



UK ENERGY RESEARCH CENTRE

UKERC response to the DECC consultation 'Heat and Energy Saving Strategy'.

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THE UK ENERGY RESEARCH CENTRE

The UK Energy Research Centre (UKERC) was established in 2004 following a recommendation from the 2002 review of energy initiated by Sir David King, the UK Government's Chief Scientific Advisor.

The UK Energy Research Centre's mission is to be the UK's pre-eminent centre of research, and source of authoritative information and leadership, on sustainable energy systems.

UKERC undertakes world-class research addressing the whole-systems aspects of energy supply and use while developing and maintaining the means to enable cohesive research in energy.

To achieve this we are establishing a comprehensive database of energy research, development and demonstration competences in the UK. We will also act as the portal for the UK energy research community to and from both UK stakeholders and the international energy research community.

We are funded by three research councils: the Engineering and Physical Sciences Research Council (EPSRC), the Natural Environment Research Council (NERC) and the Economic and Social Research Council (ESRC).

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Introduction

The UK Energy Research Centre welcomes this opportunity to provide input to the DECC Consultation on the Heat and Energy Saving Strategy. We have addressed a number of the questions posed in the consultation document calling on all UKERC members for input.

Summary of key points:

- The analysis in the UKERC Energy 2050 report broadly agrees with that presented in the Heat and Energy Saving Strategy. There is no correct way to achieve the carbon emission reductions from buildings but it is clear that both demand reduction and the electrification of heat technologies are key elements.
- UKERC is broadly supportive of a 'whole house' approach to heat and energy saving but would caution against an approach that only supports refurbishment in a single intervention.
- There is evidence that appropriate feedback of energy information to consumers does lead to better control of, and therefore, lower energy use – this indicates a need for a rapid roll out of smart meters and a rapid end to estimated billing.
- UKERC would argue that effective home energy advice requires a skill set that DEAs do not currently address – the consultation does not address this issue.
- The existing standard/accreditation mechanisms tend to account for individual energy efficiency or microgeneration actions in a house – this potentially misses synergistic interventions or creating-counterproductive feedbacks between measures.
- There is a shortfall in provision of support for SMEs to reduce carbon emissions – one option to consider would be to consider extending the support for households to SMEs.
- UKERC suggests the Government should consider whether energy saving obligations should be placed upon energy distributors in addition to, or instead of, energy suppliers.
- UKERC suggests that it would be a good idea to consider implementing a voluntary energy performance standard with a small number of landlords/builders to develop viable systems which can demonstrate the standards for future regulation.
- In addition to making EPC more available to prospective homebuyers, it would be useful to allow them to place this data in a wider market context.
- UKERC is disappointed that the consultation document does not include assessment of fiscal reform. A successful policy package should remove existing perverse incentives (e.g. zero VAT for new-build; 5% for energy-efficient retrofits on a narrow list; standard-rate VAT on other refurbishment works) as well as providing new financial incentives to encourage early adopters.
- UKERC suggests that the potential for the economy in terms of long-term, sustainable job creation is seriously underplayed in this consultation exercise. The current economic crisis presents an opportunity for helping to shape the economic recovery through investment in improving the sustainability of heat supply, especially in buildings.

Q1: Do you agree with the level of ambition and the indicative pathway set out in this chapter? If not, why, and what alternative would you suggest?

The UK Energy Research Centre (UKERC) has recently undertaken detailed analysis of a number of different scenarios to assess the scope for delivering a low carbon and resilient energy system within the UK to 2050. The synthesis report is now available (UKERC Energy 2050). The demand side (i.e. the main focus of the HESS strategy) is potentially a very important contributor to key energy policy goals on this timescale, particularly if this is to be resilient against external shocks whilst delivering the goal of an 80% carbon emissions reduction.

Our scenarios that are consistent with the Government's goals for carbon emissions draw largely on two broad approaches for heat:

- electrification of heating technology with decarbonisation of electricity, and
- reducing the demand for heat through technical and behavioural change at the point of end use.

The "successful" scenarios draw on both approaches, although to different extents. Scenarios that emphasise carbon emissions reductions through market based mechanisms and centralised institutional responses draw primarily on the first approach. Scenarios that place higher emphasis on system resilience (e.g. against external supply shocks), decentralised responses and social change place more emphasis on demand reduction.

Our conclusion is that there is no single "correct" pathway in which the heat system should develop, so the HESS strategy needs to allow for flexibility over these timescales. However, within this context, it is clear that there should be ambitious goals for development and deployment of efficient electric heating technologies on the timescales over which electricity is decarbonised. Similarly, there should be aggressive early support for reducing and decarbonising heat demand at the point of use. We believe that these insights from UKERC research justify the Government's level of ambition in this sector and are broadly supportive of the proposed strategy.

References:

UKERC Energy 2050 -

<http://www.ukerc.ac.uk/ResearchProgrammes/UKERC2050/UKERC2050homepage.aspx>

Q2: Do you agree with the Government's policy approach set out in paragraphs 1.31 onwards to achieving our ambitions on heat and energy saving?

Given the longevity of the building stock and its importance for use of heat we support the emphasis on existing buildings with the proposed strategy.

We agree with the set of potentially important technologies identified. However, the interaction between them is also important. Achieving very high levels of carbon

emissions reduction from existing buildings will require a performance based approach, similar to that used for electrical appliances and vehicles. The introduction of Energy Performance Certificates (EPCs) and Display Energy Certificates (DECs) is therefore an important step forward upon which to build. However, buildings are more complex; performance is very dependent not only on initial design, but also on its implementation, subsequent refurbishment and way that occupants use the building.

Cost is not the only barrier to greater uptake, or even the main one for the lower cost technologies. Other barriers include disruption, lack of information and 'decision paralysis' when faced with contradictory information from different sources. An effective approach needs to address all of these.

Our analysis is broadly supportive of the 'whole house approach', where it is socially and economically feasible. We therefore agree that the proposed CESP is important, and it will test the viability of an area based 'whole house' approach. However, we would caution against an approach that only supports refurbishment of the whole house in a single intervention. This is likely to be the best approach in social housing and other properties where there is major refurbishment. But it is not clear that this approach will be socially acceptable, and therefore viable, in the bulk of the owner occupied sector where the norm for renovation is piecemeal change whilst the property is occupied. In this case, an approach based on maximising change at 'trigger points' (e.g. internal wall insulation at the point of replastering, or installation of roof mounted renewables at the point of re-roofing) may be more achievable. In either case, the key objective is to reduce the costs of high levels of carbon improvement within the framework of planned renovation to minimise the marginal costs (EST, 2006; Killip, 2008).

BERR's Construction Statistics Annual 2007 reports the total amount spent on repair, maintenance and improvement of housing to be some £24 billion. This figure does not include expenditure on new housing, nor any investment in non-domestic property. Annual investment in the existing housing stock is therefore approximately thirty times greater than the finance for energy-efficiency measures available through CERT. A useful piece of research for government to commission would be a detailed analysis of how that £24bn is spent and where the opportunities lie for including low-energy options on the back of works that are being carried out for other reasons.

We caution against over-reliance on carbon markets in this area. The majority of decisions are made by individual householders with limited information, knowledge and skills, other priorities than energy and a low propensity to act in accordance with the optimum pathway specified by a narrow cost benefit analysis. These barriers are now relatively well-understood (e.g. Sorrell, 2004) and deeply embedded in existing markets (Eyre, 1997). The implication is that price based mechanisms alone, and certainly not 'a single carbon price across the economy' alone, are not the optimum solution. The reference to this conclusion of the Stern review in Box 1.5 is

potentially misleading in this regard. UKERC's recent quantitative work confirms this – cost effective energy efficiency is not fully stimulated by carbon pricing alone (<http://www.ukerc.ac.uk/ResearchProgrammes/UKERC2050/UKERC2050homepage.aspx>). We therefore agree with the conclusion that extending carbon pricing to the heat sector is not a short term panacea – and we would add it is not a long term panacea either.

References:

- EST (2006) Energy Saving Trust. Scoping Study: Improving the Energy Performance of Existing Homes. ODPM Review of Sustainability of Existing Buildings.
- Eyre, N. (1997) Barriers to Energy Efficiency: More than Just Market Failure. *Energy and Environment* 8 (1) 25-43, 1997.
- Killip, G. (2008) Transforming the UK's Existing Housing Stock. Federation of Master Builders.
- Sorrell, S., O'Malley, E., Shleich, J. and Scott, S. (2004) *The Economics of Energy Efficiency. Barriers to Cost Effective Investment.* Edward Elgar.

Q3: How can the Government encourage people and communities to change behaviour to save energy? What is the appropriate balance between changing attitudes, and providing advice and information?

There is a great deal of evidence that the link between attitudes and behaviour with respect to energy use is rather weak (e.g. EST, 2008). The ability of government alone to change attitudes by exhortation in a modern liberal democracy is also limited. That does not mean Government does not have responsibility to communicate the gravity of climate change – it clearly does – but we would not expect such communication alone to transform energy behaviour.

There is good evidence that energy advice to homes and businesses, especially the former through ESTACs, is a highly cost effective use of Government resources (Defra, 2006). The main benefits from existing, largely telephone based, advice services derive largely from installation of "low and no cost" measures. Expansion of these services, especially to signpost to financial support and quality installation services, is therefore justified. It is likely that more intensive advice, within the home, will be required to trigger and support more expensive and whole house solutions.

There is good evidence that appropriate feedback does lead to better control of, and therefore lower, energy use (Darby, 2006). There is therefore a strong case for rapid implementation of the Government's proposed roll out of display meters (providing user feedback) and smart metering (additionally providing communication with energy suppliers) and better billing. The use of estimated bills remains an important cause of poor information – this can be overcome by smart metering, once it is in place. A clear commitment to ending estimated billing might encourage the roll out of smart meters.

References:

- Darby, S. (2006) The effectiveness of feedback on energy consumption. A review for DEFRA of the literature on metering, billing and direct displays. Environmental Change Institute, University of Oxford.
- Defra (2006) Synthesis of Climate Change Policy Evaluations.
- EST (2008) Energy Saving Trust. Green Barometer.

Q4: How can home energy audits be made most useful, and do you agree that the Government should use Domestic Energy Assessors, who have been suitably trained, to deliver them as widely as possible?

Home energy audits are a potentially important driver for improving the energy performance of the housing stock and likely to be a necessary step to most very low carbon home retrofits.

Currently, Domestic Energy Assessors (DEAs) have a skill set based on the ability to input accurate data into a simple home energy assessment tool (RDSAP) as a means to delivering home energy ratings (EPCs). These are to do with the characteristics of buildings and their heating systems. The early evidence from UKERC research (Banks, 2008) is that the process has some problems and that the software will need to be more sophisticated to meet the requirements of effective home energy rating.

In contrast UKERC argues that home energy advice requires a different skill set to provide advice on energy use in the home, covering end uses and the behavioural and technical means to reduce costs. Compared to the role of DEAs, the skills and the basic training (Energy Awareness City and Guilds) are different and the professional standards (EST Advice Code of Practice) are different. The consultation does not address these issues. It would appear far more logical to base an expansion of advice provision on the existing services of ESTACs, especially as these are well-established, independent, Government funded and successful.

In light of this it is difficult to see why DEAs should be the preferred route to the scale up and delivery of such a service. This is not justified and appears to be an ill-considered proposal. The current lack of work for DEAs due to the housing market slump is an insufficient reason for a long-term policy commitment.

Effective motivation will require more than advice and information. Government needs to look for innovative ways to communicate and focus on the benefits and do-ability of low-carbon refurbishment, rather than concentrating on barriers. There is a range of grass roots approaches emerging including for demonstration homes (Ecovation, 2009) and community-based initiatives such as Transition Towns Movement and Low Carbon Communities Network. While these community-based initiatives are not sufficient on their own to bring about change, research suggests that pioneering exemplar homes can be very effective at inspiring and stimulating interest at a local level (Hamilton and Killip, 2009). Government needs to consider how best to support these (e.g. via the Greener Living Fund and the Low Carbon

Communities programme) without losing the benefits of truly community based action.

References:

Banks, N. (2008) Implementation of Energy Performance Certificates in the Domestic Sector. UKERC Working Paper. DR/2008/001

Ecovation (2009) Case studies <http://ecovation.org.uk/html/designs/casestudies.html>

SEA (2009) Sustainable Energy Academy ref Old Home Super Homes project,

Ecovation <http://www.sustainable-energyacademy.org.uk/pages/inspired/list.php>

Hamilton, J. and Killip, G. (2009) 'Demonstration, inspiration ... replication?

Assessing the impact and limits of social learning from Eco-homes Open Days in the UK', conference proceedings, European Council for an Energy Efficient Economy, Summer Study 1 - 6 June 2009, La Colle sur Loup, France. Forthcoming

Q5: Should the Government work with industry to develop accreditation standards for advice about, and installation of, energy efficiency technologies? What would be the best model for such a scheme, and why?

It is widely accepted, including by energy advisors, that the Advice Code of Practice is only a minimum standard. Accreditation for advice with a greater technical content should therefore be developed. It would be sensible to do this as a development of the existing Code.

Standards for installation are different. As the consultation notes these already exist for gas installers and microgeneration. There is also CIGA for cavity wall insulation. Most of the major individual technologies are therefore already subject to accreditation. One development that will be required is a higher level qualification to enable project management of very low carbon retrofits (Killip, 2008).

If a "whole house" approach is adopted, standards may need to take into account interaction between energy efficiency and microgeneration measures. Existing standards/accreditation tend to deal with each action in isolation, potentially missing opportunities for synergistic intervention or creating counter-productive feedbacks between measures.

References:

Killip, G. (2008) Transforming the UK's Existing Housing Stock. Federation of Master Builders.

Q6: Are the information, advice and support services provided by the Government to businesses effective in encouraging them to reduce their energy use and their CO2 emissions? What other types of support services are useful and how can these be provided cost effectively? Is there scope to do more on behaviour change through businesses and their employees? Please support your suggestions with evidence.

The Government funded services provided by the Carbon Trust have rightly focussed on maximising short term carbon emissions reduction. This results in greater attention to larger and more energy intensive businesses. As a result there is a shortfall in the support provided to SMEs. Many SMEs suffer the same barriers to improving their energy performance as households. There would be merit in considering the expansion of the approach used for households to SMEs. This is already done in other countries, notably Italy and France where the equivalent of CERT covers non-energy intensive businesses and was done in Great Britain previously under EESoP. The traditional concern in the UK - that this would result in poor households cross-subsidising businesses – is not supported by the evidence from these countries (Eyre, 2009).

References:

Eyre, N., Pavan, M. and Bodineau, L. (2009) Energy Company Obligations to Save Energy in Italy, the UK and France: What have we learnt? conference proceedings, European Council for an Energy Efficient Economy, Summer Study 1 - 6 June 2009, La Colle sur Loup, France. Forthcoming

Q7: Are the existing commitments for public sector buildings sufficient for the public sector to fulfil its role in driving improvements and leading by example?

The commitment for Government to use its own procurement to green markets is very long standing, having been repeated in a number of policy reviews since 2002. It would be more useful to investigate why there is such limited evidence that it has been implemented than simply to repeat the commitment. Using insights from Good Practice Guides published under government aegis in the 1990s, it would be fairly straight-forward to establish a hypothesis as to why the commitments to green procurement have largely failed to materialise: lack of consistent, senior management support; failure to engage the whole organisation in energy-saving initiatives; competing priorities (eg minimising capital expenditure).

Q8: What will be the most effective way for Government to develop RHI and FIT policy so that combined financing packages of insulation, renewable heat and small-scale low carbon electricity technologies might be offered?

Experience from the energy efficiency sector and the limited use of microgeneration to date indicates that the objectives which any support scheme should seek to deliver upon are:

- certainty of financial support
- presumption in favour of capital support rather than operational payments,
- ease of access to the support system, and
- links to a reliable installation service.

Both the FIT and RHI should be fixed at a sufficient level and over a long enough timeframe such that financing institutions have the certainty required to offer loans.

Furthermore, support could only be offered to those dwellings that have a high level of energy efficiency, as is the case with the current LCBP for households.

Q9: What action, if any, should the Government take to enable finance to be arranged for the higher cost energy efficiency and low carbon measures? Are there other options the Government should consider? Please provide evidence to support your response.

We agree with the analysis in the consultation document that financing of high cost measures represents an additional barrier compared to traditional low cost energy efficiency measures. We further agree that this points to the need for a new system of support. The existing approach, i.e. through CERT, essentially subsidises investment on the customer side of the meter from gas and electricity supply charges.

The approach of relying on energy suppliers rapidly transforming their business models to energy services is not a credible option. This vision has been canvassed repeatedly since energy industry restructuring. There have been a number of Government/industry initiatives to promote it, notably the Energy Services Working Group in 2003 and a summit in 2006. There have been significant regulatory changes designed to ease change – the abolition of the 28 Day Rule and uplifts for energy services with EEC/CERT. All the major energy suppliers have experimented with energy service offerings, but none has been able to make them work in the household sector at a significant scale.

Whilst it is arguable that higher cost retrofit measures are more amenable to such an approach, the available evidence is that energy suppliers will not rapidly transform into energy service companies. We understand why this is. In general, dominant companies within a sector are not the source of radical change to disrupt existing business models. And specifically in this sector, the successful business strategy for energy suppliers since industry restructuring has been to hedge against the risk of price uncertainty by vertical integration and to reduce other supply costs. Suppliers are generally therefore ill-equipped to undertake the detailed “on site” work needed to develop a successful energy services business. Moreover, with their profits arising largely from upstream assets, they would be less profitable if they reduce volume sales and therefore have limited incentive to do so. We would emphasise that this does not mean that there is no scope for new business models in the energy sector; simply that under current market conditions, they are unlikely to come from incumbent suppliers.

The available evidence therefore suggests that incentives for high cost measures will need to come from actors other than energy suppliers. We welcome the recognition that energy distribution companies could play a bigger role in financing investment on the customer side of the meter based on the model set out in the consultation. We believe this is a credible approach, potentially helpful to the more active, real time, role in the local energy system that DNOs will have to play to deliver large

volumes of distributed generation (Woodman and Baker 2008). Financing by DNOs would avoid the problem identified above of using revenue to finance investment and it would allow for financing measures across change of home ownership.

In this context, we suggest that Government should go further and consider whether energy saving obligations should be placed on energy distributors (in place of or in addition to energy suppliers). The primary legislation for CERT (Utilities Act, 2000) explicitly allows for this option, reflecting the active discussion in the late 1990s about where to place such obligations following the unbundling of supply and distribution. At that time Government concluded that suppliers were the better option to encourage the development of energy services and that distributors might be unable to deliver. In retrospect, this conclusion is highly questionable. The most active household energy services markets in Europe, in Italy, has developed because the energy saving obligations there have been placed on distributors (Pavan, 2008), essentially requiring them to create an active energy services market with tradable white certificates. The Italian energy saving obligations scheme is now larger than CERT (Eyre, 2009) and we would urge Government to review this approach in detail as a potential supplement to loan financing via distribution companies.

References:

- Eyre, N., Pavan, M. and Bodineau, L. (2009) Energy Company Obligations to Save Energy in Italy, the UK and France: What have we learnt? conference proceedings, European Council for an Energy Efficient Economy, Summer Study 1 - 6 June 2009, La Colle sur Loup, France. Forthcoming
- Pavan M. (2008a) Tradable Energy Efficiency Certificates: the Italian experience, in Energy Efficiency, Vol. 1, Number 4, November 2008, p. 257-266, Springer Netherlands.
- Utilities act 2000 - http://www.opsi.gov.uk/Acts/acts2000/ukpga_20000027_en_1
- Woodman, B. and Baker, P. (2008) Regulatory frameworks for decentralised energy. Energy Policy 36 (12) 4527-4531.

Q10: What should the Government do beyond these initiatives to promote investment in energy saving and low carbon energy technologies in business and the public sectors?

UKERC has not submitted an answer to this question.

Q11: Should levels of support through the Renewable Heat Incentive vary by technology and/or customer group? Are there any other ways of differentiating levels of support under the RHI ?

Incentives should be considered economic grounds alone and evidence has shown that consumers do not make decisions solely on economic grounds. For example disproportionate number of consumers chose to install solar photovoltaic technology to their homes compared to other microgeneration technologies despite the costs per unit energy being relatively high. Amongst numerous reasons for this apparent

economic discrepancy is the consumer preference for PV on the basis of its iconic status.

Specifically regarding heat, if the RHI takes the form of a feed-in tariff for heat, its level needs to be considered carefully to avoid creation of a perverse incentive. Heat production is by nature flexible, and it is less readily distributable than electricity. Therefore it is possible to produce more heat than a building requires, leading to wastage. If an operator is being rewarded for such actions then it is unlikely that policy goals will be met. It follows that the RHI must be set at the right level, and differentiated among technologies, to ensure such action is not encouraged in the vast majority of installations. One alternative is to provide a deemed amount of the RHI upfront as a lump sum rather than per unit of fuel used or heat produced.

Furthermore, the government should consider the impact of the RHI in terms of the rebound effect (where more energy may be consumed as a result of lower cost), given the relative elasticity of heat demand/supply.

Q12: How can we introduce the levy to fund the Renewable Heat Incentive so as to minimise suppliers' administrative costs and reduce uncertainty among suppliers of fossil fuels for heat?

UKERC has not submitted an answer to this question.

Q13: Do you think that financial institutions, such as banks or other loan companies, would be an effective way of assisting potential small-scale heat generators (such as householders) with financing of the initial capital cost of renewable installations? What other considerations, if any, should be taken into account when determining eligibility for an up-front payment (for example, only generators with equipment below a certain size can apply, such as domestic customers)?

We note the idea that the housing finance sector could play a bigger role. This potentially applies to energy efficiency as well as renewables. Some caution is required as previous attempts to encourage 'green mortgages' have not been successful on a large scale. Evidence collected by the Energy Services Working Group (Cragg Ross Dawson, 2004) indicated that mortgages were an inappropriate vehicle for financing low cost energy efficiency measures, as the transaction costs are too high. However, for the more substantial investments now being considered, the situation may be different, and this should therefore be investigated further.

We note that recent changes to finance sector governance may give Government greater leverage to press for environmentally beneficial lending policies. UKERC does not have expertise in this area, but we agree that further work should be undertaken to investigate the practicalities.

References:

Cragg Ross Dawson (2004) Energy Services. Qualitative research to inform the development of products designed to promote household energy efficiency. EST.

Q14: How can we maintain demand for renewable heat technologies before we introduce the Renewable Heat Incentive?

UKERC has not submitted an answer to this question.

Q15: Do you agree with the proposal to continue with a CERT-type obligation until December 2012? Do you also agree that the proposed CESP framework should run concurrently to the same end date?

Yes. We agree that CESP is a complementary approach and will provide useful evidence about the viability of a whole house approach in low income neighbourhoods.

Q16: Do you agree with our analysis of the potential impacts of a cap-and-trade approach to delivering energy efficiency in homes? Please support your answer with evidence.

Yes. The consultation document quotes the evidence resulting from UKERC research (Eyre, 2008).

References:

Eyre, N. (2008) Regulation of energy suppliers to save energy – lessons from the UK debate, in Proceedings of the British Institute of Energy Economics Conference September 2008. BIEE, 2008.

Q17: Do you have views on the merits of moving to a different approach for delivering energy efficiency to households? Do you have other suggestions of alternative delivery models which might be effective in achieving our objective?

We believe it would be worthwhile for the Government to investigate a larger role for energy distributors (as set out in response to Q9 above) and well as financial institutions (Q13). The possible role of local authorities should also be explored, as discussed below.

CESP will provide useful evidence on the role of area based approaches.

Effective delivery will require local knowledge, as circumstances vary across the country and installers are mainly small local companies. In this context, we note that there is a resurgence of local authority interest in sustainable energy with a very high number selecting National Indicator 186 (local area carbon emissions) as a performance indicator. We suggest that further work is required on the role of local institutions, including local authorities and advice centres, in delivery.

Q18: Would you support a voluntary code of practice on energy performance for landlords and/or builders? How high do you think uptake would be, and would it achieve much additional action? Please support your response with evidence.

Given the nature of the private rented sector housing market and its poor energy performance, we see no reason to believe that there would be a strong uptake of a voluntary code of practice. Similarly, the highly disaggregated structure of the housing refurbishment industry gives no confidence that a purely voluntary approach will be successful in the foreseeable future.

We understand Government concerns about regulation of energy performance of the existing housing stock in the absence of appropriate tools for enforcement. Indeed UKERC supported research (Banks, 2008) indicates that the existing measurement of performance (EPCs) is currently insufficiently reliable to be an effective basis for regulation. And there is no strong body of evidence on the levels of energy performance that would be appropriate for different types of property. Nevertheless, the strength of barriers to energy efficiency in the sector indicate that it will ultimately be needed. And past policy successes, notably with cold appliances and condensing boilers, indicate that the supply chain can act quickly, but only does so under the threat or promise of regulation.

The key to bringing about the desired change is to focus on the outcome (ie a performance standard for the building) rather than the business practice of the service provider (a code of practice). We would therefore suggest that it would be better to work on implementing a voluntary energy performance standard in partnership with the (currently) small number of interested actors to develop viable systems which can demonstrate the standards for future regulation. Government should support credible industry based initiatives in this context.

References:

Banks, N. (2008) Implementation of Energy Performance Certificates in the Domestic Sector. UKERC Working Paper. DR/2008/001

Q19: Should we require marketing material for property sales and rental to feature the EPC rating more prominently? If so how? What delivery bodies or industry groups could be given access to the EPC database, and how could they make best use of it whilst ensuring that it is not misused? Please support your answers with evidence.

Yes. UKERC research indicates that EPCs are often not being made available to purchasers at an early stage in the buying process. This needs to be rectified to deliver Government goals for EPCs. Our working paper (Banks, 2008) provides detailed recommendations, which have been discussed with CLG.

Knowledge of the EPC of a property of interest is useful, but for many purchasers it would be useful to be able to search more widely to place this in context and understand the broader market. We believe that concerns about misuse of EPC data are misplaced; it is not personal data. Data on house prices is already publically available through the Land Registry – this is far more commercially sensitive. We see no reason that the data should not be available to researchers and the general public through a public database.

References:

Banks, N. (2008) Implementation of Energy Performance Certificates in the Domestic Sector. UKERC Working Paper. DR/2008/001

Q20: Besides removing the threshold for consequential improvements, which will be considered in the consultation on changes to the Buildings Regulation in 2009, are there any other options for wider building regulation that you would like to see considered in the longer term? Please support your answer with evidence for the effectiveness of your suggestions.

As energy performance levels improve, the underperformance risk posed by inadequate enforcement rises. Primarily this is an issue of skills. A thorough review of the skills needed, across all building trades, for low carbon building and refurbishment is required (Killip, 2008) with a view to a comprehensive training programme. Effective enforcement will also require increased resources in building control and a willingness to take tough enforcement action.

Having said that, the skills agenda is fundamentally linked to the size and robustness of the market for providing this kind of service and, consequently, on the job prospects in the sector concerned. Anecdotal evidence from construction colleges suggests that there are existing courses for relevant skills in construction trades but that these courses fail to attract sufficient trainees to be viable. As Paul Davies, sustainable technologies manager at Wates Living Space s quoted as saying in a recent newspaper supplement on greener housing: 'There is no point in training people if there are no jobs to give them' (ref Guardian Greener Housing supplement, 25 March 2009).

References:

Killip, G. (2008) Transforming the UK's Existing Housing Stock. Federation of Master Builders.

Q21: Do you agree with the approach of conducting a review in 2012 to assess the effectiveness of other policies before considering further policy interventions for the energy performance of existing buildings? Are there other options you think should be part of our strategy? Please support your answer with evidence.

No. We welcome the proposal to reconsidering regulation in the future. However, given the urgency recognised in the consultation, we think Government should not to wait until 2012 before beginning the review and taking the action needed to develop the research, measurement tools and enforcement methods that would be needed for effective implementation of energy performance regulation in the existing housing stock. High energy performance standards will be needed to deliver energy and carbon policy goals. A clear statement of how expected levels of performance will evolve over time, as soon as possible and well ahead of any regulation in 2012, would help prepare the home refurbishment industry for the challenges ahead.

Q22: Do you agree that the Heat Markets Forum should consider regulatory arrangements for district heating to ensure consumer protection? Are there specific issues you think it should cover?

UKERC has not submitted an answer to this question.

Q23: There are a number of ways to tackle commercial barriers to district heating. These include using the planning system and heat mapping, encouraging or requiring certain buildings to connect to networks and engaging property developers.

Which of these options should be taken forward and why?

District heating is likely to be the appropriate solution in important parts of the housing stock – e.g. high density inner cities, high rise and mixed use developments. The first priority is to understand this in more detail and to evaluate currently marginal cases, e.g. is district heating relevant to high density housing with very low space heating demands? UKERC suggests that the Government reviews the evidence already available, e.g. from the Community Energy Programme.

Q24: What are your views on the options for reducing the risks of poor returns on investment in district heating networks? Which do you think would be most effective and are there other more appropriate solutions?

Particularly in the current investment climate, it seems inevitable that many DH schemes will need public sector support or guarantees. We welcome the moves in this direction in Budget 09.

Q25: Will the ETS and other policies, such as the Carbon Reduction Commitment and support for renewable combined heat and power, send a strong enough signal to encourage the development of CHP schemes and more efficient use of surplus heat? If not what measures do you believe would provide sufficient stimulus to accelerate new CHP capacity build? Can you provide evidence to support your view?

UKERC has not submitted an answer to this question.

Q26: As electricity generation overall becomes much less carbon intensive than today, the advantages of CHP powered by fossil fuel in reducing carbon emissions will diminish, although it will continue to be a cost-effective energy efficiency measure. When do you think CHP powered by fossil fuels will no longer help to reduce emissions because the alternatives are less carbon intensive?

We agree with this broad analysis and therefore that by 2050 the case for fossil fuel CHP may not exist. However, in a number of scenarios (UKERC Energy 2050) we have investigated it post-2030 before the marginal plant on the electricity system is non fossil (or CCS). This depends on the assumed progress of technologies and also the extent to which demand is reduced. Generally, the short term case for installation of CHP technology is therefore strong. Further work is needed on the extent to which non-fossil CHP may be able to use CHP infrastructure as the energy system decarbonises.

References:

UKERC Energy 2050 -

<http://www.ukerc.ac.uk/ResearchProgrammes/UKERC2050/UKERC2050homepage.aspx>

Q27: Should the Government do more to publicise the opportunities and benefits of CHP and surplus heat? If so, how should it do this, and which are the key audiences we need to reach?

UKERC has not submitted an answer to this question.

Q28: Do you consider such cooling technologies can play a role in delivering a renewable and low carbon energy mix? What opportunities exist for their exploitation in the UK? What further factors do we need to consider?

Caution is required in providing any support for or assistance to space cooling technologies in the UK. In the vast majority of buildings in the UK, even under foreseeably warmer climatic conditions, active cooling is not required. The priority should therefore be design and refurbishment using passive cooling technologies and encouraging the acceptability (at home and at work) of a wider range of internal temperatures, along the lines of the Japanese Government's "Cool Biz" campaign.

Q29: Do you agree with our analysis of the likely impacts of the proposals in this document and in the associated impact assessments on:

- carbon dioxide emissions?
- energy prices?
- fuel poverty?
- security of supply?
- sustainable development?
- the economy?

Are there any other wider issues that we should consider?
Do you have any other comments on the Impact Assessments?

We are disappointed that the consultation document does not include assessment of fiscal reform. A successful policy package should remove existing perverse incentives (eg zero VAT for new-build; 5% for energy-efficient retro-fits on a narrow list; standard-rate VAT on other refurbishment works) as well as providing new financial incentives to encourage early adopters.

We suspect that the potential for the economy in terms of long-term, sustainable job creation is seriously underplayed in this consultation exercise. The current economic crisis presents an opportunity for helping to shape the economic recovery through investment in improving the sustainability of heat supply, especially in buildings.

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