

## 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 2 - 2.3.1	25	Market production structures	Information on copper mines and copper production in Europe is not accurate.	It was already suggested in the previous ECI's comments (4 December 2013) to use <a href="http://www.copperalliance.eu/industry/economy">http://www.copperalliance.eu/industry/economy</a> as information source.	Paragraph has been changed accordingly.
<b>Recommendation. 2</b>	Task 2 – 2.4.1	26- 27	Purchase price	<p><b>Original quote</b> <i>“Copper is becoming a scarce resource and an increased demand caused by the use of wires with an increased cross-sectional area may result in even higher market prices.”</i></p> <p>Copper is a commodity traded on the LME, which fixes its price; trying to forecast price is not appropriate, especially considering the marginal contribution of a potential regulation in this field compared to the annual copper volume traded.</p> <p>As for copper scarcity, please note that according to USGS data, since 1950 there has always been, on average, 40 years of copper reserves and over 200 years of resources left. - See more at: <a href="http://copperalliance.org/core-initiatives/sd/economy/long-term-availability-of-copper/">http://copperalliance.org/core-initiatives/sd/economy/long-term-availability-of-copper/</a></p> <p><a href="http://copperalliance.org/wordpress/wp-content/uploads/2014/04/ica-long-term-">http://copperalliance.org/wordpress/wp-content/uploads/2014/04/ica-long-term-</a></p>	It was already suggested in the previous ECI's comments (4 December 2013) to modify this sentence, deleting any consideration of copper as a scarce resource and deleting any tentative forecast on commodity prices.	Agreed. The paragraph has been changed accordingly. Reference is also made to the European listed critical raw material list which does indeed not include Copper.

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				<p><a href="#">availability-1404-A4-low-res.pdf</a></p> <p>Finally, it should be considered the high recyclability ratio of copper, especially from used cables. Find more at <a href="http://copperalliance.org/core-initiatives/sd/environment/recycling/">http://copperalliance.org/core-initiatives/sd/environment/recycling/</a>.</p> <p>According to the International Copper Study Group (ICSG), 41.5% of the copper used in Europe comes from recycling. <a href="http://copperalliance.eu/about-copper/recycling">http://copperalliance.eu/about-copper/recycling</a></p> <p>A comprehensive study of the stocks, flows and recycling rates for copper has been developed by the Fraunhofer Institute. This complex, three-year study has resulted in an improved understanding of how copper is used and re-used by society: <a href="http://pubs.acs.org/doi/ipdf/10.1021/es400069b">http://pubs.acs.org/doi/ipdf/10.1021/es400069b</a></p> <p><a href="http://copperalliance.org/core-initiatives/sd/stocks-flows/">http://copperalliance.org/core-initiatives/sd/stocks-flows/</a></p> <p>Finally, please note the following statement on copper availability: <a href="http://copperalliance.org/core-initiatives/sd/availability/">http://copperalliance.org/core-initiatives/sd/availability/</a></p>		
3	Task 2 – 2.4.1	26-27	Purchase price	<p>The price of cable has a key impact on the results of the study. The only source of information has been web shops.</p> <p>Web shops with public prices do not correspond to the reality of real prices applicable for the tertiary and industrial sector installations. Web shops are B2C business, while tertiary and industrial installations are B2B (whose prices are not published).</p>	<p>Price of cable has to reflect B2B sector. It could potentially be assessed through anonymous surveys with engineering and EPC companies dealing with procurement of cables for its installation in the tertiary and industrial sector.</p> <p>Consider as well average values from statistics (prodCOM for instance) as a crosscheck.</p>	<p>Paragraph has been changed according the study “LV power cable market prices” of ECD.</p>

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				<p>Under the current assumptions, the ratio between the average cost of cable (0.075 €/mm<sup>2</sup>/m/core) and cost of copper (0.047 €/mm<sup>2</sup>/m/core) is 1,6.</p> <p>Egemin study (2011) considered cable prices based on real quotations for the tertiary and industrial sector. The ratio between the cost of cable and cost of copper was 1,25 (much lower).</p> <p>Also, checking Prodcom average price for cables leads to 0.047 €/mm<sup>2</sup>/m, very far from the 0.075 from web shops (especially under current copper prices, significantly lower than in the past years).</p>	Discard publicly available prices on the web, which are not representative of the real behavior of the market for the tertiary and industrial sectors.	
4	Task 3, Table 3-1	14	Conductor material electrical resistance	First line says “Electrical Resistivity (relative)”, while it should say “Electrical Conductivity (relative)”	Make correction	Sentence has been changed.
5	Task 3, Table 3-4	22	Circuit length	<p>Egemin study considered for small and large offices average lengths significantly longer (50 meters as an average, &gt;&gt; 31 meters).</p> <p>Also average length in industry considered by Egemin study was 80 meters &gt;&gt; 47 meters)</p>	<p>Check with engineering companies through anonymous survey the typical lengths, so as to assess the results of the questionnaire.</p> <p>Split into several base cases and define a typical installation, considering lengths based on questionnaire + experience from engineering companies.</p>	Table is based upon questionnaire results, (these results included the Egemin responses). Additional responses to the 2 <sup>nd</sup> survey have been incorporated.
6	Task 3, 3.4.2.2	42	Implication on material use	“slight increase in material price”	See the comment ref. 2	Sentence has been changed.
7	Task 5, Table 5-6	14	LCC input parameter per base case	These parameters are to be fixed either for a given year or for a future scenario. In case of working for a given year, the most recent the better (2013 would be the best).	Address all these aspects.	The electricity price is according the MEERp guideline. It differentiates between

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				<p>Electricity prices could be adapted to each sector (tertiary, industry), if such information exists. The price should be final (including taxes), so as reflecting the real savings in case of lower electricity consumption. Information source should be public and widely accepted (Eurostat for instance).</p> <p>While investment is made in year 1, electricity savings take place along the 14 next years. During this time, electricity price will increase. Should the study consider an average price between the present and the next 14 years?</p> <p>Product price is to be further assessed, as previously indicated in comment #3. The initial prices considered seem too high compared to ProdCOM or to previous analysis (Egemin study)</p>		<p>residential and non-residential sectors. 2010 is used as reference year.</p> <p>All prices in the non-residential sector in the study are without taxes. This will be mentioned in Task 2.</p> <p>In the Task 5 report, only the relevant parameters for input are mentioned. The EcoReport tool has a lot of other default parameters, as mentioned in the MEErP guideline. One of them is the escalation rate of 4% for running costs, as mentioned in Task 2.</p> <p>The price has been adapted accordingly.</p>
8	Task 5, Table 5-18	27	Cross-checks	<p>The energy flowing through the distribution system has also to flow somewhere afterwards. In case of industry, dedicated circuits are allocated only with 85% of the current, so the remaining 15% has to be also considered in any kind of circuit.</p> <p>Idem for services, 100% of current flowing through the distribution system is allocated to lighting (10%), dedicated circuits (85%), but still misses the 5% left.</p>	Consider 100 % of current flowing through distribution system, then 100% flowing through any kind of circuits (making sure to totalize 100% again).	Extra base cases are added. The current flows 100% through the distribution circuits and then this current is distributed over the other circuits (sum is 100%)
9	Task 5, 5.6	27	Cross-checks	The analysis as per the current version shows that parameters are still to be adjusted. It is necessary a classification of	Classify the inputs according to the following categories:	This advice will be taken into account. In the sensitivity analysis

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				<p>the nature of parameters, so as to know what are factual data, what are hypothesis based on previous reports or questionnaires and what are abstractions for simulation purposes.</p> <p>Factual data should be used as reliable input, not subject to sensitivity analysis, as these are facts. Such data should be verified in any case.</p> <p>Reports and questionnaires offer a range of values plausible. Hypothesis based on such sources of information are to be submitted to a robust sensitivity analysis.</p> <p>Abstractions are not intended to represent the reality, as these are just intermediate steps in a calculation leading to the researched results.</p>	<ul style="list-style-type: none"> <li>Facts – punctual values (i.e. electricity consumption in Europe)</li> <li>Facts – range of values (sales of cable)</li> <li>Hypothesis based on feedback from questionnaires, usually leading to low, average and high values (length and cross section of typical circuits, potentially price of conductors)</li> <li>Hypothesis based on literature (building stock, renovation rates, average lifespan)</li> <li>Hypothesis based on observation or expected behaviour (load factors).</li> <li>Abstractions (stock based on base cases).</li> </ul> <p>Depending on the category of the inputs, a different treatment should be done (consider sensitivity analysis, determine max and min values, etc.).</p> <p>The model should give priority to the most robust parameters first (such data will always be valid).</p>	in Task 6 en 7 the parameters will be challenged against their low and high values.																																													
10	Task 1, 1.3.1.4	65	Voluntary initiatives	A number of software tools exist for the design of electrical installations, some of them offering the possibility to run energy efficiency calculations and potential optimization.	<p>Consider mentioning the following:</p> <table border="1"> <thead> <tr> <th rowspan="2">Software</th> <th rowspan="2">Manufacturer</th> <th colspan="3">Economic sizing</th> <th rowspan="2">Remarks</th> </tr> <tr> <th>Standard</th> <th>Optional</th> <th>External</th> </tr> </thead> <tbody> <tr> <td>Caneco BT</td> <td>ALPI Software</td> <td>No</td> <td>Partly Investment estimation only</td> <td>Yes, through export and import to and from external processing (proven)</td> <td>Modular software, features depend on actual licensed configuration</td> </tr> <tr> <td>TR-ciel (legacy) Elec Calc</td> <td>Trace Software</td> <td>No</td> <td>Partly Investment estimation only</td> <td>No clear information on export and import facilities</td> <td>Features depend on installed options (TR-ciel) Unclear for successor Elec Calc</td> </tr> <tr> <td>Kitgoni</td> <td>Kitgoni SPRL</td> <td>Yes</td> <td>/</td> <td>/</td> <td>The URE module (Utilisation Rationnelle de l'Energie), is standard included, the user only has to choose to use it.</td> </tr> <tr> <td>Simaris design</td> <td>Siemens</td> <td>No</td> <td>No</td> <td>No</td> <td>Import &amp; export facilities can be extend through Simaris project software</td> </tr> <tr> <td>Ecodial</td> <td>Schneider Electric</td> <td>No</td> <td>No</td> <td>No</td> <td></td> </tr> <tr> <td>Solutions Electrical</td> <td>Solutions Electrical UK</td> <td>No</td> <td>Partly Investment estimation only</td> <td>No</td> <td></td> </tr> </tbody> </table>	Software	Manufacturer	Economic sizing			Remarks	Standard	Optional	External	Caneco BT	ALPI Software	No	Partly Investment estimation only	Yes, through export and import to and from external processing (proven)	Modular software, features depend on actual licensed configuration	TR-ciel (legacy) Elec Calc	Trace Software	No	Partly Investment estimation only	No clear information on export and import facilities	Features depend on installed options (TR-ciel) Unclear for successor Elec Calc	Kitgoni	Kitgoni SPRL	Yes	/	/	The URE module (Utilisation Rationnelle de l'Energie), is standard included, the user only has to choose to use it.	Simaris design	Siemens	No	No	No	Import & export facilities can be extend through Simaris project software	Ecodial	Schneider Electric	No	No	No		Solutions Electrical	Solutions Electrical UK	No	Partly Investment estimation only	No		Table is added.
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