

COMBINED HEAT AND POWER ASSOCIATION

Response to *Consultation on Microgeneration Strategy and the Low Carbon Buildings Programme*

The Combined Heat and Power Association (CHPA) welcomes the opportunity to respond to the Government's consultation on the development of a UK microgeneration strategy.

The Association believes that the microgeneration strategy needs to underpin and reinforce the delivery of the Government's CHP, renewables and energy efficiency targets.

Introduction

The Government plays a critical role in the development and deployment of CHP technology. Today's generation of 1200 small-scale CHP schemes were largely brought about as a result of significant financial support for research, development and deployment from both the DTI and, at the time, the Department of Energy. Consumers have secured significant benefits from this early support.

Today's downturn in the deployment of industrial CHP applications has similarly been brought about by more recent Government actions, particularly the restructuring of the energy markets, carried out by the DTI and OFGEM in the late 1990's.

Government action and inaction is critical. The commercial stage that the Association understands microCHP is currently at underlines this. Two products in particular; the Dachs mCHP unit (BAXI group) and the WhisperGen unit (Powergen) are now being deployed, with the Association's Members also seeking to bring to market Stirling, Organic Rankine and Fuel Cell applications within the next few years. It has been suggested that domestic sized units have the potential to reduce carbon dioxide emissions by up to 1.5 tonnes per year per household.

Measures to support the deployment of microCHP are welcome. However care has to be taken that they do not distort the CHP market. The Chancellor's announcement earlier this year to reduce VAT on all domestic microCHP units from 17.5% to 5%, whilst benefiting the developing deployment of microCHP, does have the effect of distorting the market against other CHP options such as small-scale CHP for discrete residential and commercial areas, as well as the deployment of district energy networks serving similar local markets. The decision, in the second Energy Efficiency Commitment (EEC II), to grant an enhancement to microCHP schemes in the form of a 50% uplift has the same effect.

Fiscal incentives such as these do need to be neutral across the technical options for CHP, whilst ensuring that they send appropriate signals to the market to ensure technological innovation is stimulated.

The Government has shown some considerable success, achieved through the use of a mix of 'carrot and stick' measures introduced over the past few years to promote the condensing boiler market. A similar process is required to ensure that all forms of CHP applications for the domestic and the SME sector can prosper.

The Association, however, believes that the consultation misses the opportunity for the significant potential for CHP in community-wide applications, which will speed up mass-market uptake. It also completely ignores the potential for heat driven applications, such as in the biomass sector. The objective for the Microgeneration Strategy should be to deliver affordable low-carbon heat and power supplies to *communities*, including both domestic and commercial users, as outlined earlier this year in a report by Greenpeace¹, and such as the Mayor of London is committed to achieving. This would help not only achieve the Government's CHP target but also set the UK on a more effective pathway of achieving the Government's 60% carbon reduction target by 2050.

Energy use and carbon emissions from the domestic and SME sectors have yet to be tackled consistently through the Government's energy policy initiatives. A strategy, which would provide key opportunities for the introduction of low-carbon generation technologies for single-householders and SMEs up to citywide communities, would underpin the necessary step-change required to deliver the carbon savings we all require.

Consultation Questions

General (Q1-Q5)

Q1. What are the main obstacles to the development of a long-term self-sustaining market in microgeneration technologies? How can these obstacles be overcome?

Some of the principal barriers (and possible solutions) that the Association feels should be addressed include:

- Rewarding exported electricity:

The Government's introduction of the New Electricity Trading Arrangements (NETA) in 2001 removed the economic benefits previously credited to locally embedded generators. To correct this the Government now needs to consider other ways forward, and one such opportunity could be to create a statutory requirement for appropriate terms to be offered to local generation systems that directly supply local households.

¹ *Decentralising Power: An Energy Revolution For The 21st Century*, Greenpeace July 2005

In parallel with this DEFRA and DTI should speed up the work being carried out to see how such local generation could be assisted by changes in the electricity and gas licensing regimes.

- EEC III

Specific incentives for domestic-scale CHP schemes should be included in the next phase of EEC (2008-2011).

- Metering changes:

It is understood that recognising the true value of exported electricity is dependent on appropriate and effective metering arrangements.

At present, whilst all of the UK's 1200 small-scale CHP schemes make use of import/export meters as part of integrated control systems, such facilities have not yet been extended to individual households.

A requirement for two-way import/export meters with a single Mpan and a simple, readable display in all meter replacement would create a consumer friendly mode of energy measurement that would display fully the benefits of microCHP and all microgeneration technologies.

Such developments would also bring household electricity metering up to the same level of consumer application as is already available in the community heating market.

- Incentives for heat

The only incentive for low-carbon heat (small- or large-scale) in current Government policy is the tax break for solar water-heating. This must be expanded in order for local heating opportunities based on CHP to reach effective penetration. All types of low-carbon heat must be rewarded.

- Carbon credits:

Once the current field trials have independently established the carbon dioxide reducing potential of microCHP, this needs to be taken into account in the Government's support for the development of the technology.

- Accreditation

CHP installations are currently monitored and certified under the CHP Quality Assurance programme (CHPQA).

This complex and bureaucratic scheme was not designed with microCHP technologies in mind.

As part of the long promised independent review of the CHPQA, a simple and straightforward accreditation scheme for microCHP must be developed incorporating performance and safety standards for both products and installers.

- Skills and training

Appropriate accreditation for microCHP needs to be underlined by an action to address the significant skills and training gap across the whole microgeneration industry. This gap also exists for many other CHP applications and covers the professional supply chain, with a lack of knowledge amongst builders, architects, surveyors and the like.

- Communication

A significant barrier to the uptake of domestic focussed CHP technologies is customer communication and awareness.

The CHP industry has, with Government, mounted a series of major marketing campaigns to upgrade the knowledge and understanding of CHP; this now needs to be built upon.

For example, there is no one clear and simple database setting out the microgeneration technologies available and the relevant delivery organisations.

The public sector has a major role to play in highlighting the benefits of all forms of CHP (the wider use of CHP in the growing number of schools, hospitals, and other parts of the Government's Estate would be particularly effective).

Q2. What are the most important policy/regulatory/other issues that we Should address to facilitate successful implementation of microgeneration technologies?

The Association has focussed on two main issues:

- Targets

The uptake of condensing boilers has seen a significant increase in the past, mainly due to the Government mandate that all new boilers must be condensing boilers.

As particular microgeneration technologies mature, a similar approach should be taken

Local Authorities have a very significant role to play in the promotion of CHP and should be given the power to ensure that a wide range of low-carbon technologies are deployed. This could build on the

requirement set by Merton Borough Council, in their implementation of Planning Policy Statement 22.

The Government, particularly ODPM, has a crucial role to play in actively supporting initiatives such as that by the Mayor of London and by Merton Borough Council to support and encourage the development, through planning requirements, of new housing and communities based around low-carbon generation schemes. It is critical that with the Government's ambitious Sustainable Communities plans, initiatives such as these are implemented as soon as possible.

The Government Estate has, to date, significantly under-performed in the delivery the Government's own sustainable energy targets. With over 50,000 buildings in the Government Estates portfolio, this must change.

- Building regulations

The revision of Part L of the Building Regulations, due to come into force in April 2006, does not currently include a specific requirement to consider microgeneration technologies.

Significant opportunities to promote CHP exist in both the Building Regulations and the new Code for Sustainable Buildings, with an opportunity for the latter to act as a signal as to the future direction of the Building Regulations.

The code should therefore include a requirement for all buildings covered by the code to secure its heat and power from CHP. A similar requirement should be included in the next revision of the Building Regulations as a central part of a general target for low and zero-carbon technologies.

Q3. What is the key supply chain issues affecting the industry? What should be done to address these issues?

Ensuring a strong and transparent supply chain in microCHP will instil the confidence needed to increase consumer investment.

Some of the key supply chain issues include:

- It has been suggested that the lack of targets for microgeneration has an impact on investment confidence throughout the whole supply chain;
- Clearer and consistent accreditation for microCHP products and installers is required. The development of such an accreditation system would ensure that approved installers would only carry out the installation of approved products.

Q4. How will the costs of microgeneration technologies develop over the next 5 –15 years? How will these costs compare with other low-carbon technologies such as large-scale renewables and energy efficiency measures?

The Association has been advised that the domestic-scale microCHP products currently on the market are steadily becoming competitive with conventional boiler technology.

It is understood that the Whispergen domestic-sized microCHP unit is at present priced at £600 more than a conventional gas-fired boiler. However if, in the light of verified carbon savings, such units received some form of carbon credit, then the company has suggested that the cost of a unit would differ from a conventional boiler by approximately £100 (based on the converted European calculation for carbon credits of 10 Euros/tonne).

CHP units of between 30-50kWe have in the past been very competitive, with payback periods of only a few years. These units would typically operate in installations such as small hotels, sheltered housing schemes etc., providing both cost and carbon savings. However they have become less attractive over the past five years due to the market conditions that the Government created with the introduction of NETA. Although electricity and gas prices are now on the increase, customers will need long-term confidence over developing microgeneration investments when the markets have become increasingly volatile.

The Association understands several of its members will respond in more detail on this issue.

Q5. What are the criteria by which the strategy should measure success?

If the aim of the Microgeneration Strategy is to develop a long-term self-sustaining market in microgeneration technologies, then success will be defined by the ability of the market to become just that, including:

- A measure of the installer and manufacturer base across all microCHP technologies;
- A measure of the certified training and skills base in microCHP;
- A measure of the number of microCHP units in operation across the UK;
- Sale of domestic microCHP units matching the number of new build houses per year.

Product development and deployment (Q6-Q8)

Q6 & 7 (Is Government funding for research and development being effectively targeted & is there sufficient co-ordination of research efforts?)

The past and present R&D programmes for microCHP have suffered from a lack of transparency and bureaucratic difficulties as well as communication disparities between Government, industry and the various research bodies. Clear and simple R&D programmes are therefore urgently needed, including funding trials of smart metering.

We recommend that Government develop funding programmes for R&D to benefit the full range of low- and zero-carbon technologies, with specific focus on those technologies that exhibit significant carbon reducing potential.

Q8. What actions could the Government take to develop the skills base in relation to the development of microgeneration technologies and their integration into communities and buildings by good practice in design, installation, operation and maintenance?

There is a general lack of installer skills and training (due to the ageing installer base) as well as a lack of skills and training of professionals (builders, surveyors, architects and so on). Educating and training additional people is costly and takes time and could be avoided by developing clear and simple training courses for the existing labour force on the installation and maintenance of microCHP. In addition, the development of simple accreditation schemes with accompanied certification would greatly speed up the education of a skills base.

One microCHP company has developed an academy, which awards grants to engineering students to attend seminars and apprenticeship schemes regarding microCHP. We recommend that Government, in collaboration with industry and the education sector, should fund such training on a much wider-scale, covering all microgeneration technologies.

Communications (Q9-Q14)

Q9-Q12 (communications gaps, existing advice centres, general communication/education activity)

Preliminary research by some companies has shown a growing interest in microCHP however; this is still limited to a small proportion of the overall potential of microCHP customers. To date a few companies have chosen to promote microCHP by information distribution to their customer base and some suppliers have promoted microCHP through delivery of their EEC obligations.

The Government should make clear to customers the link between climate change mitigation and, as the technology becomes available, a wide range of

small-scale technologies. Energy efficiency needs to be at the heart of this message.

The Association welcomed the Government's announcement of a forthcoming Climate Change Communications programme, however, to date little has been revealed about how this programme is to be rolled-out. Greater transparency and coordination with key delivery organisations and industries, such as the CHP industry, would ensure that the campaign maximises its effectiveness.

The Association recommends that one organisation be given the overall responsibility for advising on microgeneration issues, acting as a "one-stop shop" advice centre, listing the available technologies, installers and suppliers as well as relevant organisations (such as the trade associations) for further information. Additionally, the creation of a central information database that customers can refer to, regarding the available microgeneration technologies, installers and relevant organisations, would also be helpful.

The Association's view is that the Energy Saving Trust should take on this role. A key element of their work would be to guide the Energy Efficiency Advice Centres (EEACs) to ensure greater coverage of microCHP solutions where appropriate and to work alongside local authorities to ensure that opportunities for homeowners and SMEs can be more fully exploited.

The importance of communication through product transparency should not be underestimated. The installation of smart meters and greater environmental information on energy bills can have a significant effect on consumer willingness to invest in energy-saving measures.

Q13 & Q14 (What would be the most effective way of setting up and running a reputable accreditation scheme & What would be the most effective way that Government could support the development of robust product standards for all microgeneration technologies)

The current type-approval system for CHP 'accreditation' – the CHPQA - is unsuitable for the majority of microCHP based technologies. A more specific, and less onerous, type-approval system for microCHP needs to be developed. This could incorporate product energy labelling schemes, which are already in place for some domestic appliances.

We recommend that Government, in collaboration with the various sector trade associations, should develop a single type-approval system for domestic-sized microCHP with simple and straightforward standards for both products (performance and safety standards) and installers.

Economics (Q15 & Q16)

Q15. How can the Government best encourage householders and all businesses to consider microgeneration as part of a package of measures to make their energy consumption more sustainable?

The Association believes that the best method to encourage uptake of microgeneration is through a combination of greater information provision (as detailed earlier in this response) and fiscal incentives which, as yet, remain relatively modest in terms of incentivising the domestic and SME sectors.

Some specific incentives to encourage householders include stamp duty and/or council tax rebates for home energy efficiency improvements.

Some specific incentives to encourage businesses include:

- A business energy efficiency commitment, as first highlighted in the Energy White Paper, and targeted at SMEs
- Increasing the current level of the Climate Change Levy, whilst ensuring that more of the Levy is redirected back to businesses to invest in energy efficiency opportunities

However, any introduction of fiscal incentives must also consider the removal of fiscal *disincentives*, such as:

- The sale of LEC's for exported electricity from microCHP: this is currently considered income and therefore liable to income tax; we recommend that income from microCHP should be exempt from income tax

Q16. How can competition for the excess electricity generated by microgenerators be encouraged?

The Association believes that competition for the excess electricity generated by microCHP installations can best be encouraged by the development of energy services.

We recommend that this should be initiated by permanently ending the 28-day rule (incorporating a greater level of flexibility than the current Ofgem trial), thereby enabling a comprehensive energy services package, incorporating leasing of microgeneration equipment, buy-back of excess electricity and implementing general energy-efficiency measures.

Installation (Q17-Q21)

Q17 & Q20 (How could Building Regulations be used to encourage cost-effective microgeneration technologies & what sort of issues should the Code for Sustainable Buildings address).

Under the current revision of the Building Regulations, the interim versions of Approved Documents for Part L (energy efficiency) have recently been published. Microgeneration is currently not covered in any of the four Approved Documents, and the Association consider this as a serious missed opportunity. Low and Zero Carbon (LZC) energy sources² are only mentioned in ADL2A (*New buildings other than dwellings*) as a 10% benchmark provision to implement the requirement in Article 5 of the Energy Performance of Buildings Directive “to give consideration to the incorporation of low and zero carbon energy supply systems into account before construction starts” (*ADL2A, page 6*)³. Again, this is a missed opportunity.

The Government have highlighted that the Code for Sustainable Buildings is the short-term precursor for the next review of the Building Regulations, and the proposed Code must therefore include specific requirements for both LZC energy sources and microCHP. A draft of the Code has yet to be published for consultation: a key sign of the Government’s commitment to microgeneration technologies is to promote their wider use in the Code.

The Association recommends that for CHP, a requirement similar to that introduced by Merton Borough Council (detailed earlier in question 2) should be introduced in the Code for Sustainable Buildings, as part of a more ambitious requirement for LZC energy sources. In addition, we strongly recommend that this requirement be included in the next revision of the Building Regulations.

Q19. Are there any barriers in the planning system that are hindering the development of micro-generation?

MicroCHP is currently not affected by barriers in the planning system at the individual household-level, however despite the Government’s commitment in the Energy White Paper, little has been undertaken in the Government’s revision of planning guidance to ensure that community-wide schemes are robustly supported. To encourage greater uptake of both individual and community-based CHP schemes, local planning authorities should require a percentage of the energy used in new developments to come from CHP as part of their implementation of Planning Policy Statement 22, Section 8.

² Low and zero carbon energy sources include solar hot water, photovoltaic power, bio-fuels, combined heat and power and heat pumps.

³ The legal requirement of Article 5 states that “for new buildings with a total useful floor area over 1,000 m², Member States shall ensure that the technical, environmental and economic feasibility of alternative systems such as: decentralised energy supply systems based on renewable energy, CHP, district or block heating or cooling, if available, heat pumps, under certain conditions, is considered and is taken into account before construction starts”.

Planning is a powerful tool in encouraging the development of low-carbon generation schemes: Government needs to be much more ambitious in its discussions with local authorities, RDAs and other planning authorities to put the necessary guidance and legislation in place to ensure that energy efficiency and microgeneration play fundamental roles in the development and refurbishment of all appropriate buildings.

Q21. What more should the Government be doing through the management of its own wider estates to promote microgeneration?

The central Government Estate already has in place targets for reducing carbon dioxide emissions as well as a target for CHP-sourced electricity. The CHP industry has viewed this largely as a missed opportunity.

The Government estate comprises over 50,000 buildings and CHP can play a role in many, if not all of these. The Government has not taken the opportunity to 'lead by doing' and its performance on the provision of sustainable energy generation on a number of high profile new-builds has been disappointing. Government must go beyond simply sourcing low-carbon-electricity, for which an obligation on suppliers already exists, and look to generating, and in some instances even supplying, low carbon heat and power wherever possible.

We therefore recommend that Government extend its current CHP target on its Estate to incorporate a target for the use of CHP-heat along with a detailed review of the use and potential of CHP, of all sizes, within the Government Estate. This would build upon the Government's current requirement under the Cogeneration Directive to determine the UK-wide CHP potential. In addition, information on the 'Government Estate' remains opaque. The Microgeneration Strategy would provide a key opportunity for details on what constitutes the Estate, the refurbishment and new build plans for different departments and key contacts for each department for companies to liaise with. The Government Estate is a critically important first-step in helping realise the full potential for microCHP and microgeneration technologies: to date support has been lacklustre – a key measure of the first Strategy's success will be the observed change in the Government Estate in its attitude to microgeneration uptake.

Low Carbon Buildings Programme (Q22-Q36)

Q22. Will a 6 year programme provide the confidence that industry requires for future investment decisions?

The Low Carbon Buildings Programme (LCBP) proposes a six-year programme length: this is a marked improvement on the current programme length of three years. We support this programme length, which would give confidence to the key parts of the CHP market as, it appears, the microCHP products currently available have payback periods of only a few years.

Q23. Are the objectives on page 33 an appropriate focus for the new programme and will they contribute to developing and moving the micro-renewable sector forward?

In general, we support the objectives outlined on page 33 of the consultation, however some reservations include:

- The focus on micro-renewable technologies: at present, there are no renewable microCHP schemes (the one exception is possibly landfill sites but the nature of these sites would preclude them from being incorporated in new buildings and SME's). The objectives should be redressed to cover all types of CHP; particularly in Stream 1 (individual and community projects), where CHP has the potential to significantly reduce customers energy bills and carbon dioxide emissions;
- The strong focus on *new* development: the overall objectives should give greater consideration to the potential for microgeneration and low-carbon energy sources in retrofit housing;
- The focus on demonstration: the aim of the LCBP should be to make sure that a new industry becomes self-sustaining, ensuring that existing technologies reach their full potential and funding increased uptake of microgeneration across all building sectors rather than demonstrating projects.

Q24. Views are invited on the impact of a “technology blind” approach on the selection of the renewable technologies

We generally support a “technology-blind” approach in the LCBP, however, we again strongly recommend that this approach cover all microgeneration technologies particularly all forms of CHP operating in the building sector (not just renewable microCHP), and is tailored to different regions, building types and circumstances. Technologies should be assessed on “whole-life costing” methodology, taking account of the danger of “picking winners”.

Q25. Are there any other micro-renewable energy technologies for generating either heat or electricity that should be considered in addition to those mentioned on page 34?

As the name of the programme suggests, a Low Carbon Buildings Programme should support *all* low carbon technologies, all microCHP technologies and heat available through community-based distribution systems.

Q28. Views are invited on alternative support mechanisms to capital grants for supporting the uptake of renewable technologies and the advantages that these alternatives would have over a capital grant scheme.

We believe a capital grant programme is the most effective support mechanism for the uptake of microgeneration however, the importance of household fiscal incentives as well as encouraging electricity suppliers to buy-back the excess electricity at a reasonable price should be considered, as stated in our response to question 15 and 16.

Q29 & Q30 (How should Stream 1 be designed to ensure energy efficiency is addressed effectively? & What other measures should be included under Stream 2 to ensure that energy efficiency is addressed effectively?)

Both Stream 1 and 2 should be designed to prioritise those grant applications which exhibit a high level of long-term displacement from the grid as well as significant energy efficient cost and carbon savings.

Q31. Views are invited on whether the Code for Sustainable Buildings is the most appropriate standard for buildings supported by this programme.

As mentioned earlier, the Code for Sustainable Buildings has the opportunity to provide a clear signal to the construction and microgeneration industry as to the future likely development of the Building Regulations and would therefore be the logical criteria by which to measure Buildings eligible for the LCBP. As a baseline, the Code should require that any new housing development must achieve, at minimum, the BRE EcoHomes standard.

In addition, the Code currently only covers sources of energy in the building fabric and we recommend that it should be extended to cover renewable and waste heat sources of energy external to the building.

Q32, Q33 & Q34 (earmarking funding for individual and community projects, restrictions or criteria used for selecting individual and community projects, focus on larger scale projects)

We do not support priority funding of projects based on size and strongly re-emphasise that all projects (stream 1 and 2), regardless of size, technology or location, be based on the criteria set out in our response to question 29 and 30.

Q35. Further suggestions of the kind of larger scale developments that might be suitable for support are invited.

There exists a large number of larger scale developments that might be suitable for support. Those buildings with educational value are particularly important as they can help to raise widespread awareness as well as providing a good anchor load and useful citing of microgeneration schemes; these include schools, universities, libraries and leisure centres.

In addition, the Community Energy Programme (CEP), administered by the Energy Saving Trust, has highlighted the huge potential for on-site heat loads and the LCBP should work closely with the CEP to identify community-wide schemes where low-carbon heat and power generation would be suitable.

Physical Infrastructure (Q37-Q39)

Q37 & Q38 (What set of metering arrangements would allow consumers to exploit the full range of the potential benefits of microgeneration? & What steps can be taken to reduce the costs of metering and encourage new meter operators to enter the market)

The current domestic electric meters are only able to measure import and if householders are to be rewarded for excess electricity, import/export meters must be introduced, with a single Mpan and monitoring on a 30 second sample basis (import meters currently monitor on a ½ hour cycle, which does not allow for import and export variation).

A clear and simple readable meter display can have a huge impact on consumer awareness and interest. Such a display should incorporate information on energy consumption and generation, energy efficiency and carbon savings.

We recommend that, at the very least, the Building Regulations should require that all replacement meters should be import/export meters with clear and simple consumer-friendly display.

Local authorities and regional bodies (Q40 & Q41)

The range of bodies listed in question 40 all have a role to play in promoting microgeneration as well as acting as advice centres for interested consumers.

As demonstrated in some inventive Local Authorities, microgeneration can be incorporated into planning policy implementation and we therefore recommend that all Local Authorities be given the power to set local targets for building-integrated CHP (see also comments made in response to question 19).

In addition, Government should fund a review of The Regional Housing Strategies, Regional Spatial Strategies and Regional Economic Strategies

enabling the Regional bodies to implement specific policies to encourage microCHP.

Conclusion

The Association welcomes the opportunity to respond to the *Consultation on Microgeneration Strategy and the Low Carbon Buildings Programme*. The Association believes that based on independent and agreed evaluation of the carbon savings of such technologies, microCHP should have the potential to make a practical contribution to the delivery of the Governments CHP target.

This underlines the need for the Government to ensure it has in place the full range of measures necessary to deliver its CHP target.

CHPA
October 2005

The views expressed in this paper cannot be taken to represent the views of all members of the CHPA. However, they do reflect a general consensus within the Association.