC considered the following: The method used here to estimate savings due to the standard development and rulemaking process captured only the savings from the most significant barrier that the efficiency organizations helped address: Manufacturer Opposition to the Standard. As described above, the most significant contribution of the energy efficiency organizations was helping to reduce this opposition, including by suggesting that the DOE regulate battery chargers separately from EPS. TRC estimated that this split resulted in 8% of the energy savings from the EPS standard. However, the energy efficiency organizations conducted other activities, including suggesting adjustments to one part of the test standard, and providing data for rotary products, which helped the DOE retain them in the EPS standard's scope. Because there were likely small energy savings from these additional activities, TRC believes that the best point estimate is the high end of the range, since the range only accounts for activities for reducing manufacturing opposition. **Thus, TRC's best point estimate of energy savings due to all energy efficiency organizations is 3% (2.6% before rounding) of total energy savings.**

Because the DOE calculated that the 30-year savings from EPS standard was 0.94 quads, TRC estimated that savings from all energy efficiency organizations is 2.6% x 0.94 quads = 0.02 quads (0.024 quads before rounding).

4.2.3.3 Timing of Energy Savings

TRC recommends the following timing for the savings from energy efficiency organizations. Because TRC's results represent a percent of the energy savings calculated by DOE, our analysis uses the same timeframe as DOE's savings analysis: from 2015 to 2044.

TRC estimated the total savings from energy efficiency organizations as 2.6% of the DOE 30-year savings. Based on our analysis of the influence of each activity of energy efficiency organizations shown in Figure 4, approximately half of these savings (1.3%) come from the split of EPS from battery chargers, and half (1.3%) come from other activities.

TRC assumes 0% savings in 2015 (the first year of DOE savings analysis), because the standard had not been implemented.

TRC recommends that NEEA account for half of the savings (1.3%) during the initial years of the EPS standard implementation: from 2016-2021. This is because the compliance date for the EPS standard was February 10, 2016, and the compliance date for part one of the battery charger standard has a compliance date of June 13, 2018. Thus, the earliest year for EPS savings due to the battery charger split was 2016. Using DOE's assumption that market turnover is four years for products that use EPS, the last year of savings from the battery charger split is 2021. (Users would retire EPS from 2018 purchases in 2021.) Using this methodology, the annual savings in the 2016-2021 timeframe due to the battery charger split equals 1.3%/6 years = 0.22% per year.

TRC recommends that NEEA allocate the remaining 1.3% of savings between 2016 and 2044 evenly over the twenty-nine year period to represent general support from the energy efficiency organizations that maintained standard efficiency levels and scope. Using this methodology, the annual savings in the 2016-2044 timeframe due to all other activities equals 1.3%/29 years = 0.04% per year.

Following this methodology, there are greater savings per year due to efficiency organization activities between 2016 and 2021. Figure 5 shows TRC's recommended timing for the energy savings.

Figure 5. Recommended Timing of Savings from Energy Efficiency Organizations' Activities

Timeframe	Annual Savings from EPS / Battery Charger Split	Annual Savings from Other Activities	Total Annual Savings in Timeframe (%/yr)
2015	0%	0%	0%
2016-2021	0.22%	0.04%	0.26%
2022-2044	0%	0.04%	0.04%
Total			**2.6%**

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Overall Findings

TRC found that NEEA played a small role in the development and adoption of the EPS standard. This is because there were few barriers to this standard; once the DOE removed battery chargers for separate regulation, manufacturer opposition was minimal. In addition, NEEA often provides technical comments or analysis, but there were few technical needs for this standard. Thus, TRC views the small role of NEEA in the development of the EPS standard as appropriate, since the need for energy efficiency organizations' activities – and particularly the technical activities in which NEEA excels – was low.

Overall, TRC estimated that 2-3% (with a best point estimate of 3%) of energy savings came from the energy efficiency organizations' role in the development and rulemaking process. This

is a relatively low value, because the DOE generally adopted the standard that it first proposed, because there was little opposition to the EPS standard. The main change in the original proposal from the DOE was the removal of battery chargers (for separate regulation).

5.2 Recommendations

TRC provides the following suggestions and lessons learned based on our findings. TRC made several of the same recommendations in a previous evaluation, for the Fluorescent Lamp Ballast Standard evaluation.

NEEA should conduct evaluations soon after standard adoption.[1] In order to ensure that as much information is captured as possible, if a full evaluation is not feasible under this proposed timeframe, NEEA or its contractor could conduct key stakeholder interviews shortly after the DOE adopts the standard. This allows stakeholders to provide information while they are more likely to be available and able to remember details of the standard development process. NEEA or its evaluator could use this data whenever the full evaluation takes place. Alternatively, NEEA could document activities and key contacts in a report shortly after the DOE adopts the standard that could be used in the full evaluation.

NEEA C&S staff should improve documentation of NEEA and efficiency organization activities.[1] In addition to the previous recommendation, TRC recommends that NEEA C&S staff document the DOE lead and the lead consultant contacts to support the evaluation.

NEEA should make minor adjustment to the NEEA logic model.[1] TRC recommends that NEEA add "Lack of a suitable test standard" as a barrier, as well as activities meant to address this barrier, to the NEEA Logic Model for Standards Rulemaking Process shown in the Appendix (Section 6.1).

6 APPENDICES

6.1 Current Logic Model

Figure 6 shows the logic model that NEEA developed for its standards development activities. NEEA adapts its activities to suit the specific needs for each particular standard.

There were three potential barriers that TRC found were not significant. TRC describes these below, along with our rationale for identifying them as not significant for this standard.

- **Lack of common interest among certain stakeholders.** Although there was both opposition and support for the proposed standard, energy efficiency organizations were in coordination and generally held the same position to support the standard. Although some

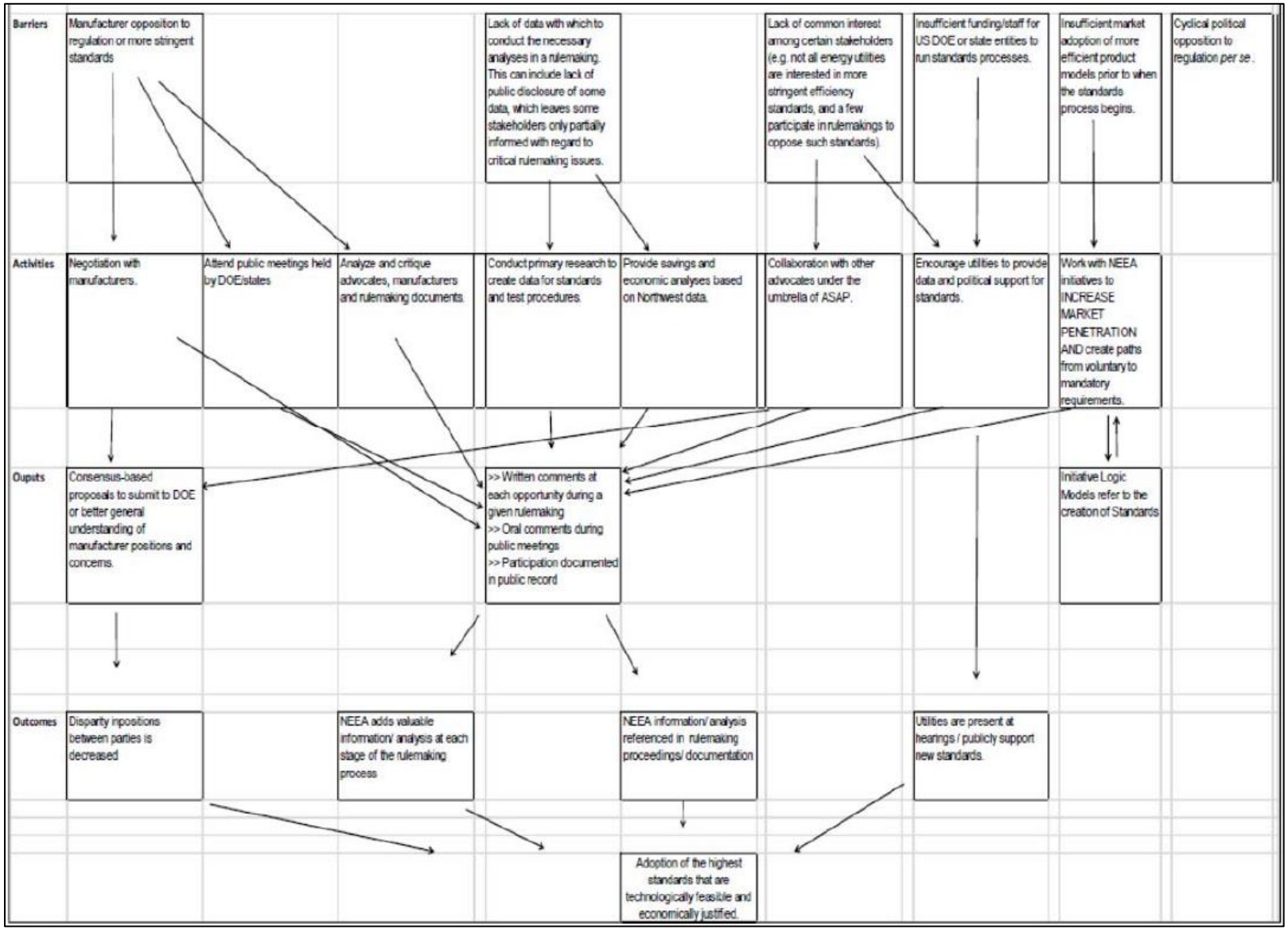
[1] Refer to the NEEA Fluorescent Lamp Ballast Standard Evaluation: Final Report, dated June 8, 2016, for additional details on this recommendation.

manufacturers opposed the standard while others supported it, this did not create a barrier.

- **Lack of DOE staff and funding to support rulemaking process.** DOE enlisted an outside consultant, Navigant, to help conduct research, perform analyses, and develop recommendations for the proposed standard. Limitations in DOE staff or funding were not a significant barrier for this standard.

- **Cyclical political issues.** Based on interviews with those involved, the issues were largely technical in nature. There was no political opposition during this standard process.

Figure 6. NEEA Logic Model for Standards Rulemaking Process



6.2 Methods for Estimating Energy Savings from Standard Development

TRC considered using two methods to determine the energy savings resulting from the development and rulemaking process of the EPS standard. TRC:

1. Estimated energy savings realized by earlier adoption of the EPS standard due to splitting battery chargers into a separate standard rulemaking. Section 4.2.1 describes this method.
2. Estimated energy savings for the adopted Trial Standard Level (TSL 2) in comparison to the next lowest level considered by the DOE: TSL 1.

TRC describes Method 1 in Section 4.2.1. Method 2 estimates savings using the incremental savings between the adopted TSL and the next lowest TSL. (TRC used a similar approach as Method 2 for estimating savings from organizations' activities for a previous standards evaluation - the NEEA Fluorescent Lamp Ballast Standard evaluation.) For the EPS standard, DOE adopted TSL 2. The next lowest TSL that the DOE considered was TSL 1. TRC used the 30-year energy savings provided in the DOE final rulemaking document for the EPS standard to calculate the incremental savings between TSL 1 and TSL 2. As shown in Figure 7, the incremental savings between TSL 1 and TSL 2 was 0.32 quads, or 34% (0.32 quads / 0.94 quads) of the 30-year savings from the standard.

Figure 7. 30-year Incremental Energy Savings Estimate for TSL 2 compared to TSL 1

	Energy Savings (quads)	**Source/Assumption/Calculation**
TSL 2 30-year national energy savings (2015-2044)	0.94	DOE final Rulemaking Table V-15
TSL 1 30-year national energy savings (2015-2044)	0.62	DOE final Rulemaking Table V-15
TSL 2 30-yr incremental national energy savings	**0.32**	TSL 2 total savings – TSL 1 total savings = 0.94 – 0.62
Percent of total savings	**34%**	0.32 / 0.94 = 34%

TRC used Method 1 to estimate energy savings from the standard development process because this standard was not highly controversial and there was no opposition to the proposed efficiency level. Therefore, it is not likely that the DOE would have adopted TSL 1 in the absence of efficiency organization support. Efficiency organizations' main contribution was to encourage and support DOE to split battery chargers from the EPS standard, allowing earlier adoption of the EPS standard by thirty months; this activity is reflected in the calculation for Method 1, which results in 8% of total 30-year savings from the development and rulemaking process. Consequently, TRC selected Method 1 for this evaluation.

6.3 Supporting Rationale for Energy Efficiency Organizations' Influence

Below, TRC provides a description of each barrier and activity, and a rationale for TRC's estimate of the significance of each assessment parameter from Figure 4.

6.3.1 Barriers

To identify barriers, TRC began with the barriers in the NEEA Standards Development Logic Model. Because this is the general logic model that applies to all of NEEA's standards development efforts, TRC revised this list of barriers based on the specific challenges of this standard. TRC identified two of the barriers in the NEEA logic model for standards rulemaking as significant – Manufacturer opposition, and Lack of data – and added a third barrier based on the specifics of this standard: Lack of accurate test standard. Based on the data collection, TRC concluded that four of the barriers from the codes and standards logic model were not significant for this standard[9].

Barrier 1: Manufacturer opposition to regulation or more stringent standard

Significance: High

Rationale and Findings: Manufacturers' main concerns and opposition were in regards to the battery chargers, which were initially included in this standard. There were significant comments and issues to be resolved for battery chargers. Regarding EPS, manufacturers were concerned that certain EPS for certain rotary products (e.g., toothbrushes and drills) could not meet the standard efficiency levels due to differences in the load profiles of the products. Additionally, there was general industry concern that manufacturers would not be able to accomplish the redesign and product testing, including safety testing, by the DOE compliance date. Some manufacturers asserted that such stringency could force EPS withdrawal from the market while manufacturers were developing and testing compliant versions, causing a temporary EPS product shortage.

Barrier 2: Lack of data availability and accuracy

Significance: Low

Rationale and Findings: There was a lack of data, but only for a relatively small segment of EPS products. Specifically, there was a lack of data for EPS that operate rotary products and high power products, and a lack of data to support the inclusion of a power factor[10] for testing and regulating EPS, as described below:

[9] TRC concluded that the following were not significant barriers for this standard: Lack of common interest among certain stakeholders; Insufficient funding/staff for US DOE to run standards process; Insufficient market adoption of more efficient product models prior to standard development; and Cyclical political opposition to regulation per se. The Appendix provides TRC's rationale for concluding that these were not significant barriers for the EPS standard.

[10] Power factor is the ratio of power supplied to the device to the power drawn by the EPS. There are some energy losses, such as resistive losses.

- As noted by manufacturers, DOE had not specifically looked at a wide range of EPS for rotary products during the initial analysis. Manufacturers argued that they could not accurately test these EPS with the proposed test standard nor meet the proposed efficiency standard.
- At the time of standard development, there was only one high power product with an EPS that DOE could analyze for inclusion under this standard. Due to a lack of products available, DOE faced a barrier to establish a correct test method and standard for these EPS products.
- Efficiency organizations recommended that the DOE include an EPS power factor within the standard. However, at the time of standard development, the DOE could not find sufficient data indicating that including a power factor would result in energy savings.

TRC considers this barrier to be low because the savings from the rotary and high power products comprised a small portion of total savings from the standard, and the industry pushback was minimal. Rotary products are within product class C, which account for 9% of total energy savings from the EPS standard[11]. Because there are other products besides rotary products in class C, the energy savings from these products are less than 9% of total savings from the standard. Additionally, DOE did not consider inclusion of a power factor to be significant, and plans to monitor the market in the future for compliance issues. For all of these reasons, TRC concluded that addressing this barrier would have a low savings impact.

Barrier 3: Lack of Accurate Test Standard

Significance: Very Low

Rationale and Findings: Energy efficiency organizations provided comments regarding the DOE's testing standards for determining the nature of EPS products and product classifications. Their concern focused on ensuring that the standard correctly identify and classify EPS products. The EPS standard regulated products that are directly charged, while the battery charger standard regulated products that are indirectly powered through a battery. The products in question were those that required a small amount of charging time (a few seconds to a few minutes) to function, so that they have sufficient power for operation or for charging internal software. The efficiency organizations argued that the EPS test standard would not capture directly powered products requiring a small delay to operate.

TRC rated this barrier as very low because it applied to a small number of products. In addition, it would not have increased the number of products regulated or increased efficiency specifications, but rather have regulated this small number of products earlier (under the EPS standard, instead of under the battery charger standard).

[11] TRC calculated savings for product class C from Table 10.6 in the final rulemaking Technical Support Document.

6.3.2 Activities

This section describes the activities that energy efficiency organizations pursued to overcome each barrier, the relative effectiveness of each activity for overcoming the barrier, and TRC's rationale for its estimate of each activity's effectiveness.

Activities to Address Barrier 1: Manufacturer Opposition to Regulation or More Stringent Standards

Barrier 1, Activity 1: Submitted comments recommending and supporting manufacturer comments to separate battery chargers from the EPS rulemaking: Based on comments to the initial technical support documents and the proposed rulemaking, battery chargers appeared to be the most contentious portion of the originally proposed standard. The proposed standard for EPS products was much less contentious. In order to move forward on the EPS standard rulemaking, efficiency organizations submitted comments supporting manufacturers' recommendations to separate the two appliances to avoid delaying adoption of efficiency standards for EPS.

Relative Effectiveness to Address Barrier: Medium

Rationale and Findings: Based on interviews and review of DOE documents, there was a consensus among manufacturers and efficiency organizations that the characteristics of battery chargers and EPS were different enough that they should have separate rulemakings. It is likely that DOE would have separated these two products without efficiency organization support based on the analysis findings and manufacturer pushback on battery chargers. However, efficiency organization support may have accelerated this process to separate the standards. The end result was that the EPS standard went into effect earlier than if the two products had remained as one standard. The battery chargers standard faced significant pushback, and the DOE delayed final adoption of the battery charger standard.

TRC ranked this activity as medium because it is likely DOE would have separated battery chargers and EPS without efficiency organization support, but support may have accelerated the decision.

Barrier 1, Activity 2: Worked with manufacturers to recommend cost assumptions and support proposed compliance date: Efficiency organizations worked with a Power Supplies Manufacturer Association (PSMA) representative to discuss the DOE cost analysis assumptions. The main critique from efficiency organizations on the DOE cost analysis was that the cost data was outdated and that the DOE should have used lower costs for its analysis. Additionally, efficiency organizations urged the DOE to project the trend of decreasing costs into the future measure costs. Through discussions with manufacturers and a PSMA representative, efficiency organizations confirmed that the incremental costs could justifiably be lower than those the DOE was citing, and that there had been, and likely will be, a continued trend in decreasing incremental costs for efficient EPS.

Relative Effectiveness to Address Barrier: Low

Rationale and Findings: Although few manufacturers opposed DOE's incremental cost assumptions, the comments from efficiency organizations and PSMA that DOE's cost assumptions were overly conservative helped strengthen the cost analysis. In addition, their support may have preemptively avoided opposition from manufacturers to the cost assumptions.

TRC ranked this activity as low, because cost data and assumptions were not a major point of contention for this standard.

Barrier 1, Activity 3: Submitted comments and participated in public meetings in support of DOE's proposed EPS standard: Efficiency organizations provided docketed comments and participated in public meetings throughout the development process in support of DOE's proposed standard. The industry (including manufacturers) did not push back on many aspects of the proposed EPS standard, although some manufacturers argued against some details of the proposal. The efficiency organizations submitted comments in support of DOE's proposed efficiency levels, including feedback on the feasibility of EPS to meet the efficiency levels by the compliance date; commented on the scope of the proposed standard; and provided comments to counter manufacturers' oppositions.

Relative Effectiveness to Address Barrier: Low

Rationale and Findings: TRC ranked this activity as low because there was minimal pushback on the DOE proposal, and therefore, minimal support needed by DOE. Efficiency stakeholder efforts likely had a minimal influence, but helped enable the DOE to maintain the efficiency level and scope of the proposed standard. The efficiency organizations' supporting comments strengthened DOE's position against manufacturer opposition to the proposed standard efficiency levels, compliance date, and scope. In particular, efficiency organizations (including NEEA) provided comments that challenged the manufacturing groups' claims regarding compliance date feasibility, technical feasibility of some EPS to meet the proposed standard, and the burden on manufacturers and consumers. One manufacturer interviewee mentioned that without efficiency organization support, the standard likely would not have been as stringent as the final adopted rule. As a result, DOE did not adjust its proposed efficiency levels or compliance date and maintained its proposed scope.

Activities to Address Barrier 2: Lack of data with which to conduct the necessary analyses in the rulemaking.

Barrier 2, Activity 1: Provided supporting data on EPS for rotary products and power factor: Some manufacturers commented that some rotary and other motor-operated products, could not meet the energy efficiency specification for the product class. DOE agreed and created a subclass in Class C with different specifications to accommodate these products that incur greater resistive power losses. Based on interviews, efficiency organizations reported that they procured some of the products and tested the efficiency of the associated EPS.

Additionally, in support of including a power factor as part of the standard, efficiency organizations referenced previous CEC work to estimate additional energy savings associated with adding an EPS power factor to the regulation.

Relative Effectiveness to Address Barrier: Low

Rationale and Findings: The DOE ultimately did not create efficiency regulations for this subclass of products in this standard. Instead, the DOE reported it would study these products and potentially propose efficiency standards for them in a future rulemaking. In addition, TRC could not find evidence in the literature that efficiency organizations provided data directly to the DOE.

Regarding the inclusion of a power factor in testing and regulating EPS, DOE concluded that, at the time, there existed no substantial data supporting energy savings claims associated with regulating power factor. Therefore, the DOE did not include a power factor component in the standard. The DOE is investigating a power factor for future regulations.

Activities to Address Barrier 3: Lack of Accurate Test Standard

Barrier 3, Activity 1: Proposed a test method to better distinguish between indirect and direct operation for EPS: Efficiency organizations, with support from the Power Supply Manufacturer Association (PSMA), proposed that the DOE modify the initial test method to determine whether an EPS operated a product directly or indirectly through a battery. Energy efficiency organizations claimed that the DOE proposed test standard would incorrectly identify some direct operation products as indirect, which would exempt them from the EPS standard and place them in the purview of the battery charger standard. The battery charger standard's stringency was unclear at the time, so efficiency organizations were concerned that these products would not be held to the same efficiency levels. The efficiency organizations' recommended modification would more accurately delineate products into EPS product classes and identify the EPS products that operate equipment directly. Efficiency organizations suggested that this would reduce the occurrence of loopholes in the standard's scope and ensure that manufacturers are accountable for the appropriate standards associated with the operation type. In addition, the efficiency organizations recommended that the DOE change its test standard to increase the delay period from five seconds to five minutes.

Relative Effectiveness to Address Barrier: Low

Rationale and Findings: TRC rated this activity as low because the DOE adopted only part of the organizations' recommendations. The DOE's adopted test standard did categorize products into classes more accurately, as recommended by the efficiency organizations. However, the DOE objected to increasing the delay period from five seconds to five minutes. According to the DOE rulemaking documents, the DOE reported that the organizations did not provide sufficient data to support increasing the period, and five seconds was adequate based on DOE's testing.

6.4 Interview Guides

This section provides the final interview guides that TRC used to conduct interviews with NEEA staff, energy efficiency organizations, and manufacturers.

Introduction language [for all interviewees]

Hello, my name is _____ and I am calling with TRC Energy Services. On behalf of the Northwest Energy Efficiency Alliance (NEEA), we are conducting interviews to understand the role that NEEA and other organizations have made in influencing the development of the DOE's external power supplies standard. I will be asking you questions regarding comments raised by your organization and others, activities conducted to address the issues raised, [and – for NEEA and DOE interviews] the candidate standard levels considered. Thank you very much in advance for your time.

6.4.1 NEEA Staff

6.4.1.1 Comments and Issues

1. What were the main comments voiced to the standard during the proposal process?
    a. [Probe as needed.] Please describe the main comments voiced in support of the standard, against the standard, or related to clarifications needed to the originally proposed standard.
    b. What groups or stakeholders voiced each of these main comments?
2. What were some of the concerns voiced regarding each of the following aspects of the proposed standard:
    a. The proposed efficiency level?
    b. Cost for meeting the proposed standard?
    c. The timing of when the standard would be implemented, and product availability?
    d. The scope or products covered, or how products were grouped?

6.4.1.2 Activities

3. What activities did NEEA conduct to address these issues?
4. For each of these activities:
    a. What issues(s) did it address?
    b. What was the relative effectiveness of the activity for overcoming the barrier (e.g. low, medium, high)?
5. Did NEEA conduct any primary data collection or independent analyses to support the DOE analysis?

a. [If so] Please describe what your organization provided.
b. How effective was this data or analysis in addressing the issues raised?
c. Did other organizations provide primary data collection or independent analyses?
d. [If so] Please describe what other organizations provided.
e. How effective was this data or analysis in addressing the issues raised?

6. Did your organization or other advocacy groups work directly with stakeholders that opposed the standard to find solutions to issues? If yes:
    a. What did NEEA do?
    b. What did other advocacy organizations do?
7. Beyond the activities that NEEA was involved in, what activities did other advocacy groups conduct (independent of NEEA) to address issues raised?
    a. Which do you think had the biggest impact on the development of the standard?
    b. What organizations conducted these activities?

6.4.1.3 Standard Development

8. What were the different Candidate Standard Levels (CSLs) considered by the DOE, including significant differences in the levels of efficiency, scope, and testing procedures considered?
9. How did the DOE identify the different CSLs considered?
10. How did the DOE decide which CSL to ultimately adopt?

6.4.1.4 Referrals and Conclusion

11. Who would you recommend that we speak with at the DOE or its consultant (Navigant) regarding development of this standard?
12. Who would you recommend that we speak with at manufacturer companies or trade organizations regarding development of this standard?
13. Who would you recommend that we speak with at energy efficiency organizations regarding development of this standard?
14. Is there anything else about the external power supplies standard development process that you would like to add?

6.4.2 DOE Staff

6.4.2.1 Comments and Issues

1. What were the main comments voiced to the standard during the proposal process?
    a. [Probe as needed.] Please describe the main comments voiced in support of the standard, against the standard, or related to clarifications needed to the originally proposed standard.

   b. What groups or stakeholders voiced each of these main comments?

2. What were some of the concerns voiced regarding each of the following aspects of the proposed standard:
   a. The proposed efficiency level?
   b. Cost for meeting the proposed standard?
   c. The timing of when the standard would be implemented, and product availability?
   d. The scope or products covered, or how products were grouped?

6.4.2.2 Activities

3. Do you recall what activities NEEA conducted to overcome any of the issues identified?
4. What activities did all energy efficiency advocacy groups conduct to overcome the issues identified?
5. For each of these activities:
   a. What issue(s) did it address?
   b. What was the relative effectiveness of the activity for overcoming the issue (e.g. low, medium, high)?
   c. What organization(s) participated in this activity?
6. Did the DOE receive any data or analyses from advocacy groups to address issues raised?
   d. If so, please describe this data and the issues it was trying to address.
   e. How effective was this data or analysis in addressing the issue?
7. In general, what do you see as the key influences of all energy efficiency advocates' efforts on the development and adoption of this standard?

6.4.2.3 Standard Development

8. What were the different CSLs considered by DOE, including significant differences in the levels of efficiency, scope, and testing procedures considered?
9. How did the DOE identify the different CSLs considered?
10. How did the DOE decide which CSL to ultimately adopt?

6.4.2.4 Referrals and Conclusion

11. In addition to speaking with DOE staff, it would be very helpful if we could get the perspective of DOE's consultant for this project (Navigant).
    a. Can you recommend staff member(s) at Navigant that we could interview?

b. In past standards evaluations conducted by TRC for NEEA, the DOE consulting team at Navigant has declined interview requests. Do you have any thoughts on why? If you are not opposed to them talking to us, can you assist us in getting their cooperation?

12. Can you recommend any stakeholders that were particularly active in the adoption of this standard for interview, including
    a. Staff at manufacturers?
    b. Advocacy organization representatives?
13. Is there anything else about the external power supplies standard development process that you would like to add?

6.4.3 Advocacy Organizations

6.4.3.1 Comments and Issues

1. What were the main comments voiced to the standard during the proposal process?
    a. [Probe as needed.] Please describe the main comments voiced in support of the standard, against the standard, or related to clarifications needed to the originally proposed standard.
    b. What groups or stakeholders voiced each of these main comments?
2. What were some of the concerns voiced regarding each of the following aspects of the proposed standard:
    a. The proposed efficiency level?
    b. Cost for meeting the proposed standard?
    c. The timing of when the standard would be implemented, and product availability?
    d. The scope or products covered, or how products were grouped?

6.4.3.2 Activities

3. What activities did <u>your</u> organization conduct to overcome these barriers?
4. For each of these activities:
    a. What issues(s) did it address?
    b. What was the relative effectiveness of the activity for overcoming the barrier (e.g. low, medium, high)?
    c. What other organization(s) participated in this activity?
5. Did your organization conduct any primary data collection or independent analyses to support the DOE analysis?
    d. [If so] Please provide some examples.

e. How effective do you think this data was in addressing the issues raised (low, medium, high)?

6. Did your organization or other advocacy groups work directly with stakeholders that opposed the standard to find solutions to issues? If yes:
    f. What stakeholders did you or other advocates work with?
    g. What did your organization do?
    h. What did other advocacy organizations do?
7. Beyond the activities that your organization was involved in, what activities did NEEA conduct to address issues raised?
8. What activities did other advocacy groups (besides your own and NEEA) conduct to address issues raised?
    a. Which activity do you believe had the greatest influence on the development of the standard?
9. In general, what do you see as the key outcomes of all energy efficiency advocates' efforts on this standard?

6.4.3.3 Referrals and Conclusion

10. Who would you recommend that we speak with at the other advocacy organizations regarding development of this standard?
11. Who would you recommend that we speak with at manufacturer or industry trade groups regarding development of this standard?
12. Is there anything else about the external power supplies standard development process that you would like to add?

6.4.4 Manufacturers

[Note: TRC will attempt to conduct phone interviews with manufacturers and trade organizations. If they decline phone interviews, TRC will send a few questions via email. **Questions in bold** are those that TRC proposes to send via email.]

6.4.4.1 Comments and Issues

1. **What was your organization's comments to the originally proposed standard?** [Probe as needed.] What, if any, were your comments related to the following:
    a. The proposed efficiency level?
    b. Cost for meeting the proposed standard?
    c. The timing of when the standard would be implemented, and product availability?
    d. The scope or products covered, or how products were grouped?
2. Were your comments addressed during the standard development process?

a. If so, how?

b. How effective were responses to addressing your concerns?

c. Who addressed your comments?

3. What were the main comments to the standard proposal voiced by other manufacturers or manufacturer organizations?
4. What were the main comments voiced by energy efficiency advocacy organizations in support of or against the standard? Advocacy organizations could include the California Investor Owned Utilities, Northwest Energy Efficiency Alliance, Natural Resources Defense Council, or others.

6.4.4.2 Activities

5. **What effect, if any, did the comments and activities of energy efficiency organizations have on your initial concerns?**
6. Did you work directly with any advocacy organizations to discuss the standard?
   a. If so, which organizations? [Repeat example list if needed.]
   b. How effective was this collaboration in addressing your concerns?
7. **In general, what do you see as the role of energy efficiency organizations in the development of the external power supplies standard? What do you see as the key outcomes of all energy efficiency advocates' efforts on this standard?**

6.4.4.3 Referrals and Conclusion

8. Can you recommend any other manufacturer staff members or trade organization staff that could provide insights into the development of the external power supplies standard process?
9. Is there anything else about the external power supplies standard development process that you would like to add?