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Summary of responses to the consultation entitled 'Improving the energy performance of domestic heating and hot water systems'

July 2008

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1 Introduction

1. On 21 January 2007, following the publication of the Energy White Paper, the Government launched a domestic heating and hot water consultation paper¹. Interested parties were invited to provide comments by the 14 April 2008. AEA Energy and Environment managed this consultation, as lead contractor of the Government's Market Transformation Programme (MTP).
2. The paper (chapter 11 of the consultation paper) set out the Government's current evidence, analysis, indicative targets and eco-design standards for domestic heating and hot water systems 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 twenty one responses were received from a range of organisations and individuals. These ranged from detailed comments on the consultation document to general comments relating to just one or more issue. A number of those stakeholders who responded attended a domestic heating and hot water products consultation meeting, which took place on the 04 February 2008. It should be noted that some organisations chose to have their opinions put forward via trade bodies.
6. Of the twenty one responses received, nine represented private companies, eight represented submissions from trade associations; three were submissions from government bodies and one submission from an individual. Although the individual simply acknowledged the consultation paper but had no comments to make.

¹ The original domestic heating and hot water consultation document (Sustainable Products Policy Brief, Energy in use: Domestic Heating and Hot Water Products. Evidence, analysis, targets and indicative standards) can be downloaded at [www.mtprog.com/cms/whitepaper/.](http://www.mtprog.com/cms/whitepaper/)

7. Eleven 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 eleven questions. Where stakeholders provided general comments, these have been summarised under the relevant question areas as far as possible.

8. The responses received were wide-ranging and often specific to the industry represented by the stakeholder in question.

9. Little objection was raised to the Government's published analysis, projections, P1 target and indicative standards for more sustainable products. However, most stakeholders noted specific risks, areas of concern, and suggestions for additional measures that could be employed or taken into consideration.

10. Several of the stakeholder responses have made points regarding measures which are outside the scope of this consultation, for example the consideration of solar power and micro-generation as part of the heating and hot water system. We recognise the value of a more inclusive approach and are looking closely at the scope of further consultations with an aim to address more of the initiatives and measures which affect heating and hot water systems as a whole.

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
Alternative low carbon energy sources	4
Model assumptions	2
Quality of the water / water treatment	2
Boiler replacement issues	2

11. This question follows the introductory paragraphs which describe the scope of the consultation paper, energy demand in domestic dwellings associated with boilers, market characteristics of boilers, the impact of the Building Regulations on the types of boilers installed, heating controls and price of products.

12. Fifteen stakeholders responded to this question or provided comments related to the issues raised in this section. A wide range of comments and suggestions were made.

13. Four stakeholders suggested air source heat pumps or other low carbon technology energy options such as solar, wood, bio-methane, whilst recognising the barrier of high investment costs. Other alternative technologies suggested include: the use of larger radiators or underfloor heating. One supporting solar energy called for a registration scheme to deter 'cowboy' operators.

14. One stakeholder commented on the importance of the quality of water passing through or contained in the hot water system. It was suggested that the application of suitable water treatment technologies must be considered to ensure the efficiency of domestic heating and hot water systems. A further stakeholder felt that the energy required to heat water would increase relative to the energy requirements for space heating.

15. One stakeholder commented on a European trend in dropping boiler sales and specified the concern that if this spreads to the UK, it may demonstrate potential market fragility, and in such a case it will be important to encourage ongoing boiler and heating system replacements.

16. One stakeholder questioned the assumption that all homes have 'standard' heating controls and suggested that only as many as 20% of homes may have 'standard' controls. Another raised concerns about the problems of actual performance versus expected /modelled performance of equipment.

17. One stakeholder suggested that consideration could be given to initiatives to replace existing inefficient boilers (currently estimated to be around 4million in the UK) in order to realise significant CO₂ savings quickly. This would help contribute to meeting the P1 target. One commented on restricted scope of the paper (i.e. to heating systems), rather than the building 'envelope' through which effect design has the potential of reducing energy consumption by 90%.

18. One felt that electric showers, which heat water on demand, offer simple and worthwhile solutions.

Government response

19. While consideration of the merits of alternatives to conventional heating were outside the scope of this paper, the Government intends to review this with view to including some analysis of these technologies in future consultation papers.

20. The scope of this paper is however, limited to product focussed measures rather than building related energy saving measures, although we do recognise that there a number of areas where these policies overlap.

21. The comments regarding the assumptions about heating controls are noted and we will assess whether we need to update these assumptions before the next consultation on this.

22. The Government is aware of the potential savings associated with replacing inefficient boilers. As a result of the Building Regulations, the vast majority of current boiler sales (circa 1.5 million pa) are replacements of inefficient boilers by efficient, condensing boilers.

23. With regard to the comments about water quality, there are no plans to include consideration of water treatment in the future, as this has no substantive effect on efficiency, and does not contribute significantly to carbon targets.

24. With regard to the comments about electric showers, our analysis is that such measures are likely to raise, rather than reduce emissions.

Question 2: Does the above graph realistically illustrate how key existing policy instruments could support improvements to conventional heating systems?

Summary table for Question 2

Key topics raised	Number of comments
Future impact of changes to Building Regulations	2
Optimistic/idealistic projections	2
P1 target is not sufficiently ambitious	1
Other factors would affect success of policy initiatives	2
Microgeneration issues	2

25. This question refers to the graph describing projected market developments in terms of better use of standard controls, penetration of advanced heating controls

and solar water heating systems. Eleven stakeholders responded to this question or provided related comments.

26. Two stakeholders made comments regarding the impact of future Building Regulations policy measures which do not appear to be reflected in Figure 3.1. Two also felt the projections were over-optimistic or idealistic rather than realistic. However, another stakeholder felt the P1 target was inadequate given the challenges of climate change.

27. Two stakeholders felt it was difficult to comment without seeing further background data on the assumptions used to inform the projections (eg definition of 'advanced controls', underlying data on consumer behaviour).

28. One stakeholder questioned the effectiveness of the three policy measures: the Building Regulations, CERT and Warm Front.

29. Two stakeholders felt that the success of these policies would be affected by other issues such as the cost of energy to consumers and the advice provided to consumers and specifiers.

30. One called for the P1 target to include the impact of the inclusion/ argumentation of micro-generation alongside conventional heating systems. Another felt that on-site solar water heating for single dwelling was not cost effective.

Government response

31. Government will revisit the level of ambition before issuing a further consultation on domestic heating and hot water systems. The underlying data can be found in the Briefing Notes given in the list of references

32. <http://www.mtprog.co.uk/cms/product-strategies/subsector/domestic-heating> .

33. With regard to the comments about inclusion of the impact of micro-generation, consideration of alternative systems was outside the scope of this paper, but may be included in the future.

Question 3: Are the performance and market penetration figures shown in Figures 2.1 and 3.1 and in the table in the Appendix set at the right levels?

Summary table for Question 3

Key topics raised	Number of comments
The levels are realistic	2
The levels are an overestimation / inadequate	4

34. This question related directly to the graphs showing expected future boiler energy performance and the projections for market penetration of specific boiler controls and solar water heating systems up until the year 2020. Seven stakeholders provided comments in response to this question.

35. One questioned the need for 300 000 gas boilers given the predicted need for 3 million new homes over the same period. One felt that the number of Band C boilers was likely to fall towards zero and volumes of Band D boilers also would fall.

36. Two felt that the projections would not allow the Government to meet carbon reduction targets or the challenges of climate change.

37. Two stakeholders felt that the projections for installation of solar powered water heating systems were overestimated whereas one qualified their response by adding that it was possible if the correct financial incentives were in place.

38. A further stakeholder felt all projections were realistic and felt there were particular opportunities to expand the sale of solar systems. Another stakeholder felt that predictions for penetration of advanced controls were realistic although recognised the need for further work in this area including the clarification on the definition of 'advance control'.

39. One stakeholder felt the projections should include data on the potential for savings resulting from retrofitting controls.

Government response

40. The comments on solar systems are noted and will be addressed in future versions of this paper.

41. We recognise that retrofitting controls has the potential to bring significant savings and are working to ensure that measures developed under the EuP Framework Directive promote retrofitting of controls. Significant saving should also accrue via our Building Regulations, which requires the fitting of a proper controls package when a boiler is replaced; there are over 1 million boiler replacements a year.

Question 4: In the area of market analysis, projections and targets, should consideration be given to any additional:

- Measures.
- Risks.
- Strengthening initiatives.

Summary table for Question 4

Key topics raised	Number of comments
Use of financial incentives	2
Lack of knowledge	2
Solar system design issues	2
Support microgeneration technologies	2

42. This question follows the section in the consultation paper which outlines the potential risks of meeting the proposed objectives. These include the possibility that products could develop in a different direction to that predicted. It also pointed out the differences exhibited by products operating under test conditions and in-situ. The paper also acknowledges that there are weaknesses in knowledge relating to

market and technology trends. Eleven stakeholders provided comments in response to this question or related issues.

43. Two stakeholders mentioned the idea of grants, tax relief or other financial incentives as possible strengthening measures to assist in meeting the policy objectives. One cited the often 'emergency' decision to replace or upgrade a boiler compared to installation of solar energy systems (where whole life costs were thought to have a greater consideration). The other stakeholder suggested that financial incentives would encourage replacement of outdated products.

44. In terms of lack of knowledge, two stakeholders made related comments. One felt there was little knowledge on actual consumer behaviour and suggested further work is carried out to ascertain the impact of installing upgraded control systems or designing out the incorrect use of controls by consumers. A further stakeholder supported the need for further suitable research studies by engineering consulting firms.

45. In terms of solar hot water systems, one stakeholder suggested this should be mandatory requirement in new build homes and this should be supported by in-situ testing of solar hot water usage. Both this stakeholder and a further stakeholder alluded to the issue of poor design of solar system and one called for a registration system for installers and designers. A further related risk was legionella bacteria which could be present in some solar heated water.

46. Two stakeholders mentioned issues associated with microgeneration technologies with one providing a very detailed case study and data supporting the efficiency of air source heat pumps over gas condensing boilers and their potential for reducing CO₂ in domestic homes. They also pointed out how this technology could reduce the UK reliance on imported fuel from potentially unstable overseas suppliers. A second stakeholder called for the support of the microgeneration technologies through the financial and regulatory framework.

47. In relation to the UK market, one stakeholder reiterated the point that the UK hot water supply situation may not be amenable to proposed EU solutions.

Government response

48. The Government recognises that many boilers are bought as distressed purchases and is grateful for the suggestions about financial incentives to promote purchases of more efficient heating systems.

49. The Government will consider how best to address the perceived lack of knowledge about consumer use of controls for the next consultation on this.

50. As noted above, the scope of this paper was limited to conventional heating systems, although this will be reviewed prior to issuing a further consultation on this.

51. As noted lower further on in this document, the Government is working with the European Commission and other Member States to ensure that the EU proposals on boilers and water heaters take, as far as it is possible, account of the UK situation.

Question 5: In the area of engaging the supply chain, should consideration be given to any additional:

- **Measures.**
- **Risks.**
- **Strengthening initiatives.**

Summary table for Question 5

Key topics raised	Number of comments
Training & education of installers	6
SAP issues	3
Consumer/householder issues	3

52. This question follows a description of the need to encourage UK companies in the supply chain to compete in order to meet the indicative standards set out in the Appendix. Professional development training supports this objective. The section includes a description of SAP and the risks associated with difficulties in amending SAP. Other risks include insufficiently rigorous test methods for products and the possibility that the consumers will retain older, less efficient boilers rather than replacing them with new more efficient models. Comments were provided by thirteen stakeholders in response to these or related issues.

53. Six stakeholders referred to issues associated with educating, training or engaging product installers. Stakeholders suggested the idea of running courses and one mentioned the idea of a system, other than MCS, to recognise designers/installers of solar hot water systems. One called for the highest levels of installation to be maintained across the industry, another supported the need for consistent messages for householders. One recalled the successful education and training programme that was put in place to help the transition of the market to condensing boilers.

54. It was the view of one stakeholder that the SAP model could lead to perverse outcomes. Another stakeholder suggested amending Appendix Q given the inflexibility of amending the SAP. Another welcomed the work to enhance SAP and to develop a model to evaluate the savings from controls.

55. In relation to consumers, one stakeholder suggested more consumer education, tax breaks or other rewards to engage householders. One felt that consumers need more information to make informed choices and need to understand the importance of product maintenance in relation to energy efficiency. Test methods were also mentioned as these do not always produce results which are replicated in practice and consumers need to have reliable data.

56. Two stakeholders reiterated points made in response to previous questions: Namely the fact that the UK market may not 'fit' with European solutions and another mentioned again the impact of water quality on heating and hot water product efficiency.

57. Other comments relating to strengthening initiatives include:

- the need to ensure boilers are fitted which are not oversized, which appears to be commonly the case;
- supporting an environmental rating, rather than an energy efficiency rating.

Government response

58. The Government is aware that the greatest potential for energy savings is to address heating systems, and that installers are key to choosing and installing more efficient systems. As discussed below, the Government is working with the Commission and other member states to ensure the EuP implementing measure on boilers is focussed on heating systems, not just individual boilers. Such an approach will require industry to work together to develop models to enable minimum performance requirements to be set for heating systems, and to train installers to use these appropriately.

59. Consumers are already becoming more aware of the need to purchase more efficient boilers, and the SEDBUK rating has successfully achieved a degree of consumer pull for more efficient boilers. Once the EuP implementing measure on heating systems is in place, we would envisage much more dialogue between consumers and installers about the efficiency of heating systems.

60. Regarding the SAP model, it is understood that some unusual outcomes have been found, but these relate to the fuel factors listed in Part L of the Building Regulations, not SAP. Nevertheless, Defra would be pleased to investigate any anomalies that are discovered.

61. It should be noted that Appendix Q was developed to enable the early introduction of new and amended product performance information into SAP, it is not a vehicle for amending the SAP methodology.

Question 6: In the area of EU and international policy actions, programmes and initiatives, should consideration be given to any additional:

- **Measures.**
- **Risks.**
- **Strengthening initiatives.**

Summary table for Question 6

Key topics raised	Number of comments
Boiler inspection rather than energy efficiency advice	2
EuP complexities	2

62. This question follows a section in the consultation paper which outlines the EuP Directive, the EPB Directive, product information (including the SEDBUK efficiency rating system) and efficiency test methods for boilers. Comments were received from ten stakeholders covering a wide range of issues.

63. A variety of responses were received and these are organised according to the type of response given.

64. One stakeholder reiterated the differences between the UK and EU markets but supported the EuP initiative for labelling of circulators. Another stakeholder felt that EuP was a difficult concept in a market where the products differed across countries. One stakeholder raised concerns about the proposals to label boilers as 'bundles' of products.

65. One stakeholder pointed out the EuP proposals appear to focus on the efficiency of the whole system rather than the efficiency of the appliance. How this will be implemented is unclear but it is important that these policies can be delivered on a practical level. One stakeholder felt that the complexities of EuP may encourage repair over replace.

66. One stakeholder supported the need for reproducible and repeatable test methods which would provide consistent results across laboratories across Europe. They suggested that the standards process should not be by-passed.

67. One stakeholder felt that the revision of the EPB Directive provided an opportunity to act as a whole house energy label with a focus on heating. This was felt to provide an easy way for householders to compare efficiencies. Two further stakeholders supported the proposal to introduce boiler inspections over energy efficiency advice.

68. One stakeholder called for an urgent study on how to improve SEDBUK.

69. One stakeholder took the view that the UK market was not sufficient different to other European countries. They called for the UK to move away from the reliance on fossil fuels to reduce carbon dioxide emissions. They mentioned the work undertaken in Denmark on test methods and performance data allowing consumers to make informed decisions. They called for solar water heating systems to be discouraged for individual dwellings on the basis they are not cost-effective, but supported initiatives at a local authority level to provide energy from renewable sources such as biomass, waste and industrial waste heat and to develop 'heat plans'

70. One stakeholder reiterated again their concerns regarding the need to consider all factors which impact on boiler and hot water system efficiencies, in particular water quality.

Government response

71. The Government is aware of industry concerns with the current draft of the European Commission's proposals for an implementing measure under the Eco-design of Energy using Products Framework Directive (EuP) for boilers and water heaters. The Government agrees that a system based approach is likely to afford considerable CO₂ savings, but disagrees with the approach put forward by the Commission. To this end, the Government is working with the Commission and other member states to ensure the implementing measure achieves the potential environmental benefits, but results in less distortion to the market than the current proposals.

72. There may be some scope to improve SEDBUK calculations in the future.

Question 7: In the area of UK policy actions, programmes and initiatives, should consideration be given to any additional:

- **Measures.**
- **Risks.**
- **Strengthening initiatives.**

Summary table for Question 7

Key topics raised	Number of comments
Initiatives to encourage microgeneration	4
CERT system	3
EPC issues	2
Role of merchants and installers	2
Labelling suggestions	2

73. This question follows the section in the consultation paper which describes a number of initiatives being undertaken at national level. These include:

- The Code for Sustainable Housing and Part L of the Building Regulations;
- The Government’s Sustainable Procurement Action Plan (SPAP) and related initiatives;
- Product information tools such as the Boiler Efficiency Database and CHeSS, the ESR labelling scheme, and
- The Energy Efficiency Commitment Scheme and CERT.

Eleven stakeholders provided a response or comments in response to this question.

74. Four stakeholders mentioned initiatives to encourage the uptake of microgeneration. Some were critical of CERT which was felt not to provide an incentive to upgrade boilers or support microgeneration. However, one stakeholder commented on how the new CERT does aim to support biomass boilers, solar water heating and ground source heat pumps. One specifically called for financial support for low carbon projects and another on financial incentives to encourage boiler replacement and argumentation with solar power/ alternative technologies.

75. One stakeholder called specifically for the Government to acknowledge and promote the benefits of air source heat pumps both in new build and refurbishment projects. One suggested removing the need for planning permission for heat pump and solar developments. Another suggested requiring architects to provide sufficient space for solar/heat pump technologies in building design.

76. Two stakeholders mentioned the use of EPC to assist consumers. One suggested compelling EPC assessors to recommend air source heat pumps when it is financially viable. One stakeholder felt an information campaign was needed to prepare consumers for the impact of the zero carbon homes of the future, another felt an information campaign was required on microgeneration.

77. Two stakeholders mentioned the role of merchants and installers. One felt it was important for them to provide independent information to help consumers.

Another felt the certification scheme for microgeneration (MCS) which, in their view, is costly for installers which makes them reluctant to join.

78. Two mentioned promotion of specific components of heating systems. Both mentioned labelling initiatives in this regard – the EST scheme in relation to variable speed circulators and a recent proposal to the Commission for European scheme for controls.

79. One stakeholder reiterated their comments regarding the local authority 'Heat Plans' after the Danish model with the assistance of consulting engineering firms with experience of continental practice.

80. One stakeholder reiterated the differences between the UK and EU markets

Government response

81. As mentioned above, alternative heating systems were outside of the scope of this consultation paper, but this will be reviewed when preparing the next consultation on this. These comments will therefore be extremely useful for determining the scope of the next paper.

Question 8: What is the potential for the introduction of smart systems (eg in house management systems, remote management of boilers) as a means of delivering energy savings in the period up to 2020, and what additional measures would you suggest to promote this?

Summary table for Question 8

Key topics raised	Number of comments
Specific support for smart meters	3
Support for real time displays/recent use displays	4
Automated meter management/remote management	2
Consumer information/education	1

82. This question follows a section describing wider UK policies which impact on domestic heating and hot water systems. These include general energy efficiency campaigns, the promotion of pro-environmental behaviour, possible changes to VAT on energy efficient products and Smart metering and consumer real time displays units. Comments from ten stakeholders were received in response to this question.

83. Three stakeholders specifically voiced their support for smart meters, although one felt they provided little benefit. Four stakeholders supported real time displays or 'recent use' displays – although one stakeholder maintained that electricity should not be the fuel supplied for water and space heating.

84. One stakeholder strongly supported Interval Metering with Automated Meter Management (AMM) (metering with two way communication and a fitted in-home consumer display with real-time energy use data) both now and in the future. It provides the supplier with greater opportunities for innovative tariffs and the ability to shift and/or flatten peak demand, increasing security of supply. Another stakeholder felt that remote management of boilers and heating systems presents many

technical and behavioural challenges.

85. Two called for actions to help consumers use heating controls effectively and to help them reduce the amount of energy they waste.

86. One stakeholder called for reduced or rebated VAT on circulators.

Government response

87. Unless they are for gas, the potential benefits of smart meters will not be realised for conventional heating systems. However, smart meters are relevant for alternative heating systems, which as noted above, we will be considering how best to include in the next round of consultation on this.

88. The Government agrees with the view that consumers need to use their heating controls effectively to save energy. The systems approach being discussed in the context of the EuP implementing measure on boilers and water heaters will promote the use of heating controls, and as noted above, this is expected to result in better trained installers discussing the efficiency of heating systems with clients in more detail than happens today.

Question 9: Are there any other policies likely to impact on domestic heating and hot water systems that should be taken into account?

89. Ten stakeholders responded to this question or provided some comments in relation to the issue. There were no common themes and stakeholders provided a range of suggestions and raised a number of different issues.

90. One stakeholder felt that the main barrier was the perceived cost of boiler replacement rather than lack of consumer awareness/engagement. A second stakeholder felt that main improvements lie in consumer education relating to the use of controls rather than improving efficiency of appliances. They felt consumers should be encouraged to replace boilers and upgrade to more advanced controls.

91. One stakeholder strongly supported the encouragement of the use of air source heat pumps given the demonstrated high efficiency levels and the future reduced demand for space heating. At the same time, they were felt to assist Government to meeting their 2016 carbon neutral target.

92. Two mentioned the impact of water on boiler efficiency. One felt that water efficiency measures could impact on operation of combi-boilers. Another stakeholder felt that rainwater collection and water reuse initiatives would need to include water treatment processes to avoid the negative impact on boiler operation.

93. One stakeholder felt that instantaneous hot water heating systems should be considered. Another specifically called for the use of wood as a renewable fuel. A different stakeholder called for urgent planning for passive solar standards and biomass heating.

94. One stakeholder raised the issue of the different types of housing sectors and their differing needs which need accommodating.

Government response

95. The Government is grateful for these comments and will bear them in mind when developing the scope of the next consultation on heating and hot water.

96. Government agrees that consumer education is important, however products need to be as efficient as possible before education can maximise the potential energy savings.

Question 10: What additional measures would you suggest developing to drive forward sustainability in domestic heating and hot water systems?

Summary table for Question 10

Key topics raised	Number of comments
'Short term' measures	3
Microgeneration issues including ground source heat pumps	3
Water treatment and quality	2

97. This question follows a section on how conventional systems could be improved (listing nine specific measures) and also a short section on alternatives to conventional systems which may displace gas and oil boilers and which demonstrate carbon savings. Thirteen stakeholders responded to the question or provided related comments.

98. Three stakeholders suggested more work (in the short term) on advanced controls, control design and use, and heat emitters for low temperature systems. One called for encouraging replacement of less efficient boilers with more efficient models and supported the use of advanced controls.

99. One stakeholder pointed out that low CO2 technologies also bring financial savings. They detailed their own initiative to review performance of their products and how they are working with ethical finance companies to accelerate consumer uptake. They supported a simplified approach to product selection in order to promote energy efficient products and the need for Government to promote best practice to assist procurers for the public and private sectors to make the most sustainable purchasing decision for heating systems.

100. One stakeholder called for different types of ground source heat pumps and air source heat pumps to be added to the list of alternatives to conventional systems. Another stakeholder felt more data is needed to provide a realistic projection of future solar hot water and ground source heat pumps. A further stakeholder advocated support for microgeneration with a range of proposals for implementing a system which would ensure microgeneration meets its full potential.

101. One stakeholder mentioned their specific product which can be used to increase the efficiency of conventional systems. Two stakeholders mentioned water quality issues and their effects on the operation or lifetime of heating and hot water

systems.

102. One stakeholder felt that future efficiency gains will be small but valuable and so will need to be encouraged (eg passive flue gas heat recovery products). However they point out that these measures are not included in existing performance assessment methodologies and create barriers to market entry. Another stakeholder believed further work is necessary on passive heating and related control systems.

103. One stakeholder specifically advocated district heating which results in 100% carbon savings. They provided additional information to most of the proposals and suggestions included in this section of the consultation paper. For example, they voiced concerns about the quoted underfloor heating efficiencies, the risks of using passive heating from flue gas, the suggested unsuitability of some biomass community CHP projects etc. The stakeholder provided detailed suggestions and sources of further information from overseas projects.

Government response

104. The Government is grateful for these comments and will bear them in mind when developing the scope of the next consultation on heating and hot water.

Question 11: Are there any other potential impacts resulting from these proposals that should be taken into account?

Summary table for Question 11

Key topics raised	Number of comments
Consumer payback times	1
Benefits of noise reduction	1
Water quality issues	1
EROI issues	1

105. This question followed a short overview of the more significant potential impacts of the proposals including consumer cost/benefit analysis, impacts on business, impacts on waste and health impacts. Four stakeholders responded to this question.

106. One stakeholder acknowledged the importance of payback for consumers and also suggested that lower-noise pumps are beneficial, despite these benefits being difficult to quantify.

107. One stakeholder reiterated the importance of consumers understanding the impact of water quality of system performance.

108. One stakeholder felt it was important to when choosing measures for carbon reduction, to take full account of the Energy Return on Energy Invested (EROI), energy services, limits, energy, and scale and system effects.

109. One stakeholder reiterated points made in response to previous questions.

Government response

110. The Government is grateful for these comments and will consider them when developing the scope of the next consultation on heating and hot water.

4 Next steps

111. 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 heating and hot water products are being reviewed along with options for the ongoing improvement.

112. The outcome of this process is published in the separate document entitled 'Policy Brief for Domestic Heating and Hot Water Systems' 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

AJ Wells
AMDEA
BEAMA
Bosch
British Water
Energy Consultancy
Energy Saving Trust
Grundfos / BPMA
GT Systems
HHIC
HVCA
Hot Water Association
IPPEC Systems
Micropower Council
Mitsubishi
Morris
NI Housing
National Grid
Ofgem
RLTec
UK Heat Pump Association