



TASK 4 – TECHNOLOGIES

1st Stakeholder Meeting, Ecodesign Preparatory Study for Lifts

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Waide Strategic Efficiency

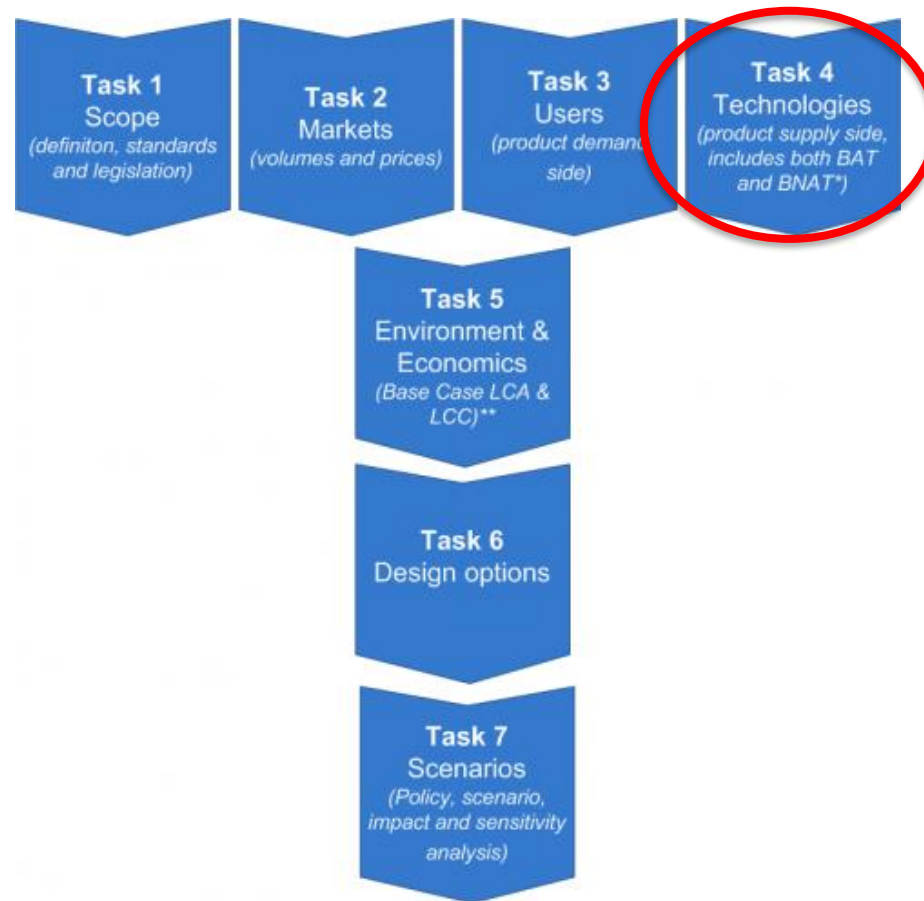


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Task structure



General objectives of Task 4:

- This task is a general technical analysis of current products on the EU market
- It provides general inputs for the definition of the Base-Cases (Task 5) as well as the identification of the improvement potential (Task 6), i.e. the part that relates to the best performance products - BAT (Best Available Technology) and BNAT (Best Not yet Available Technology).

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Subtask 4.1 Technical product description

- Capacity building for the policy makers/ stakeholders and a first assessment
Explain in easy-to-understand wording for non-experts what processes are involved in the functional performance of the product.
- As a predecessor of the modelling work in Tasks 5 and 6.
 - **Base case (BC)**, representing the average product on the market in terms of resources efficiency, emissions and functional performance
 - **Least Life Cycle Cost point (LLCC)**, representing the product with lower resources use and emissions than the Base case at the lowest life cycle costs
 - A **'break-even' point (BE)**, representing a product with lower resources use and emissions than the Base case but at the same life cycle costs
 - **Best Available Technology point (BAT)**, representing the best commercially available product with the lowest resources use and/or emissions
 - **Best Not yet Available Technology point (BNAT)**, representing an experimentally proven technology that is not yet brought to market, e.g. it is still at the stage of field-tests or official approval

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Subtask 4.1 Technical product description

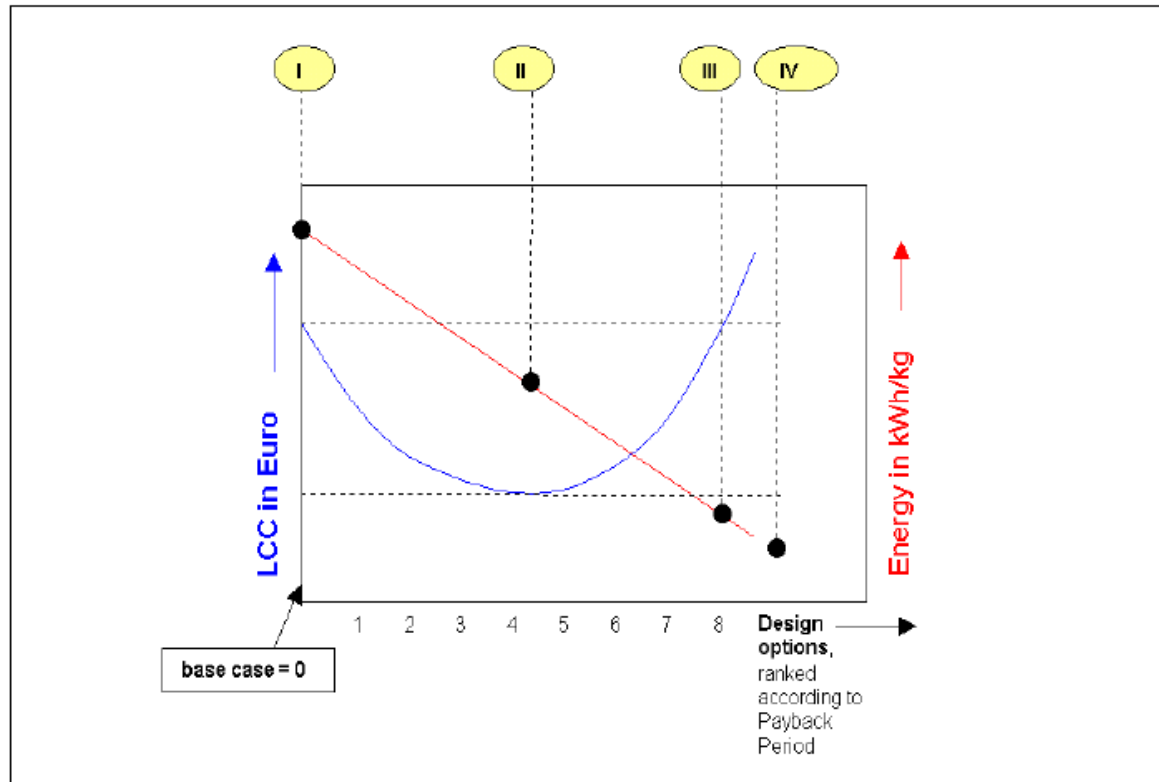


Figure 13: Archetype LCC curve

I = BaseCase; II = Least LCC; III = No financial loss (break-even point); IV = BAT point

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Subtask 4.2 Production, distribution and end-of-life

Data gathering:

4.2.1 Product weight and Bills-of-Materials (BOMs), preferably in EcoReport format

<http://ec.europa.eu/DocsRoom/documents/11845/attachments/1/translations>

4.2.2 Assessment of the primary scrap production during sheet metal manufacturing

4.2.3 Packaging materials

4.2.4 Volume and weight of the packaged product

4.2.5 Actual means of transport employed in shipment of components, sub-assemblies and finished products

4.2.6 Materials flow and collection effort at end-of-life (secondary waste), to landfill/ incineration/ recycling/ re-use (industry perspective)

4.2.7 Technical product life (time-to-failure of critical parts)

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Example of Bill-of-Materials for 11kW Electric Motor

Material	kg
Electrical steel (rotor, stator)	70.00
other steel (bearings, shaft, fan shroud)	11.60
cast iron (housing)	41.00
aluminium (end-shield, rotor bars)	4.45
copper (winding)	13.70
copper (leads)	0.18
insulation material (terminal board, winding insulation)	0.22
impregnation resin (winding impregnation)	1.10
paint	0.55
Total (w/ packaging)	142.80
packaging (wood)	9.90

Source: Preparatory Study Lot30
Electric motors and drives

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Example Bill-of-Materials for a refrigeration cabinet

Pos nr	MATERIALS Extraction & Production Description of component	Weight in g	Category Click & select	Material or Process select Category first!
1	Housing			
2	Insulated casing			
3	External housing			
4	panels pre coating (external panels)	15883	5-Coating	38-pre-coating coil
5	chassis (cabinet structure)	6507	3-Ferro	21-St sheet galv.
6	mounting internal components	4352	3-Ferro	21-St sheet galv.
7	inner cabinet lining	8820	1-BiKPlastics	7-HI-PS
8	lateral motor space	1116	1-BiKPlastics	4-PP
9	adhesive expanded	437	2-TecPlastics	16-Flex PUR
10	EPS parts	447	1-BiKPlastics	6-EPS
11	PVC parts	231	1-BiKPlastics	8-PVC
12	fan housing	182	1-BiKPlastics	7-HI-PS
13	back grid (condenser)	1192	3-Ferro	22-St tube/profile
14	front grid	230	1-BiKPlastics	7-HI-PS
15	top panel cover	361	1-BiKPlastics	10-ABS
16	PC parts (insert)	48	2-TecPlastics	12-PC
17	plastic ring	2	1-BiKPlastics	1-LDPE
18	nylon parts	22	2-TecPlastics	11-PA 6
19	Foam insulation			
20	polyurethane	9920	2-TecPlastics	15-Rigid PUR
21	Shelves & Grids			
22	shelves	8500	3-Ferro	22-St tube/profile
23	Door			
24	steel sheet	7345	5-Coating	38-pre-coating coil
25	support frame	4140	3-Ferro	22-St tube/profile
26	handle and plastic cover	505	1-BiKPlastics	10-ABS
27	plastics (frame)	165	1-BiKPlastics	8-PVC
28	polyurethane	2790	2-TecPlastics	15-Rigid PUR
29	gasket	690	1-BiKPlastics	8-PVC
30	spring	120	4-Non-ferro	32-ZnAl4 cast
31	plastic sheet	2975	7-Misc.	
32	plastics parts	12	2-TecPlastics	11-PA 6
33	Components for assembling			
34	screws, etc.	255	3-Ferro	23-Cast iron
35	sealing mastic	570	7-Misc.	
Pos nr	MATERIALS Extraction & Production Description of component	Weight in g	Category Click & select	Material or Process select Category first!
42	Evaporation module			
43	Evaporator			
44	roll bond	1685	4-Non-ferro	26-Al sheet/extrusion
Pos nr	MATERIALS Extraction & Production Description of component	Weight in g	Category Click & select	Material or Process select Category first!
45	brackets	25	1-BiKPlastics	10-ABS
46	copper high pressure line	80	4-Non-ferro	30-Cu tube/sheet
47	Evaporator fans			
48	Frame			
49	iron	244	3-Ferro	25-Stainless 18/8 coil
50	Blades			
51	fan blades	80	4-Non-ferro	26-Al sheet/extrusion
52	Evaporator fans motors			
53	aluminium	75	4-Non-ferro	27-Al diecast
54	iron	488	3-Ferro	24-Ferrite
55	copper	150	4-Non-ferro	28-Cu winding wire
56	PVC parts	38	1-BiKPlastics	8-PVC
57	Evaporation tray			
58	drip tray	109	1-BiKPlastics	4-PP
59	PVC pipe	20	1-BiKPlastics	8-PVC
60	Compression module			
61	Compressor			
62	cast iron of the compressor casing	3880	3-Ferro	23-Cast iron
63	steel	8110	3-Ferro	24-Ferrite
64	aluminium	270	4-Non-ferro	27-Al diecast
65	rubber	15	1-BiKPlastics	4-PP
66	ester oil	410	7-Misc.	
67	copper	960	4-Non-ferro	28-Cu winding wire
68	polypropylen	15	1-BiKPlastics	4-PP
69	PET	40	1-BiKPlastics	2-HDPE
70	Condensation module			
71	Condenser			
72	steel	1905	3-Ferro	22-St tube/profile
73	brackets	18	2-TecPlastics	11-PA 6
74	Condenser fans			
75	Frame			
76	iron	194	3-Ferro	24-Ferrite
77	Blades			
78	fan blades	80	4-Non-ferro	26-Al sheet/extrusion
79	Condenser fans motors			
80	aluminium	75	4-Non-ferro	27-Al diecast
81	iron	488	3-Ferro	24-Ferrite
82	copper	150	4-Non-ferro	28-Cu winding wire
83	PVC parts	38	1-BiKPlastics	8-PVC
84	Expansion valve module			
85	capillary tube	22	4-Non-ferro	30-Cu tube/sheet
Pos	MATERIALS Extraction & Production	Weight	Category	Material or Process
nr	Description of component	in g	Click & select	select Category first!
89	Electric assembly (not included in other modules)			
90	Electric panel			
91	electrical box	40	1-BiKPlastics	10-ABS
92	Cables			
93	cables plastic parts	360	1-BiKPlastics	8-PVC
94	cables metal parts	330	4-Non-ferro	29-Cu wire
95	terminal (plug)	30	6-Electronics	45-slots / ext. ports
96	Packaging			
97	Manuals			
98	general instructions	67	7-Misc.	57-Office paper
99	plastics (LDPE)	7	1-BiKPlastics	1-LDPE
100	Protection			
101	pallet (wood)	6000	7-Misc.	
102	plastics (film)	400	1-BiKPlastics	1-LDPE
103	EPS parts	1435	1-BiKPlastics	6-EPS
104	PVC parts	25	1-BiKPlastics	8-PVC
105	Miscellaneous			
106	Temperature control and display system			
107	set thermostat	55	3-Ferro	24-Ferrite
108	set thermostat	15	2-TecPlastics	12-PC
109	LCD screen	30	6-Electronics	42-LCD per m2 scrn
110	Pipes in the refrigeration system			
111	copper tubes	57	4-Non-ferro	30-Cu tube/sheet
112	Others			
113	drain pipes	6	1-BiKPlastics	7-HI-PS
114	knitting alloy	9	4-Non-ferro	29-Cu wire
115	lock	65	3-Ferro	24-Ferrite

Source: Preparatory Study ENTR Lot 1
Professional refrigerated storage cabinets



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Subtask 4.3 Recommendations

Recommendations on:

- 4.3.1 refined product scope from the technical perspective (e.g. exclude special applications for niche markets)
- 4.3.2 barriers and opportunities for Ecodesign from a technical perspective
- 4.3.3 the typical design cycle for this product and thus approximately appropriate timing of measures (best of products in field tests, labs, etc.)



THANK YOUR FOR YOUR ATTENTION

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