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Summary of responses to the consultation entitled 'Improving the energy performance of domestic lighting products'

July 2008

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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 paper¹. 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 1 of the consultation paper) set out the Government's current evidence, analysis, indicative targets and eco-design standards for domestic 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 19 responses were received from a range of organisations and individuals; these ranged from detailed comments on the consultation document to brief submissions relating to just one or more issue. 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. Of the 19 responses received, five represented submissions from the lighting industry (of which three were trade bodies) and four represented charities or campaign groups. Two responses were received from individuals from academia; the remaining eight responses were submitted by individuals with no stated affiliation to an organisation for the purposes of the consultation.

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. Only five of the responses chose to provide comments directly to the questions presented in the consultation document, of which two provided comments in relation to all nine questions. Five stakeholders submitted general comments, although for each of these responses, one or more of the comments made were assessed (and summarised below in Section 3) according to the relevant issue/question where relevant. Similarly, where particular comments addressed more than one of the nine questions included in the consultation document (i.e. overlapping comments), these were summarised under the relevant question areas as far as possible. Of the 18 responses, nine were submitted predominantly or wholly in relation to various health impacts associated with the use of compact fluorescent lamps (CFLs).

8. A key concern raised, predominantly by those stakeholders representing the lighting industry, was that the assessment of market trends and factors overlooked the consumer preference for products other than CFLs; it was noted for example that there was strong and growing demand for halogen lamps whilst consumers continue to have major concerns with CFLs. In light of this, several participants noted the need to improve the performance of products other than CFLs (e.g. support for halogen lamps via CERT) at the same time as addressing the public's concerns with fluorescent lamps. The potential for importing low quality lighting products was also noted as a key threat to the sustainability of the domestic lighting market.

9. Most stakeholders welcomed the range of measures and activities described at the EU, international and UK level whilst noting specific risks and areas of concern. A common theme was the need to police both existing and future standards and to strengthen activities aimed at education and encouraging changes in consumer behaviour. Challenges and risks associated with moving 'equivalence' labelling towards a lumen-based metric were noted in several responses, as well as waste/recycling concerns and the poor power factor associated with CFLs. Only two respondents commented directly on the performance targets described in Appendix 1, both of which questioned the basis for particular figures.

10. The potential impacts arising from the increased use of low-energy lighting products attracted significant comments. Participants noted potential economic and waste impacts, quality issues and concerns relating to the inability of CFL products to be used for security lighting. The major impact identified was the adverse health effects experienced by those suffering from conditions such as 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
Trend towards smaller lamps adversely influencing energy performance	1
Poor public perception of CFLs limiting market demand	2
Concerns regarding market innovation and support for LEDs in the UK	2
Trend towards Mains Voltage halogen lamps	2
Other lighting sources not adequately addressed	1

11. Five participants responded to this question. The majority of comments received highlighted additional trends or factors for consideration, typically in relation to various characteristics of lighting products and their implications for energy performance.

12. One stakeholder outlined several market trends that could adversely affect energy consumption in domestic lighting. It was noted that given the trend towards a larger number of lamps of a smaller size coupled with the move to phase out GLS (starting with the higher wattage products), an increase in installed wattage is to be expected for the same level of illumination (discounting the effect of increased lamp efficiency). This is because with filament, halogen and fluorescent technologies the efficacy increases with higher wattage. The same respondent noted further that the observed market trend in domestic fittings toward the use of smaller lamps will act to limit the use of CFLs.

13. Two participants also commented on the observed trend towards the use of mains voltage halogen lamps, rather than 12V lamps, as used in the recent past; whereas extra low voltage halogen lamps have higher efficacies, it was stated that mains voltage halogen lamps have efficacies only 10 -15 % greater than GLS products. However the second respondent stressed that while halogen lamps will require lower lamp minimum performance standards (e.g. 22 lm/W), energy savings of more than 20% could be achieved when compared to GLS by employing, for example, electronic control to improve efficacy.

14. One respondent expressed concern that the consultation document said very little concerning the LED market and that the drive towards use of LEDs was much stronger in other countries e.g. China, Japan and the US than it was in the UK. The same respondent also stressed that a key market factor overlooked in the consultation document was the low market demand from the UK public for CFLs. This opinion was shared by another stakeholder who cited a range of contributing factors including perceived health risks; performance of CFLs (e.g. run-up times, colour rendering, dimmability, low power factor); and disposal of end-of-life lamps with mercury.

15. Concerning the LED market, one stakeholder commented that the lighting industry expected the most efficient use of LEDs to be as part of a luminaire designed for the purpose. This respondent noted that for this to occur would require the lighting industry and semi-conductor industry to better understand each others' needs (and specifically to enable the semi-conductor to be more user-friendly to the luminaire suppliers) and for greater support to be given to the lighting industry for the purpose of market and product innovation.

16. One 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

17. The Government acknowledges the outcome of recent research, to which it contributed, into the UK installed lighting stock that suggests a greater proportion of UK lighting stock is made up of halogen lamps than had previously been assumed in its modelling. The significance of these new data on historical and future trends and energy consumption continues to be assessed and will be presented later this year.

18. The long-term trend towards development of more efficient lamps, particularly those based on LED and organic LED technologies, and the challenges faced in developing cost-effective are noted. The Government continues to assess how best to stimulate innovation in this area.

19. The Government is aware of lingering poor perceptions of CFLs among consumers and will continue to work with stakeholders, including the Energy Savings Trust, the lighting industry and retailers, to raise public awareness of the high quality of modern CFLs on the market and to improve their acceptability as the light source of choice.

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
Reduced figures relating to years 2015, 2016 and 2017 considered unrealistic	1
Figures should be revised to reflect reduced minimum lamp efficacy	1

20. This question refers to the graphs describing the indicative performance targets and policy options (see pages 10 and 29 in the original consultation document). Only two participants, both industry trade bodies, responded in relation to the set of figures proposed, although factors influencing performance values were discussed by other stakeholders in relation to other issues (see later questions).

21. The first respondent noted that there will be a need to adjust the proposed values to take into account the use of more energy efficient halogen light sources between 2009 and 2012 when LED light sources will have a significant impact as a new technology. The same respondent estimated that 50% of all domestic lighting will be using LED products by 2015 and noted that whilst most of the figures contained in the Appendix were realistic, those relating to the years 2015, 2016, and 2017 (which are less than the surrounding figures) were not.

22. The second respondent noted that in line with the comments made by the European Lamp Companies Federation (ELC) at the consultation meeting held on 11th January 2008, the minimum lamp efficacy should to be reduced from 30 lm/W to around 22 lm/W and that this would reduce the performance values given in the Appendix by a maximum of 8%.

Government response

23. As referred to above, the lighting model does not yet take into account recent evidence on the proportion of halogen lamps in the UK homes. It is anticipated however that the P1 scenario will retain its current profile given that halogen lamps are shorter lived and of lower efficacy than CFLs. These two factors mean that relative sales of halogen lamps are likely to be higher than those of CFLs even if the stock of halogen lamps is lower.

24. It should be noted that the indicative standards are not intended as minimum standards but represent the average efficiency of products that must be sold in the UK to achieve the P1 scenario energy use. This means that lamps with lower efficiency than these indicative standards can still be sold as long as these sales are balanced out by a similar number of lamps that exceed the indicative standards in performance.

25. The Government maintains the reference to 30 l/W minimum efficacy as its stated level of ambition in order to achieve the projected P1 savings. While there are no references to the 30 l/W minimum efficacy in the UK's voluntary phase out of incandescent lamps, led by retailers and energy suppliers, the reference remains here.

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

Summary table for Question 3

Key topics raised	Number of comments
Greater understanding of lighting market and product demand required	1
Energy performance of halogen and tungsten products must be considered and only the high efficiency ones supported (e.g. via CERT)	2
Low specification lamps may be dumped into the UK market	1
Need for greater public awareness campaigns and guidance	2

26. Only two participants, both industry trade bodies, provided comments in response to this question.

27. Regarding measures, the first respondent stated that more information needs to be gathered on how the domestic lighting market works; it was noted, for example, that there is significant and increasing public demand for halogen lamps. In view of this, there was a clear requirement to ensure that only the most efficient halogen lamps are available and supported (e.g. via CERT). Similarly, there was a need to phase out high powered linear halogen lamps from the market given their poor energy performance. The second respondent also stressed the need to take into account technologies other than CFLs to generate energy savings (including tungsten as well as halogen lamps).

28. Regarding risks, the first respondent expressed the concern that low-specification CFLs, halogen and GLS lamps could be dumped on the UK market (noting that this risk will increase on CFLs when the anti-dumping duty is removed in October 2008). In view of this concern, it was stressed that new minimum standards for CFLs should be introduced prior to this opening up of the market - preferably as part of the EuP legislation on lamps due before the end of 2008. The second respondent considered the main risks to come from the observed market barriers to change, including established buying patterns, initial cost issues, and concerns regarding more energy-efficient products (e.g. health, performance, disposal).

29. Regarding strengthening initiatives, both participants noted the need to reduce the identified risks and outlined a range of options, including the following:

- Stronger and on-going public awareness campaigns, led by the Government to promote the benefits of energy-saving actions and to deal with concerns
- Increased and ongoing support for LEDs
- Provision of more guidance to householders on alternative ways of lighting homes
- Promotions to manufacturers and distributors to encourage more sustainable product development (e.g. suitable decorative luminaires with integral HF control gear for CFLs)
- Inclusion of halogen energy savers in CERT to accelerate market penetration

Government response

30. As above, the Government is aware of recent evidence on the proportion of halogen lamps in UK homes, however these data are not yet accounted for in the lighting model.

31. The suitability of lamps that are supported under the CERT scheme is ensured by constant review of the Energy Saving Trust 'Energy Saving Recommended' specification. The specification ensures that only the best practice lamps are included and are eligible for CERT subsidies. Performance standards for LEDs are under active development for inclusion in the ESR specification. Energy saving halogen lamps are being evaluated for inclusion in the specification.

32. The Government does recognise that risks associated with poor quality CFLs reaching the market, particularly, for instance, once the EU's anti-dumping measures are lifted, as expected in October 2008. It continues to work with the European Commission to explore ways to police compliance of lamps with minimum quality criteria. It will also continue to work with retailers and manufacturers to ensure that consumers are provided with adequate information in order to make informed choices on the lamps they buy. It should be noted that the CERT scheme, which uses the Energy Saving Trust's 'Energy Saving Recommended' quality criteria, will ensure that lamps entering the UK market will be of high quality

33. The greater need for public awareness campaigns and guidance is better addressed in section 3.4.3.

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
Existing measures considered extensive	1
Risk of demand outstripping manufacturing capacity of CFLs	1
Sufficient motives exist for retailers to phase out GLS in favour of CFL	1
Government should ban light fittings using BC and ES holders	1

34. Four respondents provided comments relating to this question. One of the responses submitted was the European Lamp Companies Federation's (ELC) proposed timetable for phasing out of domestic lighting products according to energy performance ratings (starting with highest wattage lamps and gradually covering lower wattages). This proposal can be downloaded from:
http://roms.elcfed.org/uploads/fmanager/070605_background_paper__the_elcs_proposal_for_domestic_lighting.pdf

35. There was a general agreement that much had been done to engage the supply chain and one respondent noted that the measures outlined in the paper were already extensive. One participant noted that while the UK subsidies available for CFLs were effective in deterring retailers from buying low specification imported CFLs, a major risk could become apparent if the retailers accelerated the programme market demand could outstrip capacity. It was further noted that the

agreed four-year programme is already very tight and could be made worse by the Irish and French acceleration of their phase-out plans causing problems throughout the European market.

36. The point was made by one stakeholder that lamp manufacturers already have a financial motive for phasing out low cost products like GLS in favour of higher cost CFLs or halogen lamps. This respondent noted the challenges of engaging the supply chain in effecting change and observed that an earlier initiative aimed at fitting lighting fittings with internal ballasts and unballasted CFLs on the shelves at the same price as similar fittings with BC (bayonet cap) holders failed. The reason suggested for this was that manufacturers of such fittings are generally small companies which must follow large retail chains and cannot mount a marketing campaign to other retailers. It was suggested that the Government should rather introduce a ban on all new lighting fittings with BC or ES (Edison screw) holders (except perhaps for commercial fittings with high pressure discharge lamps), to be followed by a ban on those with SES (small Edison screw) and SBC (small bayonet cap) holders.

Government response

37. As part of the European Single Market, the UK is unable to impose mandatory measures to remove specific products from its markets on a unilateral basis. The EuP Directive working parties are addressing the question of luminaire design and standards and any statutory removal of products from the market will be agreed as part of that process. The UK has consistently pressed the European Commission for ambitious measures under the EuP directive.

38. The Government has noted the lighting industry's concerns over the capacity of the manufacturing base to produce sufficient high-quality lamps and continues to monitor the situation. It is part-funding a study, led by the International Energy Agency (IEA), to assess global demand for CFLs in light of international efforts to phase out incandescent lamps, which will report later in 2008.

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
IEC 60969 standard is weak/unrepresentative	1
Need for strengthened market surveillance and policing of standards	2

39. This question was answered by three participants who commented on a variety of EU and international initiatives and programmes, noted areas of concern and suggested ways that these could be made more effective. Two of the respondents observed that the UK lighting industry was actively contributing to the various EU and international standardisation and legislative measures such as the EuP Directive and implementing measures.

40. It was suggested by one respondent that the current IEC 60969 standard (Performance requirements for Self-ballasted lamps) is weak compared with IEC 60064 for GLS lamps, both in terms of the parameters controlled and control of production. In addition, it was commented upon that the use of a power factor as low as 0.5 should not be acceptable (this observation was made by several stakeholders and is considered further under General Responses below). It was considered that an important performance requirement should relate to light output throughout product life whilst many CFL manufacturers do not currently state what they achieve (e.g. 80% of initial light output at 2000 hours - probably one fifth of life -compares unfavourably with GLS which must achieve better than 93% at three- quarters life).

41. One stakeholder noted the concern within the EU regarding the lack of policing standards within the domestic lighting market and suggested that in the UK, despite the presence of standards officers, there is only minimal control over unsafe products. It was stressed that this factor is becoming more prevalent within the LED market - where erroneous product claims are often made - and that the lighting industry needs to have the facilities to check LED suppliers' claims. This concern was shared by a second stakeholder who expressed the view (in relation to energy labelling) that whilst the present CE marking provided the best labelling solution for all luminaires (domestic and commercial) this needed to be supported with strengthened market surveillance to ensure that all suppliers understand and comply with the requirements.

Government response

42. MTP has been involved in an International effort to improve IEC 60969, as outlined in section 3.3.1. It is hoped that the detailed recommendations of that work will be incorporated into the standard in the very near future and will result in the strengthening called for by the respondent.

43. The Government is aware that market surveillance has a key role in ensuring only lamps of sufficient quality enter the UK and EU markets, as has been mentioned above. The Government is aware that, to date, the UK Lighting Association has carried out work to test the safety of CE marked products.

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
Use of CERT to promote energy efficient halogen and LED lamps	1
Reduction of VAT for energy efficient lighting products	1
Need to amend Building Regulations	1
Need for greater public awareness campaigns	2
Key risk is public resistance to adoption to energy efficient products	2
Key risk is a lack of effective market surveillance measures	2

44. Comments were received from three stakeholders covering a wide range of issues. Some of these suggestions reiterated points made in respect to earlier

questions. In general, the measures outlined in the consultation document were supported by stakeholders. However, the following areas where additional or strengthening action was considered appropriate were discussed:

- Promoting the use of energy efficient halogen lamps and LED luminaires via CERT
- Increasing the pressure at EU level to reduce VAT on energy efficient products (noting that France support the UK in this initiative).
- Amending the Building Regulations Part L1A to ensure the fitting of acceptable energy efficient luminaires (e.g. not just ballasts hung from ceiling roses which tend to be removed by users)
- Government and suppliers to develop greater public awareness campaigns
- Government to put in place stronger and more effective market surveillance measures (including stronger policing of the Building Regulations)

45. Key risks identified by participants included the issue of public resistance to product change and the poor effectiveness of market surveillance. In relation to the latter, one stakeholder suggested that Government could consider using the proceeds of any fines arising from successful prosecutions to the funding of the market surveillance activity.

Government response

46. The suitability of lamps gaining support under the CERT scheme is ensured by application and regular review of the Energy Saving Trust's "Energy Saving Recommended" specification. The specification ensures that only the best practice lamps are included and are eligible for CERT subsidies. Energy saving halogen lamps are being evaluated for inclusion in the specification. Performance standards for LEDs are under active development for inclusion in the ESR specification.

47.

48. The UK has lead calls to reduce VAT on energy efficient products (see section 3.5.3 of the consultation document).

49. The Building Regulations were amended in 2006 to ensure that the energy efficient fitting included some sort of suitable shade and were not simply ballasts hung from ceiling roses – this revision is already mentioned in the consultation paper. Informal consultation on the next revision of Part L1 is commencing this year and a formal consultation will be announced in early 2009.

50. The Building (Scotland) Regulations were amended in 2007 to require that at least 50% of light fittings should be low energy type. The next review of energy standards has commenced and could require a higher percentage of low energy light fittings.

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

Summary table for Question 7

Key topics raised	Number of
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	comments
Demonstration of cost benefits on products are key to their greater uptake	1
Poor quality product failure must be addressed by Government	1
Need to progress the DEELS programme	1
Fiscal policy changes only to be considered in the event of other policies failing	1

51. Four stakeholders responded to this question. The policy measures described in the consultation document were generally supported by respondents and identified as being important to delivering improved product performance. However, comments concerning the need to consider additional policy factors were provided, some of which built upon comments made in relation to earlier questions/issues.

52. One respondent suggested that because many consumers are more cost conscious than environmentally aware, inclusion of explicit cost benefits should be shown on the product(s). Another 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.

53. In relation to the DEELS programme, it was stressed by one respondent that it was extremely important to progress this initiative because the first effective LED products will be luminaires and DEELS represents the only lighting proposal that addresses the performance of the entire product.

54. One stakeholder commented that the lighting industry's view was that any fiscal policy changes (e.g. VAT reduction) should only be considered when other policy measures were found not to be achieving their desired objectives.

Government response

55. The demonstration of cost benefits on products has been discussed previously with manufacturers and retailers. The Government has sympathy with the view expressed by both parties that there is inadequate space on lamp packaging and that cost benefits are too variable (with actual price at point-of-sale) to be accurate and up-to-date. It was considered that examples, say within a Buyer's Guide, or in the EST guidance materials, would be preferable.

56. Issues relating to the policing of Regulations have been discussed above.

57. The issue of product labelling to provide appropriate GLS equivalence is being addressed by a working group associated to the Energy Efficiency Partnership for Homes Lighting Strategy Group, engaging retailers to drive such issues forward.

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

Summary table for Question 8

Key topics raised	Number of comments
Concerns with adopting a new approach to 'equivalence' labelling	3
Development of easily understood and straightforward test procedures and standards	1
Need to phase out GLS bulbs whose efficacies are lower than the requirements of the BS ahead of lamps meeting BS EN 60064.	1
Promotion of 4-pin rather than 2-pin CFL systems is environmentally preferable	1
Need to councils to dispose of all lamp types responsibly	1
Other comments	2

58. Comments from six stakeholders were received in response to this question. Stakeholders typically repeated earlier points made in relation to the need to build upon, strengthen and amend existing measures. In particular, stakeholders noted their concerns with existing measures and suggested alternative approaches where relevant.

59. Three respondents considered in some detail the consultation document's suggestion of potentially moving 'equivalence' labelling of energy-efficient bulbs away from '60W equivalent' style ratings towards a lumen or light-based metric. Two principal concerns with this approach were raised:

- A lumen or light-based metric will create confusion and have little or no meaning to consumers used to purchasing light bulbs according to wattage.
- The approach is impractical owing to the fact that light output distribution varies for different products (therefore total light output is not a satisfactory guide to how much light will be in the place where the user might want it).

60. Despite these reservations, it was suggested that if such an approach were to be developed, it might be better to add a limited range of suitable applications for the lamp to help the purchaser identify where it is best used; for example, table lamp, pendant, wall light. One respondent commented that because, comparatively, CFLs lose more light output during their life, a "Through Life Average Light Output" would be more meaningful than one giving initial light output. Two of the three sets of comments received in relation to this issue concluded that it would be a major exercise to teach the domestic purchaser the meaning of the system and how to choose effectively, and that it might therefore be better to focus on improving the established system rather than adopting a new approach.

61. One stakeholder stressed the need more generally for the development of easily understood and straightforward test procedures and standards. Such metrics, it was stated, will ensure that key players understand the needs of others in the industry, while at present it is not straightforward to compare 'like with like'; it was felt that until this is addressed there will always be confusion and lack of control within the industry.

62. It was observed by one stakeholder that besides clear and "pearl" GLS lamps, made to BS EN 60064 (= IEC 60064) manufacturers currently offer a variety of similar lamps, usually with slightly different bulb shapes and with a thick white or tinted coating on the bulb whose efficacies are lower than the requirements of the BS

and are not claimed to comply. In view of this, it was felt that these products should be phased out before lamps meeting BS EN 60064.

63. Stakeholders repeated earlier comments made, including:

- The need to educate the public about energy-efficient lighting in the home, including potential concerns
- A more coordinated fact-based approach to communications in which Government departments, Agencies, manufacturers, distributors etc, use the same facts
- The urgent need for Energy Saving Recommended standards for LED luminaires and retrofit lamps, which could be driven by R&D funding via CERT

64. Several additional measures for consideration were identified including the following:

- Increase technology awareness (through e.g. use of Technology Strategy Workshops and focused R&D efforts)
- Accelerate development of OLED's (organic LEDs)
- Every time a one part CFL is discarded, the control gear and other unspent parts are thrown away. The promotion of the two part systems for domestic use, using a glass fluorescent lamp with a 4-pin lamp base (already in existence for 20 years), together with a control gear pod with a high power factor gear pod, re-usable for several lamps would be a more sustainable approach and should be made available to the supermarket consumer.
- All local councils should have recycling facilities (including via contractors) for all lamp types. Although the technology is available now, few councils dispose of lamps responsibly

Government response

65. The issue of product labelling to provide appropriate GLS equivalence has been discussed by a working group associated to the Energy Efficiency Partnership for Homes Lighting Strategy Group. The Government's broad view is that labelling should be simple and practical, and that moves should be taken towards a Lumens system, particularly given that, in time, Wattage equivalents will become increasingly meaningless.

66. The alternative lamps that do not conform to BS EN 60064 are included in the voluntary initiative, led by retailers and manufacturers, to phase out inefficient incandescent lamps; with the exception of lamps for appliances.

67. Under the Waste Electrical and Electronic Equipment (WEEE) Directive, responsibility for recycling CFLs falls on producers and not on local authorities. Producers fund the treatment and recycling of CFLs by specialist facilities. However, local authorities are playing their part by providing designated collection facilities, mostly at Civic Amenity Sites.

68. The Government is aware of other innovative technologies (in addition to LEDs) and will provide policy support as appropriate.

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
Economic and waste/recycling impacts	1
Quality issues	1
Other	2

69. A large proportion (13 out of 18 stakeholders) of stakeholders responded to this question. Of the 13 responses received, nine commented predominantly or wholly in relation to health impacts associated with the use of CFLs. The four other respondents commented in relation to economic and waste issues, quality impacts and other (operational) concerns. Finally, one stakeholder commented that the potential impacts identified in the consultation document were correctly identified and would be favourably influenced by the success of the Government led public awareness campaign that addressed the key issues and potential concerns with the use of energy efficient lamps. The comments received are summarised below thematically.

Health Impacts

70. 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).

71. 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
- fibromyalgia

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

73. 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.

74. 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.

75. 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.

76. 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.

77. 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.

Economic and waste impacts

78. One respondent noted that whilst the economic impacts of the measures were advantageous on a life-time product basis, there was a need to describe the cost saving calculation (or maybe just result) on the product package and/ or at point of sale to ensure the customer would be aware of the economic advantage associated with purchase of energy efficient lamps. The same stakeholder noted the challenge of householders being encouraged to travel to a Household Amenity Site to dispose

of a CFL. It was suggested that it may be preferable to persuade retailers to provide a waste collection facility at their stores. Another participant expressed the concern with additional waste impacts arising from potential import of low quality lighting products (see Question 7); the problem of local council recycling facilities being available for all lamp types was also raised (see Question 8).

Quality issues

79. It was stressed in one response that ensuring product quality represents a significant potential problem. Examples provided included the presence of low quality CFLs with uneven phosphor coating within the lamps (which allows excessive UV to escape) and lamps using very thin glass in the neck junction (which makes them susceptible to early breaking). In this context, the need for new standards based upon the Energy Saving Trust specification V6 and the European Charter was noted, before the lifting of duty from October 2008.

Other impacts

80. One stakeholder raised a potential concern with the phasing out of tungsten bulbs in relation to security lighting. The view was expressed that security lights, lights using the sensitivity of darkness, lights controlled by dimmer switches and lights controlled by a timer cannot use energy saving bulbs due to the extra power needed for these bulbs on initial start up - and that such factors will therefore adversely effect the efficacy of security lighting practices. The same respondent also commented that some energy saving bulbs emit ultrasonic sound and can interfere with some remote control systems.

81. Government response

82. The Government is aware that there are some people for whom the use of some energy-efficient lamp technologies can aggravate pre-existing medical conditions. Officials and Ministers from both Defra and the Department of Health have met to discuss these issues with representatives of patient support groups and with specialists from the Health Protection Agency and with expert dermatologists. Representatives from the UK lighting industry have been pro-active in there engagement in this matter.

83. The UK has pressed the European Commission to consider this issue carefully as part of its impact assessment for possible measures under the Energy-using Products Directive so that proportionate interventions can be made.

84. The Government acknowledges that the wording used in the consultation paper may have caused offence.

85. The issue of consumer information on consumer awareness is covered above.

86. Retailers have a responsibility under the Waste Electrical and Electronic (WEEE) Directive to take back CFLs and other WEEE. In the UK, retailers can either take back equipment in store on a like for like basis or contribute to the Distributor

Take Back Scheme which is funding provision of collection facilities at local authority sites. (There is nothing to prevent retailers doing both.) Retailers also have a duty to tell consumers about their options for disposal and the Government is planning a publicity campaign later this year to inform householders about how they can dispose of WEEE.

87. Lamp and luminaire manufacturers are aware of the difficulty of using CFLs in security lighting and they are considering designs to provide new products for this sector. It should be noted that, for the UK's voluntary initiative led by retailers and energy suppliers, halogen-based lamps will remain on the market.

General responses

Summary Table for General responses

Key topics raised	Number of comments
Power factor of CFLs	4
Untruthful product claims made by suppliers	1
High harmonic currents imposed on the network by CFLs	2
CFLs and LEDs light outputs' sensitivity to temperature	2
need to define different quality grades for CFLs	1
Government should promote the use of CFLs with separate electronic ballasts	1

88. Six participants chose to submit general responses in the area of domestic lighting in addition to, or as an alternative to, answering specific questions. Responses were concerned with the following issues:

- The poor power factor associated with CFLs
- Manufacturers' untruthful product claims regarding energy performance
- High harmonic currents imposed on the network by CFLs
- The need to define different quality grades for CFLs as the market develops
- Limitations of CFLs (e.g. they do not give full light output instantly and perform badly in cold conditions) suggesting that in some areas such as stairways their use could be hazardous.

89. Several participants stressed that whilst it was appropriate to promote CFLs, they have poor power factors. It was noted that these can be as low as 0.46 and that therefore their power indication in watts misleads the buyer (for example a 23W CFL with a power factor of 0.46 would consume 50 volt-amps; although domestic customers pay for watts and not volt-amps, the national grid has to produce 50 volt-amps and therefore the 23W is a misleading figure). These respondents highlighted the energy consumption implications associated with the poor power factor. One respondent commented that instead, the true watts, the power factor and the VA should be printed on the product itself and the carton. Similarly, another stakeholder stressed that it is not satisfactory to calculate the carbon dioxide savings based on the difference in wattage between the CFL and the lamp it replaces because virtually all CFLs have a power factor of about 0.5 (and thus the VA of the lamp is about twice its wattage).

90. Although it was noted that electronic ballasts for fluorescent tubes have addressed these problems, the small size of the ballast incorporated in the replacement CFLs and the associated cost, has resulted in the poor power factors found in current lamps. One suggestion made was that as more CFLs are being marketed to the public, there should be a delineation made between the cheaply made poor quality products and the good quality well made products e.g. "Grade 1" and "Grade 2" products.

91. One respondent commented that the Government should promote the use of CFLs with separate electronic ballasts as this would allow for better quality electronics and reduced energy consumption. For this to be suitable for householders would require an electronic ballast with BC connector to fit existing lighting points, or built in to new luminaires, and a universal ballast and lamp-holder for an appropriate range of lamp powers (the householder cannot be expected to cope with the different lamp caps that are available).

92. Another concern raised was that for both CFLs and LEDs light outputs are sensitive to temperature. Any performance data will therefore only be properly useful if it is given for the thermal environment in which the lamp operates e.g. an LED may perform well at room temperature, but in an enclosure and maybe in a multiple array where the temperature is raised, light output may fall substantially. CFLs used in a cold environment or in a small enclosure may also suffer significant light output reductions.

Government response

93. The Government has considered the issue of power factor in CFLs with integrated ballasts and has consulted with the electricity distribution companies to assess the implications for energy savings. The Government is assured that the effect of poor power factor is rapidly diluted in a mixed load power loading on the grid system and that the power factor has only a minor impact of the overall distribution losses of the network; the majority of the rated wattage savings will be achieved.

94. Different quality grades for CFLs are provided by whether the CFL is 'Energy Saving Recommended' (ESR) quality or not. The Government will continue to work with the Energy Saving Trust to ensure that all appropriate quality issues are covered in ESR specifications.

95. The Government acknowledges that the performance characteristics of light sources like CFLs and LEDs are very dependent on operating temperatures. However, such characteristics can only usefully be defined for one common operating temperature (usually 25°C) in measurement standards. The Government will consider where information on the temperature sensitivity of lighting products might be best published.

4 Next steps

96. 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 domestic lighting products are being reviewed along with options for the ongoing improvement.

97. The outcome of this process is published in the separate document entitled 'Policy Brief for Domestic 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

David Price, SPECTRUM
Santiago Barón Escámez, European Lamp Companies Federation (ELC)
Eddie Taylor, Lighting Industry Federation (LIF)
Evelyne Muller, Right to Light
Prof. Anthony Pinching, Peninsula Medical School
Colin Humphries, Cambridge University
John Ryder, Eclipse Support Group
Keven Verdun, The Lighting Association
Michaela Miller, Epilepsy Action
Peter Phillipson, Future Group Lighting Design
Dr Ric Allnott, UK Displays and Lighting KTN
Julia Cameron
Malcolm Richards
Ray Burgin
Rosemary Cox
Robert Napier
Sheba Harper
Sarah Scott
Mark Wood-Robinson