PRESENTATION OF DRAFT TASK 3 REPORT -GENERIC ECO-DESIGN POINTS-BASED METHODOLOGY

Paul Waide, 10/03/2017

INTRODUCTION

- Aim of the talk: to summarise the findings of the Task 3 report on points-system methodology
- This builds on the Task 2 review of previous usages of points systems
- Strongly informed by the feedback received from stakeholders on the principles to be considered and approach to follow
- Required systematic and fresh thinking to derive a generic Ecodesign points-system approach that reflects this guidance

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STRUCTURE OF PRESENTATION

- Findings from stakeholder consultation 3min
- Under what circumstances is a points-approach merited? 5 min
- Factors to consider in the design of the methodology 15 min
- Description of the methodology - the 9 steps 20 min
- Linkage of the generic methodology to the MEErP and Ecodesign process 3 min
- Clarification of the rationale for the proposed methodology 4 min

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FINDINGS FROM STAKEHOLDER CONSULTATION

- There is support for, or at least openness to, the use of a points-based approach to setting Ecodesign requirements for products that cannot otherwise be treated within a conventional Ecodesign framework
- Clarifying the circumstances of when a conventional Ecodesign approach is no longer sufficient is likely to be necessary before a points-system approach would be considered for any specific product; however, this may not be straightforward. Guidelines were requested
- Product complexity is not very straightforward to define but it is helpful to examine what it involves. Many stakeholders provided insights into this aspect

FINDINGS FROM STAKEHOLDER CONSULTATION

- Stakeholders advised that the points-based approach considered in this study should limit the number of environmental impact parameters it attempts to address. Preference for either energy in use only, or to also include material efficiency
- Stakeholders felt it was premature to attempt to devise weightings that are applicable across different types of environmental impact categories, because they felt there was unlikely to be any consensus on what the relative weightings to be given to different environmental impact categories should be
- A clear preference for panel-based methods to determine weightings and weighting approach if these were to be attempted. However, stakeholders indicated that this needed to be manageable within an Ecodesign regulatory framework

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FINDINGS FROM STAKEHOLDER CONSULTATION

- There was a desire for a rational analytical framework to be established to help derive weightings and the points-structures
- There was considerable scepticism about the current viability of methods that involved full life cycle assessments due to the immaturity of data, lack of practical means of verifying claims, lack of consensus on approaches and difficulty in comparing across inherently different impact parameters
- Stakeholders indicated that points-system approaches could be suited to the establishment of both generic and specific Ecodesign requirements and indeed could potentially provide a hybrid approach that spans both aspects
- Pragmatic considerations will be paramount when determining the viability of any method

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UNDER WHAT CIRCUMSTANCE DOES COMPLEXITY BECOME THE RATIONALE TO USE A POINTS APPROACH?

When:

a) there is a mix of quantifiable and more qualitative product ecodesign features yet it is necessary to also ascribe some value to the qualitative features because these are expected to bring ecodesign benefits

b) the presence of specific ecodesign features is known to bring ecodesign benefits, but the relative importance of the benefit to a given ecodesign impact parameter is difficult to determine in a reliable manner at the level at which the scope of a prospective regulation would apply (see cardinal and ordinal impact parameters discussion below)

c) it is too complex to apply a rigorous performance assessment method in practice but a points-based approach, which awards points depending on the ecodesign features used, could provide an acceptable compromise that allows requirements to be set that encourage progress in a positive direction without being overly constraining

IMPLICATIONS OF PRODUCT COMPLEXITY FEATURES

Complexity feature	Implication	point
Has a standard configuration	Likely to increase homogeneity and hence ability to normalise product performance for functionality. This increases the prospect of being able to set ED requirements on products which are independent of application and hence can be applied at the factory gate	a
Has a clear functional unit	Increases viability of using a standard ED approach where product performance is normalised for functionality	b, c
Has multiple functions	Adds complexity when aiming to use a standard ED approach wherein product performance is normalised for functionality	b, c
May be modular	May permit module-level ED specifications	a, b, c
May be a customised product, adapted to a specific application	Affects heterogeneity and hence ability to normalise for functionality and set factory gate ED requirements that are independent of the ultimate application	a, b, c
Installed (assembled) at the user's site	Affects ability to set ED factory gate requirements and may require ED installation level requirements. May also affect heterogeneity and hence ability to normalise for functionality and set requirements on products independent of application	a, b, c
May have different performance levels dependent on the operating conditions at the user's site	Site (application) dependency complicates ability to set factory gate ED requirements	a, b, c
Has functional parameters that are inherently difficult to measure	Reduces the certainty in the performance assessment	a, b, c
Performance is strongly dependent on the duty profile	Ability to rank ED performance is sensitive to the reliability (stability) of the duty profile assumption	b, c
Duty profile is strongly dependent on the application	Reduces ability to set specific ED factory-gate requirements. Would favour setting application dependent (installer level) requirements	b, c

WHAT OTHER RATIONALE EXISTS TO USE A POINTS APPROACH?

- Another rationale for using a points-based approach would be when there is a need to provide an overall assessment of a product's ecodesign performance that balances the impact of optimising design options across different, non-readily comparable, environmental impact parameters
- In this case there is a need to apply a common values framework (which a points system would represent), whenever trade-offs might be required between design options that could reduce one environmental impact while increasing another
- An example could be a reduction of in-use energy consumption achieved by a design solution that increases noise emissions
- Note that an alternative approach could be to set minimum or maximum permitted values for one impact parameter (e.g. maximum permitted noise levels) and then optimise for the other impact parameter. A points approach could still set limit values, but would allow the designer to optimise across both parameters and thus, broadens the permitted solution sets that satisfy the combined requirements

CARDINAL, ORDINAL, NOMINAL IMPACT PARAMETERS

- A cardinal parameter is one where the magnitude is known e.g. a standard energy efficiency metric is a cardinal parameter
- An ordinal parameter is one wherein the rank order is known but not the relative magnitude e.g. 1st, 2nd, 3rd etc. but not the magnitude
- A nominal parameter is one that can be defined by name but cannot be ordered in a ranking, nor ascribed a magnitude
- A rationale for using a points approach could be when some mix of such impact parameters is present and needs evaluating in a common framework

TREATMENT OF DEGREE OF CERTAINTY

- The points-based approach should, to the extent that it is knowable, apply points which are weighted to be proportional to the impact that each ecodesign characteristic is expected to make to the overall environmental impact parameter
- In practice the certainty about the impact will be highest for product features that can be assessed in a cardinal manner, lowest for those which are nominal, and intermediate for those which are ordinal
- The weighting ascribed to the impact parameters could, and arguably should, be weighted to give higher importance to the more certain impact parameters
- Aspects which are very hard to verify through market surveillance could be given less weight than those which are readily verifiable

MODULARITY IN PRODUCT DESIGN

- If a product is modular (i.e. comprised of modules) and if each module serves a function that can be clearly related to an environmental impact parameter, then it may be possible to assess the contribution each module makes to the function and equally its ecodesign impact
- Points could then potentially be awarded on a module-by-module basis and aggregated upwards to attain an overall score;
- however, this could be greatly complicated in cases where the modules affect the performance (and hence assessment) of other modules, and in cases where there are trade-offs in functionality from one function to another (for modules having more than one function)

MODULARITY IN POINTS SYSTEM DESIGN

- A priori, a points system can be designed in such a manner that a first version aims to address a sub-set of impact parameters for which sufficient information is known to allow such an assessment
- However, if the points system itself is designed to have a modular structure, then it will be possible for additional impact parameters to be included into future assessments (by the addition of a new assessment module) at a time when enough information is available to do so
- It is therefore proposed that any generic points-system methodology is structured to allow such modules to be added in accordance with needs, to ensure that the methodology is pertinent and dynamic

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TREATMENT OF LIMIT VALUES

- A points system could be designed to permit the inclusion of limit values for specific parameters, or not
- It may also be designed to ascribe an overall limit value (minimum number of total points) and/or to have a classification system wherein the product is classified depending upon its overall points score
- Classification associated with points can also be permitted for any specific environmental impact parameter (e.g. an energy label could be classified from A to G depending on the points for energy performance attained by a product)
- Thus, in principle a points system could be classified to produce not only an overall ecodesign impact classification, but also one or more impact parameter-specific classifications
- The points-system methodology described in the report permits any of the above approaches (including having no limit values at all) and thus allows flexibility in this respect

TREATMENT OF ENERGY BUDGETS

The energy in use is affected by:

- The energy used by each component which in turn is affected by the efficiency of each component (service delivered per unit energy consumed) and the usage (duty) profile of each component. The duty profile is affected not only by the underlying service need, but also by the capacity to control the component to minimise the extent it draws energy when not required to provide a service
- The interactions between the components
- The scope of the product system boundary considered
- User behaviour, which in turn may be influenced by the provision of information and guidance

The impact of each element on the overall energy budget and energy performance has to be assessed and weighted proportionally to its expected impact

SPECIFIC VERSUS GENERIC ECODESIGN REQUIREMENTS

- Ecodesign requirements can be set to be specific (i.e. to set minimum performance limit values on certain impact parameters), to be generic (i.e. to prescribe a process that needs to be followed in the design or placing on the market of a product) or informational (i.e. specify information that needs to be made available prior to and after placing the product on the market)
- A points approach allows a more nuanced treatment where softer limit values could be set than the least life cycle cost average while other features or generic processes could be given value and encouraged
- In theory, a parallel compliance pathway requirement could be specified wherein a product either has to meet minimum specific values regardless of where it is used, or has to demonstrably follow a design optimisation process, or a hybrid

OTHER CONSIDERATIONS

- Compatibility with the MEErP process
- Fit with regard to the way of setting Ecodesign requirements
- Extent to which the stated parameters are measurable via standards
- "Products-within-products" issues
- Fairness and proportionality

OUTLINE OF METHODOLOGICAL FRAMEWORK

- The proposed methodological framework applies the principles discussed previously to the consideration and potential establishment of an Ecodesign points-system that could be applied to complex products, within a 10 step process
- The first four assessment steps gather and organise data elements needed for the determination of whether a points-system approach is justified and feasible in principle
- Step 5 assesses this information to enable the appropriateness and feasibility of a points approach to be determined
- Steps 6 to 9 are only conducted if a points-system approach is deemed appropriate
- Step 10 considers additional actions that would be needed to support the regulatory process

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OUTLINE OF METHODOLOGICAL OBJECTIVES

- To evaluate environmental impact parameters in isolation and not to combine them within an overall points scheme
- To ensure that the impact of design options are awarded points in proportion to their effect on the impact parameter in question
- To be as comprehensive and inclusive as possible, thereby allowing the option to extend the scheme's structure to include: the environmental impacts deemed appropriate, the product scope that is deemed most appropriate, and the intervention phases deemed appropriate
- To work at whatever application grouping levels are deemed to be appropriate
- To address product modularity
- To fit within the MEErP methodology
- To work with the Ecodesign and energy labelling regulatory process
- To respect the needs of conformity assessment
- To enable complexity to be addressed

STEP 1 ASSESSMENT OF KEY LIFECYCLE STAGES

- This step entails assessing the various product lifecycle stages from a cradle-to grave perspective to determine which of them are pertinent to be considered for potential Ecodesign measures
- Basically, the MEErP Tasks 1 to 5 are conducted utilising the MEErP methodology as it is presently formulated
- Then, the findings from MEErP Task 5 are taken, i.e., dealing with the environmental impacts and associated LCA work (see Figure 1). At this point, one must screen the impact assessment parameters and product lifecycle stages for pertinence in the setting of prospective Ecodesign measures
- The findings are noted and used to inform the boundaries of applicability of any prospective points-system approach

STEP 1 ASSESSMENT OF KEY LIFECYCLE STAGES

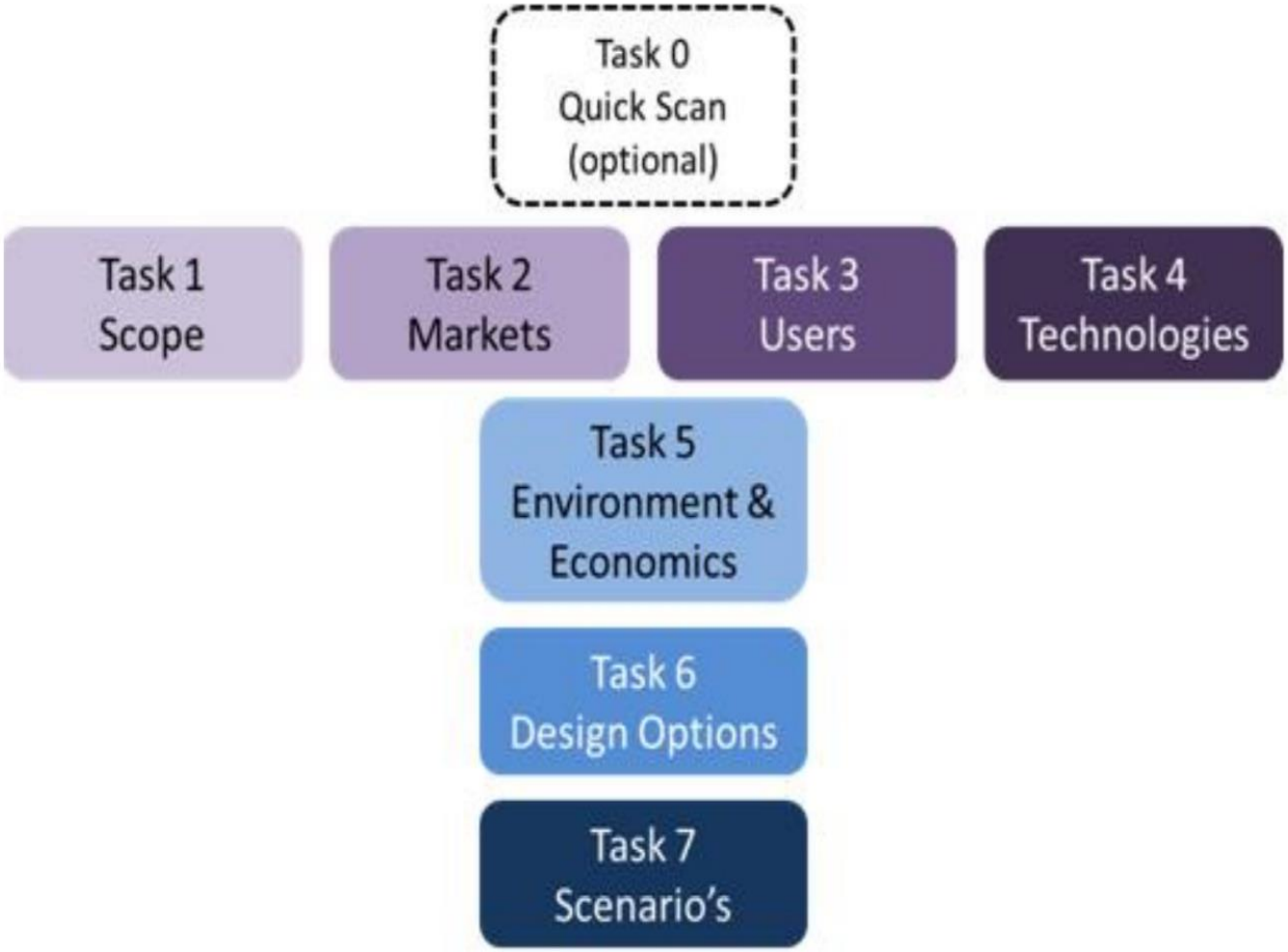

Figure 1: *The MEErP Tasks*

STEP 2 ASSESSMENT OF PRODUCT SCOPE BOUNDARIES AND ASSOCIATED IMPACTS AT THE WIDER (EXTENDED PRODUCT OR PRODUCT-SYSTEM) LEVEL

Conduct the following assessments:

- a) Does the product have impacts only at the simple product level?
- b) Does the product have impacts at an extended product level?
- c) Does the product design have impacts at the wider product system level?

Noting the answers to the above questions indicates the potential scope of a prospective points system

The more negative answers that result means that the more likely it is that one is dealing with a complex product. As such, it may be that a "points system" approach could be applicable, and useful

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STEP 3 SELECTION OF ENVIRONMENTAL IMPACT CRITERIA

- The treatment of environmental impact criteria discussed in this Step takes as input the information derived from the MEErP
- The choice of the impact criterion, or criteria, could be proposed by the consultants during the preparatory study process once the work of the MEErP Task 5 ("Environment & Economics") has been completed and be informed by the evidence from the EcoReport tool assessment on the criteria with the greatest environmental impact and highest improvement potential
- While the case studies considered in the Task 4 report only consider one or two impact criteria the methodology set out here could in principle be used for as many impact criteria as are considered appropriate
- Each impact criterion selected is treated separately in the subsequent steps

STEP 4 DETERMINATION OF THE PHASES AT WHICH PRODUCT DESIGN MAY INFLUENCE LIFECYCLE IMPACTS

- This step entails assessing the various product lifecycle phases from the perspective of when there may be an opportunity to consider setting requirements that would influence the ecodesign performance of the product
- This assessment of phases which are potentially suitable for Ecodesign implementing measures helps to determine the boundary of applicability of a prospective points system
- Take note of the findings, which indicate the potential generic and/ or specific scope of a prospective points system, where ideally the points system would be designed to be comprehensive enough to apply to all the product lifecycle phases for which Ecodesign improvements could be practically encouraged

STEP 4 DETERMINATION OF THE PHASES AT WHICH PRODUCT DESIGN MAY INFLUENCE LIFECYCLE IMPACTS

Table 2: Example of the consideration of the phases at which product design may influence lifecycle impacts.

Lifecycle phase	Potential Ecodesign measure	
	Generic	Specific
Initial factory design phase	Y	N
Detailed factory design phase	Y	Y
Specification phase	Y	Y
Installation phase	Y	Y
Use phase	Y	N
End of life phase	Y	N

STEP 5 ASSESSMENT OF WHETHER A POINTS SYSTEM APPROACH IS POTENTIALLY MERITED OR NOT

Answer the following question for each of the cases a) to c) ("Yes/No"). Is there a degree of doubt about the practicality and quality of the ecodesign performance assessment of the product because:

a) there are a mix of quantifiable (cardinal) and more qualitative product ecodesign features, yet it is appropriate to also ascribe some value to the qualitative features because these are expected to bring environmental benefits?

b) although the presence of specific ecodesign features is known to bring environmental benefits, the relative importance of the benefit to a given environmental impact parameter is difficult to determine in a reliable manner, at the level at which the scope of a prospective regulation would be expected to apply?

STEP 5 ASSESSMENT OF WHETHER A POINTS SYSTEM APPROACH IS POTENTIALLY MERITED OR NOT

c) it is too complex to apply a rigorous performance assessment method in practice, but a points-based approach (which awards points depending on the ecodesign features used) could provide an acceptable compromise that allows requirements to be set that encourage progress in a positive direction without being overly constraining?

If the answer to any of these questions is "Yes", then a points-system approach may be appropriate, otherwise it is unlikely to be

STEP 6 ASSESSMENT OF THE IMPLICATIONS OF PRODUCT MODULARITY

- If a product is modular (i.e. comprised of modules) and if each module serves a function that can be clearly related (i.e. mapped) to an environmental impact parameter then it may be possible to assess the contribution each module makes to the function and equally its environmental impact
- If this is the case then points could be awarded on a module by module basis and aggregated upwards to attain an overall score
- Equally though it may be possible to simply apportion impacts to each module without requiring the application of points e.g. if module 1 is responsible for 30% of a given impact and module 2 is responsible for the remaining 70% then it could be possible to derive a conventional impact performance factor index (such as an EEI) by proportionately weighting the contribution from each module to the whole
- Thus a points approach would not be needed

STEP 6 ASSESSMENT OF THE IMPLICATIONS OF PRODUCT MODULARITY

Does each module fulfil a specific and unique function?

» i) If Yes, then their performance impacts (such as an EEI) can be treated and assessed independently of each other. Move to Step 7

» ii) If No, and more than one module serves the same function then:

a) is it possible to quantify the proportion of the function provided by each module under a set of representative usage cases? If Yes, then it should be possible to treat the modules as an extended product and to use a duty profile approach to proportionately weight the impact each module makes on a given performance and impact factor in order to develop a functional impact rating. Move to Step 7.

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STEP 6 ASSESSMENT OF THE IMPLICATIONS OF PRODUCT MODULARITY

b) is it possible to partially quantify the proportion of the function provided by each module under a set of representative usage cases? (i.e. might a mix of cardinal and ordinal impact information be available?)

If Yes, then it should be possible to treat the modules as an extended product and to use an estimated impact budget approach to proportionately weight the impact each module makes on a given performance and impact factor in order to develop a functional impact rating. Move to Step 7.

c) is it impossible to quantify (even partially) the proportion of the function provided by each module under a set of representative usage cases? If Yes, then is likely to impractical to try and apply a points system approach to the product. Stop the process.

STEP 6 ASSESSMENT OF THE IMPLICATIONS OF PRODUCT MODULARITY

iii) If No, because the same module may perform more than one function then:

a) are the performance impacts for each function (such as an EEI) independent of each other? If Yes, then consider whether either steps i) or ii) above may apply If No then it may not be possible to derive a meaningful performance impact assessment for that specific function (even using a points-system approach). Stop the process

Note: if a product is packaged and not modular then the above assessment can be omitted.

STEP 7 ASSESSMENT OF THE IMPLICATIONS OF PRODUCT PERFORMANCE SENSITIVITY TO THE FINAL APPLICATION

- The principal purpose of this step is to aim to identify the level(s) of stability at which a representative duty profile can be defined for the product in question
- The use made of a product is often different depending on the application it is being used for
- This may systematically affect the typical duty profile that the product is operated under and/or may systematically affect the functional activity the product is being used for.
- For example, fluorescent lamps essentially always serve the same function (to provide illumination) but the characteristic duty profile that they are operated under varies systematically depending on the type of building they are installed in (e.g. residential usage profiles are quite different to those found in offices)

STEP 7 ASSESSMENT OF THE IMPLICATIONS OF PRODUCT PERFORMANCE SENSITIVITY TO THE FINAL APPLICATION

- Analytical step - Is the product's environmental performance sensitive to the final usage application?
- a) If the answer to this question is No then move on to Step 8
- b) If the answer to this question is Yes, then consider whether these applications can be grouped into types with relatively consistent characteristics i.e. is the variation in performance within an "application group" sufficiently limited (e.g. the behaviour within the application group is relatively homogeneous) to enable a meaningful performance metric to be defined for each application group?

STEP 7 ASSESSMENT OF THE IMPLICATIONS OF PRODUCT PERFORMANCE SENSITIVITY TO THE FINAL APPLICATION

- b1) If the answer to b) is Yes, then it is appropriate to identify each relevant application group for which this is true and to follow Steps 8 and 9 for each of these in turn
- b2) if the answer to b) is No then it implies it is inappropriate to set specific Ecodesign requirements for the performance of this product with respect to the environmental impact parameter in question and therefore only generic Ecodesign requirements should be considered for the performance of the product with respect to the environmental impact parameter in question. At this stage in the evaluation a decision would need to be taken as to whether: a) only a points system based on an assessment of generic Ecodesign requirements is appropriate, or b) one that might also include specific requirements to be imposed on the product specifier or installer may also be appropriate

STEP 7 ASSESSMENT OF THE IMPLICATIONS OF PRODUCT PERFORMANCE SENSITIVITY TO THE FINAL APPLICATION

Table 3: Matrix illustrating the potential applicability of Ecodesign measures as a function of the sensitivity of the product's Ecodesign performance to the product application.

	Specific Ecodesign Requirements when first placed on market	Specific Ecodesign Requirements for product specifer/ designer	Specific Ecodesign Requirements for product installer	Generic Ecodesign Requirements for product specifer/ designer	Generic Ecodesign Requirements for product installer
Performance assessment is insensitive to the product application	Yes	Not needed	Not needed	Potentially	Potentially
Performance assessment is sensitive to the product application and the intended application can be specified at the time of first placing on the market	Yes	Not needed	Not needed	Potentially	Potentially
Performance assessment is sensitive to the product application and the intended application cannot be indicated at the time of first placing on the market but can be by a site-specific product designer or specifier	No	Potentially	Potentially	Potentially	Potentially

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STEP 8 DETERMINATION OF ENVIRONMENTAL IMPACT BUDGETS

- The determination of the environmental performance impact budget requires the derivation of a representative product duty profile
- This profile needs to assess the product duty profiles while respecting the product boundary scope determined in Step 2
- It also needs to be differentiated for each pertinent application group as determined in Step 7
- Once the duty profile is known then the environmental impact performance can be assessed for each aspect of the duty profile
- This can be done for the reference case product and successively for product designs employing design options that reduce the environmental impact at one or more of the phases of the duty profile
- Assessment of each one of these product cases will entail the derivation of an environmental impact budget broken down by duty profile phase e.g. consider energy consumption in use for a product with 4 duty profile phases (off, standby, part-load, and full capacity)

STEP 8 DETERMINATION OF ENVIRONMENTAL IMPACT BUDGETS – ENERGY BUDGET FOR A SIMPLE PRODUCT

» Consider an energy budget for a simple product when just considering the energy in use

Table 4: Example of an energy budget by design option for a simple product.

	Off	Standby	Part-load	Full-Load	Total
Fraction of time	24%	42%	26%	8%	
Energy consumption for duty profile phase (kWh/year):					
Reference case	0.0	14.7	189.0	58.2	261.9
Design option 1	0.0	14.7	113.4	58.2	186.3
Design option 2	0.0	14.7	102.1	52.3	169.1
Design option 3	0.0	14.7	91.9	49.7	156.3
Design option 4	0.0	14.7	82.7	47.2	144.6
Design option 5	0.0	14.7	74.4	44.9	134.0
Design option 6	0.0	10.3	72.2	43.5	126.0
BAT	0.0	7.2	70.7	42.7	120.6

STEP 8 DETERMINATION OF ENVIRONMENTAL IMPACT BUDGETS – ENERGY BUDGET FOR A 2-MODULE EXTENDED PRODUCT

» Consider an energy budget for a 2-module (extended) product when just considering the energy in use

Table 5. Example on a modular or extended product energy budget by design option (for a product with 2 modules)

	Module A					Module B					Combined
	Off	Standby	Part-load	Full-Load	Total	Off	Standby	Part-load	Full-Load	Total	Total
Fraction of time	24%	42%	26%	8%		10%	27%	48%	15%		
Energy consumption for duty profile phase (kWh/year):											
Reference case	0.0	14.7	189.0	58.2	261.9	0.0	16.6	567.6	203.7	787.9	1049.8
Design option 1	0.0	14.7	113.4	58.2	186.3	0.0	16.6	454.1	203.7	674.3	860.7
Design option 2	0.0	14.7	102.1	52.3	169.1	0.0	16.6	372.4	203.7	592.6	761.8
Design option 3	0.0	14.7	91.9	49.7	156.3	0.0	16.6	327.7	179.2	523.5	679.8
Design option 4	0.0	14.7	82.7	47.2	144.6	0.0	16.6	294.9	170.3	481.7	626.4
Design option 5	0.0	14.7	74.4	44.9	134.0	0.0	16.6	265.4	161.8	443.7	577.8
Design option 6	0.0	10.3	72.2	43.5	126.0	0.0	11.6	257.5	156.9	426.0	552.0
BAT	0.0	7.2	70.7	42.7	120.6	0.0	8.1	252.3	153.8	414.2	534.8

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STEP 8 DETERMINATION OF ENVIRONMENTAL IMPACT BUDGETS – ENERGY BUDGET FOR A 2-MODULE PRODUCT SYSTEM

» Consider an energy budget for a 2-module product-system when just considering the energy in use

Table 6. Example of an energy budget by design option for a product system

	Module A					Module B					Impact on other system energy consumption	Combined
	Off	Standby	Part-load	Full-load	Total	Off	Standby	Part-load	Full-Load	Total		Total
Fraction of time	24%	42%	26%	8%		10%	27%	48%	15%			
Energy consumption for duty profile phase (kWh/year):												
Reference case	0.0	14.7	189.0	58.2	261.9	0.0	16.6	567.6	203.7	787.9	393.9	1443.7
Design option 1	0.0	14.7	113.4	58.2	186.3	0.0	16.6	454.1	203.7	674.3	337.2	1197.8
Design option 2	0.0	14.7	102.1	52.3	169.1	0.0	16.6	372.4	203.7	592.6	296.3	1058.1
Design option 3	0.0	14.7	91.9	49.7	156.3	0.0	16.6	327.7	179.2	523.5	261.7	941.5
Design option 4	0.0	14.7	82.7	47.2	144.6	0.0	16.6	294.9	170.3	481.7	240.9	867.3
Design option 5	0.0	14.7	74.4	44.9	134.0	0.0	16.6	265.4	161.8	443.7	221.9	799.6
Design option 6	0.0	10.3	72.2	43.5	126.0	0.0	11.6	257.5	156.9	426.0	213.0	765.0
BAT product only	0.0	7.2	70.7	42.7	120.6	0.0	8.1	252.3	153.8	414.2	207.1	741.9
System DO1	0.0	15.1	74.3	46.8	136.3	0.0	17.0	254.3	157.7	429.0	145.0	710.2
BAT system	0.0	15.1	72.8	45.9	133.9	0.0	11.9	249.2	154.5	415.6	116.0	665.5

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STEP 8 DETERMINATION OF ENVIRONMENTAL IMPACT BUDGETS – ENERGY BUDGET FOR POTENTIAL INTERVENTION PHASES

- In principle the environmental impact parameter budget can also be extended to cover different potential intervention phases if these are deemed to be important to encourage good ecodesign practices for the product (see Step 4)
- For example, if it is thought likely that the provision of user advice and/or in use feedback will bring about ecodesign benefits during the product use phase then the advice/feedback "design options" can be added to the environmental impact parameter table and ascribed expected benefits (i.e. in the case illustrated above ascribed reduced in-use energy consumption values compared with the reference case)
- This type of benefit estimation is generally uncertain (sometimes highly so) and hence needs to be managed accordingly

STEP 8 DETERMINATION OF ENVIRONMENTAL IMPACT BUDGETS – TREATING UNCERTAINTY

- In the event that the table includes ordinal data or a blend of cardinal and ordinal data then the normalisation process in Step 9 could:

a) either proceed exactly as set out above i.e. where no distinction is made between the quality of the cardinal and ordinal data, or

b) be done in such a way that the cardinal data is given a higher weighting than the ordinal data

- One potential method is put forward in Task 3 to weight the data based on its expected level of certainty

STEP 9 NORMALISATION AND AWARDING OF POINTS

- Once the environmental impact assessment budgets have been established in Step 8 as a function of the design options, then the next step is to normalise the values as a precursor to assigning a points scale
- If we consider the extended product case operating in a wider system as shown in Table 6 above the normalised consumption becomes as shown in Table 7 below when it is normalised against the energy consumption of the reference case product
- Note, that this process is essentially the same as that which is followed to determine an energy efficiency index (EEI), as it involves normalising the product performance to a reference case
- In principle, the same process can be followed for any quantifiable environmental impact parameter

STEP 9 NORMALISATION AND AWARDING OF POINTS

Table 7: Example of a normalised energy budget and points allocation for the extended product system example considered in Table 6

	Module A	Module B	Other system Energy use	Total Energy	Points Awarded
Reference case	100%	100%	100%	100%	0
Design option 1	71%	86%	86%	83%	17
Design option 2	65%	75%	75%	73%	27
Design option 3	60%	66%	66%	65%	35
Design option 4	55%	61%	61%	60%	40
Design option 5	51%	56%	56%	55%	45
Design option 6	48%	54%	54%	53%	47
BAT product only	46%	53%	53%	51%	49
System DO1	52%	54%	37%	49%	51
BAT system	51%	53%	29%	46%	54

STEP 9 NORMALISATION AND AWARDING OF POINTS

- In mimicking the EEI process it means a scale is set with the average (reference) product receiving an index value of 100% and a product which has no environmental impact for the impact parameter in question (e.g. an energy consumption of 0) an index value of 0%
- In order to convert this into a process where more points indicates a better environmental performance a method is proposed to invert this scale so the reference product receives 0 points and a product with no environmental impact 100 points – note, under this process it is also possible for a product that has greater environmental impact than the reference to receive a negative points rating

STEP 9 NORMALISATION AND AWARDING OF POINTS

- However – this specific points approach is optional and is not a fundamental part of the method
- All that matters is that a linear scale is set using two end-points (defined here by the reference product and one with no environmental impact)

STEP 10 SUPPORT TO REGULATORY DECISION MAKING

- The analysis of the points scale in terms of where products are currently positioned and where the LCC minimum, BAT and BNAT could be used to form the basis of regulatory measures such as limit values and energy labelling
- Combined with an economic analysis from the MEErP Task 5 and design option analysis from MEErP Task 6 it would be possible to construct policy impact scenarios associated with the market for new products progressing towards certain points score distributions in response to Ecodesign implementing measures and energy labelling
- These could be used to inform development of informational, specific, generic implementing measures for application within Ecodesign regulations or voluntary agreements

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LINKAGE OF THE GENERIC METHODOLOGY TO THE MEERP AND ECODESIGN PROCESS

- The process of designing a points system set out here fits within the MEErP & Ecodesign prep study/regulatory process
- A decision would need to be made after MEErP Task 6 on whether to pursue a points approach or not –
- If yes, Steps 6-9 would be conducted requiring both more time and resources
- The findings would be submitted to a final prep study stakeholder meeting
- If taken forward the Commission could integrate them into a working document to be subject to the usual regulatory process with the Consultation Forum and Regulatory Committee

CLARIFICATION OF THE RATIONALE FOR THE PROPOSED METHODOLOGY

The Task 3 methodology is consciously designed to address the following requirements:

» To evaluate environmental impact parameters in isolation and not to combine them within an overall points scheme

» To ensure that the impact of design options are awarded points in proportion to their effect on the impact parameter in question

» To be as comprehensive and inclusive as possible and thereby allowing the option to extend the scheme's structure to include:

- the environmental impacts deemed appropriate
- the product scope that is deemed most appropriate
- the intervention phases deemed appropriate

CLARIFICATION OF THE RATIONALE FOR THE PROPOSED METHODOLOGY

The Task 3 methodology is also designed to address the following requirements:

- to work at whatever application grouping levels are deemed to be appropriate
- to address product modularity
- to fit within the MEErP methodology
- to work with the Ecodesign and energy labelling regulatory process
- to respect the needs of conformity assessment
- to enable complexity to be addressed

CLARIFICATION OF THE RATIONALE FOR THE PROPOSED METHODOLOGY

- In consequence, the proposed methodology discards any of the impact parameter aggregation methods which were discussed in the Task 2 report
- However, the methodology retains an equivalent approach to the derivation of impact parameter performance metrics, to that currently utilised in conventional Ecodesign determinations (e.g. for EEIs)
- It is designed to ensure that all relevant factors are considered and determined systematically, but still allows user freedom and discretion to reflect the inevitable need for flexibility
- It is systematic in recognising when design options can be assessed via cardinal, ordinal or qualitative data and proposes a rigorous but fair method to assemble them within a single evaluation structure

CLARIFICATION OF THE RATIONALE FOR THE PROPOSED METHODOLOGY

- It is capable of incorporating the effect of uncertainty
- The method is modular and supports modularity in all its aspects (modularity in: product scope; product elements and functions; design and use intervention phases; specific, generic and information Ecodesign measures (or hybrids thereof), and environmental impact parameters
- This means that its boundaries can be consciously limited when there is insufficient clarity on some aspects but added to in later editions, as more information and clarity become available

CLARIFICATION OF THE RATIONALE FOR THE PROPOSED METHODOLOGY

- It is flexible in allowing different product phases to be assessed and in allowing both generic and specific Ecodesign measures to be considered and addressed – potentially within the same points-framework at the user's discretion
- It also allows the successive addition of environmental impact criteria – each treated distinctly from the others
- Lastly it is as simple as can be managed to address the requirements set out above and is structured in a manner that is consistent with the needs of the MEErP, the regulatory process and conformity assessment