

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

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Task 1	Chapter 1	9	Summary	<p style="color: green;">Agreement that focus should be on the services and industry sectors.</p> <p style="color: red;">However, for the residential, the issue remains in the very old installations (as stated in section 1.3.1.4, page 58).</p>	Residential installations could be considered under the light of the necessity to renovate electrical installations having more than 40 years.	<p>Proposal to consider this in Task 7, the expected impact will remain low?</p> <p>Is there information on the installations > 40 years? Are they significant?</p>
Task 1	1.1.2	14	Cables within buildings	Agreement to exclude T&D networks and focus downstream the meter.	-	noted
Task 1	1.1.3	19	Proposed scope	Agreement on the proposed scope	-	noted

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Task 1	1.1.8.1	25	Conductor material	Copper alloys are used only when special properties are required (improved mechanical strength or other). However, copper alloys conductivity is always below pure copper. In the context of fixed installations, such alloys are not representative	Delete mentions to copper alloys.	OK Deleted
Task 1	1.1.8.2	27	Power factor	Power factor is taken = 0,8. Later in Task 3 it is indicated = 0,9	Harmonize Task1 and Task 3 (chapter 3.1.5.2 Power Factor)	OK Changed in Taks 3: PF=0.8 (IEC 60364-5-52/Annex G: in absence of precise details, the power factor is taken as equal to 0.8)
Task 1	1.1.9.7	39	Sales volume copper	According to ECI sources, 924 kTon of copper refers to projected 2030 sales for wire and cable in <u>EU</u> (BAU)	Remove the word "worldwide"	OK Removed
Task 1	1.2.1.1.8	49	Voltage drop and losses	"The higher these voltage drop values the higher the energy losses in the cable (e.g. for a resistive load a voltage drop of 5% is equal to an energy loss of 5%)."	Consider the limited impact of voltage drop reduction on global	Noted Voltage drop reduction has

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				<p>This is true, but other branches of the installation can have a lower voltage drop (because shorter lengths) and still need to be addressed in terms of energy efficiency. Reducing the maximum voltage drop has proved to be only partially effective to reduce the global losses in an electrical installation (a dedicated study by Egemin exists, available under request to ECI)</p>	<p>energy efficiency.</p>	<p>an important impact on energy efficiency of the <u>electrical distribution system</u>. Even as the location of the switchboards, Power factor correction systems, reduction of the harmonic currents...</p> <p>Is there a diversity factor in the voltage drop calculation?</p> <p>(policy measures are in Task 7)</p>
a	1.2.1.2	54	LV	Periodic verification could be further developed in	-	Noted

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			installations – Periodic Verification	the residential sector, so as to address the old, unsafe and inefficient electrical installations.		
Task 1	1.2.1.3	54	New standards	<p>IEC TR 62125 Environmental statement specific to IEC TC 20 – Electric cables</p> <p>“Annex A.4 Considerations for use and end of life phase [...] 2) Has information been given to the user on the fact that the choice of transmission/distribution voltage and the conductor cross-section will seriously influence the current transmission losses?”</p> <p>This TR might evolve into a standard in the years to come.</p>		<p>OK</p> <p>Added</p> <p>Please provide a copy</p>
Task 1	1.3.1.4	59	Voluntary initiatives	<p>The European Forum for Domestic Electrical Safety – FEEDS – calls for safe and modern Electrical installations in dwellings. - http://feedsnet.eu/home</p> <p>Consider addressing the oldest installations in the residential sector.</p> <p>ECl can provide further information on safety figures. http://www.safetybarometer.org/ , and additional</p>		Noted

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				information on request.		
Task 2	2.1.3	11	Copper sold for use in power cables	ECI best estimate is already reflected in the Study for the Amended Ecodesign Working Plan (reproduced later in the report)		Noted
Task 2	2.2.2.2	14	Year of statistics of table 2-8	ECI will contact Ecofys to provide feedback on the year of such statistics	-	Noted
Task 2	2.2.5	20	Growth rates	<p>Table 2-18. When applying such rates (2.1% + 7.08% for Services and 3.1% + 7.08% for industry), the energy savings potential becomes much larger than initially estimated in the Amended Ecodesign Working Plan (assumed at just 3% growth rate).</p> <p>Under these assumptions, savings at 2030 horizon would roughly be multiplied by 3 compared to the Amended Ecodesign Working Plan.</p>	Harmonize energy savings estimation at 2030 using the corresponding growth rates.	Will be in later tasks
Task 2	2.3.1	20	Copper mines in Europe	“In Europe the largest copper Mine is located in Bulgaria (110000 metric ton per year). Production of copper in Europe is mainly located in Belgium (118000 metric ton), Bulgaria (284000 metric ton) and Germany (591000	Use alternative information sources.	Will be updated

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				metric ton) (source: US Geological Survey)." This information is inconsistent with ECI / European Minerals Statistics, 2013 source. Please, consider: http://www.copperalliance.eu/industry/economy		
Task 2	2.4.1	21	Purchase price	<p>Original quote “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.”</p> <p>This regulation is estimated to impact, as an average, between 0.08 and 0.6 MTons / year (probably less), compared to a global demand of 24 MTons / year. Cu is a global commodity traded on the LME, which fixes its price; trying to forecast price is not appropriate.</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: http://copperalliance.org/core-initiatives/sd/economy/long-term-availability-of-copper/</p>	<p>Avoid considering copper as a scarce resource.</p> <p>Avoid forecasting commodity prices.</p>	Will be updated

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				<p>http://copperalliance.org/wordpress/wp-content/uploads/2013/06/ica-long-term-availability-1303-A4-lr.pdf</p> <p>Finally, it should be considered the high recyclability ratio of copper, especially from used cables. Find more at http://copperalliance.org/core-initiatives/sd/environment/recycling/.</p> <p>According to the International Copper Study Group (ICSG), 41.5% of the copper used in Europe comes from recycling. http://copperalliance.eu/about-copper/recycling</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: http://pubs.acs.org/doi/ipdf/10.1021/es400069b</p>		
Task 2	2.4.3	22	Installation costs	ECI will provide some figures estimated by Egemin on the basis of the previous studies.		<p>Noted</p> <p>If possible provide an</p>

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						installation cost model
Task 3	3.1.1	12	Definition of user	Agree with the complete list of users at different levels. It is important to make a clear distinction between the owner and the user (necessary to address the split incentives issue)	-	Noted
Task 3	3.2.1	36	Building heating and cooling	Agree to neglect effects on heating or cooling of the building	-	Noted
Task 3	3.4.1.3	37	Refurbishment occasions	<p>House sales are indeed a good opportunity to renovate electrical installations. Some good examples exist (France for instance - http://fr.wikipedia.org/wiki/Diagnostic_%C3%A9lectrique).</p> <p style="color: green;">ECI has a comprehensive study on such schemes in various countries. Available on request.</p> <p style="color: green;">Services and industry, as stated in Task 1, present higher rates of renovation.</p>	-	Please provide

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Task 3	3.4.2	38	Lock-in into existing installations	Agree that in industry and services this barrier is quite limited.	-	Noted
Task 3	3.4.2.2	38-39	CO2 emissions	<p>From Amended Ecodesign Working Plan: The emissions per amount of copper produced are fixed at 2.95 kgCO₂ eq./kg CU produced.</p> <p>From Spanish Cable Maker Association: http://www.facel.es/docs/420-Tabla%20emisiones%20CO2.pdf</p>		CO ₂ eq is an issue of later task
Task 3	3.4.2.2	38-39	Increase in volumes and impact on price	<p>Estimated increased demand (between 0,08 and 0,65 MTon/year) corresponds to the impact over residential and non-residential. Leaving residential sector aside, the impact would be lower, between 0,05 and 0,42 MTon/year.</p> <p>See previous comment to Task 2 chapter 2.4.1</p>		Impact will be assessed later (Task 7)
Task 3	3.4.3	41	Software	<p>“design tools have to be adapted by software development companies”</p> <p>Indeed, but already some software exist including energy efficiency analysis (find table below).</p>		More text will be added

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				For services and industry, integrated software is the common choice. The new design guidelines would simply be integrated by updating the software tools.		
Task 3	3.4.3	41	Extra training	<p>In the perspective of implementing a regulation on services and industry only, extra training might be required for design engineers, but probably not much for installers.</p> <p>Extra-training needs would be however quite limited, as the software takes in charge the energy efficiency aspects.</p>		Text will added
Task 3	3.4.3	41	Impact on installation	<p><i>“Installation time and related cost may increase due to extra wiring or more difficult handling of cables with larger sizes”</i></p> <p>This would have an impact on installation time (see previous remark to Task 2 – Chapter 2.4.3), but this would also translate into additional employments (direct + indirect).</p>		Noted, this is an issue for Task 7 (impact)
Task 3	3.4.3	41	Certification	Indeed, certifiers should verify that the installation has been designed according to the updated rules.		Noted

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Software	Manufacturer	Standard	Economic sizing		Remarks
			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	