

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

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Ref.	Section	Page	Topic	Comment	Proposed change	VITO reply
1	Task 1 – All	All	General	Reference of data used should be improved		
2	Task 1 – All	All	General	Number of lines is still missing. Would it be possible to add the number of lines to improve comprehensiveness of comments?	Add number of lines in the different reports	Ok
3	Task 1 – All	All	General	The title of the top of each page is still “list of acronyms”	Modify the top pages of all documents	Accepted.Text changed.
4	Task 1 – Chapter 1	10	Summary of Task 1	The sentence highlighted in green is not clear. Please clarify the meaning.		Text reformulated and explained in the meeting (see powerpoint)
5	Task 1 – Chapter 1	16	Insulation	Write “vinyl” instead of “Vynil”		Accepted.Text changed.
6	Task 1 – Chapter 1.1.3	21	“fixed wiring”	Both single core and multi-core cables can be installed in buildings.	Remove (single core) in the “fixed wiring” paragraph	Accepted.Text changed.
7	Task 1 – Chapter 1.1.8.1	25	Nominal Cross-sectional area	Reference to US-standards AWG is not needed	Remove sentence on USA and Canada conductor size.	Accepted.Text changed.
8	Task 1 – Chapter 1.1.9	32	General comment to loading in residential buildings	Generally in all buildings more and more energy efficient equipment are used. LED-lights, LED TV-sets and efficient refrigerators are some examples. This gives lower loads and as a consequence lower losses in the existing network.		No review planned, explained in meeting. Text added in bold: ‘These are indicative for a first screening only and will be updated in later chapters’

	Task 1 – Chapter 1.1.9.3.1	34	Market and stock data	Data on sales and stocks of power cables are extracted from the Working Plan, but the source of such information is not publicly available. Such data should be used with caution. It is recommended for the other tasks reports, to use data with transparent and public sources. As an example, in the working study, a coeff 1.5 is used, assuming (industry + services)=1.5*residential. In the Working plan, the reference of such 1.5 is mentioned as “based on copper wire and cable consumption statistics”, without reference to any document or report.	Use table 1-4 and 1-5 with cautious in other tasks reports due to lack of transparency on data source.	No review planned, explained in meeting. Text added in bold: ‘These are indicative for a first screening only and will be updated in later chapters’
10	Task 1 – Chapter 1.1.9.3.2	35	Table 1-6	Previous comments on the total Energy demand (PJ prim) has not been clarified. “What does the total Energy (PJ prim) stands for? If it corresponds to total EU energy demand, including all fuels, it does not correspond to the value given in the reference document”	Clarify table 1-6	No review planned, explained in meeting. Text added in bold: ‘These are indicative for a first screening only and will be updated in later chapters’
11	Task 1 – Chapter 1.1.9.4.1 1.1.9.4.2 1.1.9.4.3 1.1.9.4.4 1.1.9.4.5	37	Table 1-7	Previous comments (N°60 to 72) from Europacable have not been answered.	Please provide more information: <ul style="list-style-type: none"> <li>- on the calculations of table 1-7 and on assumptions of chapter 1.1.9.4.1</li> <li>- on the calculations of table 1-8 and on assumptions of chapter 1.1.9.4.2</li> <li>- on the calculations and on assumptions of chapter 1.1.9.4.3</li> <li>- on 1.1.9.4.4 and 1.1.9.4.5</li> </ul>	No review planned, explained in meeting. Text added in bold: ‘These are indicative for a first screening only and will be updated in later chapters’
12	Task 1 – Chapter 1.1.9.7	42	Conclusion	New conclusions on eligibility and scope have been provided in this 2 <sup>nd</sup> draft report whereas comments on the previous chapter (1.1.9.4.1 to 1.1.9.4.5) have not been answered and still “in processing”.	Conclude on those chapters after answering the previous comments	Text added in bold: ‘These are indicative for a first screening only and will be updated in later chapters’
13	Task 1 – Chapter 1.2.1.1	44	Reference to standards	Reference should be made to the European HD 603 and HD 604 for 1 kV cables.		Added (HD 603 is out of scope)
14	Task 1 – Chapter 1.3.1.2	63	Legislation at member states level	The internet link making reference to the French legislation on environmental product declaration of building products is not correct. It refer to a software supplier.	Change reference <a href="http://www.codde.fr">www.codde.fr</a> by reference to the French government : <a href="http://www.developpement-durable.gouv.fr/-La-declaration-environnementale,7322-.html">http://www.developpement-durable.gouv.fr/-La-declaration-environnementale,7322-.html</a>	Accepted. Text changed.
15	Task 1 – Annex A	67	Table 1-19 Supply parameters	Information of Swedish electrical system is missing	Swedish parameters	The intention of this table is to give differences in supply parameters between some EU countries, not to give a complete overview of all the differences between al the EU countries.
16	Task 2	Prodcom data	Table 2.2 and 2.3	Highlight that those data include both aluminium and copper cables.		Is extra highlighted in the note on this page .

17	Task 2 – Chapter 2.2.2.2.5	16	Table 2-11	Internal transport should be removed from values of table 2-11 (150TWh for 2007)	Remove 150TWh related to internal transportation	<p>Cannot find the source of the 150TWh. Be aware that the table shows consumption of electricity. Electricity use in the transportation sector (trains,...) is 64TWh in 2007. This is lower than internal transport?</p> <p>In Task 7 a remark will be made that these figures may be too high, for the industry, as there are no figures, discriminating between indoor and outdoor consumption , available.</p>
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18	Task 2 – Chapter 2.2.2.3	18	Floor space	Depending on data source, information on building % varies a lot.	Please cross-check the area assumptions with other source, to provide calculation on agreed and reliable data.	
19	Task 2 – Chapter 2.2.2.3	18-20	Data source	Many data are from CuloU survey from European Copper Institute, not found on internet	Please provide the report.	The copper Institute will be asked if the study could be publicly available.
20	Task 2 – Chapter 2.2.4.3	22	Replacement sales rate	The Ecofys study estimates the overall renovation rate for non residential building to 12.4% From BPIE study mentioned previously, the renovation rate is estimated between 0.5 to 2.5% and the tables 3A2 from their study provides renovation rate for non-residential around 1.5 to 2.75, so 12.4 % seems a little high	Please cross-check renovation and construction rate with other data source before calculation.	The section has been adapted.
21	Task 2 – Chapter 2.3.1	26	Aluminium	It is mentioned that “aluminium conductors are not so much used in buildings”. Aluminum conductors can be used in buildings for high cross-section.	Get data from installers or electrical installation designer on the amount of aluminium cables in industry and services buildings.	The installers can't give detailed info on the amount of Al. cables in buildings, only that it is sometimes used for high cross-section. A base case reflecting a circuit with aluminium cables is added to the study.
22	Task 2 – Chapter 2.4.1	26	Purchase price	“Copper is becoming a scarce resource”. We do agree with this comment, and it seems important for us to highlight it	Reference can be done to the JRC technical report “Integration of resource efficiency and waste management criteria in European product policies – second phase – report N°2 (Report EUR 25667 EN) concluded on that copper contribute relevantly to the majority of the considered impact category.	Comment will be included, although contradicted by ECI.
23	Task 2 – Chapter 2.4.1	27	Product cost	The average value of 5.3€/kg from table 2-3 represent the average value for cables, so it cannot be transposed into an average cable price per mm <sup>2</sup> of copper. The density of copper is not the average density of cables and wires. Moreover, the value of table 2-3 includes both aluminium and copper cables.	Review chapter 2.4.2	Chapter has been reworked with the available information.
24	Task 2 – Chapter 2.4.1	27	Product cost	In table 2.22, again the price of 535€/100kg is the price of cable and 100kg of cable is not 100kg of copper.	Check the calculation based on cable and copper price and weight.	Text has been reworked.
25	Task 2 – Chapter 2.4.1	30	Installation costs	Reference 33 not found in intranet.	Please provide the report.	Publication is released by the copper institute
26	Task 3 – Chapter 3.1.2.2	14	CSA	The selection of CSA is first done considering the intensity that needs to be transported	Add in the list : their maximum admissible intensity	Added
27	Task 3 – Chapter 3.1.4.6	24	Table 3-6	There is 2 values in the different cells. What does the lower value represents	Clarify the values given in the table.	Format problem. It was just one value. Table is split up.
28	Task 3 – Chapter 3.1.4.6	26	Table 3-7	Previous comment N° 117 from Europacable has not been applied	Remove (m) from table 3-7 as it represent a number of nodes and not a length	Text has been changed.

29	Task 3 – Chapter 3.1.4.6	27	Table 3-8	Values from table 8 have been modified. Please clarify the assumptions used on: <ul style="list-style-type: none"> <li>- number of nodes (min, max, avg) considered for each circuit</li> <li>- Load branch length factor for each circuit.</li> </ul>	Provide assumptions used and confirm with electrical installation designers and installers.	Text has been enhanced. The values in first version were modified because they were educated guesses. In the second version they are based upon results (number of nodes) of the installers questionnaire and calculations made and shown in table 3-6.
30	Task 3 – Chapter 3.1.4.7	27	Rated diversity factor	To be confirmed. Example?		The load factor and load form factor are defined at the circuit level, not per appliance connected to the circuit. A rated diversity factor is necessary if one has a load and load form factor per appliance..
31	Task 3 – Chapter 3.3	39	End of Life	Reference to table 3-14 is not correct	Modify 3-14 by 3-16	Modified.
32	Task 3 – Chapter 3-3	40	Table 3-15	The use of formula 3.8 is does not take into account the demolition rate. Moreover an average life of 170 years for residential building is impossible as no electricity was provided in houses 170 years ago.	Provide new life time parameters for cables .	New lifetime parameters are introduced , based upon comments from stakeholders. Demolition rate is taken into account.
33	Task 4 t – Chapter 4.2.2.1	13	Chapter	There is a chapter 4.2.2.1 but no chapter 4.2.2.2	Rename the titles number	Title has been removed.
34	Task 4 – Chapter 4.2.2.1	18	Table 4-5	The max cable length in table 4.5 (1952) does not correspond to a cable diameter of 6.05mm. It corresponds to a cable diameter of 12.	Check the values in the tablei	Extra information is added in table to explain. A 3x2.5mm <sup>2</sup> example is used now.
35	Task 5 – Chapter 5.1.1	8	Table 5-1	How has the load current been chosen for each circuit?		The circuits are 100% loaded. For each circuit the required CSA according to IEC 60364-5-52 is determined and checked with a commercial calculation tool.
36	Task 5 – Chapter 5.1.2	11	Table 5-2	Be careful in the BoM that : <ul style="list-style-type: none"> <li>- XLPE is NOT HDPE</li> <li>- PVC in the tool is probably rigid PVC. PVC used for cables is based on fillers and plasticiser, which may be in proportion higher than PVC content.</li> <li>- If filler considered as PVC, same remarks apply for filler.</li> </ul>		XLPE is now marked as LDPE in the EcoReport tool. No information on filler material is provided by the cable manufacturers. PVC is now marked as PVC (and not as recyclable PVC) in the EcoReport tool, as suggested in the 2 <sup>nd</sup> stakeholder meeting. . Composition has been altered based upon info from cable manufacturers.
37	Task 5 – Chapter 5.1.2	11	BoM	Copper is taken out of the ground and is considered a scarce material. Copper should consequently be used as little as possible	Consider negative impact on resource depletion of any increase of copper consumption	Negative impact on resource completion is not part of task 5. It will be discussed in task 7.

38	Task 5 – Chapter 5.1.3	13	Table 5-5	<p>How has the length of the circuit been decided, in particular :</p> <ul style="list-style-type: none"> <li>- Service lightning, which is 31.4 in table 3-4 but 38m used in table 5-5</li> <li>- Service distribution and Industry – distribution, which have not been answered by installers, according to table 3-4</li> </ul>		Table has been adapted and uses correct values from table 3-4. Values for distribution circuit are added according 2 <sup>nd</sup> installers questionnaire.
39	Task 5 – Chapter 5.2	14	Table 5-7	There is some issues is the unit	For materials, replace g/m per g/circuit.	Text has been changed.

40	Task 5 – Chapter 5.2	14	Environmental impact	Considering the issue on resource efficiency with copper, highlighted by Europe, it would be recommended to calculate the “Resource depletion” indicator, following the ILCD recommendation.	Add resource depletion indicator in environmental analysis.	This chapter looks at base cases, and not at design options or scenarios. This will be considered in Task7.
41	Task 5 – Chapter 5.3	24	Cost for consumer	A higher cross-section will raise the building costs due to more expensive cables, longer installation times, more expensive ducts/tubing/ladders and accessories (connections, switches, etc). All efforts are made to lower building costs	Consider negative impact on cable building by increasing copper cross-section.	This chapter looks at base cases, and not at design options or scenarios. This will be considered in Task7.
42	Task 5 – Chapter 5.5.1	25	Table 5-15	The EU electrical installation cannot be summarized by 5 base cases.	Check consistency and real scenarios with installers and el installation designer for representativity of base case for EU.	9 base cases are now used to better reflect the European context. Installers and engineering companies are consulted by means of 2 questionnaires.