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Summary of responses to the consultation entitled ‘Improving the energy performance of commercial lighting products’

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defra
Department for Environment
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Department for Environment, Food and Rural Affairs
Nobel House
17 Smith Square
London SW1P 3JR
Telephone 020 7238 6000
Website: www.defra.gov.uk

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1 Introduction

1. On 5 December 2007, following the publication of the Energy White Paper, the Government launched a domestic lighting product consultation paper[1]. Interested parties were invited to provide comments by the end of February 2008. AEA Energy and Environment managed this consultation, as lead contractor of the Government's Market Transformation Programme (MTP).

2. The paper (chapter 9 of the consultation paper) set out the Government's current evidence, analysis, indicative targets and eco-design standards for commercial lighting products that are sold and brought into use in the UK. The consultation paper was directly circulated to over 350 organisations and individuals. In addition, it was published on the MTP website and open to all interested parties for comment. This consultation is part of a wider annual review and policy development process, supporting delivery of the Government's objectives for energy and for sustainable consumption and production.

3. The responses have been reviewed and are reported in the following sections:

- Section 2 summarises the quantity and nature of responses received.
- Section 3 gives a summary of the responses by consultation question and the Government's response.
- Section 4 details the next steps in the process.

4. Appendix 1 lists the stakeholders who provided a response (excluding those who wished to remain anonymous).

2 Overview of responses

5. A total of six responses were received; five of these represented submissions from the lighting and engineering industry and one came from an individual with expertise in the lighting sector. A number of those stakeholders who responded attended a lighting products consultation meeting, which took place on the 9 January 2008. It should be noted that some organisations chose to have their opinions put forward via trade bodies.

6. Only two of the participants provided extensive comments relating to most or all of the nine questions provided in the consultation document (of which three also provided general comments); the remaining four participants chose to respond to only a small number of the questions or instead provided only general comments.

[1] The original domestic lighting products consultation document (Sustainable Products Policy Brief, Energy in use: Domestic Lighting Products. Evidence, analysis, targets and indicative standards) can be downloaded at www.mtprog.com/cms/whitepaper/

7. A common concern expressed in response to the performance targets as well as the overall policy framework concerned the existing focus on products; it was generally felt that this was an overly simplistic approach and that a more holistic approach was required that considered whole lighting installations and applications. In this context, the EuP proposals were felt to be over-simplistic and based on the wrong performance metrics. A range of alternative methodologies were discussed.

8. It was commented that consumers had similar concerns with new (energy efficient) commercial lighting products as they did with domestic lighting products, resulting from resistance to change and concerns with new technology. Given this barrier, there was some agreement that there was a greater role to be played by the Government in raising public awareness and positively influencing consumer behaviour. The role to be played by the Government in taking a lead on sustainable procurement of commercial lighting products was also noted.

9. A key challenge was identified as the need to incentivise upgrading of lighting stock in all buildings (noting in particular the role of SMEs and the public sector). A range of regulatory and fiscal measures were discussed, including the need to modify the ECA to allow for more investments in (energy efficient) lighting installations to qualify. The need to improve the competence of lighting designs and designers was also highlighted as well as the requirement for greater market surveillance to enforce standards and ensure product quality.

10. Several stakeholders noted the important role to be played by products other than LED luminaires. It was further commented that a range of light sources had not been addressed by the consultation document (including e.g. induction lamps and electroluminescent lamps).

11. Most comments relating to the potential adverse health impacts from certain forms of lighting were made in relation to domestic lighting (and in particular CFLs). However, these were also considered relevant to commercial lighting. The major impact identified was the adverse health effects experienced by those suffering from conditions such us photosensitive lupus and other skin conditions, ME/CFS, epileptic seizures and migraines associated with the use of fluorescent lighting. These stakeholders had strong concerns that these impacts had not been adequately addressed by the consultation document and that the policies and measures outlined to promote the use of low energy lamps would lead to further adverse health impacts for a large number of people in the UK.

3 Summary of topics raised and the Government's response

Question 1: Are there any other market or technological trends or factors that should be taken into account in this market overview?

Summary table for Question 1

Key topics raised	Number of comments
Consumer concerns apply to commercial as well as domestic lighting	1
Luminaire efficiencies, ballasts and lighting controls	1
Professional design and installation of lighting applications also have a significant impact on energy-efficiency	1
Consideration needs to be given to how to incentivise organisations to upgrade current lighting	1
Other light sources not adequately addressed	1
Other comments	3

12. Two participants responded to this question. The first respondent, representing the UK lighting industry, made a series of detailed comments summarised below:

13. It was noted that consumer concerns relating to new technology products and general resistance to change apply to the commercial as well as domestic lighting products, as people in their working life have the same concerns as when they are at home.

14. It was stated that the contribution of tungsten halogen lamps had been underestimated in the consultation document and needed further consideration in view of the technology changes being made; the view was also expressed that the document focuses largely on lamp families (e.g. fluorescent lamps, tungsten halogen lamps) whereas to deliver significant energy savings in lighting more focus needs to be given to luminaire efficiencies, ballasts and lighting controls. It was noted that the lighting industry does support the use of triphosphor fluorescent lamps of T5 diameter operating on high frequency control gear. This participant also suggested that the MTP proposal (that from 2009 lamp efficacy should be 75 lm/W) should be restricted to lamps above certain wattages; otherwise, many of the shorter lamps would not be allowed in use.

15. In addition to products and systems, it was commented that professional design and installation of lighting applications also have a significant impact on energy-efficiency. For example, a highly efficient lamp could be used in a less efficient luminaire or set out in a lighting design in such a way that the efficiency is never realised. Possible options to address this were identified as:

- Mandatory design of lighting schemes to EN 12464 Lighting application standards

- Longer term, CELMA have proposed to the Commission that a new Directive for Lighting Design and Installation be developed (probably not under EuP) which sets minimum energy efficiency standards.

16. In addition to products, it was commented that consideration needs to be given to how to incentivise organisations, both public and private, to invest in upgrading their current lighting installations more quickly in order to unlock the significant energy savings possible, using products that are available today.
The following forms of incentives were identified:

- Regulatory e.g. Part L of the Building Regulations, which applies to larger buildings and refurbishments is estimated to lead to only relatively slow renewal rates. A mandatory requirement, to ensure existing stock of all sizes of installation are upgraded to good modern day energy efficiency standards in a timely manner, would produce faster and more meaningful results.
- Financial e.g. Enhanced Capital Allowances; but scope is limited at this stage due to lighting often not qualifying (this might change later this year as a result of Treasury consultations on business taxation). Ideally tertiary lighting needs something that is as effective as the EEC/CERT schemes for domestic energy-efficiency lamps.

17. The second respondent commented that the following lighting sources had not been adequately addressed by the consultation document and the policy proposals:

- Induction lamps (using this technology can result in extending lamp lifetime, since there are no electrodes to age)
- Microwave powered electrode-less high intensity discharge lamps (has similar beneficial properties to those associated with induction lamps; these lamps have very long lifetimes associated with them and excellent colour rendition)
- Electroluminescent lamps (these lamps are printable, and can form "electronic wallpaper")
- LED lamps (considerable work is taking place to develop and manufacture luminaires using various types of LED, with system efficiencies that are similar to most fluorescent lamp assemblies).

Government response

18. The Government agrees with the suggestion to restrict the 75 Lm/watt target to lamps above certain wattages, and will make it clearer that more complex minimum energy performance standards (MEPS) for different light output levels should be defined. These types of MEPS proposals are also being discussed at a European level in the context of the EuP Directive.

19. The Government agrees with the comments about the need to focus on luminaire efficiencies, ballasts and lighting controls in addition to the lamp efficiencies. The European Commission has indicated that it would like a future Implementing Measure under the EuP Directive to address these issues and the Government supports this in principle.

20. The comments regarding design, installation and incentives are noted and the Government is grateful for the suggestions put forward with regard to these.

21. With regard to the points made about other light sources, the Government is aware of a number of innovative products and is keeping a close eye on these to see where they are beginning to make an impact in lighting applications. Reference will be made to these, and, once their impact and market penetration becomes more significant, the Government will be able to assess this and add them to the Market Overview.

22. Building Regulations Part L apply when lighting works are carried out and set performance standards that have been developed in consultation with manufacturers. The lighting requirements along with the other energy efficiency requirements are under review and the aim is to publish a consultation document early in 2009 on proposals for amendments that would come into effect in two stages in 2012 and 2013.

Question 2: Are the performance values shown in the table in the Appendix set at the right levels?

Summary table for Question 2

Key topics raised	Number of comments
Figures need to be aligned with the technological capabilities of all elements making up commercial lighting	1
Aspects of the planned halophosphate phase-out considered unrealistic	1

23. This question refers to the graphs describing the indicative performance targets and policy options (see pages 10 and 27 in the original consultation document). Only one participant (trade body representing the lighting industry) provided comments in response to this question. This respondent stated that the figures need to be aligned with the technological capabilities of all elements making up commercial lighting (i.e. lamps, luminaires, ballasts, controls). It was noted that luminaire makers have no control over the lamp being used and that it was therefore better to cover lamps and control gear separately.

24. This stakeholder suggested that a new metric should introduced (based on the proposals from CELMA and ELC) and then projected forward based on Government planned incentives and assumptions, based on product characteristics and the additional impact of innovation in design and effects of the EPBD. It was stated that while the industry fully support the assumption that the EuP can rapidly replace halophosphate fluorescent tubes with triphosphor tubes, certain aspects seemed unrealistic (e.g. timing of when any IM comes into force; how mandatory it is in relation to old installations; the amount of stock of halophosphate lamps with users and distributors etc.)

Government response

25. The Government recognises that the indicative standards for commercial lighting are of limited value as they only address lamp efficacy and that they cluster all lamps types together. It may be desirable to disaggregate these standards in

future to provide individual standards for, say, linear fluorescent lighting, display lighting, high-intensity discharge lighting, ambient lighting (i.e. the pseudo-domestic lighting).

26. Although the Government would like to develop similar standards for luminaire efficiencies, the MTP models do not currently contain enough data on these for a metric to be developed. However we note there are several options. The increased use of control systems (encouraged by changes in the Building Regulations, for example) is included in the current lamp standards as the hours of use are reduced, which in turn increases the lamp lifetime in years and reduces the replacement lamp sales per year.

27. The Government notes the comment that the phase-out of halophosphate lamps may be too quick in the current model. This assumption will be re-addressed when the full details of the Implementing Measure under the EuP Directive for 'office lighting' become finalised.

Question 3: In the areas of market analysis, projections and targets, should consideration be given to any additional measures, risks or strengthening initiatives?

28. Only one stakeholder (trade body representing the lighting industry) commented on this question.

29. Regarding measures, the need to introduce more incentives was stressed in order to encourage earlier investment by all organisations in upgrading their lighting installations. It was noted that in many organisations, lighting is low priority in investment terms so that the key issue related to changing investment behaviour. Examples suggested included:

- Modifications to ECA in order that more investments in lighting installations qualify (noting that an ongoing Treasury consultation on business taxation may help to achieve this). The aim should be to have, for all commercial products, a similar effect as achieved e.g. by EEC/CERTS scheme for domestic products based on the EST Lamp Specification which was developed in conjunction with the lighting industry.
- Mandatory design of lighting schemes to BSEN 12464 and application of energy efficiency limits
- More effective market surveillance to ensure that all products/systems comply with the EuP or other requirements

30. The following risks were identified:

- Lack of awareness of need for change to reduce energy in lighting and understanding of suitable alternative products and systems
- Lack of awareness of any incentives, either financial or regulatory that may be in place
- Guidance on safe disposal at end of life of products

31. The following areas where existing initiatives could be strengthened were identified:

- Introduction and implementation of more mandatory energy standards in respect of new builds and refurbishments. Possibly linked to a timescale in which minimum energy performance of buildings has to be reached e.g. 3 years.
- Stronger incentives to encourage SME's in particular, including public bodies, to speed up investment in energy-efficiency lighting
- Public awareness campaigns, sustained over several years and led by the Government to create knowledge and interest in change.

Government response

32. The Government is grateful for the suggestions put forward, and will consider these as appropriate.

Question 4: In the area of engaging the supply chain, should consideration be given to any additional measures, risks or strengthening initiatives?

Summary table for Question 4

Key topics raised	Number of comments
Need to improve the competence of lighting designs and designers	2
Licensing of competent designers and specifying competency	1
Need to ensure manufacturers understand customer requirements	1
Simple market development metrics not available for lighting	1
Red/green calculator tool too simplistic to be of use	1

33. Two respondents provided comments relating to this question.

34. The first stakeholder (trade body) provided detailed comments, whilst noting that the comments provided under Question 3 were also of relevance. Additional comments relating to measures included the need to improve the competence of lighting designs and designers (i.e. achieve CIBSE competence status) and the licensing of competent designers and specifying competency. In the longer term, it was noted that CELMA has proposed the introduction of a lighting design Directive. It was also commented that if successful, the strengthening of initiatives referred to in Question 3 would also have a positive effect throughout the supply chain as users demand more energy-efficient products and/or speed up investment in upgrading their lighting to more energy-efficient standards.

35. The second participant expressed the view that suppliers / manufacturers naturally compete to provide the best solutions and that the key would be to ensure they know exactly what the customer requires for the particular application. In common with the first respondent, it was felt that this suggested the need for competent and informed specifiers and designers. The view was expressed that manufacturers respond quickly to market needs and trends and are generally keen to work with specifiers and designers to ensure they are up-to-date with product knowledge.

36. In relation to the use of market development metrics, the second participant noted that lighting is not simple and that it would be a mistake to treat it as such. It was suggested that a major step forward would be to ensure designers must be suitably experienced and qualified for lighting schemes to be proposed (and similarly for assessors). The same stakeholder expressed the view that in many cases a “red / green” calculator would not be able to deal with what is a complex subject. It was commented that even a lamp assessment must take into account more than just initial efficacy and that lamp life, light output depreciation, effect of dimming, change of colour when dimmed etc are all factors governing the suitability of a lamp.

Government response

37. It is not clear what policies might be used to improve the competence of lighting designs and designers. Competency schemes already exist through e.g. CIBSE but the Government are not able to compel designers to register. The Government does not consider that it would be appropriate to require that lighting installations are designed by a registered ‘competent person’ under Part L as is the case for electrical installations under Part P.

38. There is clearly an issue about how to publicise the need for good, energy efficient design in lighting and the benefits from installing it. The Carbon Trust does provide design advice, a carbon footprint calculator and training plus incentives for SMEs to upgrade their lighting. The Energy Agencies will also provide surveys and advice if asked. The difficulty is in reaching this disparate audience for whom upgrading their lighting has nothing to do with their main business imperatives. The Energy Performance of Buildings Directive energy certificates may start to raise that awareness and create a requirement from the user but the advice from the assessors would need to be very specific with regard to the economic and environmental benefits (i.e. the effect on the building rating) before any action resulted.

39. The Government recognises that a single figure indicative performance metric and a full market red/green calculator would have limited usefulness in a market where most suppliers do not sell a ‘balanced’ portfolio across all lamp types. MTP is considering splitting the market as suggested in paragraph 25 of this document; these four categories could be addressed individually within the red/green calculator.

40. The Government does not consider that it would be appropriate to require lighting systems design and installation to be controlled by the building regulations beyond the present scope which deals only with energy efficiency. However, it agrees that there can be added benefits to be obtained by engaging lighting systems experts and would encourage lighting interests to foster this.

Question 5: In the area of EU and international policy actions, programmes and initiatives, should consideration be given to any additional measures, risks or strengthening initiatives?

Summary table for Question 5

Key topics raised	Number of comments
EuP flawed due to its focus on lamps rather than lighting installations	1
Other (see above)	6

41. This question was answered by two participants. The first stakeholder commented that the EuP approach is flawed (mainly due to its narrow focus on products/lamps rather than whole lighting applications) and that a better method should be adopted. The second stakeholder noted that the lighting industry is contributing evidence to the Commission in respect of the EuP Implementing Measures and summarised these elements as well as providing some additional comments. Regarding measures and the strengthening of initiatives, the following suggestions were provided:

- all commercial lighting schemes to have certification of energy saving (EPBD) and a limited timescale in which to achieve a minimum energy-efficiency level;
- separate metering of lighting circuits to assist audit of energy usage;
- adoption of CELMA Total Lighting Solution re lighting design;
- increased/more effective market surveillance ;
- more incentives to invest quicker in upgrading existing lighting installations to modern day standards; and
- minimum energy-efficiency levels for products (as per the CELMA and ELC tables)

Government response

42. The EuP Directive by definition focuses on products and will play a key role in removing from the market some of the worst performing products such as halophosphate lamps and high-pressure mercury lamps and possibly the least efficient luminaires.

43. The Government agrees that a more holistic approach to energy efficiency would be beneficial, and it is feasible that an overall energy efficiency level might be pursued through the Energy Services Directive. The Government would be interested in seeing more details of the CELMA Total Lighting Solution.

44. The Government considers that there are quite a lot of incentive schemes to encourage businesses to upgrade their lighting installations e.g. ECAs and interest-free loans for SMEs. However, it is recognised that there are still issues about publicity and encouraging businesses to take up the opportunities.

45. The Government welcomes CELMA's draft table for setting minimum standards for luminaires of different types and would ask the industry to consider what percentage of the current luminaire market they think would be removed by application of these minimum standards.

Question 6: In the area of UK policy actions, programmes and initiatives, should consideration be given to any additional measures, risks or strengthening initiatives?

Summary table for Question 6

Key topics raised	Number of comments
Need for greater Government-led public awareness campaigns	1
More financial and/or regulatory incentives required	1
Minimum energy efficiency levels for products being sold to eliminate less efficient products from the market	1
Strengthening of market surveillance	1
Energy labelling for professional products should focus on the CE mark backed up by market surveillance	1
Introduce requirements for controls and to allow manual on/automatic off switching	1
Government to take a lead in its procurement policy	1
No intervention required for manufacturers to make necessary data available	1
Other comments	3

46. Comments were received from two stakeholders. The first stakeholder outlined a series of required measures repeating points made according to earlier questions. These included:

- Need for greater Government-led public awareness campaigns, led by the concerning energy-efficiency
- More incentives, either financial (e.g. ECA changes to enable more lighting to qualify plus other measures) or regulatory (e.g. limited timescales to upgrade buildings to minimum energy-efficiency standards)
- Minimum energy efficiency levels for products being sold to eliminate less efficient products from the market
- Strengthening of market surveillance to ensure that products introduced to the UK market comply with the minimum energy efficiency standards set
- Energy labelling for professional products should focus on the CE mark and the related technical files, but backed up by the strengthened market surveillance.

47. In addition, the need to introduce requirements for controls and to allow manual on/automatic off switching, was noted.

48. The second stakeholder also made a series comments in relation to measures and initiatives. Commenting in relation to the Government's Sustainable Procurement Action Plan (SPAP), it was suggested that Government could take a lead in its procurement policy in demanding that its lighting is specified and designed in a holistic approach by competent and knowledgeable professionals - this would ensure that a well-designed scheme is achieved as well as an energy-efficient result. This participant also commented that care should be taken to ensure that the guidance on energy efficiency and energy savings as possible assessment criteria in public sector tendering (to be published in May 2008 as part of the Energy Services Directive) are not so general as to let mediocre proposals comply.

49. In relation to the 'Forward Commitment Procurement' model, the point was reiterated that if the outcome required was specified, then industry (good

manufacturers and providers) would supply the appropriate solutions as a natural part of its competitive activity. It was suggested that the key here would be to educate the specifier. Commenting on the current status of product information, it was noted that for professional lamps, manufacturers make necessary data available and that there should therefore not be a need for statutory intervention. Similarly, it was commented that manufacturers generally provide I-tables (intensity distribution) and many provide visual aids – installation appearance computer visualisations for example, as well as producing installation performance data and calculation software. The participant viewed this as being comprehensive, particularly where applied by competent designers.

50. The second stakeholder commented that, contrary to the statement in the consultation document, batten fittings do not necessarily appear the most efficient form of lighting and that it depends, for example, upon the size of room in which they are used. However, it was acknowledged that lighting quality is essential to a good lighting scheme and that for this reason, the focus of policy should be on the scheme, not the product (and that simplistic labelling of luminaires cannot hope to achieve this overall aim).

Government response

51. In the budget speech of March 2008, the requirement that lighting qualifying for ECAs should be ‘plant and machinery’ was removed, which will open the ECA scheme up to a larger range of customers. This change and the inclusion of LEDs in the ETCL are included in the revised document. Manual on/ automatic off controls are already supported by the ECA scheme (in certain circumstances).

52. The Government acknowledges the industry view that labelling should be based on the CE mark alone but questions whether there is a need to enshrine the industry ‘best practice’ on product information (not necessarily labelling the product) in legislation so that manufacturers of new products (such as LED systems) are required to provide product information in a standardised form that is easily compared across product ranges?

53. The Government recognises the point made about market surveillance, and is looking at this in some detail, particularly in the context of EuP, but also for domestic policies.

54. The Government does provide ‘best practice’ advice to its departments through the ‘Quick wins’ specifications available through the Office of Government Commerce.

Question 7: Are there any other policies likely to impact on commercial lighting that should be taken into account?

Summary table for Question 7

Key topics raised	Number of comments
Separate metering of lighting circuits to assist with energy auditing	1
Financial and/or regulatory incentives to encourage earlier investment in upgrading existing lighting installations in all buildings	1
Government do not enforce the current legislation to enforce existing standards and	1
Little value from reduced VAT proposal in commercial lighting sector	1

55. Three stakeholders submitted brief responses to this question.

56. One participant suggested a role for separate metering of lighting circuits to assist with energy auditing and the use of financial and/or regulatory incentives to encourage earlier investment in upgrading existing lighting installations, not only of larger buildings but all buildings.

57. A second stakeholder expressed concern that a high level of waste and energy use is created by the import of poor quality lamps (of all types) that fail prematurely, leading to waste raw materials, the energy making the lamps, their transport etc. It was suggested that Government do not enforce the current legislation to enforce existing standards and that this situation could worsen when more CFL and IRC products enter the UK from the Far East.

58. In relation to the potential reduced rate of VAT for energy efficient products, a third participant questioned its value since most specifiers of commercial lighting will not pay, or will recoup, VAT.

Government response

59. The Government recognises the role of separate metering of lighting energy use, and discussion of this was included in the smart metering section of the consultation paper (3.5).

60. As mentioned in paragraph 39 above, the Government considers that there are already quite a lot of incentive schemes to encourage businesses to upgrade their lighting. In addition to these, the Carbon Trust offers a number of services to businesses including a 'Carbon Footprint calculator', energy surveys etc.

61. There appears to be a difference of opinion on the value of reducing VAT for energy efficient products, the proposal is supported by the RICS for example. It may have limited value for businesses who can reclaim VAT but may be beneficial to very small businesses; it would certainly be beneficial in domestic lighting.

62. The need for increased market surveillance has been brought up on a number of occasions within the consultation. The lighting industry has been self-policing until now and organisations such as the Lighting Association have done significant

amounts of work on testing the safety of CE marked products. As mentioned above, the Government is now looking at this issue in the context of discussions on EuP. The Government would be willing to discuss what market surveillance measures the industry would consider appropriate, and these could be introduced as part of the EuP discussions. Such measures would, of course, need to be agreed on a Europe-wide basis.

Question 8: What additional measures would you suggest developing to drive forward sustainability in commercial lighting?

Summary table for Question 8

Key topics raised	Number of comments
In addition to LEDs, high energy performance of other product classes exists and will improve	2
Supply of materials may not exist to meet future LED demand	1
Need for more joined up thinking, awareness and training across industry	1
Other comments	4

63. Comments from four stakeholders were received in response to this question. Three stakeholders commented on the important role of LEDs and support was expressed for policies designed to support their development. However, several comments were made in this context. Two participants noted that product development for other product families such as tungsten halogen is also leading to more energy efficient products for the future. Another response questioned whether sufficient natural resources exist to meet the huge demand (rare earth elements for example) for LEDs if they are relied on meet all future light source needs.

64. One stakeholder outlined additional measures and strengthening of initiatives that repeated suggestions made in response to earlier consultation questions:

- Public awareness campaign led by the Government
- Financial and/or regulatory incentives to encourage earlier investment in upgrading
- Strengthened market surveillance
- More emphasis being placed on lighting designs e.g. use of efficient products, lighting controls and how all elements are designed into schemes. This will allow more control of more efficient products and ensure that the right light is used, when required.

65. The view was expressed by one participant that there was a need for more joined up thinking and that lighting designers/engineers and architects need to be fully engaged and made aware of the technological issues and challenges involved. It was suggested that this need can be addressed by UKDL by holding strategy workshops, technical seminars and training events. It was commented that there is also a need for the lighting industries' various trade associations and institutions to work more closely together to provide guidance and focused direction to the whole value chain.

Government response

66. As mentioned in response to the comments received on question 1, the Government recognises that there are other innovative products that might develop in the medium term. The Government also agrees that there is a risk of lack supply of materials and will take account of this when developing policies encouraging the use of these technologies.

67. The role of the Knowledge Transfer Networks (KTNs), including the UK Display and Lighting KTN (UKDL), in providing the necessary joined up thinking, awareness and training is noted.

68. The other points have already been addressed elsewhere in this document.

Question 9: Are there any other potential impacts resulting from these proposals that should be taken into account?

Summary table for Question 9

Key topics raised	Number of comments
Adverse health impacts associated with phasing out of tungsten lighting	9
Consumer resistance to change combined with concerns about new technology products	1
Speed of investment in upgrading existing lighting installations	1
Risk of products being delivered into the market which are below the minimum energy-efficiency standards set	1

69. Only two participants responded directly to this question. However, because most of the responses received in relation to the health impacts from domestic lighting are also relevant to commercial lighting (i.e. the increased use of fluorescent lighting) they have also been considered here.

70. The following potential impacts were identified:

- Consumer resistance to change combined with concerns about new technology products (e.g. health concerns; waste).
- The speed of investment in upgrading existing lighting installations (for all sizes of buildings)
- Risk of products being delivered into the market (e.g. via importing) which are below the minimum energy-efficiency standards set

Health Impacts

71. Although most of the responses addressing health impacts from lighting were submitted in relation to the domestic lighting chapter (Chapter 1), they are also relevant to the use of fluorescent lighting in the commercial sector and have therefore been summarised here. It is important to note in addition that several of these stakeholders specifically highlighted the role of lighting in the public environment (shops, leisure facilities etc) and work environment.

72. Nine submissions were received in relation to the health impacts associated with lighting other than tungsten filament lamps. Of these responses, three were received from charity or campaign groups and six from individuals (including five from individuals who suffer from associated health impacts and one from the Associate Dean and Professor of Clinical Immunology at Peninsula College of Medicine & Dentistry). A list of these stakeholders is provided in Appendix 1 of the summary of responses for domestic lighting.

73. The majority of stakeholders highlighted various adverse health impacts associated with the use of fluorescent and halogen lighting which effect individuals suffering from, *inter alia,* the following conditions:

- photosensitive lupus and other skin conditions
- ME/CFS
- autism/asbergers syndrome
- scotopic syndrome
- migraine
- epilepsy
- fybromyalgia

74. The majority of respondents noted that the increasing presence of fluorescent lighting in both public and private spaces would severely affect the health of those suffering from these conditions; two stakeholders commented that such a development may represent discrimination under the Disability Discrimination Act and Human Rights Act.

75. Several respondents strongly expressed their objection to the reference made in the consultation document that the existing evidence as to adverse health reactions from CFLs is "anecdotal" and that "only a small minority of people are affected". Furthermore, it was stressed by one participant that adverse health effects result from the use of all rather than “some” energy light sources.

76. A number of respondents noted that during the last year several charities (such as Spectrum and Right to Light) representing those who suffer from light-sensitive conditions have been contacted by people who suffer adverse symptoms from CFLs and are extremely concerned about the proposed phasing out tungsten lighting. One stakeholder also commented that The Royal National Institute for the Blind have also expressed the concerns of their partially sighted members. It was noted that Spectrum now estimates that 340,000 people in the UK may be affected.

77. One stakeholder quoted Dr Sarkany, Director of Photobiology and Consultant Dermatologist at Guys and St Thomas' Hospital as saying that “it is a scientifically proven fact that certain skin disorders are triggered or exacerbated by these (fluorescent) light sources”. In addition, Professor Anthony Pinching, in his response, noted that he has “…over many years, been struck by the consistency with which a proportion of CFS/ME patients report adverse experiences in settings lit with fluorescent lights”. Similar responses were provided in relation to other conditions, both from stakeholders representing charity and campaign groups and individuals suffering from light-sensitive health effects.

78. Respondents described the specific health impacts suffered from the use of fluorescent lighting in detail according to the range of conditions represented. Whilst many noted that the proposal to switch to low energy bulbs had much to commend it in environmental terms, it has been launched with little warning and with insufficient investigation into potential health impacts. Several stakeholders expressed the view that it has not yet been possible to conduct systematic research studies to give more detail on the concerns expressed by various disease groups, and the clinicians caring for them, since the proposals were announced.

79. A common view held amongst several respondents was therefore that the Government should conduct surveys and studies on the impact of the new lighting products on those disease groups where legitimate concerns have been raised. In this way, the extent to which such problems affect these populations could be determined, and in particular, if different lighting products differ in the extent of their impacts. Several respondents stressed the importance of steps being taken by Government and the lighting industry to ensure a supply of incandescent bulbs remains available for those who require them.

Government response

80. The Department of Health is aware that there are some people for whom the phasing out of incandescent light bulbs in favour of compact fluorescent lamps may potentially cause a problem by aggravating certain light sensitive and neurological conditions. They are working closely with other government departments and stakeholders to assess the scale and extent of this and to resolve any potential problems posed by the proposed phase out of incandescent light bulbs.

General responses

Summary Table for General Responses

Key topics raised	Number of comments
Policies should address lighting installations/applications in addition to products	2
lighting efficiency does not only relate to work area lighting	1
lighting levels must recognise increased lighting needs of ageing population	1
Role of good lighting controls on energy consumption	1
rapid development in the LED market	1
Preference of CFLs and LEDs over filament lamps is over-simplistic	1
blanket bans on filament lamps as well as labelling using only 'lumens per watt' could create perverse consequences	1
Other comments	5

81. Four participants chose to submit general responses in the area of commercial lighting in addition to, or as an alternative to, answering specific questions.

82. Two stakeholders stressed that while the policy proposals outlined focused on the product (and often just the lamp efficacy, as reflected in the Appendix performance figures) a better approach would be to consider the efficiency of the lighting installation (scheme) in meeting the required performance standard. It was

noted that the EuP proposals suffer from this over-simplistic approach and that the UK could play a role in developing an alternative, and more thorough, basis for evaluating lighting energy performance. Similarly, it was suggested by one respondent that policies should be output driven and targeted at users rather than simply specifying product standards for manufacturers.

83. One participant stressed that lighting efficiency is not only about putting light on the working area; distributing light correctly onto other surfaces is important in achieving a good lit environment – which will enhance productivity and therefore efficiency. It was also noted that good lighting is not always simply functional – it can serve a valuable decorative purpose to enhance the visual scene and to make the environment a pleasant place to be and work. It was stressed that while this factor may be difficult to quantify, its merit must not be damaged by a blunt and over-simplistic approach to (energy performance) standards. Finally, it was noted that lighting levels must also recognise, where appropriate, that we have an increasingly ageing population who require increased amounts of light.

84. Several stakeholders noted considerations that they felt had been overlooked (or insufficiently addressed) by the consultation document. These included e.g.:

- Re-assessment of the amount of light needed
- Alternative lighting techniques to promote; for example lighting the task with local (e.g. desk) lighting, and the background and circulation areas to a lower level from the overall lighting
- The fundamental effect that good lighting controls can have on energy consumption, for example:
    - Occupancy detection (including zones within a large space) to energise lighting, or raise the level, only when the area is occupied.
    - Dimming to alter the level (and energy consumption) when the area is being used for different purposes
    - Reducing the lighting level in response to daylight availability
- The rapid development in the LED market

85. One participant expressed the concern that in relation to energy saving, there is a risk of over simplification among policy makers and legislators that all filament lamps are bad and that all CFLs and LEDs are good. It was suggested that if blanket bans are introduced on filaments as well as labelling using only 'lumens per watt' for any given luminaire, then some perverse consequences (in terms of energy performance) could arise. The participant provided two examples of where this could occur. Another respondent commented that the 'lumens per watt' figure used in Part L of the new Building regulations etc should rather be 'lumens per volt amp' because there is a false notion that CFLs save more power than they in fact do in cheap circuits (noting the poor power factor associated with CFLs).

86. It was commented that the life of IRC lamps is longer than standard 12V commercial TH lamps, thus saving energy in manufacturing and transporting more, shorter life, replacements. Noting the call for all T12 fluorescent tubes to be phased out, one stakeholder agreed whilst noting the exception of 8' or 2100mm 100W versions with triphosphor coatings (considered the most efficacious fluorescent light

source there is); it was noted that such blanket policies (i.e. stating a ban on all T12 lamps) are easy to state but not always well thought through.

87. Further responses concerned manufacturers' untruthful product claims regarding energy performance, and the need for a stricter way to design commercial lighting by ensuring only the use of properly qualified and competent designers to prepare schemes.

Government response

88. The Government notes the recommendations that lighting design, installation and use needs to be addressed as well as product performance and would welcome more information on CELMA's Total Lighting Solution.

89. The Government is concerned that the European Standard EN12464-1 is being misinterpreted in that the recommended TASK lighting level of 500 lux in offices is often being used as a benchmark for GENERAL lighting. The Government would welcome support from the lighting industry in allaying this misconception.

90. The Government has consulted with the electricity distribution companies about the impact of poor power factor in CFLs with integrated ballasts. They have been assured that the effect of poor power factor is rapidly diluted in a mixed load power loading and that the power factor has a minor impact of the overall distribution losses of the network; the majority of the rated wattage savings will be achieved.

91. The role of controls in reducing energy use is regularly considered in consultations on both the Building Regulations and the Enhanced Capital Allowance scheme. Use of a policy such as the Energy Services Directive also has the potential to ensure that lighting schemes provide the right light in the right place when it is needed see new section 3.5.5 in Policy Brief.

92. Although the Government agrees that the preference of CFLs and LEDs over filament lamps may be over-simplistic and that each application should look to minimise energy use with acceptable lighting quality; we do not believe that 'A'-shape GLS thin filament lamps will have any benefit (other than lower cost) over the new generation tungsten halogen replacements.

93. It is not clear what policies might be used to improve the competence of lighting designs and designers. Competency schemes already exist through e.g. CIBSE but the Government are not able to compel designers to register. The Government does not consider that it would be appropriate to require that lighting installations are designed by a registered 'competent person' under Part L as is the case for electrical installations under Part P.

94. The Government has no intention of introducing 'blanket bans' on any products. The EC is developing lamp minimum standards in terms of maximum wattages for particular lumen outputs. Any technology that meets those standards will not be removed from the market. The standards are set to ensure that there is at least one technology (and in many cases several) that acceptably achieves the desired performance level.

4 Next steps

95. The Market Transformation Programme has carefully reviewed the existing evidence and taken into account these stakeholder responses and any new information or data. The original projections for the future performance of commercial lighting products are being reviewed along with options for the ongoing improvement.

96. There is a Certification of Design (Section 6- Non –Domestic Energy) in Scotland but this covers all aspects of Non-domestic energy.

97. The outcome of this process is published in the separate document entitled ‘Policy Brief for Commercial Lighting Products’ which provides an update of the baseline information provided in the original Consultation Document. While the formal consultation process has closed, engagement on the standards will continue as part of an annual reviewing and updating process.

Appendix 1 - List of respondents

Eddie Taylor, Lighting Industry Federation (LIF)
Colin Humphries, Cambridge University
Peter Phillipson, Future Group Lighting Design
Dr Ric Allnott, UK Displays and Lighting KTN
Mark Wood-Robinson
Malcolm Richards