



## **EPEAT Clarification #1-4 Reusable/Recyclable Content**

**This Clarification applies to the following IEEE Standards and criteria:**

**Applicable Standards:**

- IEEE 1680.1 – Computers and Displays
- IEEE 1680.2 – Imaging Equipment
- IEEE 1680.3 – Televisions

**Applicable Criteria**

4.3.1.8 and 4.3.1.9

**PVC Determination:**

The following principles should be used by subscribers in determining the percentage reusable/recyclable for EPEAT conformance:

- Calculations for EPEAT will utilize the WEEE principles identified above, noting that energy recovery, such as combustion in a waste-to-energy plant, is specifically excluded from the EPEAT definition of recyclable.
- The reusable/recyclable percentage will be the weight of materials that is recyclable, divided by the total weight of the product, multiplied by 100.
- The manufacturer has no control over how a product is disassembled or shredded at end-of-life. Therefore the manufacturer should consider the reusability or recyclability of the materials and components as they are assembled or in the assembled product.
- Materials that would be separated out for disposal or energy recovery at the point of collection, by the sorter (triage), or by a disassembler or shredder, will not be counted as reusable/recyclable.
- The “demonstrated recycling technology” would be applied in assessing the reusability/recyclability of those materials and components as assembled. It is expected, though not specifically required, that a subscriber has investigated real world recycling processes relative to the specific characteristics of the materials and components of registered products to ascertain what portions would, through demonstrated technologies, in reality could be reused or recycled.
- The number of tiers in the recycling chain, or the location of those operations, is not strictly relevant to this calculation.

**Background analysis:**

*Several companies have asked for clarification.*

- *How will we confirm conformance?*
- *How many recycling tiers are considered? In other words, if a 3<sup>rd</sup> tier recycler discards some material, should that not be counted as recycled?*

*Following is a quote from one subscriber:*

*Issue: Calculation method is not clearly defined. For example, if a component or part is sent for recycling by tier one vendor to tier two vendor, whether the entire component/part can be considered as recyclable, or whether we would need to exclude a part of component that will not be recycled by the tier two vendor is not clear.*

These are difficult criteria to be certain of conformance, since demonstrating the recyclability of an electronic product is new and uncertain ground. The standard states that the definition is “in accord with” the WEEE Directive. The WEEE Directive will therefore provide the context for the definition of “recyclability”. However, the WEEE was adopted by the EU, and the enforcement, as well as many of the enforcement standards, is left to the member countries of Europe. Thus the EU has provided some but not all the principles necessary for EPEAT purposes.

Another important difference is that the WEEE Directive measures the recycling targets according to a stream of products. However, EPEAT relates to individual products. This makes it difficult to translate the WEEE targets into individual product design criteria.

Note that all quoted text below is from the WEEE Directive unless otherwise cited.

Article 7 of the WEEE Directive sets targets “regarding WEEE sent for treatment” for IT equipment:

- “Component, material and substance reuse and recycling shall be increased to a minimum of 65% by an average weight per appliance.”
- Note that a “recovery” rate of 75% is also set. It includes energy recovery, such as combustion in a waste-to-energy plant, and thus is not applicable in the EPEAT definition of recyclable. Therefore this target is not relevant.

The WEEE also provides certain other principles that must be considered in claiming product recyclability rates:

- Definition of “treatment” – “any activity after the WEEE has been handed over to a facility for depollution, disassembly, shredding, recovery or preparation for disposal and any other operation carried out for the recovery and/or the disposal of the WEEE”.
- WEEE treatment requires the removal of all fluids and selective treatment of Hg containing lamps, batteries, plastics with BFRs, CRTs, liquid crystal displays, and certain other components and materials. This does not imply that these materials cannot be counted toward recycling targets, if indeed they are recycled, but that they cannot be simply shredded with other components and materials.
- “Reuse of whole appliances...shall not be taken into account for the calculation of the targets.” However, the reuse of components is counted toward the recycling/reuse targets.

- The EU has recognized that it is allowable “to use an estimate as to the average percentage of reused, recycled and recovered materials.” [2005/369/EC: Commission Decision of 3 May 2005 laying down rules for monitoring compliance of Member States and establishing data formats for the purposes of the WEEE Directive.] This implies that the calculation of recyclability rates is not intended to be highly precise.

It is important to note that the required EPEAT criterion, based on the experience in Europe to date, is not difficult to achieve for the current stream of end-of-life electronics. “Existing systems show a recycling rate of about 80-90% (including energy recovery). It is still very difficult to make comparisons of recycling and treatment performance due to varying standards and definitions between countries.” [European Commission Technical Report Series, "Implementation of the WEEE Directive in the EU", 2006.] Note that the 80 – 90% cited above compares to the WEEE target of 75%, not to the reuse/recycling rate of 65%. In any case, we expect that achieving the EPEAT required criterion of 65% would likely not be difficult, but achieving the optional criterion of 90% reusable/recyclable would likely require demonstration of higher recyclability than average existing products.

The key question is then how to determine what portion of a product is recyclable. At each tier in the chain of recycling facilities that handle the product, certain “non-recyclable” portions are disposed of, or used for some purpose other than recycling such as energy recovery. In other words, the key question for the subscriber is to know what portion of their product would end up as rejected material, and to deduct that from the total weight of the product.

*Note: This clarification was adapted / adopted from IEEE 1680.1: Clarification regarding 4.3.1.9 – Required criterion: Minimum 65% reusable/recyclable and 4.3.1.9 – Optional criterion: Minimum 90% reusable/recyclable*

**Change History:**

Created: January 2007