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ENTR Lot 9: Enterprise servers and data equipment: Task 5

Document comment relates to	Section in document	Page number	Topic	Comment	Proposed change
Task 5	**1**	**7**	**Base cases.**	**The selected base cases target the volume portion of the server and storage markets and exclude larger systems. As proposed, it addresses two socket servers, and, by reference, one socket servers as they are essentially a subset of the two socket server. These base cases specifically exclude 4 processor socket servers and resilient servers, as they have much larger computational capacity and power consumption than one and two socket servers.** **For storage products, the focus is on the low end of the market, as the single base case consists of a single controller and power supply with a system with two drawers. As presented, this base case excludes high end OL-3 systems which will have more than two drawers of devices and all OL-4 systems which have much higher storage media counts and dual controllers and power supplies. The larger OL-3 products and OL-4 products are much more complex than the proposed base case and have very different power profiles. The concerns regarding storage products will be discussed in more details in subsequent comments.** **From a material standpoint, Digital Europe believes that impacts can be scaled to larger**	**Remove and/or exclude 4 socket, resilient servers, and all storage products with the exception of all OL-2 products and OL-3 products with less than 48 HDDs.**

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				systems using weight proportionality. Computing and workload capacity and power use and consumption do not scale from the base cases to 4 socket and resilient server products and larger OL-3 and all OL-4 storage products. **In the section 1, page 7 of the Task 5 Draft Final document, there is a statement, "**For further justification of the criteria for selecting Base-Cases, please refer to the MEErP methodology. It has to be noted that products that are not considered as a Base-Case are automatically excluded from a potential regulation in the future." **Based on this statement, we offer the proposed change to exclude specific products.**	
Task 5	**Table 3**	**8**	**Storage Controller**	**The consultant specifies a "1/2 controller" in the base case. Digital Europe does not understand what a "1/2 controller" represents.**	**Provide an explanation and/or definition of a "1/2 controller".**
Task 5	**Table 3**	**8**	**Storage Product Base Case**	**The system defined is a minimal entry level system which would be used in a small business/remote office environment. The storage base case, as defined, has no or limited presence as an installed product in a data center. Digital Europe would like to point out several issues with the base cases as regards its applicability or representativeness to storage products used in a data center environment.** **1. Data center storage systems typically are populated with dual power supplies and**	**We recommend further consultation with Digital Europe technical experts on this topic.** **Given the complexity of storage products, Digital Europe recommends storage products be moved into a separate scope and study.** **If you choose to retain storage products, the scope should be limited to OL-2 and OL-3 and the base case(s) need to represent an OL-3 product with up to 4 storage media shelves. OL-4 to OL-6 should be excluded regardless.**

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				controllers. **2. As a rule, storage products do not mix form factors in a given system and/or storage media shelf. Each shelf will have a single form factor. Different form factors are seldom mixed in an entry level or larger purchased system.** **Mixed drives are not used in entry level systems. They are used in larger OL-3 and OL-4 systems with at least three or four shelves. Smaller systems do not have a sufficient number of drives to enable effective execution of tiering software.** **3. Based on calculations by a storage product manufacturer, the power use of the base case system is 374 watts. This level of power use is representative of OL-2 systems, not an OL-3 or 4 system.** **4. While these smaller entry level systems have the highest unit count and percentage of sales, their power consumption is a much smaller percentage of the total power use for storage products. An industry expert estimates that the entry level systems represented by the base case represents 40% of the unit sales but only 20% of the power use. OL-3 products represent approximately 30% of sales and 40-50% of power use.** **The remaining power use is represented by OL-4 to OL-6 units, which have a very small**	**The storage base case needs to be revised to cover three base cases: the ½ controller systems with one or two drawers populated with SSDs, Large Form Factor and Small Form Factor drives. That would provide 3 base cases, but it accurately represents how those products would be sold and allow the consultant to assess the material implications of the different drive types available for the system. As noted in the comments, mixed drive systems do not appear until you have four or five drawers of drives.**

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				percentage of product sales and the products are very complex. These products are best excluded from the base cases and the Lot 9 regulatory process.	
Task 5	**1**	**8**	**Base cases**	**The consultant should be considering 2013 and 2014 products and technology in their discussion of the base cases. While the base cases, based on products introduced to the market in 2012, are intended to focus on the current installed base, products released in 2013 and 2014 indicate where data center server, storage and network products are headed from a performance and energy use standpoint and can inform the consultant's outlook on the market.**	**Include a discussion of improvements in compute capacity and capability and energy use profiles in newer products in the base cases to provide a view of where product capabilities are moving beyond the base cases.** **See additional comments on this topic in a general comment in the Task 6 document.**
Task 5	**3.2**	**21, 23, 26**	**Distribution of env. Impacts over product life**	**The high percentage of VOCs, POPs, VOCs, Heavy metals, and eutrophication assigned to the use phase does not make any sense, unless that represents those materials generated during energy use. Taken in context with the levels described in manufacturing, it seems that those emissions in the use phase are unreasonably high.**	**Clarify the reason for the high percentage of emissions of the materials identified in the comment section in the use phase.**