

1 **ENERGY STAR® External Power Supply Stakeholder Meeting**
2 **San Francisco, CA**
3 **May 24, 2004**

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5 A total of 38 people representing power supply manufacturing companies, component
6 OEMs, computer equipment manufacturers, retailers, and other industry players attended
7 the ENERGY STAR External Power Supply Stakeholder Meeting. Please refer to the
8 Final Attendee List for the names of those who participated in the meeting, which is
9 posted on the ENERGY STAR Web site at: www.energystar.gov/powersupplies.

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11 Provided below is a summary of the discussions that took place during the meeting. Each
12 section ends with comments and/or questions that were posed by the group; ENERGY
13 STAR representatives are working to address these items. Meeting presentations can also
14 be downloaded from the ENERGY STAR Power Supply Web page listed above.

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16 **Presentation: Introduction and Overview**

17 Andrew Fanara, EPA

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19 Mr. Fanara began the meeting by presenting EPA's strategy for pursuing an ENERGY
20 STAR specification for external single voltage ac-dc power supplies. He then discussed
21 EPA's coordination with international power supply initiatives in China, Australia, and
22 Canada and provided a timeline of product development activities leading up to this
23 stakeholder meeting.

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25 **Presentation: External Power Supply Definitions, Test Procedures, & Testing**

26 **Results – The Technical Context**

27 Chris Calwell & Suzanne Foster, Ecos Consulting

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29 Mr. Calwell presented a brief history leading up to the development of the external power
30 supply test procedure and provided a summary of its requirements. Ms. Foster then
31 provided the group with a number of graphs representing the latest data set, which
32 included a number of new data points collected since the release of the Draft 1
33 specification. The group then discussed the proposed ENERGY STAR active and no
34 load requirements based on this data set and on the latest European Union Code of
35 Conduct (EU COC) requirements.

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37 Mr. Calwell then led the group through a decision flow chart in an attempt to define an
38 external single voltage ac-dc power supply for purposes of ENERGY STAR
39 qualification.

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41 **Comments and Discussion:**

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43 • Comment: How many of the data points represent linear products?

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45 Response: The data submitted from China did not indicate the different power
46 supply technologies. Australia may have this information in their data set. Ecos

47 estimates that about 60% of the U.S. data set are linear power supplies but will
48 follow up with China and Australia regarding their data sets.

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- 50 • Comment: EPA should consider products that have more than two output wires.
51 A significant number of power supplies on the market come with three or even
52 four wires. These wires may represent voltage regulation and/or battery charging
53 sensing and would not add much to the overall energy usage of the power supply.
- 54 • Comment: For example, there are a number of three wired products that benefit
55 the consumer because they could purchase a number of different “tips” to address
56 different voltages required of different countries.

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58 Response: In defining an external power supply, the two-wire approach seemed to
59 be the best and easiest way to further define and separate power supplies and
60 battery chargers for purposes of the ENERGY STAR specification. It was
61 assumed that there was added functionality that would unfairly disadvantage the
62 power supplies with more than a two-wire output and therefore manufacturers of
63 these power supplies would not want their products included in the definition of
64 the external power supply. In light of this feedback, EPA is interested in these
65 product types and would prefer to be all-inclusive in writing the specification
66 requirements. However, the test procedure would need to be tweaked to address
67 multiple wired products. Manufacturers of these products are encouraged to
68 provide data and/or additional information regarding these product types.

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- 70 • Comment: The presentation shows some examples of power supplies that also
71 charge batteries. If the “job” is to charge batteries then it seems moot to separate
72 them from the rest of the battery chargers being excluded. The problem with
73 allowing some of the products that also charge batteries is that the “devil” may be
74 in the charger that gets cut off during testing.

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76 Response: Part of the difficulty in analyzing these products is the fact that they all
77 look very similar and each model would need to be opened up on a case-by-case
78 basis. EPA hopes to close the loop and address the remaining products that are
79 truly battery chargers, based on the definition that will be provided in the
80 specification, under a separate battery charger initiative. Right now, EPA can
81 address the efficiency of the power conversion process of these products with an
82 external power supply program and effectively capture the “low hanging fruit” of
83 energy savings.

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- 85 • Comment: How much good are we doing by only addressing power supplies and
86 not battery chargers?

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88 Response: Ecos measured some battery chargers whose charging circuitry is
89 relatively efficient, and most of the losses are in the power conversion process
90 within the power supply. Other chargers seem to be inefficient in both the power
91 conversion process and in the charging circuitry. However, regardless of the

92 efficiency of the charging circuitry, improving the efficiency of the power supply
93 will almost always save energy.

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95 Response: Ultimately EPA will give direction to power supply manufacturers
96 regarding the identification of an external power supply so that all program
97 participants are on a level playing field and products are fairly compared. Again,
98 EPA does plan to address battery chargers under a separate initiative.

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100 • Question to Group: Are we eliminating products by excluding products that have
101 more than a two-wire output?

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103 Stakeholder Response: EPA should address each product by function. The
104 specification should have a separate section for multiple wire products.

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106 Response: The two-wire approach was an easy way to “cleanly” distinguish these
107 two product types but manufacturers are encouraged to suggest new language to
108 EPA that would include these products. Ecos found that some multiple wire
109 products were also multiple voltages – which are not covered under this
110 specification.

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112 Stakeholder Response: You would be surprised as to how many of these types of
113 products are actually single voltage.

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115 Ecos then provided an example of what would qualify under the specification and why.

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117 Example: PDA with external power supply – There are multiple contacts between
118 the battery pack and the PDA, but the power supply has a two-wire output with
119 two metal retaining pins. This seems to indicate that there is no active
120 communication between the PDA and the power supply. So we would infer that
121 the battery charging monitoring function is inside the PDA, In this case, there is
122 an indicator light on the power supply itself, but by observing the status of the
123 light, we learn that the light is only indicating whether or not a load is being
124 placed on the power supply, not whether or not the battery is being charged. This
125 unit would qualify because the battery charging is actually happening within the
126 PDA itself. Therefore, there is not a lot of added functionality taking place in the
127 power supply beyond the ac-dc conversion process.

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129 • Comment: Power supply manufacturers are going to know how to test the product
130 and which wires to use so why eliminate multiple wired products? Multiple wires
131 do indicate other characteristics but EPA could allow these products to be tested if
132 interested.

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134 Response: EPA is trying to go after the low hanging fruit first with this
135 specification. One of EPA’s goals in developing an ENERGY STAR
136 specification is to reach the largest market to ensure maximum energy savings and
137 market penetration potential.

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- Comment: It is important that EPA not exclude a potential opportunity to include a product when writing this specification.

Response: EPA would like to look into this issue and discuss with manufacturers further. The goal is to write a specification that has some shelf life; if these product types are growing and will be a significant part of the marketplace years from now, it would be nice to have already included them in this first round.

Presentation: Draft 1 Technical Specification Review

Andrew Fanara, EPA

Mr. Fanara lead the group through each section of the Draft 1 technical specification which included definitions, proposed Active and No Load levels, testing and reporting requirements, and specification effective and launch dates. He provided some of the key comments provided to EPA for consideration and opened the floor for additional discussion. He concluded the discussion with an overview of what to expect regarding the Draft 2 specification format.

- Comment: The specification and test procedure should use measured watts instead of rated. EPA could use load condition #1 or 100% of nameplate current instead of the power value that is provided on the label of the product. UL requires values that are higher than what the power supply actually uses because of safety concerns. This is a larger concern with the smaller wattage products. For example, you could have a product that is rated at 36 watts but actually measures in at 30 watts at 100% of nameplate current; it doesn't make the cut using 36 watts but it would have using the actual energy usage number of 30. The biggest problem is with these switchable products.

Response: If one plotted the same products using measured wattage, all of the data points would shift to the left on the graphs. A new specification line would be drawn through the products and the list of the products that would qualify and the products that would not qualify would be nearly identical to the list under the currently proposed specification. This is because all of the data points would simply undergo a systematic shift. Furthermore, nameplate output is the only way that EPA can verify compliance. It is our understanding that in switching power supplies nameplate power and measured power are very similar and that linear power supplies are the only type of technology that is systematically overrated.

- Comment: Where is the output voltage in all of this? EPA needs to apply an output voltage factor, specifically when you get up to the higher wattages.

Response: Ecos found with most efficient supplies, voltage was not a factor in the efficiency.

183 Stakeholder Response: Anything above 40 watts, EPA should consider output voltage
184 as well as output power.

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186 Response: EPA is interested in hearing more on this matter and encourages
187 manufacturers to provide some examples prior to the next draft.

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189 • Comment: How will EPA decide between the active mode and low mode
190 regarding which level to tweak allowing more products to qualify?

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192 Response: Since, according to the data set 75% of the power consumed is in active
193 mode, it is more likely that EPA will tweak the no load levels to reach higher market
194 penetration. However, it is EPA's intention to balance both requirements and not
195 emphasize one over the other.

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197 • Comment: The EU COC levels are including battery chargers so EPA's
198 specification, which excludes these products, should be slightly more stringent
199 than COC.

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201 • Comment: Why is EPA not harmonizing with the COC? The second phase of
202 their requirements will be 0.3 watts in 2007.

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204 Response: EPA must be careful not to make the ENERGY STAR levels too stringent
205 because this could result in low ENERGY STAR market penetration. EPA is still on
206 track with what its goals are and would like to harmonize with the EU where possible
207 but is not interested in changing the ENERGY STAR specifications to do so.
208 Additionally, based on the definitions that were given during this workshop today, it
209 would be fair to say that some battery charging external power supplies that have less
210 functionality are indeed included. Other battery chargers with minimal functionality
211 are not included.

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213 • Comment: What percentage of the data points from EPA's data set are battery
214 chargers?

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216 Response: Again, it is very hard to tell this without opening each individual product
217 to examine the capabilities of the products. Many of the power supplies that were
218 tested for the U.S. data set were not associated with the product that they were
219 intended to power when they were tested. Therefore, the ENERGY STAR
220 specification will include some battery chargers that are also power supplies, but not
221 all. If Ecos could make a guess based on our estimates of the external power supply
222 market, we would say that roughly 60% of external power supplies are used to charge
223 batteries (whether or not they have battery charger functionality that would exclude
224 them from the program).

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226 Response: EPA has received any feedback regarding the proposed levels so it is
227 assumed that the data set is adequate in providing a snapshot of the products currently
228 found in the marketplace.

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- Comment: Is the effective date the same as the manufacturing date?

Response: Beginning on the effective date all models manufactured and labeled with the ENERGY STAR mark must meet the specification requirements in effect at that time. This becomes more of an issue when a specification has tiered requirements and more than one effective date. For purposes of a new, single-tiered specification manufacturers may build, test, and submit models for qualification prior to the effective date but they may not market or promote them in the marketplace as ENERGY STAR until the effective date.

- Comment: Will EPA allow a transition period between the final specification and effective date to allow manufacturers time to redesign? The proposed November effective date does not seem fair to those manufacturers who need to redesign to meet ENERGY STAR, especially when we cannot say today what the exact specification is at this point? EPA could tier the requirements such that most manufacturers would meet the first tier and then have six months to develop products that would meet the second tier.

Response: EPA wants to implement an effective date as soon as possible to reward those manufacturers who already have energy-efficient products. It is not EPA's intention to write a specification that all products and manufacturers could meet; this would not be effective differentiation in the marketplace, which is one of EPA's guiding principles in developing specifications. It targets the top 25% of performers in the marketplace in the hopes that those manufacturers who do not yet have product will work to redesign shortly after the specification is released.

**Presentation: ENERGY STAR Partnership Agreement and Partner Commitments:
Rules for the ENERGY STAR Club**

Andrew Fanara, EPA

Mr. Fanara presented the three standard commitments required of all ENERGY STAR partners and explained their importance to protecting the integrity of the brand and accurateness of the ENERGY STAR Web site. He then provided the benefits of using the ENERGY STAR logo for marketing purposes, providing the group some examples of potential uses by power supply manufacturing partners and other program partners. Mr. Fanara then provided EPA's proposed timeline for distributing a Draft 2 specification and launching the final external power supply specification in September and presented a road map for incorporating this specification into existing ENERGY STAR product specifications, where applicable.

EPA would like to hear from manufacturers on proposed ways in which end use companies could promote using ENERGY STAR qualified power supplies with their products.

- Comment: What about "ENERGY STAR inside"?

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For end use products already meeting ENERGY STAR, there would be no additional labeling requirements but they would be required eventually to purchase ENERGY STAR qualified power supplies for their qualified products.

- Comment: We are hoping that we will be able to label both!

EPA would like to focus on what to do with the products that are NOT covered by ENERGY STAR. What would be the preferred method for these manufacturers to prove to consumers that there is an energy-efficient power supply bundled with their product?

- Comment: If you are a manufacturer and can design a power supply that meets ENERGY STAR requirements, can you use the ENERGY STAR to promote this?

Response: You could say this if you are in the design phase but as soon as the product is manufactured and say it is ENERGY STAR then you will be required to be a partner. You could say that a technology or design meets ENERGY STAR requirements and not be a partner but this is a fine line. EPA would prefer all manufacturers to join as a partner to protect the program, brand, and other partners.

- Comment: EPA should apply the external power supply requirement to all ENERGY STAR (end use) product categories or none at all.

Response: EPA will apply the external power supply specification to all ENERGY STAR existing products wherever it makes sense to do so. The hope is that by launching the external power supply specification first, it will be easier for end use manufacturers to identify and purchase ENERGY STAR qualified models to meet their respective ENERGY STAR product specifications.

- Comment: It does not make sense for EPA to require more than one specification for one product. For example, applying external power supply and internal power supply for products that already have an ENERGY STAR specification (i.e., imaging equipment). This is a financial burden to the manufacturers of these products. EPA's decision to implement this specification into other products could swing the decision to go from external to internal power supplies in designs. For example, the cost of using external power supplies may be more (i.e., testing and meeting a second specification) than moving it inside.

Response: EPA sees external power supplies as a unique opportunity to address a component that uses energy and is found in a number of different products. Design decisions made by manufacturers cannot be controlled by EPA. However, EPA does recognize that this ENERGY STAR specification may ultimately affect those decisions. It is EPA's plan to address products that include internal power supplies through active power requirements, where appropriate. This will ensure that power supply efficiencies will eventually be addressed regardless of the location of the component.

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Stakeholder Response: EPA should give specifications for internal and external power supplies at the same time to ensure that it is applied fairly to products with different form factors (internal or external power supplies). In general we would prefer performance to prescription specifications when it comes to active power, so that we have the utmost freedom in our design strategy.

Response: EPA may decide to take different paths to developing ENERGY STAR specification for existing products to include external power supplies. It may be simply cutting and pasting the power supply specification requirements and dropping them into the specification or get to the internal power supplies through a performance specification.

- Comment: Will the Chinese requirements be mandatory or voluntary?

Response: There will be both voluntary and mandatory requirements; they will use the ENERGY STAR test procedure but the stringency of the regulatory requirements will be much below the voluntary, and ENERGY STAR, levels. The regulatory target is the top 80% of the marketplace.

- Comment: I encourage there to be one single standard worldwide because this would make things easier on the manufacturers who have global reach distribution. There are already too many labels being used for these products to date. Implementing only one more label would be ideal.

Presentation: Next Steps

Andrew Fanara, EPA and Chris Calwell and Suzanne Foster, Ecos

Mr. Fanara presented EPA’s plans for developing a separate battery supply specification following the completion of the external power supply specification this fall. Mr. Calwell and Ms. Foster then provided an update on the Power Supply Design Competition and encouraged others to submit entries. Contact information was provided for the product development team and the meeting adjourned.