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The Energy White Paper 2007

A summary and some perspectives

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Introduction

Over the past month or so, our weekly bulletin *Energy spectrum* has attempted to provide a thorough account of the key aspects of the energy white paper issued on 23 May and some of the key issues arising from it. In this supplement we have pulled the main elements of our coverage into a single document for our readers. And given the importance of the white paper, its scope and its implications across the market we are making the document more generally available.

This supplement does not profess to provide a complete summary, and there are conspicuous omissions—including the biomass strategy, the metering and billing initiatives, transport aspects of policy and the waste strategy. But it does break the white paper and the supporting consultations into the main building blocks and provide a route map to these. On the supply-side they are the nuclear consultation, the reworking of the renewables obligation (RO), the ramping up of work on decentralised generation and the commitment to a firm timetable on the carbon capture and storage competition. The main demand-side measures, which themselves have much greater prominence than in previous policy statements, are the augmentation of the energy efficiency obligations on suppliers and the new cap and trade scheme for large non-intensive users.

We have also included four of our *Energy perspectives*, our headlining weekly comment produced for our customers.

The first is an overview of the white paper and what we think are the key points of note, and the tone of this is very supportive of the progress we think the white paper represents.

The second focuses on the critical issue of establishing credible carbon pricing, where again we think the government is lifting its game. The conclusion is that the prospects for a robust carbon price over the medium term are now significantly greater than they were a year ago.

The third is about the cost of delivering the white paper, and the often forgotten fact that consumers are already paying handsomely for the low-carbon agenda and the calls on them are set to increase significantly. The treatment of fuel poverty and the government's social policies for the energy sector are probably the greatest weaknesses in the white paper.

Finally our fourth perspective is a more parochial concern, and it addresses what we see as a consistent failure by government to stimulate large-scale CHP through its energy policies and another hole this has left in the white paper.

For our existing customers we hope this document provides a useful reference document or resource. For other readers we hope you find our coverage stimulating. Cornwall Energy tries to act as an informed and independent commentator on policy, regulatory and market issues. Those new to our writing may detect some themes—we are close to many smaller players in the market and actively promote competitive outcomes and the removal of barriers to entry. We also believe passionately in the low-carbon agenda. But at the end of the day we do not knowingly make assertions or statements that we are not able or prepared to substantiate.

For those who would like to know more about our activities, please contact Nigel Cornwall by phone on 01692 407865 or by email at nigel@cornwallenergy.com. We would be delighted to arrange a free trial to our daily and weekly information service. For the rest of you, especially our growing number of customers we as ever welcome your feedback.

Nigel Cornwall

10 July 2007

Perspective I—“Damned if you do, damned if you don’t...”

The third and latest instalment of the energy review, which had already been very well-trailed, appeared on 23 May. The news coverage in the broadsheets on the following day was that the government had very little at all to say. The grudging tone was set by Jeremy Warner in the *Independent*. He referred to “the government’s continued lack of urgency in pressing forward with plans to address Britain’s looming energy gap.” This stance echoed the main political reaction, but more alarmingly from the government’s perspective that of many of the main editorial columns. A dissenting voice came from the *Financial Times*, which focussed on a rather different theme: “Yesterday’s white paper contained some sensible—if vague—stuff about energy security and a new generation of nuclear power plants. But it also contained plans, some decided by the European Union, to micromanage exactly how and where carbon emissions will be cut.” We think both points of view are incorrect for the reasons set out in this *Perspective*.

1.1 Take your positions...

In an article on the 22 May in the *Times* Tony Blair said his energy white paper was practical but radical. Most of the media after its release dismissed this, which given the amount of spin and political management in the run-up to its release was perhaps understandable. In reality the greater part of the press comment had probably been written in advance of the press conference and release of the document. It is doubtful whether the media had assimilated all 350 pages of the main report, never mind the various supporting analyses and initial wave of further consultations issued with it that contain an abundance of detail.

And, to an extent, the significance of the document was diminished by what went before it. A series of organised leaks on reworked policies and programmes had been fed to the market—free real-time electricity displays to all home owners who ask for one, a green light for “banding” renewables, tightening of the proposed carbon abatement reduction target and eco homes with CHP, to name a handful.

Of course the main story line—the nuclear consultation and the government’s “preliminary view” in support of nuclear power and proceeding to a firm policy commitment—has hardly been out of the headlines since June 2006 when Tony Blair announced that “nuclear power was back on the agenda with a vengeance.” Political prudence if not logic would have suggested that ministers should have been a bit more circumspect in their remarks, but this seems not to have been the case despite the firm judicial reprimand issued in February. True, the white paper uses careful language in “providing an option to the industry to invest in nuclear energy,” the development of “facilitative action” and the initial steps being taken on a “contingent basis”, but the pro-nuclear message is loud and clear.

The government’s clear disposition for nuclear ahead of concluding its “re-consultation” understandably provided the focus for most of the media coverage. In a series of interviews Alastair Darling insisted nuclear energy was the only way to prevent increasing carbon dioxide emissions and end the reliance on “the whims of foreign governments” for UK energy supplies. “To say no to nuclear [...] that’s daft, it would needlessly expose the country,” he told BBC Radio 4’s *Today Programme* on the morning before the release. “I came to this as a nuclear sceptic, but the facts have changed.”

As a consequence, the white paper was seen as an opportunity in the press to restate similarly well-rehearsed positions. Patrick Warner commenced his assessment as follows: “Expensive, dangerous and likely to crowd out investment in renewables—that broadly summarises the view of this newspaper on nuclear energy,” before going on to quickly find the “government guilty on all counts.” Similarly, the *Financial Times* repeated its strong pro-market philosophy: “There is still a role for government enforcing a price for carbon. It should invest in basic energy research. It is also reasonable to change planning policy and building regulations to favour clean transport and energy efficiency,” it argued.

The tenor of the reporting does not do the white paper the credit we think it deserves, but this is probably a function of needing to provide a quick reaction for press deadlines rather than any deep reflection on substantive issues.

Box 1—Major consultations underway or planned

The *Planning white paper*, issued on 21 May, sets out proposals for reform of the planning system, building on Kate Barker's recommendations for improving the speed, responsiveness and efficiency in land use planning, and taking forward her and Rod Eddington's proposals for reform of major infrastructure planning. The consultation period closes on 17 August.

Future of nuclear power—this controversial consultation, seeking comments on the government's "preliminary view" that the private sector should be "allowed the option of investing" in new nuclear power, closes on 10 October. There is also to be a consultation on the government's proposals for *Implementation of the CoRWM recommendations* on the treatment of long-term radioactive waste later in the summer.

Reform of the renewables obligation (RO)—which sets out the proposed arrangements for strengthening and modifying the RO through increasing targets up to 20% through a combination of guaranteed headroom and implementation of a ski slope mechanism, including the implementation of banding and the removal of the proposal to delink the buy-out price, which closes on 6 September.

Guidance on the Gas Act 1965—a consultation that seeks views on whether the guidance explains the processes, requirements, timescales and other information relating to the Gas Act 1965 in a sufficiently clear and comprehensible manner. It is intended that final guidance will be published in due course irrespective of developments arising from the planning white paper. Issued alongside the white paper, it runs to 15 August.

Carbon emissions reduction target (Cert)—formerly the energy efficiency commitment, to consult on the size of the commitment between 2008-11, which the government indicates it would like to more than double, Issued alongside the white paper with a draft order included. Responses due by 15 August.

Products policy brief on consumer electronics—which sets out and consults on analysis of how markets for domestic consumer electronics could develop, together with proposed sales targets and performance standards for the next 10-20 years. Also issued with the white paper, it is part of the DTI's *Market transformation programme*. Closes on 17 August.

Supplier obligation, call for evidence—to help consider possible alternative designs for the post 2011 phase of the continuing Cert obligation on energy suppliers, which should issue in the summer.

Carbon reduction commitment—formerly the energy performance commitment, which will consult further on the detailed design of the new commitment on large non-energy intensive businesses and organisations, also due in the summer.

Energy services directive—this is a consultation on possible additional measures needed to comply with the directive, especially article 6 in relation to the promotion of energy efficiency by energy suppliers. Again this should emerge over the summer.

Distributed generation licensing—a joint consultation with Ofgem on more flexible market and licensing arrangements for distributed, low-carbon electricity supply probably to emerge in the autumn.

UK regulation of carbon capture and storage (CCS)—which will address the regulation of the full chain of CCS technologies, again later in the year.

Business billing and metering—this stream will take forward and consult by the end of the year on these aspects on the white paper, including new obligations on suppliers to provide "all but the smallest business users" with advanced metering services within the next five years.

1.2 Substance, not form

But for those who now have had time to begin to assimilate it, the document (read in conjunction with those consultations issued in parallel with it, see Box 1 above) is a comprehensive route map for all policy initiatives taken over the past 18 months since the 2005 pre-budget report. The scale of the coverage is immense, and there is a discernible shift of focus over previous policy statements to embrace demand-side aspects. Thus, energy suppliers are to become energy services companies and the energy efficiency commitment is to be translated into a carbon obligation; a zero emission status will be mandatory for all new houses from 2016; an innovative carbon trading scheme is to be applied to non-energy intensive businesses; and mandatory smart metering is to be applied for business and probably for domestic consumers subject to further trials. On the supply side, increased targets for renewable electricity will now be set, with the RO reconstructed through banding; and there is a now a firm commitment to a competition for CCS starting in the autumn.

Additionally, there is to be reformation of the planning system, and this document sets out a much more coherent transport policy. Unlike the July 2006 report it embraces an international energy and climate strategy. These are all major policy initiatives defined in most cases to a meaningful level of detail.

Several important strategy and supporting documents have also been released. As well as updated energy projections and the summary of the UK MARKAL energy model, they include: the Department of Transport's *Low-carbon transport innovation strategy*; Defra's *Biomass strategy*; DTI's *Review of UK oil refining capacity*; the government's *Response to a consultation on the effectiveness of current gas security of supply arrangements* and an *Assessment of potential measures to improve gas security of supply*; a report on the *Dynamics of GB electricity generation investment*; *Energy market competition in the EU and G7: preliminary 2005 rankings*; an *Evaluation of supplier obligation policy options*; and Ofgem's report of its *Review of distributed generation*.

Three years ago such a set of inter-locking plans examining the different elements of sustainable energy provision was inconceivable, and last year's energy report gave only indications of the magnitude of the further detail that is now provided. The issue is not why there should have been a number of delays in issuing the paper but how such an extensive reassessment of the energy system could have been produced across Whitehall in less than a year, and it should come as no surprise that further consultation and specification is needed in some areas.

1.3 A low-carbon framework

All in all then we believe this is an impressive catalogue and not as the REA claimed "more paper than policy". To that can be added the coherent proposals set out in further white papers that appeared in the week on planning and the waste strategy for England.

The success of the white paper must be measured in terms of meeting existing targets and achieving new ones implied by it. A summary of carbon savings from post climate change programme measures is shown in the table above, summing to an extra 23-33MtC abated in 2020. Of course, setting a target and achieving it are very different propositions. But the white paper raises the bar through committing to a host of specific policy measures that had previously been defined at a high level or set out as options, and they will underpin formal targets to be promulgated through the Climate Change Bill.

The other key test will be whether the white paper enhances security of supply. It certainly should increase diversity and flexibility of the energy system through helping renewables development and stimulating more efficiency usage. The planning changes are essential across the piece if timely investment is to be facilitated.

Inevitably the breadth of the plans and the supporting programmes means that there is much that particular parties and associations can take issue with. But immersion in the detail should not obscure a simple conclusion that the white paper and its associated documents are an impressive body of work and should not conceal the real progress that has been made.

Estimated carbon impact of post 2006 measures

	MtC abated in 2020	
Energy Efficiency		
Better Billing	0.0	– 0.2
Real Time Displays in Households	0.0	– 0.3
Energy Performance of Buildings Directive (EPBD) ¹	0.6	– 1.6
Zero Carbon Homes ²	1.1	– 1.2
More Energy Efficient Products ³	1.0	– 3.0
Continued obligation on energy suppliers to make carbon reductions in the household sector ⁴	3.0	– 4.0
Business Smart Metering ⁵	0.1	– 0.2
New measure for achieving carbon savings from large non-energy intensive organisations (Carbon Reduction Commitment (CRC)) ⁶	1.0	
Energy Supply		
Changes to Renewables Obligation ⁷	0.4	– 1.1
CCS demonstration project ⁸	0.3	– 1.0
Transport		
Successor to EU voluntary agreements on new car fuel efficiency ⁹	1.8	– 4.1
Renewable Transport Fuel Obligation ¹⁰	0.0	– 1.0
EU ETS and offsetting measures		
EU Emissions Trading Scheme ¹¹	13.7	
Aviation in EU ETS (domestic) ¹²	0.2	– 0.4
Carbon Neutral Government ¹³	0.2	
Total	23.4	– 33.0

Box 2—The energy white paper in a nutshell...

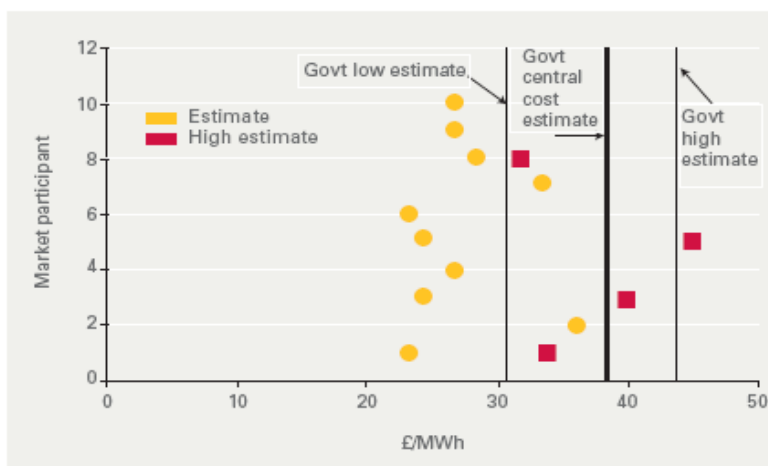
The main measures or actions are as follows:

- a requirement for new meters to come with a real-time display from 2008 and a short-term offer of free displays from energy suppliers for households to 2010. In addition, the government is encouraging the introduction of smart meters, also with displays, across the household sector and for small firms, and it expects everyone to have a smart meter within ten years, while requiring smart meters for “all but the smallest of businesses” in the next five years;
- a consultation setting out how the energy efficiency of consumer electronics will need to improve. Electrical appliances left on standby accounted for 7% of all electricity used in the UK;
- a consultation to double energy suppliers’ current obligation to deliver energy efficiency measures to customers through a new carbon emissions reduction target that will replace the energy efficiency commitment;
- a cap and trade carbon reduction commitment for large commercial organisations, such as banks, supermarkets and large local authorities. This will extend the discipline of carbon trading from firms currently subject to the EU ETS significantly;
- a distributed generation report is to be published including simplification of energy market and licensing arrangements for localised energy by the end of 2008, as well as clearer (in some cases new) export tariffs from all six major energy suppliers for micro-generators to sell excess electricity;
- legislation is to be introduced to band the RO to benefit offshore wind, wave, tidal and other emerging technologies. The cap on the amount of co-firing generation qualifying for support will be removed. A study is also being carried out into a proposal for a £14bn barrage across the River Severn to harness wave power;
- the government will adopt a biomass strategy, and has issued a response to *Creating value from renewable materials*, a two-year progress report on the strategy for non-food crops and uses;
- more detail on the competition to build an end-to-end CCS plant, which will deliver at least 300MW capacity, 90% CO₂ saving, and be up and running between 2011 and 2014;
- legislation to allow the storage of natural gas under the seabed and unloading of LNG at sea;
- a three-month deadline within which DTI will make consent decisions on large-scale energy projects, pending more radical reforms set out in the planning white paper (see p8);
- a new role for Ofgem in setting longer-term network development scenarios and a energy market information and analysis service from this autumn; and
- a low-carbon transport innovation strategy backed by funding of £20mn for public procurement of low-carbon vehicles, a £30mn R&D innovation platform and £5mm additional funding for the Energy Technologies Institute.

Separate nuclear consultation promises “go/no go” decision by year-end

The government said more nuclear power would be needed to help reduce emissions and provide security of supply, and it launched a wide-ranging consultation document to accompany the energy white paper.

Estimates of the cost of nuclear power



The 207-page consultation, *The future of nuclear power: The role of nuclear power in a low-carbon UK economy*, seeks views “on the information and arguments set out on whether the private sector should be allowed to build new nuclear power stations.” The closing date for responses is 10 October with a decision to be taken “later in the year.”

Trade and industry secretary at the time Alistair Darling said: “We are seeking views on whether the government has considered the relevant arguments; whether we have considered the arguments reasonably and whether there

are other important arguments we have overlooked. Your views will contribute to the shaping of the policy on the future of civil nuclear power in the UK. They will help government assess the arguments before it reaches its final decision on the future of new nuclear build.”

The minister said the government’s preliminary view was that it was in the public interest for new nuclear build. The DTI also released a related consultation setting out the proposed justification and strategic siting assessment processes. Separately, the Health and Safety Executive has begun work on a pre-licensing process. These actions will be contingent on decisions arising from the main consultation.

Darling said the government wanted to be able to make a decision on new nuclear for three reasons: replacing the existing generation fleet; reducing emissions because of climate change mitigation; and due to dwindling domestic oil and gas reserves. He said energy companies would need to invest in 30-35GW of new generation capacity over the next two decades, two-thirds of which is required by 2020, adding that any new nuclear stations were unlikely to make a significant contribution to new capacity before 2020. He said several developments since 2003 had led the government to reconsider new nuclear build, including its progress in tackling legacy waste and future waste management. The government is also working on specific proposals to “protect the taxpayer” by making private sector developers meet full decommissioning costs and the full share of waste management costs.

Darling said the disadvantages of nuclear power “can be managed and mitigated so that they do not in themselves provide a reason for not allowing energy companies the option of investing in new nuclear power stations.”

The consultation document provides government estimates of the cost of nuclear power and its central estimate of a £38/MWh cost (see Chart above), and its view is that development is now economic. The government also believes that lifecycle carbon emissions from nuclear power stations are about the same as wind generated electricity with significantly lower carbon emissions than fossil fuel fired generation. “As an illustration, if our existing nuclear power stations were all replaced with fossil fuel fired power stations, our emissions would be between 8mn and 16mn tonnes of carbon a year higher as a result, depending on the mix of gas and coal-fired power stations.” Darling said this would be equivalent to 30-60% of total carbon savings achievable from all the measures in the energy white paper.

The DTI has already identified 12 possible sites for a single reactor, of which 10 could be appropriate for double reactors. It has graded the sites, green, amber and red based on their suitability. The green sites are: Hinkley Point, Sizewell, Bradwell, Dungeness, Hunterston, Torness, Hartlepool, Wylfa and Heysham, the amber sites are: Calder Hall, Oldbury and Chapelcross, and the red sites, Berkeley and Trawsfynydd.

The government says it is committed to the “fullest public consultation” on its nuclear proposals—a reference to the successful Greenpeace judicial challenge review that the initial consultation was flawed and did not meet the requirements it set out in the 2003 white paper. The consultation document leaves no doubt whatsoever about the strength of the government’s preliminary view and the analysis on which it is based. Nonetheless it is at pains to stress that the decision is to provide the private sector with an option, and its own role restricted to “facilitative action”, with the onus for investment sitting firmly with the market.

[Consultation document](#)

Planning white paper proposes fast-track regime for energy infrastructure

The government’s long-awaited planning white paper was unveiled on 21 May by then communities minister Ruth Kelly. It includes proposals to speed up the construction of major infrastructure projects in the biggest overhaul of the planning system in 20 years.

The proposed legislation has four key elements:

- a better, quicker system to decide major infrastructure projects;
- simplifying the local planning system for householders;
- planning to play a larger role in tackling climate change; and
- ensuring the planning system continues to support vibrant town centres.

Box 3—What they thought....

Shadow energy secretary **Alan Duncan** said the government needed to be more specific about its long-term energy plans and that there were “conflicting signals” on the future of nuclear power. He said there were inconsistencies in the government’s message with Prime Minister Tony Blair saying nuclear power was back on the agenda “with a vengeance” and Chancellor Gordon Brown saying new stations would be built, but trade and industry secretary Alistair Darling only suggesting they “could be” part of the energy mix.

Duncan said: “Whatever the rhetoric, there is nothing in this white paper that will guarantee that a single nuclear power station will ever be built.” He also questioned how the government could deliver a UK-wide energy policy when Scotland has rejected nuclear and added the paper did not contain certainty on nuclear decommissioning and waste. He also said the government had deferred “key decisions” on CCS and accused ministers of retaining a climate change levy which amounted to “keeping a dirty tax on a clean process.”

In contrast Liberal Democrat trade and industry secretary **Susan Kramer** described the nuclear consultation as a “total farce” and said the government’s attempts to justify new build on the grounds of security of supply and climate change did not stand up to scrutiny. She added: “CCS and storage and nuclear are competing technologies on the way to the ultimate goal of a fully renewable system. Nuclear would not significantly reduce our reliance on fossil fuels—its main impact would be to squeeze out renewables.” Kramer said she was disappointed the paper contained “so little detail” on smart metering and a lack of action on social tariffs.

The Green Party said the white paper was “a blow to common sense” and described the government’s nuclear policy as “disastrous.” Principal speaker **Sián Berry** said: “The UK is awash with renewable resources, but Gordon Brown wants to continue shoveling taxpayers’ cash into the ailing nuclear industry, at the cost of damaging the fledgling renewables market. Today’s proposals will cripple the green energy market.” Greenpeace said the paper only contained “a few ineffectual concessions” to renewables and efficiency, and it reiterated its opposition to new nuclear.

The Combined Heat and Power Association (CHPA) welcomed the white paper for its support for decentralised energy and renewable CHP but said it was concerned it could send a confused message to the power industry and energy intensive users.

UK Business Council for Sustainable Energy (UKBCSE) chief executive **David Green** said: “To secure investment in new and lower carbon energy sources companies need a clear and long-term policy framework—today’s white paper is a clear step in that direction. However we must not substitute consultation for action—the challenge of climate change is too urgent.”

The Renewable Energy Association (REA) welcomed individual measures in the white paper but said much more would be needed to achieve the 20% contribution to total energy at 2020 under EU targets. Chief executive **Philip Wolfe** said: “It pays lip service to local energy production but, like [the] planning white paper, only addresses centralised power. It mentions important technologies like renewable heat, biomass and smart metering but has no measures to bring them into the mix. And it has no proposals for energy efficiency and renewables in the 25mn existing homes, which will still be consuming energy for decades to come.” The REA welcomed plans to maintain and improve the Renewables Obligation (RO) and further consideration of tidal barrages. Wolfe said he “doubted they’ll be enough to bring forward key technologies like photovoltaic, tidal and wave power.”

The British Wind Energy Association (BWEA) expressed similar concerns to those of the REA about the 20% renewables energy target, with **Maria MacCafferty** saying it was concerned the government “appears not to believe in renewables sufficiently to turn its aspiration into gain.”

Energywatch’s **Allan Asher** said that while it welcomed measures on smart metering and green tariffs, the paper lacked “precision and clarity” on how to remove 3mn consumers from fuel poverty by 2010. It said that the government should commit the industry to minimum standards for social tariffs.

British Energy welcomed the white paper’s emphasis on the private sector for future energy needs and the government’s commitment to the EU Emissions Trading Scheme. **EDF Energy** welcomed the nuclear consultation and the paper’s commitment to energy diversity and proposals on renewables, CCS and smart meters. **RWE npower** said the paper would help with future investment decisions provided it was translated into “concrete policy,” while Scottish Power termed it “considered and comprehensive.” **E.ON UK** gave no formal reaction to the paper. But on 22 May, one day prior to its publication, company chief executive Dr Paul Golby told an annual general meeting that it would take “a leading role in the next generation of nuclear power stations.” He said it would support Westinghouse and Areva nuclear designs through pre-licensing in the UK and was in discussions with GE Energy over its designs.

Ministers will issue national policy statements about national medium- and long-term infrastructure needs for the next 10-25 years, and the public will be more involved in the formulation of that policy. A new independent planning commission of leading experts from key sectors will be in charge of the process for all major projects in an effort to end the years of delays to planning inquiries—such as Heathrow’s Terminal 5—which took over seven years to obtain planning permission under seven different pieces of legislation.

The planning white paper recommends merging the complex eight separate systems currently involved into a single system, run by the commission, which will need 20-30 members to consider up to 25 projects a year. Streamlining

the system will cut decision times from several years to a limit of nine months, although start-up costs for the commission are estimated at about £4mn with annual running costs of £8.8mn. But the government claims that these reforms could save Britain £1bn within a decade.

Proposals to tackle climate change include the requirement for new housing developments to consider measures to reduce carbon emissions. Housing minister Yvette Cooper will also head a new 'green offices' taskforce to set a timetable and action plan for delivering big reductions in carbon emissions from commercial buildings within the next ten years. The paper also proposes to speed up the process for householders wanting to install small-scale renewable technologies. It also intends to cut red-tape for the use of micro-generation in commercial and agricultural business.

Commenting on the paper, Kelly said "If we are to thrive, we need a better system for taking the difficult decisions. If we do not the risks are significant - energy shortages, mounting congestion and increasing pollution." Trade and industry minister Alistair Darling said that the new proposals would help industry "to make the investments that the country needs" in major energy projects.

Views are required by 17 August.

These are bold proposals to deal with intractable problems. David Miliband caught the essence of these plans with his comment that they would "ensure that we meet our social, economic and environmental objectives, including tackling climate change, in an integrated way." We concur that the reforms are "essential if we are to create a planning system that is fit and able to meet the challenges we face."

[Planning for sustainable communities white paper](#)

Revised RO package sees major concessions to accelerate growth

Alongside the energy white paper the government published a consultation on specific measures to strengthen and modify the renewables obligation, including firm proposals for banding by technology. The changes will be effective probably from April 2009.

The *Reform of the Renewables Obligation (RO)*, published on 23 May, sets out and seeks views on the detailed implementation of the changes to the scheme described in the energy white paper for England and Wales. The proposed changes include:

- extension of the obligation level to a maximum of up to 20% on a headroom basis;
- "banding" the RO to provide groups of technologies needing similar levels of support combined with additional incentives to encourage technologies that are in the post-demonstration phase (offshore wind and dedicated biomass) or are marginal (tidal and wave) through differential Roc awards;
- removal of the current caps on co-firing but reduced support;
- implementation of a "ski-slope" to prevent a crash in the Roc market; and
- the proposal to drop the linkage of the buy-out price to inflation has been reversed.

Proposed RO banding levels

Band	Technologies	Rocs/MWh
Established	Sewage gas, landfill gas, co-firing of non-energy crop (regular) biomass	0.25
Reference	Onshore wind, hydro, co-firing of energy crops, energy from waste with CHP; other	1.0
Post-demonstration	Offshore wind, dedicated regular biomass	1.5
Emerging technologies	Wave, tidal, advanced conversion technologies, dedicated biomass burning energy crops, dedicated regular biomass with CHP, solar photovoltaics, geothermal.	2.0

Oxera modelling, which is detailed in an accompanying regulatory impact assessment, suggests that under a banded scenario 13.5% of electricity would come from a renewable source by 2015, compared with 11.4% under current policy. The modelling also uses a detailed set of technology cost estimates from Ernst & Young.

The government says it remains committed to its goal that the RO promotes the deployment of renewables "at a reasonable cost to consumers" while progressing towards a target of 10% by 2010 and an aspiration to double this

by 2020. On this basis, it believes net neutrality must be maintained through reviews of the likely number of Rocs in the market, “to preserve consumer and investor confidence.”

The proposed bands are shown in the Table above. It is proposed that micro-generation projects are placed in the same band as large-scale generation for their technology. The principle of grandfathering is maintained, except for co-firing, based on the date of planning consent and any change in the number of Rocs/MWh will only apply to projects consented after 11 July 2006 (i.e. the date at which the government first mooted the proposal). Ministers will set the allocation of Rocs to the bands and be advised for future reviews by an independent committee of experts. Any changes will be announced 18 months prior to introduction with triggers set to allow early reviews.

Commitment is made to extend existing targets from 15.4% by 2015-16 to up to 20% on a headroom basis, where targets will be set to a level expected to be in excess of outturn to underpin Roc values. Headroom will be applied on the basis of 6% of the expected Rocs in a given obligation period, approximately equivalent to one percentage point of headroom on the electricity market for an obligation of 16.7%. A cross-industry working group will be established to consider the introduction of an appropriate mechanism to implement a ski-slope.

The link between the buy-out price and RPI from 2015-16 has been retained, despite the previous suggestion by DTI that this should be dropped, to provide a “greater stimulus” for the deployment of renewables over the lifetime of the RO. It is argued that a banded RO retaining RPI could deploy around 40% more renewables between 2009 and 2015 than the current regime would achieve over the same period. The cap on the proportion of the obligation that can be met through co-firing is also to be removed and larger generators will be required to report on the source and sustainability of the biomass used.

Responses are required by 6 September. The government intends to introduce a bill for these changes as they require primary legislation in the autumn, and they are also subject to European Commission state aid clearance. This means they would not be effective until at least April 2009. Any changes to the obligations in Scotland and Northern Ireland will be subject to separate consultations and parliamentary agreement.

DTI has clearly done a lot of thinking since last July’s energy report, and its proposals are a lot more detailed and—in some key respects—different. The change of heart over de-linking the buy-out from RPI and the decision not to scale back onshore wind entitlements through lower banding represent key concessions to the industry. Combined with the scaling up of Rocs for offshore wind by 50% and introduction of a ski-slope, the revised package probably represents a credible basis for helping achieve targets over the medium to longer term.

[DTI](#)

[Oxera report on impact of changes](#)

[Ernst & Young costs of electricity production](#)

A bit about us

Cornwall Energy Associates is an independent consultancy, which has operated within the energy sector since 1994. Our in-house team has been active within both the UK and international markets for over a decade, and has worked in over 20 countries over five continents.

Our flagship weekly publication, *Energy spectrum*, is a sectoral leader in comment, news and analysis of the energy markets, industry structure, and associated policy and regulatory developments. Our views and insights are based on practical experience and direct involvement in industry processes and policy formulation.

We offer a range of other services too, from our *Renewables market guide and Roc forecasts*, to our *Supplier market share survey* and to our meeting report service. And we offer a range of consultancy services to a broad range of market participants: over the past year alone we have worked with among others: government, Ofgem and energywatch; an oil major; the CHPA and several small generation developers; two of the Big Six; an independent network operator; and two international utilities. We also convene the British Independent Energy Suppliers Association.

See our website for more details, at www.cornwallenergy.com.

Perspective 2—The art of bluffing on long-term carbon values

Putting a long-term value on carbon emissions from burning fossil fuels is the key challenge for policy makers if they are to fashion a market mechanism to prompt power generators to make the right, low carbon investment choices and also ensure the lights stay on. Without such a mechanism, market participants may choose to invest in the “wrong” technologies or, worse still, not to invest at all. The energy white paper is the latest official document to emphasise that the EU ETS should be the basis for this mechanism. But, as with earlier pronouncements, it says little on the practicalities of how carbon pricing might be used to underwrite new investment, be it nuclear, CCS or renewables. Here we look at how credible the government’s position is.

2.1 The challenge

The importance of credible, long-term carbon pricing for new generation investment was the over-riding theme of last year’s submissions to the energy review by the main market participants. Each of the Big Six gave prominence to this because the end of EU ETS phase 2 in 2012 represents a significant disjoint in their planning horizons. While there are encouraging signs for EU ETS phase 3, uncertainty over its form, duration and coverage represents a real issue for long-term project planning, especially nuclear and CCS which rely on non-energy market factors for their viability.

The paucity of detail in the energy white paper reflects the largely multi-lateral framework in which carbon markets are developing and the lack of direct control that individual participating governments can exercise over them. But this omission is especially notable as the white paper provided the first opportunity for government to set out thinking on the key 2020 objectives for energy and the environment tabled earlier this year by the European Commission, which raises the stakes significantly for early progress on low-carbon programmes. These tightened goals call for a 20% energy (not electricity) contribution from renewables, a 20% energy efficiency improvement and a 20% emissions reduction.

But the imperative of achieving a robust carbon trading system has been officially recognised outside of the white paper: the UK manifesto on emissions trading in March includes this comment: “An urgent priority is to set out the future level of ambition post-2012 and agree the trajectory for the cap on emissions covered by the scheme at least as far as 2030.” Without this trajectory, it looks like the UK might need to go it alone to eliminate a major element of regulatory risk and facilitate long-term investment against an expectation of a growing generation gap from the middle of the next decade.

In just over one page, the white paper sets out what needs to be done to avoid this eventuality with a series of measures proposed to strengthen the EU ETS, including:

- making early decisions on targets to “provide business with confidence that there will be a meaningful, long-term carbon price;”
- setting caps to help deliver a 30% reduction by 2020 through a constraint which tightens over time;
- more auctioning (and less free allocation) of allowances; and
- extending the scope of the scheme to other sources of emissions and also explicitly recognising CCS from phase 3.

Interestingly—as was the case in July 2006—references to carbon contracts and other mechanisms for guaranteeing a minimum carbon price are conspicuous by their absence, which suggests the government is minded to put all its eggs into the EU ETS basket. There is also consensus on the basic requirement at least domestically based on remarks from Ofgem and those from the Carbon Trust, which share the government’s vision of widening and deepening the ETS from phase 3.

In spite of its brevity, the list above represents no small ask and embodies one of the challenges the white paper has to address of setting a long-term framework for national energy policy at a time when international policy is evolving.

2.2 A credible price

More immediately, the greater political momentum, especially the actions taken by the commission to tighten phase 2 Naps, is being reflected in City views of the long-term effectiveness of the EU ETS, particularly with regard to its ability to produce a price which will incentivise generators to make fuel switching investment decisions (see Figure below). This is an important development as their increased long-term confidence in carbon trading will influence shareholder attitudes to companies making carbon-related investments.

For example, in May UBS published an insightful piece of research containing reasoning for increasing its phase 2 EU ETS and as a consequence its wholesale electricity price expectations. For carbon, a combination of tighter national allocations and uncertainty about the arrival of clean development mechanism credits will put upward pressure on phase 2 prices in the short-term and force them up to the €30/EUA level, which it believes will incentivise

fuel-switching by generators from their current “no-mans land.” While there may be some drift thereafter, this dynamic should be established and be taken forward for any EU ETS phase 3 beyond 2012.

Views of medium-term carbon prices



2.3 Does more need to be done domestically?

The combination of a much more credible phase 2 for the EU ETS and gathering political momentum suggest a functioning international framework to value carbon post-2012 is more likely now than when the energy review report emerged last July. This significant progress should not be underestimated as it reduces the likelihood that national measures will be required with all their attendant risks. Seen in this light, the new carbon reduction commitment put forward for non-intensive business users in the UK is crafted more to increase awareness than create a carbon price.

And since last summer most of the Big Six have set out plans to develop new gas plant—to 5GW total capacity—and consider new or re-engineered coal power stations. Scottish Power, Scottish and Southern Energy, E.ON UK and RWE npower are all evaluating coal projects with a potential capacity of even more than the planned new CCGTs. Of course, none may ultimately go ahead, but we think this unlikely. While the industry collectively—and the Big Six in particular—may urge government to take more unilateral action to facilitate their investments, it must be aware that it, rather than officials, will have to manage the political and commercial fallout from unreliable supplies and extreme prices. With minimal prospects of new entry on any scale, the absence of a credible and robust carbon price is probably the biggest risk the major integrated suppliers face. This leads us to think that, although progress on an international carbon framework will be tortuous, it will eventually arrive. There seem good prospects that a credible carbon value will emerge from next year on and certainly by 2012 when a spate of investment decisions will become overdue, so the government would be best to focus attention—as it is doing—on clearing planning issues.

No doubt the electricity industry too will make an awful lot of noise along the way, and will make strong arguments for a guaranteed price. But there should be no guarantee that government will blink first in this high stakes game of carbon bluff.

Carbon capture and storage measures focus on practical steps

The government provided details of its thinking on CCS in the 23 May energy white paper.

It said the technology was “a major technical challenge” and faced cost uncertainties and regulatory issues but that it was “in our own vital interest” that the technology to make coal low-carbon is developed and deployed “as rapidly as possible.” Government figures show CCS has the potential to reduce CO₂ emissions from fossil fuel power stations by as much as 90%, while demonstration schemes alone could save 0.25-1.0mn tonnes a year of carbon by 2020 depending on the size, technology and number of power stations built.

The CCS-related measures detailed in the white paper include:

- the competition to support a commercial-scale CCS demonstration project;
- the launch of a consultation on options for the regulation of the full chain of CCS technologies later this year;
- the awarding “shortly” of contracts to successful prototype projects under the Carbon Abatement Technology strategy to develop technologies for fossil fuel use that abate emissions;
- a consultation later this year on the issue of capture readiness in future applications;
- a joint study with Norway on the infrastructure needed to transport and store CO₂ below the North Sea in July;
- work with the European Commission and member states on an EU strategy to develop CCS for new fossil fuel power station by 2020 if technically and economically feasible;
- promoting the reform of international regulations affecting CCS;
- actively pursuing the recognition of CCS in phase 2 of the EU emissions trading scheme and full inclusion after 2012; and
- ongoing work on the China near zero emissions coal project, and dialogue with other countries on CCS.

The white paper’s acknowledgment of the technological, legal and regulatory hurdles facing CCS was supported by a report from Standard & Poor’s (S&P) on 29 May, which said the technology would remain financially unviable in the near term until these issues have been addressed. The report, *How close is CCS to being ready for prime time?* said that over time carbon credit prices would rise to levels that make the technology economic. S&P estimates that costs are currently \$40/t but may fall in the future as technology matures.

BP made an immediate decision on release of the white paper, abandoning its plans to build a carbon capture plant at Peterhead in Scotland. It said the delay to decision to the launch of a competition for a CCS plant was “an extension too far.” As trade and industry secretary Alistair Darling rejected the claim that the government was responsible for BP’s decision saying the company could not “simply” be awarded the contract. The Scottish National Party has called for a debate in the Commons on the collapse of BP’s investment.

While there have been serial delays in turning the government’s proposals for demonstration of CCS into a firm timetable for a competition, there are clearly other factors at play here. BP’s decision to abandon its CCS project after several years in development looks hasty and geared to allocate blame elsewhere for what is clearly a change of heart.

The CCS package contains little direct financial support, and energy companies are unlikely to commit funding to demonstration projects at this stage other than in response to the government’s competition. For the present the white paper represents a practical suite of proposals, which combined with the competition later this year, should enable continuing progress to be made. The absence of any strong comment—for or against and BP’s response excepted—the white paper’s proposals from the industry suggests the government has probably got its strategy broadly right.

[CPS report](#)

[Energy white paper](#)

Distributed generation review proposes measures to increase take-up

A recent joint DTI/ Ofgem report proposed a four-point package of measures to help provide a solid basis on which distributed generation can continue to grow alongside centralised generation. Its work is to be built on by an Ofgem-led workstream tasked with bringing forward flexible marketing and licensing proposals in the Autumn.

The *Review of distributed generation* report was published alongside the energy white paper on 23 May. It aimed to identify practical proposals to complement the broader policy measures and previous work in this area and forms the basis of the proposals on Distributed Generation (DG) in the white paper. It notes it is becoming “increasingly clear” that local energy supply, at domestic or community level, could play an important part in reducing carbon emissions through increased renewable energy supply, reduced transmission losses and increased CHP usage. It would also increase individual awareness to drive change in social attitudes towards energy efficiency.

The review identified the following as key barriers to further use:

- the cost of carbon not being fully incorporated into electricity prices disadvantages low-carbon technologies, which also tend to have higher capital costs. Also, export reward was found to be small and difficult to assess;
- a low awareness of DG options by potential users. Grants and incentives were perceived to be difficult to access and the lack of an accreditation scheme for suppliers and installers deterred those from untested technologies;
- small generators could find it hard to connect to and operate in the centralised system. Network operators could do more to accommodate connection of DG. The cost to suppliers of rewarding small generators for exporting excess electricity was found to be a disincentive; and
- the difficulties of getting planning permission for DG technologies particularly in the context of community developments and new housing, where the associated costs and delays acted as a disincentive.

The DTI and Ofgem believe that any action to assist the development of DG should: stimulate cost-effective, low-carbon forms of DG; provide a means of enabling distributed generators to realise a reasonable economic value from their schemes; reduce the complexity in setting up as a distributed generator; ensure requirements on smaller players are proportionate to their size and the use they make of the wider public network; and encourage further growth of DG within the licensed framework rather than outside of it.

The package of measures covers:

- more flexible market and licensing arrangements for distributed, low-carbon electricity supply, to be implemented by the end of 2008;
- more clarity on the terms offered by energy suppliers to reward micro-generators for the excess electricity produced and exported;
- improving information, advice and guidance on options in DG; and
- making it easier to connect to and use the distribution network.

This review considered the barriers to DG in the short- to medium-term. The *Foresight Sustainable energy management and the built environment* project will consider the impacts of increased levels of low carbon decentralised energy and its interaction with current energy systems over the next five decades. This will consider the long-term potential and challenges of DG and its relationship with centralised generation. It will also examine the critical uncertainties, map possible future directions and test policy implications. Findings will be reported in summer 2008.

As the report shows a pre-requisite for progress over the short-term is to introduce flexibility (i.e. remove present barriers) into the market entry process and for suppliers to provide fair value for any output. Whether “fair” translates to “sufficient” to stimulate rapid growth is a key point given the technology and transactional costs involved. Once again, the government says it is for the market to dictate technologies, but it seems to be heavily reliant on large suppliers facilitating development. This view would seem also to understate many of the practical issues involved should DG achieve critical mass. There are important questions about how a large decentralised contribution from DG can fit in a system and market that has been devised primarily for centralised operation, and these cannot and should not be ducked.

[Distributed generation review](#)

[Foresight project](#)

Perspective 3—Helping consumers “deal with some very inconvenient truths”—the cost of low-carbon energy policies

The energy white paper set out a series of measures designed to reduce carbon emissions and ensure longer-term supply security. These measures do not come without a price, and as our title—a quote from a recent Ofgem “advertorial” by Alastair Buchanan in the *House magazine*—suggests their cost could be very significant. But the white paper stresses that taking no action would cost consumers vastly more, highlighting arguments developed by the Stern review about reduced economic output caused by climate change.

For many consumers the higher costs resulting from combating climate change may prove bearable and may well be offset by increases in average income. In the commercial world too, the costs of the white paper measures will also have a significant bearing on UK energy price competitiveness, especially if their burden is proportionately higher than the measures taken by our major competitors. But, in the absence of any other action, their burden is likely to fall proportionately at its heaviest on the most vulnerable whose spend on energy as a percentage of disposable income tends to be higher. It is an issue with much political resonance.

Climate change action must not forget vulnerable households was the theme of an address made to an Energywatch seminar in early June by Defra

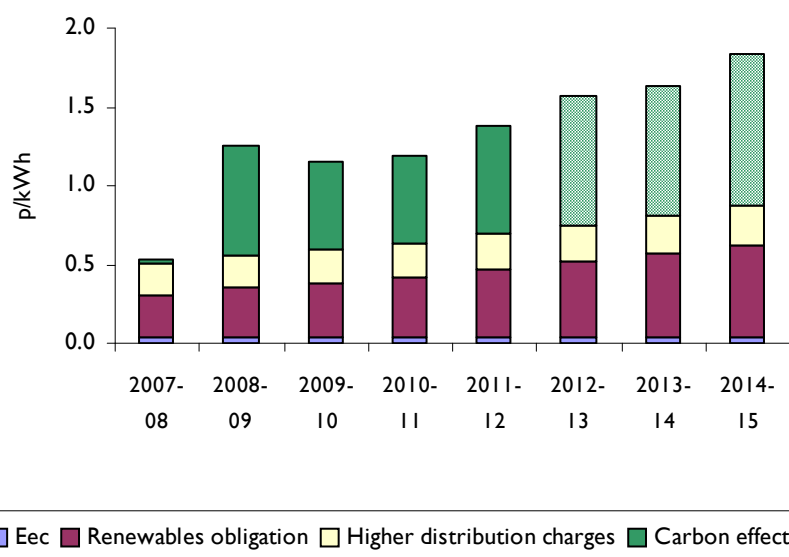
climate change minister with responsibility for the fuel poor, Ian Pearson. The minister was keen to stress that the white paper was “not the last word on assisting vulnerable consumers” and that “action was needed on the three main drivers of fuel poverty: income, fuel prices and energy efficiency.” Here we assess the potential scale of that action in the light of the likely costs.

3.1 Starter for 10 (£/MWh)

The white paper and review of policy which preceded it have focused attention on the longer-term energy challenges the UK faces. But, while we may have taken a fresh look at the challenges, many of the measures are not new and, in practice, consumers have already been paying for policies to meet them for some time. These costs have also been escalating and will continue to do so on current policies—before any white paper changes are implemented (as the Chart above shows). The main drivers of the current environmental premium are:

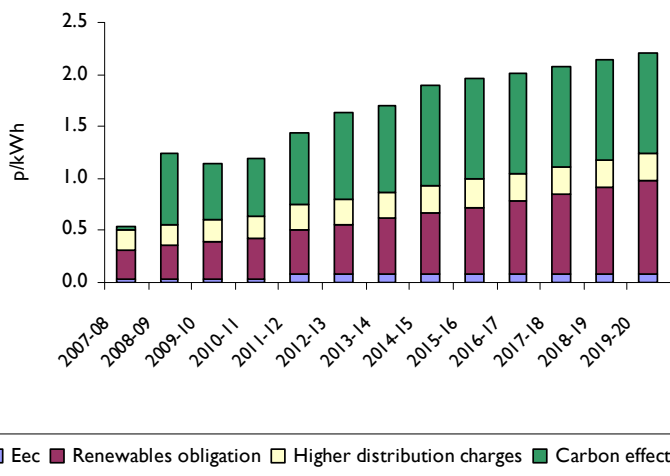
- climate change levy (CCL) was introduced, at 0.43p/kWh on electricity and 0.15p/kWh on gas, from April 2001 on businesses (which is why it is not shown).

Indicative impact of current low-carbon policy measures on domestic electricity costs



- one year later the electricity renewables obligation to support green generation commenced. It cost consumers the equivalent of 0.09p/kWh in its first year. This year that cost, capped by the buyout price, will be 0.27p/kWh.
- in April 2005, regulated electricity distribution price controls were specifically increased to allow for the costs of connecting significant amounts of decentralised, mainly renewable generation, with transmission charges rising in real terms too from April 2007; and
- most notably, that year also saw the start of the EU ETS which put a price on burning fossil fuels through the carbon created. Its prices have ranged between €0 and €30/EUA so far, and to date the marginal costs have been fully passed through by producers.

Indicative impact of all low-carbon policy measures on domestic electricity costs



All in all, these costs probably equate to a little over 1p/kWh—or £10/MWh—on current electricity bills for business and slightly lower for the home user who does not have to pay CCL, but who instead funds the energy efficiency commitment, which currently adds about a further £40 a year to a dual fuel account.

3.2 The next round

As well as making the point that it “is therefore important that the policies [proposed] do not greatly add to energy prices,” the white paper provides some detailed analysis of their advantages—as carbon savings—and then summarises the costs. Importantly it takes as its starting point the position set out in last autumn’s Stern review of the economics of climate

change. Doing nothing about emissions could cost at last 5% of GDP economic output (and possibly as much as 20%) over the longer term against a cost of 1.0% within a range of -1.0% (i.e. a net gain) to +3.5% by 2050 if effective action occurs now. In other words, there is a huge price to pay for doing nothing, and the acceptability of costs of taking measures which reduce emissions therefore need to be assessed with this in mind. New and expanded policies sum to an extra 23-33MtC of abatement per year by 2020, which is an increased range on that of 19-25MtC given in July 2006.

And there are also impacts on the security of the supply system if white paper measures are effective, which are difficult to quantify. External gas demand could be significantly lower than it would otherwise be, with an overall electricity demand reduction of between 8-15%, and around a 10% increase in the energy efficiency of the UK economy overall. There will also be an increase in the renewables contribution than that likely to be achieved under current policies with a wider range of technologies coming on stream. Both of these and other factors arising from a more diverse supply can be expected to have real economic benefits.

Bearing in mind these caveats, let’s turn to the cost of the new measures. For example, it is suggested that the cost of the already existing commitment to increase renewables targets from 10% of electricity supplied in 2010 to 15% by 2015 is to increase prices by “around 5% by 2020, compared to what otherwise would have been.” The changes to renewables proposed in the white paper itself will add a further 2% to this. The costs of the new carbon target on suppliers to replace the EEC also should see the costs of these measures passed through to consumers and the white paper acknowledges these costs will more than double. The benefits of both are clear in terms of saved carbon.

From this point the white paper starts to get muddier. EU carbon prices of €15-25/EUA as generally forecast will add a 14-23% to industrial electricity prices, and a 10-15% increase to household rates in 2020, compared to if there were no EU ETS. But there is some debate here about whether carbon prices in this range will achieve any meaningful fuel switching by generators. UBS suggests carbon prices will need to be at least €30/EUA for this to happen. If it is right, it suggests that on the white paper's figures consumers could continue to pay a significant premium and receive little in return.

Another area that looks like sleight of hand is where the white paper stresses the difference between prices and costs, arguing that higher prices themselves and the demand-side measures it hopes to stimulate will mean that the actual costs paid by consumers will be less than headline price figures suggest. Smart metering is seen to have a big role to play in the larger business sites. The paper's focus on the demand-side, including new smart metering initiatives and informing consumer decisions, is commendable, and properly implemented should trigger substantive behavioural change.

But this should not obscure from view the use of different price, cost and economic benchmarks in the white paper, which is certainly confusing and possibly misleading. The white paper is lucid on the challenges, what needs to be done to address them but the overall cost is hard to fathom. We sense that Alastair Buchanan's remarks are right, and it is hard to shake off the impression that (overstated) demand-side action will not offset (understated) consumer cost increases.

A conservative calculation that the costs to domestics will probably exceed 2p/kWh or £20/MWh in ten year's time (see second chart). Consumers need to see a consistent comparison of costs and prices differentiating between existing, further and (where this is relevant) possible new measures. That way they will see and be able to value the green dividend that they are already heavily investing in.

3.3 Squaring the vicious circle

For those in fuel poverty—energy price rises since 2003 have resulted in fuel poverty doubling to a current level of 2.5mn households in England and almost 4mn across the UK, an increase of a million since 2004—increases in domestic fuel bills are a real and pressing issue. Allan Asher, Energywatch's chief executive, recently said that "the time for action is now" if government is reach its target of ending fuel poverty by 2016 and for no vulnerable households to be in fuel poverty after 2010. Without further action these targets are no longer attainable, and the white paper could be regarded as beginning the politically sensitive process of down-grading expectations.

New measures outlined in the white paper are expected to reduce fuel poverty by a further 200,000 by 2010, but with an estimated 1.5mn customers in England alone remaining in fuel poverty by that time without further action. And there seems to be little new government money on offer. Further measures are promised in the fifth annual progress report on the UK fuel poverty strategy in the summer. At the same time it is notable that under the new carbon emissions reduction target (effectively funded by consumers directly through their suppliers), the share of the effort to be directed at priority group of low income customers, including vulnerable customers, is to be scaled back from 50% to 40%.

The government says it is midway through a full examination of the policy framework for fuel poverty, and this perhaps explains it's highlighting of a wider economic dividend and more efficient usage that could greatly diminish the problem. Even so the absence of any specific new measures to address fuel poverty is one of the main weaknesses in the white paper. Its silence on social tariffs, despite recent steps from the industry (for instance Centrica and its *Essentials* tariff), we think particularly misses an opportunity to help vulnerable consumers deal with some very inconvenient truths.

Defra refines details for larger businesses' Carbon Reduction Commitment

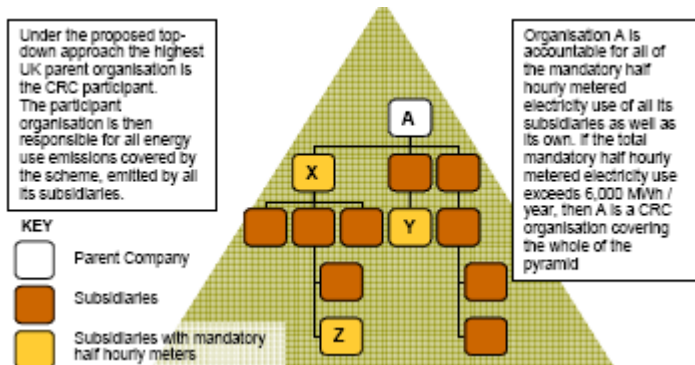
Late June Defra set out proposals for implementing a UK cap and trade scheme, the Carbon Reduction Commitment, which would cap emissions from up to 5,000 large business and public sector organisations that use in excess of 6GWh a year.

The consultation was announced on 23 May, along with the scheme's high level principles, when the energy white paper was published (*Energy Spectrum 86, p6*). It was issued on 28 June and fleshes out these principles underlining government's aim to begin the scheme in January 2010, or as soon as possible thereafter, with a three-year introductory phase. The first capped phase would therefore begin in January 2013. Enabling powers for the Carbon Reduction Commitment (CRC) will be introduced via secondary legislation in the draft climate change bill.

Together with the provisions of the energy performance of buildings directive, the government says the CRC will deliver emissions reductions of 0.5mn tonnes of carbon a year (MtC/y) by 2015 rising to 1.2MtC/y by 2020 from organisations such as large retailers, supermarkets, hotel chains, universities and central government departments. It will target business and public sector organisations with annual electricity consumption from mandatory half hourly meters in excess of 6GWh a year. This threshold has been increased from the 3GWh/y proposed in the first consultation last year "to help further ensure that the organisations covered will benefit from the scheme through reduced energy bills."

But Defra said this threshold will not result in a substantially lower number of organisations being involved and expects 4-5,000 will be covered. At current energy prices, it will generally involve organisations with annual electricity bills above £0.5mn. The CRC will be a mandatory auction-based cap and trade scheme where participants will be required to purchase sufficient allowances either from auction, the secondary market, or via the safety valve

Illustration of a CRC organisation



to cover their annual energy use CO₂ emissions. They will have to monitor their emissions throughout the compliance year and then surrender allowances corresponding to their annual energy use emissions to the scheme administrator via a web-interface. They may choose to reduce their own emissions or buy allowances from the market giving them the right to emit. There will be a limit on the number of allowances which will, in effect, set a cap on the emissions from these organisations in aggregate.

The CRC will target both direct CO₂ energy use emissions and indirect CO₂ emissions (i.e. from electricity). But emissions covered under Climate Change Agreements (CCAs) and direct emissions included in the EU Emissions Trading Scheme (EU ETS) will not be covered in order to prevent overlap. Defra says the impact of CRC will need to be taken into account when the EU ETS cap is set in future rounds to reflect projected improvements in energy efficiency. Any mandatory half hourly metered electricity use will count towards the inclusion threshold, irrespective of whether this electricity use is covered by CCAs. But, organisations with over 25% of emissions in CCAs will be exempt.

There will be no auctioning in the introductory phase; rather the fixed-price sale of allowances will be used so participants can understand the scheme's workings and their level of engagement.

During the capped phase of the scheme, allowances will be allocated via an auction with revenues raised recycled to participants in proportion to their average annual emissions since the start of the scheme and a bonus or penalty depending on their position in a CRC league table. Participants will be required to self-certify their own energy use using their own meter readings or with reference to annual energy bills. The self-certification will be backed up by an independent risk-based audit of around 20% of organisations a year.

The scheme regulation and administration costs will be recovered through a separate charge, rather than 'top-sliced' from the auction revenue. This approach means that no funds will be deducted from the 'recycling pot' with all revenue being recycled back to participants. Overall, the CRC is estimated to have a positive net present value of £755mn to participants. Defra says the benefits to society overall (using a social discount rate of 3.5% and taking account of various externalities) would be significantly greater, at approximately £3.245bn.

Key issues for this consultation include: the proposed definition of a CRC organisation; coverage of specific activities and emissions; design of the auction and the CRC league table; and monitoring, reporting, audit and penalties. Responses are required by 9 October.

This carefully thought-out document provides a lot of the detail implicit in the brief comments made in the white paper. The key change to this ground-breaking scheme announced then—aside from the name change—was the increase in the eligibility threshold from 3GWh to 6GWh, which was a sensible move to focus the scheme on organisations with the highest use and potential savings.

[Consultation document](#)

"Eec is dead, long live Cert", says Defra

In a statutory consultation on the new carbon emissions reduction target 2008-11, previously known as energy efficiency commitment 3, Defra proposes doubling activity from current levels and introducing micro-generation.

Publishing the consultation alongside the energy white paper on 23 May, Defra said that the purpose of the new Carbon Emissions Reduction Target (Cert) obligation is to help electricity and gas consumers in the household sector reduce their home's carbon footprint by using energy more efficiently, reducing consumption and using energy from micro-generation sources. It notes that the primary aim of Cert is to make a significant contribution to emissions targets under the Kyoto protocol and the domestic goal to cut emissions of CO₂ by 20% below 1990 levels by 2010. It proposed a target of lifetime savings of 42MtC (non-discounted), equating to annual savings of about 1.1MtC at the end of the programme, which would represent a doubling of activity from Energy Efficiency Commitment (Eec) 2.

Defra said that the potential non-ongoing costs per consumer, if passed on in full by suppliers, are around £97 over the three-year period, slightly more than double that of Eec2 in real terms. But the average annual ongoing benefit is assessed at around £31/year for the lifetime of the measures, which would likely continue beyond the Cert period. In the partial impact analysis, Defra comments that Cert should be "highly cost-effective, with around £250 of benefits per tonne of carbon saved."

As in the current scheme, Defra proposes that gas and electricity suppliers with over 50,000 customers will be liable and have flexibility in the measures they can adopt. Suppliers would be able to meet their obligation through consumers' savings of electricity, gas, coal, liquid petroleum gas and oil, and through use of biomass, water, wind, solar power and geothermal sources. An illustrative mix of measures is described. Defra said that micro-generation measures have greater uncertainty in their saving potential, and presents figures for seven types of micro-generation technologies as open to consultation.

It proposes that the new scheme should continue to support fuel poverty goals with 40% of the obligation to be achieved in a priority group of low income customers, down from 50% in Eec2, reflecting "limited remaining potential and capacity constraints in delivering to this sector, alongside increasing cost implications." It said it intends to introduce a "priority group flexibility option" under which a supplier could reduce its priority group obligation by up to an eighth in return for undertaking other specified carbon abatement measures aimed at alleviating fuel poverty in a subset of the priority group.

Two mechanisms are proposed to encourage innovation. For "demonstration activity" suppliers would be able to achieve part of their targets through innovative measures where accurate carbon savings cannot yet be attributed. Support for "market transformation activity," for innovative measures where carbon savings can be attributed, would continue the approach in Eec2, with such measures attributed an additional 50% of carbon savings. A limit of 5% of targets would apply to each mechanism, and to both in combination.

Defra wants to defer the introduction of trading between suppliers of part or all of their carbon emission reduction targets following the results of a study and responses to its earlier consultation, but says it intends to focus on the potential for trading in the development of a comparable supplier obligation post 2011.

Comments are required by 15 August. After considering responses to the consultation, Defra will lay the statutory order, which is included in draft with the consultation, before parliament in the autumn with a view to it coming into force in December. Ofgem will consult on proposed administrative procedures, including the criteria for qualifying action, during the summer.

The government is to be applauded for converting the scheme from a TWh obligation to a carbon-based one. Given the cost effectiveness of past Eec schemes and the anticipated performance of Cert, it is not surprising that its target is at the top end of the range announced last year.

More generally the Big Six seem set for an enhanced role in implementing policy objectives as the scheme is broadened and realigned to achieve carbon reduction targets and other goals. Care will need to be taken to ensure that it does not further entrench their already dominant position and allow them a funded means of extending that position into energy services. But the overall stimulus to the development of these services should be immense.

[Defra](#)

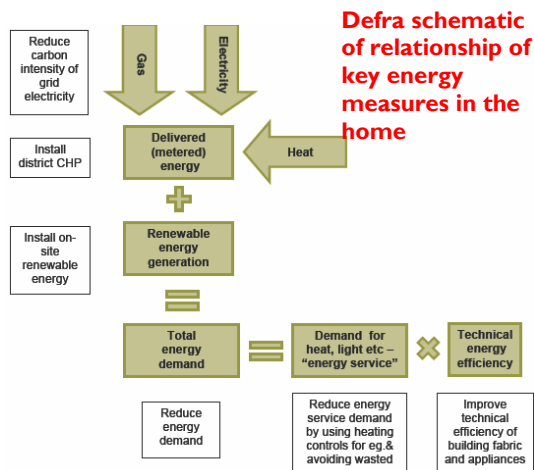
Defra proposes radical shake-up of supplier energy efficiency obligation post 2011

Defra has issued a call for evidence on the form of the supplier obligation on energy savings in the household sector after 2011. It proposes two basic options: a further evolution of the existing measures-based approach or an outcome-based instrument with supplier targets.

Defra said on 13 June that the government’s decision to retain a supplier obligation framework for the promotion of domestic energy efficiency until at least 2020 offers a unique opportunity to review the design of this instrument before it starts in 2011. Its vision “is to see a transformation of the market for the supply of domestic energy.” It says suppliers and consumers both need to have a shared incentive to reduce carbon emissions from homes.

Defra proposes an indicative figure of 3-4MtC a year for the obligation, assuming savings of 1MtC a year for both insulation and behaviour changes/waste cutting, 0.8MtC for lights and appliances, 0.5MtC for fuel switching and 0.3MtC for micro-generation. It says that although suppliers will remain central to the delivery of household savings, success will depend on supporting action by the government and other players as well as consumer demand for saving measures.

Defra wants to see carbon and energy savings delivered by suppliers as an integral part of their business. Potential activities include: modifying tariff structures to provide incentives for low consumption; provision of information; an “energy service” where suppliers offer to install energy-saving and micro-generation products; and suppliers working with developers to promote low or zero carbon emissions homes.



Defra proposes two broad alternative schemes as “front runners.”

The first is an outcome-based obligation with trading, in which the overall objective would be based either on an absolute cap on total carbon emissions or on delivered energy. Under a “cap and trade” design, suppliers would be allocated allowances, and then be free to meet targets either by taking action directly or by purchasing allowances from other market players. The allocation mechanism for allowances, whether they be carbon or energy-based (and if so separate gas and electricity) is identified as a key issue.

The second is an extension of the Carbon Emissions Reduction Target (Cert) approach advocated from 2008, where suppliers would meet their target, set in terms of

carbon saving, by promoting measures with a predetermined score. Defra said this could include: setting targets based on energy sales rather than customer numbers, so giving suppliers some incentive to sell less energy overall; inclusion of trading of energy saving measures (“white certificates”); the addition of a buy-out for all or the pre-specified share of measures that have to be targeted on vulnerable (i.e. priority) customers; and removal of the priority group requirement. Defra concludes that the two options for the suppliers’ role in delivering social objectives are either that some form of social element could be integrated into the wider carbon obligation as now, or, that suppliers could have a wholly separate social obligation.

After undertaking its own comparison, Defra believes both routes have merit. The outcome-based obligation would give greater certainty of delivering absolute carbon reductions, and greater flexibility to participants. But it would be a radical policy departure and risks shifting suppliers away from measures that deliver long-term benefits.

[Defra](#)

Perspective 4—Large CHP cast in “Cinderella role” once more

In this fourth and final *Energy perspective* we look at one aspect of the recent white paper that seems to have fallen off policy-makers’ radar, large-scale combined heat and power (CHP).

4.1 Rhetoric...

CHP is one of the most-cost effective, proven and low risk ways of helping meet carbon abatement targets. This potential contribution is recognised in the UK, and all our political parties have promoted the technology for a number of years. It is also recognised by other industrialised nations. Most recently G8 leaders called last month for international cooperation in increasing energy efficiency by significantly increasing the share of CHP in the energy mix, noting the pressing need to "adopt instruments and measures to significantly increase heat and power (CHP) in the generation of electricity".

And official statistics show that 1MW of CHP operating in the UK helps reduce carbon emissions by between 600-800 tonnes every year, and thus current installed CHP capacity of approximately 5.8GW on over 1,500 sites is already helping deliver savings of nearly five million tonnes of carbon annually. The estimated cost benefit to the UK of each GW of electricity is some £1.5bn. And with an assessed potential of in excess of 30GW (though in reality 20GW is likely to represent a very challenging medium- to longer-term cap), the potential is huge.

4.2 ...versus reality

But despite such testimonials, the government seems disinclined to follow through with specific measures to provide tangible assistance to large CHP’s role within energy policy. Indeed some would argue—us included—that the history of the development of a CHP strategy over the past decade has been one of the least—if not the least—convincing examples of coherent policy formulation within the UK energy sector.

The Labour Party first proposed a target for 10GWe of good quality CHP capacity by 2010 when it was in opposition. But the CHP strategy itself and the promulgation of the 10GW target took five years to formalise. The strategy was repeatedly delayed, appearing eventually in draft in 2002 before being finally adopted in April 2004, effectively taking the policy process outside of the 2003 energy white paper, which these two milestones straddled.

At that time the government asserted that it believed the target could be met through fiscal and other indirect support mechanisms and without introducing a CHP obligation which, it claimed, would be too costly. Despite talk of a range of measures, the strategy was heavily dependent in effect on a single gesture—a time-limited exemption of CHP from the climate change levy (CCL). Other fiscal incentives, including eligibility of enhanced capital allowances, a business rates exemption and a reduction in VAT on certain domestic micro-CHP installations, have important limitations and made (and continue to make) little if any real difference. The CCL exemption did work well initially, and led to the development of ConocoPhillips’ Immingham 734MW project, and it also helped to improve load factors of existing plant. But the consensus view from the industry was that the strategy fell well-short of the mark.

As a consequence of the policy uncertainty UK CHP use has remained at approximately 6% of total electricity supplied for the past ten years or so—a level well below the EU average and which compares poorly with other members states, some of which have achieved levels as high as 40%. It is clear that across the range of technologies and generation sizes available, the UK has scarcely tapped the level of potential for CHP that exists.

Subsequent to adoption of the strategy there has been the realisation virtually everywhere other than within DTI and Defra that the 2010 target will be missed. There has been some further progress, but this has arisen largely as a result of a couple of specific sizable schemes in the shape of General Electric’s

Baglan Bay project that have been taken forward despite, not because of, government policy and a stage 2 at Immingham, which is due to come on line in 2009.

A series of modelling exercises for Defra but largely rejected by developers has given false confidence that progress is being made. In March 2006 Cambridge Econometrics showed that the industry was well off-target, estimating that only 7.5-7.7GW of capacity could be built by 2010. Even with the addition of carbon revenues and a specific allocation of allowances under phase 2 of the EU ETS for the technology, the consultant still saw a shortfall against the target of nearly 1GW.

4.3 Inching forward

This does not mean that UK policy development has been dormant. There have been some notable areas of progress, especially since the review of the climate change programme in 2005-06. There has been promulgation of a comprehensive strategy for micro-generation, including CHP. The low-carbon building programme has also provided a considerable stimulus to smaller scale applications. There has been the inclusion of energy from waste CHP schemes within the renewables obligation, as well as the establishment of a specific biomass CHP grant scheme. The government has also set itself the target of sourcing at least 15% of

EU 15 – support mechanisms for CHP

Country	Capital Subsidies	Feed-in Tariffs	Certificates / Obligations	Competitive Tenders	Fiscal Mechanisms
Austria	X	X			
Belgium	X		X		X
Denmark	X	X	X		
Finland	X	X			X
France		X		X	X
Germany	X	X			X
Greece	X	X	X	X	
Ireland	X			X	
Italy	X		X		X
Netherlands		X	X		X
Portugal	X	X	X		
Spain	X	X			X
Sweden			X		X
UK	X				X

electricity for use on the government estate from good quality CHP by 2010. And of course encouragement of decentralised energy is at the heart of the latest energy white paper.

Chapter 5 of the white paper is again fulsome in its praise of the efficiency and environmental benefits that CHP offers, but its limited focus is on what might need to be done to encourage increased small-scale decentralised CHP

development, with the emphasis on the primary fuel and not the technology. The short-comings were well-summed up by Gregory Barker MP in the House on 21 June: “The trouble with the energy white paper is that it flags up many interesting ideas, but totally fails to set a coherent strategy for ambitious implementation. Take CHP, which has huge potential. Did the Defra team point out that exemption from the climate change levy, which is trumpeted in the white paper as the principal policy incentive for more CHP, only lasts until March 2013? Given that it takes up to five years to get a large project up and running, the exemption for new projects is almost worthless.”

This frustration at the imbalance was reiterated by the CHPA itself. Director Phil Piddington commented: "The industrial sector is impatient for a change and is clearly awaiting direction with regards to onsite power and heat. Whilst we commend the government for its recognition of the role CHP can play at a community level, we believe there has been a missed opportunity to level the playing field in support of large industrial CHP".

4.4 Consistency is all

Regular readers of *Energy Spectrum* will need no reminding of our general scepticism of industry calls for more incentives to kick-start or sustain low-carbon programmes. We believe that capacity payments to

stimulate new build and further incentives to develop non-mainstream scale technologies are not necessary, as, generally speaking, the sector's major players should be doing more to reinvest the huge windfall gains they are making from their free carbon allocations. There is more than an implication too from some of our recent comments that the renewables industry generally has done rather well out of the restructuring of the renewables obligation.

Moreover there is, in our view, a confusion of support programmes for smaller technologies and new strategies for adding to these in the hope that they will unlock decentralised generation with scarce regard for the practical effect of assimilating them into market structures. In short, as fuel poverty figures show, the already hard-pressed customer needs to fund more breaks and incentives for the energy industry like a hole in the head.

But we would argue that large CHP is a special case. The efficiencies and carbon savings it offers are very significant, but for some reason, perhaps because the benefits ultimately accrue to the user rather than provider, the mainstream players are largely ignoring it. This may also be because of the strength of the incentives in other areas are distracting investment. It is in part probably because government has significantly over-estimated the value of current fiscal incentives to developers, and the uncertainty as to whether the time-limited exemption from the CCL will be available beyond 2013 is another important factor. It may be because heat opportunities increase the capital requirement of a development and raise special siting considerations that are usually absent with conventional CCGT development. We think it is probably a combination of all these factors, plus a wider perception that government has closed its mind.

Ultimately we are struck by the difference in approach from several of the large utilities to carbon capture and storage (CCS) and CHP. Largely silent on large-scale CHP, they are pushing government to believe that commercial cleaner coal development with CCS is just round the corner; all that is needed is some more incentives to unlock this capability. In the meantime some 5GW of CCGT investment is proceeding with a significant abatement opportunity achievable from well-established technology disregarded in three of the four committed projects. The likelihood is that, with more new gas capacity to come, this error will be compounded.

4.5 Five minutes to midnight (again)

Our calculations suggest that there is presently a cost gap of between £4-8/MWh between large CHP and CCGT plants. To put this in context, it is less than the value to be made available to co-firing from old coal-fired power stations as a consequence of the decision in the white paper to allocate them a quarter of a ROC beyond 2009—a decision which will undoubtedly delay the point of closure of many of these stations. It is also less than half the additional incentive being made available to biomass with CHP relative to biomass plant without it (2 Rocs and 1.5 Rocs respectively, suggesting an extra half a Roc is on offer for the CHP element in such situations).

We do wonder why government seems disinclined to address how this gap can be closed and quickly. If it does not, large-scale CHP will remain the Cinderella of the energy industry, and come midnight she will not be going to the ball.
