

January 2007

Distributed energy

Observations from the UK Business Council for Sustainable Energy

We are keen to innovate and compete with one another, not just in providing home insulation and energy efficient lighting and appliances, but in a range of new demand reducing services such as microgeneration

Letter from the UKBCSE CEOs to Ministers at H. M. Treasury, DEFRA and DTI, April 2006

Introduction

DTI and Ofgem are currently seeking evidence on the costs and benefits of distributed energy, and the barriers and incentives to its uptake, to inform the development of the Energy White Paper.

This paper draws together the initial thinking by the Council on distributed energy following an informal meeting with DTI.

For the purposes of this paper, the Council has taken a broad definition of distributed energy that includes electricity as well as heating and cooling, and covers distributed energy applications ranging from domestic microgeneration to industrial-scale combined heat and power and medium to large-scale renewable energy projects.

The Council is keen to continue to work with Government to develop policies to encourage the development of commercially viable distributed energy projects.

Key points

- The development of low-carbon distributed energy supplies can both reduce greenhouse emissions and improve energy security.
- Realising the full benefits of distributed energy requires an integrated view of the whole energy system. Policies that are focussed purely on distributed electricity generation risk missing opportunities to meet heating and cooling and even transport needs in a sustainable way.
- Policies to support the increased deployment of distributed energy should be focussed on creating the right market incentives to encourage development, reducing barriers, and providing targeted support to help emerging technologies become cost competitive.

- Distributed energy projects range from domestic-scale microgeneration through to industrial CHP. Different approaches to facilitating distributed energy will be needed depending on the context.
- A clear carbon signal is critical for the long-term development of all distributed energy systems and sustainable energy more broadly.
- Even if there were a long-term visible carbon-pricing framework, emerging technologies may well still need specific capital support, and a clear and stable strategy for their transition to commercial viability.
- We believe that a transparent and progressive approach to export pricing that accounts for the full costs and benefits of generation and integration is needed
- It is not clear that private wires are essential to the development of distributed generation.
- We believe that there is a strong opportunity for Local Authorities to become key delivery partners in this, as in other areas, particularly by facilitating the development of, and managing decentralised energy systems.

Distributed energy

The development of low-carbon distributed energy supplies can both reduce greenhouse emissions and improve energy security.

There is already a significant amount of local generating plant connected to the UK's distribution network, and there is the potential to build upon this to further complement the UK's existing generation assets, and in doing so to further enhance security of supply.

While not necessarily focussed directly on distributed generation, a number of mechanisms currently provide some support. This includes the Renewable Obligation, the exemption of CHP and renewable plant from the Climate Change Levy, as well as some aspects of the EU Emissions Trading Scheme and the Low Carbon Buildings Programme.

We believe, alongside other measures, distributed generation has the potential to make a practical and economic contribution to reducing the UK's greenhouse gas emissions.

Distributed energy projects range from domestic-scale microgeneration through to industrial CHP. Microgeneration is likely to make a small contribution to energy supply in the short-term, while renewables and CHP have the potential to meet a steadily increasing proportion of demand for energy. Different approaches to facilitating distributed energy will be needed depending on the context.

Further policies to support distributed energy should be focussed on creating the right market incentives to encourage development, reducing barriers, and providing targeted support to help emerging technologies become cost competitive.

It is important to note that realising the full benefits of distributed energy requires an integrated view of the whole energy system. Policies that are focussed purely on

distributed electricity generation risk missing opportunities to meet heating and cooling and even transport needs in a sustainable way.

Combined Heat and Power

There are currently over 1,500 CHP schemes operating in the UK. There is significant scope for additional schemes to deliver further carbon reductions and to enable major energy users to secure their own energy future in a sustainable manner.

The Government is highly likely to fall well short of its target to increase CHP capacity to 10,000 megawatts by 2010. The regulatory and other barriers to CHP need to be addressed if this target is to be realised.

It is clear from work that is being done in London, as well as a number of the Government's own studies, that in the immediate future the potential for CHP is likely to be at the neighbourhood level, as well as in new commercial developments and the public sector.

Wider use of CHP in industry will be driven by Government action, such as the future of the negotiated agreement under the Climate Change Levy regime as well as commercial factors such as the wholesale price of gas and the availability of heat loads.

Energy market

A clear carbon signal is critical for the long-term development of distributed energy systems and sustainable energy more broadly.

The Government should maintain its long-term shift towards an overarching emissions strategy, which will enable investors to respond to clear carbon price signals. Within this overarching emissions framework, it is important that distributed and centralised energy systems receive comparable long-term incentives.

Given the long-term nature of some of the investment required, the Council supports the development of longer-term scenarios that look at the future of the energy network, within which decisions relating to the 5-year distribution price control reviews can be made.

Transparent export pricing

Many local generation schemes do not exist to export power, the main economic driver being the use of the power and heat on site (such as in the water industry).

Some local generation schemes will have a particular export value related to avoided wholesale energy purchase and network costs. It is important that the market in which they operate enables them to capture this value. Export purchases by suppliers will then be able to evolve through competition between suppliers and reflect these avoided costs.

Some suppliers already offer tariffs for customers who export electricity. There is a view that some of these tariffs are not profitable for energy suppliers, and are therefore not suitable for large scale roll-out. This would suggest that other, more innovative approaches may be needed.

The Council supports a transparent approach to export pricing that accounts for the full costs and benefits of generation and integration. In other words, pricing that appropriately reflects the benefits of the exported power (which in some cases will include carbon abatement) and the incremental costs to the system including use of the network.

To this end, we look forward to the outcomes of the Electricity Networks Strategy Group that is looking at developing and implementing a mechanism that allows suppliers to provide a fair reward for electricity exported from microgenerators.

Network infrastructure

Distribution and transmission systems can be developed to facilitate distributed generation through active distribution networks, while retaining appropriate levels of supply security.

However, without a clear carbon signal, investment in network infrastructure will not be geared to meeting the needs of low carbon energy supplies.

A common understanding between Government, Ofgem, network companies and developers needs to be developed as to the network infrastructure that is required in the future and over what timescales. This includes whether particular investment has strategic significance for the Government that may warrant specific recognition in regulatory terms that creates stronger incentives for DNOs.

Private wire network

Considerable emphasis has been put on the development of 'private wires' as a way of capturing the local value of distributed (or embedded) generation.

The Council has worked to clarify the extent to which a private wire network is an essential ingredient for distributed energy, or if it is a proxy for fair access to local distribution networks.

We understand that access to the public network is not problematic where distribution companies and their customers for local distribution services use their freedom to achieve commercial arrangements that are in the best interest of both parties.

We believe that provided customers *can* access the public network in a fair and transparent manner, private wires are not necessarily essential to the development of distributed generation.

Support for emerging technologies

A number of new energy technologies are past the research and development stage, but have not made the transition to becoming long-term commercially viable options. It is critical that the Government supports the demonstration and deployment phases of these emerging energy technologies.

Even if there were a long-term visible carbon-pricing framework, emerging technologies will still need specific capital support, and a clear and stable strategy for their transition to commercial-viability.

Once a technology is commercially viable, then additional support should be phased out.

The Energy Efficiency Commitment mechanism is one important additional route for supporting development of such distributed low carbon technologies in the residential sector.

Coordination

To maximise the benefits of distributed energy, the UK energy policy framework must deliver a coordinated approach across all aspects of supply and demand in the energy system, including heating, cooling and transport.

For example, the contribution of power generation at the household level to reducing carbon emissions will be enhanced where it is part of an integrated package with other demand reducing measures such as the promotion of energy saving actions.

To ensure a coordinated approach, it is important that the Government aligns the parallel and complementary streams of activity, such as the development of the supplier obligation beyond 2011, and the metering and billing consultation that is currently underway.

Key delivery partners

The Council believes that there is a strong opportunity for Local Authorities to become key delivery partners in energy policy, particularly in facilitating the development of, and managing decentralised energy systems.

Next steps

The Council commends the work of Government that is currently underway to address the barriers to the installation and operation of distributed energy systems.

In particular, the Council believes the following are important:

- the work of Ofgem to remove regulatory constraints to the development of innovative energy services arrangements, including removal of the 28-day rule;

- the introduction of incentives for distribution companies to encourage innovation in network development through the introduction of Registered Power Zones and the Innovation Funding Incentive;
- the proposed Planning Policy Statement on climate change which could be an important tool to facilitate distributed energy projects at a local level through the planning system;
- the London ESCO model which seeks projects that are commercially viable with the active support of an energy company and local authorities, where all aspects of energy supply and demand will be explored with a view to their being applied on a large scale across different sites where infrastructure is required;
- the commitment by the Secretary of State of the Department for Environment, Food and Rural Affairs to explore the potential to expand the London ESCO model to other major towns and cities across the UK;
- the proposal to amend the Renewables Obligation to enable agents to aggregate ROCs from a number of small-scale renewable energy projects on behalf of the project owners.

In addition to this activity, the Council is keen to continue working with the Government to develop policy options to encourage the development of commercially viable distributed energy projects.

Key areas of focus could include:

- Consideration of how ESCO models could be successfully applied to other major cities around the United Kingdom. For this to occur, there is a need for strong engagement with local authorities that includes capacity building activity.
- An assessment of the research and development needs for distributed energy technologies and the support infrastructure is important. This would complement the work of the Energy Networks Steering Group and the Innovation Funding Incentive for distribution network operators.

Conclusion

Enabling the wider use of distribution energy will potentially deliver new sources of competition in the market, and stimulate new benefits for consumers and the environment. However, it needs to be recognised that distributed energy is not a panacea – but rather a part of the structure of energy technologies that the UK market needs to be able to deploy in order to not only tackle climate change, but also to alleviate fuel poverty.

The Council is committed to actively pursuing these outcomes.

**UK Business Council for Sustainable Energy
January 2007**

The views expressed in this paper cannot be taken to represent the views of all parts of all the companies in the UKBCSE. However, they do reflect a general consensus.