# DG ENTR Lot 8: Ecodesign for Power Cables in Indoor Electrical Installations – Europacable comments

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| Ref. | Section - | Page | Topic | Comment | Proposed change | VITO reply |
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| 1 | Task 5 – 5.1.2 | 16 | Table 5.3 | Phthalate has been modeled by Bitumen, which is a quite different product. Environmental impact of bitumen versus phthalate varies between 30 and 300%, depending on the environmental indicator considered. | Highlight that the phthalate plasticizer is very different from Bitumen, and that for such approximation, a sensitivity analysis should be carried out before. | A small sensitivity analysis is added in Task 5 and the overall impact on the outcome is low. Text is added. |
| 2 | Task 6 – 6.1 | 11 | Impact assessment | It is mentioned that "the design option should have a significant potential of improvement without deteriorating others …"<br>Considering the base cases this will have a significant impact on resource consumption as well as on weight and volume of the product and other systems parts which will be affected by larger sizes, which are not reported in this report.<br><br>Information on raw materials quantities for design options D1, D2 , D3 and D4 | Mention in the summary, that all design options considered, as long as different from BAU, will have a significant negative impact on resource consumption, which has not been quantified. Possible positive energy efficiency solutions should be carefully weighted against negative impacts on other environmental aspects.<br><br>Considering Impact on product weight and volume, provide the table with Volume and product weight for all the design options consider and highlight the expected negative impact for parts, installation and installers work conditions. | Added tables with the increase of material usage per design option.<br>Added table showing volume increase.<br><br>Also mentioned the negative impact of the design options on resource consumption in the summary. |
| 3 | Task 6 – 6.1 | 11 | Impact assessment | No manufacturing process have been considered | Highlight that using the MEErP report tool, no manufacturing process have been considered and that part of manufacturing process on Life cycle impact is unknown.<br>Mention also that the higher the cross section design options considered, the higher the over-estimation, as for high cross-section, the part of manufacturing impact is higher. | Introductory text has been added explaining the MEErP and how the impact from manufacturing is modelled with this. |

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| **4** | Task 6 – 6.1 | 11 | Impact assessment | Increase of cable cross-section will lead to modification of accessories and buildings (more space needed). | Highlight that the impact of involved design options on other installation parts (and even building constructions) have not been considered. If legal requirements are considered, they should be based on a holistic evaluation of all environmental impacts of product requirements and take into account the environmental impact of higher volumes of raw materials for the products itself and the accessories, parts and constructions materials related to cable size increase. (See also point 2.) | See comment 2. |
| | Task 6 – 6.2.1 (and possibly others) | 13 | Impact per parameter (ex energy) | It's not clear in the Task 6 what the reference case is for evaluation. For example is the Total Energy Consumption at 6.2.1 referring to a certain quantity of cables (considered in the different design options) or to the total quantity of cables in the markets of each BC scenarios?<br>The same question applies to all the other evaluation parameters in addition to Total Energy Consumption. | Specify in a more transparent way the functional unit of Task 6 evaluations | These tables show the life cycle impact per base case over the product lifetime. In Task 5 tables 5-9 till 5-17 showed the impact for the BAU the life cycle impact per base case **per year**.<br>Multiplying by the product life time factor (25 years) results in the BAU value in Table 6-2.<br>Added explanation. |
| **5** | Task 6 – 6.2.3 | 33 | Impact assessment | No information is provided on resource efficiency. | Even if not calculated, inform that in terms of resource efficiency, the best performing design options is always the BAU case. | Added. |
| **6** | Task 6 – 6.2.3 - Table 6-21 | 33 | Conclusion | Technical feasibility of moving from BAU to D3 should be confirmed by installers. | Mention that the technical feasibility and potential consequences of moving from BAU to D2 and D3 have not been reviewed. | Text is added in the summary and section 6.1 to indicate the task 6 assumptions regarding technical feasibility and other consequences. |
| **7** | Task 6 – 6.3 | 34 | LCC | It is stated that calculations are based on formulas of tasks 2, 3 ,4.<br>Task 2 chap. 2.4.1 stipulates an expected market price increase of copper. | Scenarios of LCC and related payback period should be developed taking into account the expected market price increase of copper (and other raw materials). | A sensitivity analysis regarding the product price is added in task 6 showing the impact of a lower or higher product price on the BAT & LCC design option. |
| **8** | Task 6 – 6.3 | 34 | LCC | It is stated that calculations are based on formulas of tasks 2, 3 ,4.<br>Task 2 chap. 2.4.5 stipulates "no disposal costs" | Scenarios of LCC and related payback period should be developed taking into account the real expected disposal cost. | New assumptions are added taking into account the 'disposal' cost including the residual scrap value. |

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| **9** | Task 6 – 6.3 - Table 6-21 | 36 | LCC | In table 6-19, the environment pay back has been highlighted in red when not convenient.<br>The same should be done for table 6-21 | Color the cell of SPP, using the same color as the one of table 6-19, to highlight when there is an interest or not in terms of LCC. | Color scheme has been added. |
| **10** | Task 6 6.6 | 80 | Sensitivity | Table 6-32, 6-42 and 6-53 show the impact of the sensitivity analysis and that the best design option varies, depending on the assumptions used (specifically for the circuit use, considering BAT) | Conclude that the robustness of the study highly depends on with the different assumptions for BAT and LCC. | The sensitivity analysis is used to indicate the (trend) impact of different parameter value assumptions. A general conclusion regarding robustness of the study is added in the summary. |

# TASK 7

| Ref. | Section | Page | Topic | Comment | Proposed change | VITO reply |
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| **11** | Summary | 10 | Summary | The summary concludes on a saving of 15.75 TWh for the BAT and 13.87 TWh for LLCC.<br>The cable is not a "stand-alone" product and is connected to other parts (accessories) and included in a building.<br>The impact of cable size modification on accessories and buildings has not been evaluated.<br>The burden is then shifted to other elements which have not been considered. | Inform that the study only focused on cables and did not take into account cable modification consequences on accessories and buildings.<br>The conclusion of 15.75 TWH and 13.87 TWH are only considering cable, and would be lower if the total installation and building would have been considered. | Added this information in the summary. |

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| 12 | Task 7 – Tas k-7.1.2.1.1 | 1 - 22 | Policy measures at product level | The indication of DC resistance on the cable sheath will not bring any additional information supporting the installer for reducing cable losses. It will only create supplementary costs for the cable manufacturers.<br><br>The proposed saving strategies are all based on standardized and already existing cable CSA (Task 3 chap. 3.1.2.2). The max. DC resistances are all prescribed in the corresponding cable standards. The saving strategies can only be implemented through the installation standards. The ecodesign is finally made on circuit level taking into account the cable losses through their DC resistance.<br>It is not feasible to measure the real DC ohmic resistance of all cables. This is why the standards have been set up on conductors: to ensure to customers on a maximum ohmic resistance of the product they buy.<br><br>Cables are produced in either long or short lengths, and when produced in long length, can be cut after distribution.<br>Real measurement of DC would imply to measure ALL products manufactured, one by one, which is not feasible in terms of time needed. | Max. DC resistance is already indicated in all technical cable datasheets. There is no need to indicate it on the cable itself.<br><br>Remove the second bullet point and lines 27-29 | Bullet point has been moved to the notes together with the explanation in this comment. |
| 13 | Task 7 – 7.1.2.1.1 | 10 | Policy measures at product level | “”The enquiry has demonstrated that installers are unaware of cable losses.” | The reference document states the contrary. This should be corrected, since installers who filled in the questionnaire have responded positively on the question about their knowledge of energy losses in cables. | Sentence has been changed. |
| 14 | Task 7 – Task 7 – 7.1.2.1.1 | 11 | Policy measures at product level | Remarks on measures for insulation material are not relevant. Insulation material is not related to energy efficiency.<br>If this remark relates to resource efficiency, then this indicator needs to be consistently considered in all the task 6 and 7 before any conclusions concerning policy | As long as resource efficiency has not been considered in the task reports 6 and 7, remove the remark. | Taking into account also the comments from ECOS a new section was added 7.1.2.1.2 |
| 15 | Task 7 – 7.1.2.2.1.1 | 13 | Lines 6-7 | “Mentioning a reference to this economic optimization tools on the cable package”. People buying and installing cable products are not the ones designing the electrical installation. They usually even not work for the same company.<br>Information on optimization tool on the cable will not be seen by installation designers.<br>Also an optimization tool should be an objective, independent tool for all manufacturers. So reference cannot be made to tool a=of individual manufacturers. | Remove this bullet point | Agreed, text has been updated that the tool should be standardardized among manufacturers |

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| 16 | Task 7 – 7.1.2.2.1.1 | 13 | Line 32 | "a new standard on calculation of cables losses …".<br>A standard already exist (IEC 60287-3-2) on the economic optimization of power cable size, taking into account cable cost, losses and other parameters.<br>What may be developed is a standard on installation economic optimization, taking into account losses and additional cost related to cable size optimization as well as accessories and building necessary modification. | Modify "cable losses" by "electrical installation economical optimum, related to losses, cables, accessories and building". | Agreed. Text is modified and added:<br>..the standard refers to standard IEC 60287-3-2 .. |
| 17 | Task 7<br>7.2.1.2 | 15 | BAT scenario | Why do the BAT scenarios in Task 7 refer to certain "Design Options"? How are such Design Options related to BAT scenarios for each Base Case from Task 6 report)? | Explain how the Design Options have been based on the BAT scenarios and other scenarios. | More explanation about the rationale for scenarios is added |
| Bout | Task 7<br>7.2.2.5 Ex. Fig 7-13 | 30 | Annual emissions of CO2 eq | In Task 7 apparently the results of the evaluation (for example the reduction of GWP from losses – fig. 7-13, page 30) refer to a total quantity of the cables produced. Is it the total produced in one year in Europe, or other? | Specify in a more transparent way the functional unit of Task 7 evaluations. | As indicated in this comment, the figures are calculated for the total stock .This was also mentioned in 7.2.1, but this sentence is moved to 7.2 and is more elaborated. |
| 19 | Task 7<br>Fig. 7-14<br>(7.2.2.5) | 31 | GWP from EOL | Fig. 7-14 page 31: Why the impact of EOL is lower with the "BAT" scenario? The BAT scenario is referred to a certain Design Option which depends just on section of cables (see Task 6 report), therefore it's not clear how this may make such difference in term of EOL impact! | Explain better the assumptions on which the EOL results are based. | The EOL, as explained on p. 31, is due to the fact that after scenario introduction time + product life (25 years), there will be a lot more material that will be recycled and thus resulting in larger EOL recycling benefits compared to BAU. |
| 120 | Task 7 – 7.3.1 | 35 | Sales and expenditures | Figure 7.17 presents annual sales and figure 7-19 shows annual expenditures.<br>A graph should present the total cost, including both increased annual sales and reduced electrical losses. | Add a graph cumulating sales and costs of losses.<br><br>Do the same for 7.4.1.5 and 7.4.2.1 | Graphs are added. |
| 21 | Task 7 – 7.4. | | Sensitivity analysis | No global conclusion on the sensitivity analysis is provided | Conclude on the robustness of the study, considering the sensitivity analysis. | added |
| 22 | Tas and Task jointly | | In general | It's not clear how the results of task 7 and the results of task 6 should be jointly considered: in the task 6 we have different design options, in the task 7 apparently some design options are combined with LLCC scenarios. | Explain better how the Task 6 and Task 7 results are linked together and how they should be jointly interpreted. | More explanation about the rationale for scenarios is added |