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Carbon Reductions in Existing Non-Domestic Buildings

A UK-GBC Task Group on Display Energy Certificates and the Carbon Reduction Commitment Energy Efficiency Scheme

CAMPAIGN FOR A SUSTAINABLE BUILT ENVIRONMENT

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Foreword - Paul King

Energy used in our homes and non-domestic buildings is responsible for around 43 per cent of the UK's carbon emissions. The big challenge for UK-GBC and for the entire construction and property sector, over the next few years, is how we move from rhetoric on carbon reduction to practical delivery. The clock is ticking on the need to meet our binding national targets and UK-GBC has set out the rationale for why we probably need to go even further.

The good news is that there is huge potential for cost-effective carbon mitigation in the built environment. Almost twice as much, in fact, compared to any other sector. Responsible for 17 per cent of UK carbon emissions, our 1.8 million non-domestic buildings must be at the heart of meeting this challenge.

The Carbon Trust has shown that a carbon reduction of 70-75 per cent can be achieved in non-domestic buildings at no net cost. I would go further and say that a reduction of this size can be made in a way that not only is cost-effective, but brings with it additional other benefits in terms of productivity and quality of life for those who occupy buildings, which in time will translate into value for building owners, occupiers and investors.

Getting there, from where we are today, will be no mean feat. One of the key drivers will be government policy. Even with the best will in the world, industry will only be able to go so far, so fast, without government playing an important enabling role to overcome a critical market failure. Unfortunately, the existing policy landscape for non-domestic building stock is incredibly complicated to navigate. One of the aims of this UK-GBC Task Group was to take a small step towards making that landscape less complicated, but more effective in delivering significant carbon reductions.

Following on from the government's Low Carbon Construction IGT report - and indeed preparatory work undertaken by UK-GBC and its members - the starting point for the Task Group was that the property sector is not routinely measuring accurate operational energy use and carbon emissions from commercial buildings. As the saying goes 'if you can't measure it, you can't manage it'. That meant much of the Task Group's work focused on the potential use of Display Energy Certificates (DECs), which are currently mandatory for public buildings over 1000m², but not private sector buildings.

The Task Group has also set out to make recommendations on the Carbon Reduction Commitment Energy Efficiency Scheme (CRC). The lack of alignment between policies that affect commercial buildings is a time-consuming and costly frustration for businesses and we wanted to take this opportunity to look for opportunities to streamline DECs, the CRC and indeed other policy mechanisms in this space.

This UK-GBC Task Group, like all others before it, has gone about its work to deliver policy recommendations to government in the spirit of partnership and co-operation, always looking for solutions, rather than adding further to the complexity of the problem. Inevitably this will not be the final word, nor should it, but I believe this report and the conclusions drawn should provide the basis for making serious progress on overcoming the practical barriers to a roll-out of DECs, improving the CRC over time, and delivering faster and more cost-effective energy and carbon savings.

Background and objectives

Even though sustainability has become a mainstream concern in the construction and property sector, the reality is that collectively we have made very little progress in reducing carbon emissions from our non-domestic building stock.

There are a number of reasons for this and UK-GBC has previously done extensive work on the key barriers to refurbishment. Two of the key barriers can be summarised as follows:

- Government policy is incoherent and is not providing the necessary driver
- There is not a clear enough business-case for refurbishment on either the supply or demand side in the market

At the heart of this problem, cutting across both of these key barriers, is a lack of good data on energy use and associated carbon emissions, on which to base energy reduction strategies and investment decisions. That is why UK-GBC (and a host of other organisations¹) has long called for the roll-out of Display Energy Certificates (DECs) to all non domestic buildings, believing they could provide a foundation for related policy mechanisms and for market based drivers.

However, one of the potential difficulties with rolling out DECs to private sector buildings is the complex relationship between landlord and tenant, particularly in respect of energy use in multi-tenanted buildings, and this is a problem addressed in detail in this report. This problem is not unique to the proposed roll-out of DECs, it is something which is central to many concerns the property sector has around the Carbon Reduction Commitment Energy Efficiency Scheme (CRC-EES) as well.

The CRC-EES is a high-profile government policy, which the Climate Change Act paved the way for in 2008. A complex design, it has gone through numerous consultation phases and changes since initially set out, with one of the latest - and most significant - being the scrapping of 'allowance recycling' announced in the Comprehensive Spending Review of 2010.

This change led to a further round of consultation with industry and in late 2010, UK-GBC brought members together to discuss the CRC, with a view to making recommendations to government. During those discussions, it became clear that it did not make sense to discuss the CRC-EES in isolation from the roll-out of DECs. Although there are clearly separate and distinct challenges, where possible it made sense to look for alignment and consistency and as a consequence the UK-GBC Existing Non-Domestic Buildings Task Group was established, with a remit to look at both issues.

The task group was given the following overarching objective:

Examine the existing policy mechanisms around Display Energy Certificates and the Carbon Reduction Commitment Energy Efficiency Scheme and make recommendations for how they could be improved.

The task group was split into two sub-groups, one focussed on DECs and one on the CRC-EES and their work programme was arranged around the following, more detailed, objectives:

Display Energy Certificates

- Build the case for why DECs for the private sector should be mandated

¹ Better Building Partnership, British Council for Offices, British Property Federation, BSRIA, Carbon Trust, CBI, CIBSE, NG Bailey and others

- Consider what is needed to improve the methodology to enable a roll out of DECs to the private sector, including an assessment of and proposals for:
 - Multi-tenanted buildings
 - Benchmarks and ‘separables’
 - Robustness and quality of training,
 - Advisory reports
 - Access to data
 - Link to the EPC
- Set out a process for rolling out DECs to non-domestic buildings
- Seek alignment to the CRC- EES where possible

Carbon Reduction Commitment Energy Efficiency Scheme

A sub-group of the UK-GBC Policy Committee² carried out initial work on the CRC-EES in December 2010, liaising closely with the Green Property Alliance, and developed proposals for further investigation, which formed the basis of the CRC-EES sub-group’s objectives:

- Examine whether the CRC-EES could be administered at the building level through the mandatory roll-out of Display Energy Certificates (DECs).
- Explore whether aggregated DECs could be used as the basis for a public performance league table.
- Review the advantages/disadvantages of the CRC-EES as a cap and trade scheme and CRC-EES as a tax for future phases of the scheme.

² UK-GBC is grateful to the following members who contributed to the initial UK-GBC CRC-EES Draft Discussion Document: Berwin Leighton Paisner, British Land, Burges Salmon, Camco, CB Richard Ellis, Colliers, Land Securities, Legal and General, Lend Lease, Savills, Skanska and UK-ACE.

Task Group Recommendations

DISPLAY ENERGY CERTIFICATES

1. Annual Display Energy Certificates (DECs) should become mandatory for all non-domestic building occupiers, with a phased roll out starting in 2012. We believe this could be achieved through the Energy Bill currently going through Parliament.
2. Annual DECs for landlords' services should become mandatory, starting with multi-let non-domestic buildings over 1000m², with a phased roll out. It should be mandatory for landlords to pass data to occupiers; this should be based on the Landlord's Energy Statement (LES).
3. DECs (for occupiers and for landlords) should be introduced to non-domestic buildings via a 'mandatory soft start' in 2011/12, to take place prior to the formal display of certificates from 2012/13. This will ease administrative adjustment and allow for data collection and benchmark refinement before the results are disclosed and displayed.
4. Once the scheme is fully established, the DEC data should be publicly and freely accessible. An official review of the data should be published annually. Data lodged as part of the 'mandatory soft start' of DECs to the private sector should be confidential.
5. A system should be developed to enable DECs to be aggregated to produce a range of league tables based on occupiers, landlords, sectors, buildings types and uses.
6. With some minor adjustments, DECs are suitable for private sector buildings. There needs to be clear and simple guidance available around how the methodology works, how to calculate DECs for private sector buildings, how to interpret the results and explaining the difference between DECs, LESs and Energy Performance Certificates (EPCs).
7. In order to produce a low cost and simple DEC, there should be a 'zero cost' advisory report option with generic recommendations which does not require a site visit. However, F and G rated buildings should, in due course, be required to have a rigorous energy assessment by a suitable professional.
8. Automated DECs should be introduced by 2015 to reduce cost. By linking directly to utility metering data, the costs of annual updates will be reduced, and DECs can be extended to a large number of buildings at very low cost.
9. There is a need to increase the pool of suitably accredited DEC assessors to meet the increased demand. Industry and government need to work together to devise a robust programme of assessor training and accreditation that delivers the required quality and standards at reasonable costs.
10. To underpin a wide range of policy measures and technical activities an independent, authoritative and properly funded technical body should be established to review data and benchmarks, provide advice to government, and develop and maintain a sound technical platform for communicating building energy and carbon performance. Funding could come from a levy on lodging DECs.

CARBON REDUCTION COMMITMENT ENERGY EFFICIENCY SCHEME

11. Once established, DECs should be used to produce league tables for the buildings sector. DEC based organisational league tables could replace the current CRC-EES league table for buildings.

12. Further work is needed to understand the scale and nature of non-building related emissions in the CRC-EES and to develop solutions to address them.
13. Mandatory greenhouse gas (GHG) emission reporting at an organisational level should be introduced which will act as a reputational driver, escalate decision making to board level and capture emissions beyond the building level.
14. The CRC-EES should remain as an annual retrospective charge for the first phase of the scheme. In later phases of the scheme the Task Group recommends the re-introduction of a cap and trade mechanism (including a forecasting element). This will provide the most efficient way in the long-run of reducing GHG emissions from, and changing behaviour within, UK organisations.
15. The first phase of the scheme should be further extended by one year, with the second phase starting a year later than scheduled. This will allow businesses to have the opportunity to build the required capability for implementing a cap and trade scheme and will also align to the roll-out of DECs to allow this system to be used by the buildings sector for data collection.
16. When introduced, the cap and trade scheme should be simplified and to be effective, should allow for a proportion of upfront sale of allowances. UK-GBC would welcome the opportunity for further dialogue on this issue with the Department for Energy and Climate Change.

Display Energy Certificates - an introduction

WHAT ARE DECS?

Display Energy Certificates (DECs), publicly displaying the actual annual operational energy use of an occupier, were introduced as a mandatory requirement for public buildings over 1000m² in England and Wales in October 2008 to comply with the EU Energy Performance of Buildings Directive (EPBD). This is measured on a scale from A to G, where A is very efficient and G is the least efficient and must be supported with a valid advisory report. The advisory report contains recommendations for improving the energy performance of the building.

A similar system is used in Northern Ireland, but not in Scotland (though this may change). A Recast of the EPBD (EPBD 2)³, ratified in May 2010, has set a timetable for reducing the 1,000m² threshold for displaying an energy certificate and extending the scope of qualifying buildings. DECs are not currently legally required by the private sector such as office, retail, and industrial buildings.

DECS AND THE PUBLIC SECTOR

Evidence is now emerging of the value that DECs have brought to public buildings. This includes substantial year-on-year improvements in DEC ratings and grades being achieved in some government buildings, including rented air-conditioned offices. A significant driver has been the effect of poor ratings on reputation, including the Department for Energy and Climate Change (DECC) building in Whitehall. However, there are also substantial financial savings to be made on energy bills. Some examples are provided in Appendix A and explored below.

WINDSOR HOUSE

Transport for London's (TfL) Group Property and Facilities manages the transport authority's head office portfolio of 50 buildings throughout central London. 27 of TfL's sites have DECs produced by an internal team, not all of them required a DEC by law. Of those, 25 have demonstrated a 1% reduction in absolute CO₂ emissions on their DEC scores over the past year alone. This is equivalent to an average saving of 310 tonnes of CO₂ per building. The success of DECs across the 27 sites has encouraged the Group Property and Facilities to set their sights on rolling them out to over 34 individual buildings.



Included in those 27 is TfL's HQ Windsor House. Since 2006, annual CO₂ emissions from this building have been cut by 47%, amounting to a saving of 1,460 tonnes of CO₂. The information provided in the certificates was invaluable both as a source of information towards reducing energy consumption, and also as part of an internal communications drive to get the building's occupants to change their behaviour with regards to energy use.

Windsor House, TfL

³ http://www.cibse.org/content/documents/Knowledge_Bank/EPBDBriefingFINAL2011.pdf

DECS AND THE PRIVATE SECTOR

The situation is currently very different in the private sector. Despite evidence, as highlighted in the supporting case studies and research from the US⁴ and Australia that energy efficient buildings (along with other factors such as rent and location for example) will:

- reduce operational costs and vacancy periods,
- attract tenants and investment

Action to improve the energy efficiency of buildings in the private sector has been limited for a number of reasons which are explored later in the report and identified in reports such as Building the Future, Today by the Carbon Trust⁵.

REGIS HOUSE

Land Securities owned and managed Regis House which is a large air-conditioned office building near London Bridge. In 2005, Regis House reduced its CO₂ emissions by 29.2% compared to its baseline (average emissions from 2001 to 2004). The total energy cost saving was in the region of £44,000. This was delivered through good management, with no capital expenditure on new equipment. Having adjusted the results for changes in weather and occupancy, the total energy cost saving was calculated at over £15,000. The techniques employed at Regis House were simple, zero or low cost and repeatable. The main measures included:



Regis House, Land Securities

- Raising awareness of energy issues and how to be more efficient
- Ensuring plant run times accurately reflect the building occupation times
- Regular review and adjustment of set-points
- Regular reviews of the controls strategy
- Empowering security staff to turn off lights in unoccupied areas out of hours

The savings realised through this project demonstrate the opportunities available where information is available and there is a desire for improvement.

Why a voluntary system will not be enough

Currently very few private sector buildings will voluntarily display a DEC particularly where competitors are not similarly publicly displaying actual energy performance and where the DEC presents a poor rating. There is no incentive to display poor ratings and therefore while some market leaders will display a DEC voluntarily they are doing so at a risk of disclosing more information than necessary which may prevent tenants or investors making informed decisions

⁴ "Every dollar invested in an energy efficient upgrade can produce between \$2 and \$3 in increased asset value, which can make commercial properties more attractive to buyers and lenders." EPA ENERGY STAR Buildings Partnership

⁵ <http://www.carbontrust.co.uk/Publications/pages/publicationdetail.aspx?id=CTC765>

around moving into or investing in that portfolio. There is therefore no level playing field from which everyone is measuring and reporting energy performance in existing non-domestic buildings. In many cases the problems of voluntary private sector take up of DEC is self-perpetuating as highlighted below.

The benchmarks, which inform the basis from which a building is rated, need realigning for many building types, however without data it is not possible to correct or realign benchmarks. As private buildings are not required by law to produce a DEC there is little data available to inform this process and therefore DEC for the private sector remain uncorrected. In addition the private sector has no clear direction in terms of responsibilities between tenants and landlords. The report addresses these issues later however the Task Group identified that the motivational drivers for the private sector to deliver change are around value (as highlighted in the bullets above) and reputation (poor publicly displayed ratings will encourage action).

These drivers for change can be delivered through a robust, transparent, public disclosure and displaying of a mandated actual operational energy rating. This would motivate year-on-year improvement and reward better control and management. If buildings are to make a meaningful contribution to reducing the UK's greenhouse gas emissions, then an energy rating scheme that benchmarks real energy and carbon performance fairly, and recognises year-on-year improvement will be the most effective solution.

Many voluntary building energy and environmental assessment rating tools exist in the UK and throughout the world, but unless they are regulated or required as part of a funding mechanism they take a long time to gain a foot hold in the market place. Even in markets where voluntary systems have been used successfully (for example the Australian NABERS scheme in Appendix A) they were nurtured by government agencies and greatly helped by government committing to their use and setting key tenancy criteria, in turn driving demand. The Task Group believes it is necessary to build upon the current DEC infrastructure available for public buildings, and to mandate its roll out to tenants in the private sector to reduce energy and carbon emissions from the non domestic sector. However further work is required to investigate the following issues:

- landlords differentiating themselves in the market as leaders in terms of the services they provide to tenants and
- landlords allocating data to tenants for shared services to enable them to produce a tenant DEC.

A comprehensive business case for the roll-out of DEC is made in the Business Case section, including discussion on the legal implications and costs.

The Landlord/Tenant Relationship

INTRODUCTION

The division of responsibility between landlords and tenants around energy use, management and cost allocation in multi-tenanted buildings has long been a disputed issue. In rented buildings, these divisions have inhibited energy efficiency improvements through both investment and management.

The landlord is not responsible for controlling the tenant's energy use in its demise and the tenant is not responsible for the building design or control of shared services and systems provided by a landlord. Alongside this sits the difficulty of accessing data from each party, transparent apportionment of costs and agreement to invest in more efficient systems for mutual benefit.

Some key issues are outlined below in more detail. Although primarily addressing these issues in relation to the roll-out of DEC's, these proposals also address the need for a 'granulated' approach to data collection to allow for potential use within the CRC calculations and greenhouse gas reporting (i.e. the need for data at a landlord, occupant or building level or a combination of these).

ISSUES AROUND SUPPLY OF ENERGY TO TENANTS

In a self-contained building with a single occupier, the occupier operates the building and purchases all its energy supplies and can get a DEC quite straightforwardly, as happens in public sector buildings. In multi-tenanted buildings or sites, responsibilities are split:

- The landlord provides services to common parts, including lifts and outdoor lighting.
- The landlord may also provide common services to tenant demises - particularly heating, ventilation and air-conditioning.
- The landlord, a managing agent, or contractors manage these services. There is often little motivation to invest to improve such systems if all the costs are being recovered directly from the tenants. Nor is there motivation to operate systems efficiently and typically these systems are not very tightly managed.
- Most tenants also have direct metered supplies of energy for lighting and equipment within their demises. These may come direct from the utility or from the landlord.

LANDLORD'S ENERGY COSTS AND THE SERVICE CHARGE

The actual energy costs of operating the landlord's services are normally recovered direct from tenants as part of the service charge, though occasionally they are included in the rent (in 'gross' or 'inclusive' leases). Allocation of these costs to tenants tends to use a combination of metering and apportionment, often on a pro-rata area basis (though there are more sophisticated methods).

The Task Group considered how to make efficient and cost-effective use of information on energy use, CO₂ emissions and other attributes of rented, particularly multi-tenanted buildings to maximise the motivation of all the players to understand and improve their performance at all levels, both in individual buildings and premises, and across landlord, tenant and manager portfolios.

The existing tools of Display Energy Certificates (DECs) and Landlord's Energy Statements (LESs) can be put to effective use in enabling the most effective strategy for energy management between landlords and tenants. Both of these tools will need to evolve and are explained in more detail below.

THE LANDLORD'S ENERGY STATEMENT (LES)

In preparation for commercial DEC's, with a grant from the Carbon Trust and technical support from the Usable Buildings Trust and CIBSE, the British Property Federation developed the Landlord's Energy Statement (LES) to make energy use and carbon arising from landlord's services more explicit. The prototype was developed for offices⁶, but in principle the approach can be used in any building. The LES can be produced at two levels:

- For the building as a whole, to provide building, portfolio and industry statistics; and
- Allocated to each tenant, so individual tenants can know their precise allocation.

Landlord DEC

Many landlords are keen to demonstrate to investors and potential tenants that they offer good management and services and therefore differentiating themselves against competitors. The DEC methodology has been developed to be used for occupants, the LES therefore provides an opportunity to become a tool to benchmark landlords and provide a rating for landlords services becoming a 'landlord DEC'.

This will provide motivation, both in terms of landlord reputation, which can eventually feed through into league tables, into valuation, and into discussions between tenants, landlords and managers about steps to be taken to improve both performance and metering.

HOW DECS AND THE LES WORK IN DIFFERENT MODELS OF BUILDING OCCUPANCY

The DEC's currently used for public sector buildings are designed to motivate the occupier in their energy use. The following section sets out how DEC's and the LES can be used for different types of building occupancy.

Single occupier buildings

In a self-contained building with a single owner-occupier, the occupier is deemed fully responsible for their premises and their DEC. Where the DEC and the associated technical advice reveals poor performance of landlord-provided elements in a rented building, a LES will provide motivation for discussions with the landlord about investing to improve systems within the landlords control.

Multi-tenanted buildings

In a multi-tenanted building with a range of occupiers who all require a DEC, a LES (or a close equivalent) will always be necessary to apportion common and shared services managed by the landlord.

For multi-tenanted buildings with public sector organisations a DEC can be prepared at the whole-building level. It can be a low cost procedure at the entry-level, where all energy for the building is purchased by the landlord.

The problems associated with a whole building DEC in a centrally-metered, multi-tenanted building means performance is averaged out for all the tenancies, and so does little to motivate good behaviour by individual tenants. It also implies that the landlord is responsible for performance of the tenanted areas. Effective motivation would also require a proactive and respected landlord who would encourage tenants to act and to collaborate. While such collective behaviour has been demonstrated by some leading landlords in some of their buildings and can really differentiate their services and performance, it is difficult to see how this could rapidly become standard practice within the industry.

⁶ See www.les-ter.org - development has been taken beyond that shown on the website, but is not yet published.

The current DEC process therefore allows individual tenants to prepare their own DEC. This requires each tenant to know both their direct energy use and what the landlord has used on their behalf, which can be done through using the LES, which is referenced in DCLG's guidance to DEC, and in CIBSE's TM47 guide⁷.

PROPOSED MODELS FOR LANDLORD TENANT RESPONSIBILITY IN MULTI-TENANTED BUILDINGS

Three options have been identified to allocate responsibilities in relation to producing the DEC. The options below allow for the circumstances highlighted in the section above to be addressed:

- Each tenant is responsible for and can produce a DEC in a multi tenanted building using data 'pushed down' from the landlord using the LES (which is apportioned to each tenant) as outlined above
- The landlord could be responsible for 'pulling up' data from each tenant to produce a DEC at a whole building level
- Where there are clear divides the responsibility for producing a DEC can be split between the landlord and tenant, with independent benchmarking of landlords and tenants.

The options are not mutually exclusive, but can productively co-exist. If landlord and tenant information is appropriately sub-divided, it can be examined in part or as a whole, in the most appropriate ways to support the production of a DEC and potentially also support other carbon reporting requirements such as the CRC-EES and greenhouse gas reporting. Further detail behind the proposals is explained below.

Push down

The 'push-down' approach should be the default option for all sectors. The landlord can prepare a LES for the landlord managed base building or site (e.g. a business park where the landlord provides site services); they could then allocate the energy and carbon to each tenant, and issue each tenant with their LES alongside the annual service charge accounts⁸. Basic information would then be available for reporting and benchmarking, while tenants required to prepare DEC⁹ could do so combining data from the LES with that on the energy they procure directly, and taking account of how their spaces are used. This option is already available for public sector tenants, but has not yet been widely used.

Pull up

The 'pull-up' approach can be used in several ways:

- For newer commercial buildings that have a single set of energy supplies. Here the landlord can have access to all energy use information (although often the commercial arrangements for energy supply and utility billing are more complicated) and so will have enough information for an 'entry-level'¹⁰ DEC. Getting detailed information on tenant activities can be more difficult¹¹.
- As a voluntary procedure in very-well managed buildings. There are examples of landlords working very closely with their tenants, e.g. on environmental management plans. Here it would be a small step to landlords offering to manage all the energy data and prepare all the DEC. However, this would need to be by negotiation, as some tenants who occupy large

⁷ <http://www.cibse.org/index.cfm?go=publications.view&item=403>

⁸ In developing LES-TER, the BPF team considered incorporating the LES in the service charge accounts, for which there is a RICS standard. However, at the time there was a strong feeling from BPF members that financial and energy reporting should be kept separate.

⁹ For example those occupying more than 1000m², the present public sector threshold - though this will come down under EPBD2.

¹⁰ An entry-level DEC uses a minimum amount of data about a building, e.g. its type, its base operating hours and its annual energy use by fuel. It is not necessary, for example, to know how each tenant uses its space.

¹¹ The LES-TER project has explored ways of doing this.

numbers of premises may prefer to make their own national or regional arrangements for energy procurement and DEC preparation.

- As an emerging insight once all tenants have prepared their own DECs. If DECs are phased-in in order of decreasing tenancy size, it might take some time to get a complete picture, with all the smaller tenants included.

-

Split

The ‘split’ method is most easily adopted where the splits are most consistent. For example:

- In industrial parks, where landlord’s services are usually in the roads, car parks and infrastructure entirely external to the tenant’s demises.
- Similarly, in shopping centres, where landlord’s services tend to be as above and in public circulation areas. However, some recent shopping developments are providing more central services in the quest for lower-energy and carbon solutions.
- In certain sub-sectors, where there is industry-standard provision of landlord’s services¹².

SUMMARY OF OPTIONS

The ‘push-down’ system is most appropriate as a single default standard. It embodies the principle of ‘the polluter pays’, where ultimate responsibility falls on the end-user, and aggregates data from the occupier organisation’s DEC portfolio. Whether an organisation owns or rents its buildings, carbon footprints are directly comparable and compatible with CSR reporting. Landlords are end-users only for items that they cannot pass on, e.g. energy use in their own accommodation and in vacant tenancies. Even where landlords can pass on 100 per cent of their energy use, they will still be motivated through benchmarking the LES; this is discussed further in the benchmarking section.

If they wish, landlords could also manage the data using the ‘pull-up’ model. This can then potentially support any option for allocating the CRC-EES, since all data would be available.

A ‘split’ model would allocate landlord’s services to landlords and energy used by tenants to tenants. It makes most sense in situations where tenants buy the majority of their services directly and landlord’s services are modest and largely confined to common parts. This situation often applies in shopping centres, business parks and industrial estates.

Where the LES is in place, all three approaches can mutually co-exist, complement each other, and provide additional information and motivation to each party. The flow chart below illustrates the flow of information between landlords and tenants and relationships between LESs and DECs. Much of the data transfer can potentially be automated.

¹² For example, the Australian ABGR system (now NABERS energy), started as a voluntary system in the very homogeneous premium air-conditioned office stock in New South Wales. Over the ten years the system has been in operation, it has also reinforced the favoured default level of split between landlords and tenants - offices which departed from this split could either not be rated (which is not an option for a mandatory system!), or were rated less favourably.

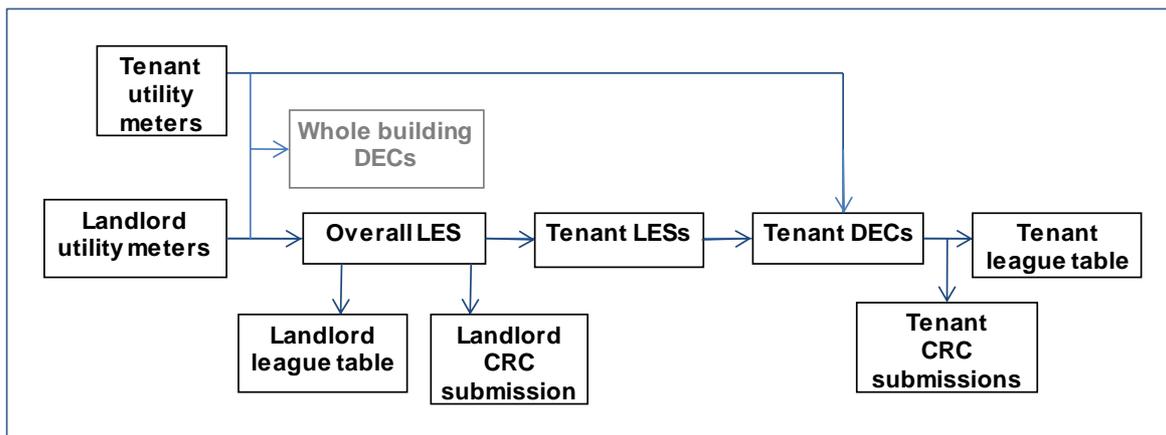


Fig 1: Flow of information between landlord and tenant. Courtesy of Robert Cohen, by permission of Camco.

ALLOCATION OF ENERGY COST AND RESPONSIBILITY

Energy cost

Except where there are gross lease arrangements, normal industry practice is to pass all the landlord's energy costs on to tenants in the service charge. This can continue, but the LES would make the process more transparent and capable of being benchmarked. This will also assist where necessary with the CRC-EES. This is discussed further in the metering section.

Energy responsibility

This would be shared between landlords and tenants using the LES and reported via DEC displayed both by tenants and whole building occupiers. A landlord's league table could be based on aggregated 'landlord DECs' using the LES and occupiers' on aggregated DECs.

Through the presented options data is capable of being aggregated at an organisation level by tenant or landlord to feed into the CRC-EES. Some boundary and jurisdiction issues have been identified which would need to be addressed due to DECs not being mandatory in Northern Ireland or Scotland.

If a system of LESs is in place, the data becomes sufficiently granulated that all three models set out above can co-exist:

- For data collection, landlords and tenants in each building can agree to adopt whichever system suits them best.
- The current system provides options to prepare DECs at either the building or the tenant level. The tenant level provides the most motivation to reduce energy use. However, the building level can be both a useful starter and a helpful overall indicator. The choice can remain.
- Data collected using LESs and DECs could potentially be combined for use in the CRC-EES and greenhouse gas reporting for owner and/or occupier portfolios.

The Task Group set the following objectives in considering the reporting of energy performance of tenants, landlords and whole buildings, which are addressed by the proposals above.

Transparency

The DECs and LESs will provide clarity of information for whole buildings, landlords and tenants, supplemented where necessary by more detailed insights on performance.

Motivation

Motivation to improve will come from the transparency of making performance visible and actionable. Landlord DEC based on the LES will motivate the owner and manager, DEC the occupier. The creation of league tables based on landlord DEC, tenant DEC, building type, use and sector will motivate improvements. Further motivation will come from the direct financial cost of carbon, as provided by the CRC-EES. The proposals allow for the aggregation and granulation of data to enable league tables to be developed.

Reputation

Once the performance becomes visible, both for individual buildings, landlords and tenancies and for portfolios, reputational drivers will come into play to motivate both absolute improvement against benchmarks and relative improvement year-on-year. Suitable LES and DEC data is potentially capable of doing this on a building and portfolio level.

Valuation

Landlords are keen to differentiate their offerings by how they perform in practice and not just in theory. Benchmarking the LES to create landlord DEC offers an effective way of doing this.

SUMMARY

DECs can be put to effective use in multi-tenanted property through the use of a LES. A LES can play a valuable role in data collection and it should therefore be mandatory for the landlord to pass data to the tenant based on the LES (or equivalent tool with consistent data collection requirements) to improve transparency and motivation and to facilitate the delivery of DEC at the tenant level. It should also be mandatory for tenants to produce a DEC - this will use data passed down from the landlord using the LES. In some cases it will be possible to do this at the whole building level but in most cases it will be the responsibility of the individual occupier. In order to drive efficiency and improvement of landlord services it should be mandatory for landlords to produce and display a landlord DEC for common and shared services that they are responsible for operating.

DECs - Methodology

Whilst keen in principle to adopt DECs, the commercial sector has previously expressed reservations about the robustness of the scheme and the validity of the benchmarks. The Task Group has explored these issues identified and produced recommendations on improving the methodology which would support the mandatory roll out of DECs to private sector buildings. The process was reviewed jointly with the CIBSE benchmarks committee, which has been undertaking a review of the DEC data and benchmarks for DCLG.

BENCHMARKING

Benchmarking allows buildings to be given a score or rating based on a comparison to a median value. The benchmarking adopted for DECs works differently from systems with which most people are familiar. In particular, the Operational Rating (also referred to as a DEC rating) required under the EPBD is based on annual CO₂ emissions per unit area (performance indicators for electricity and fuel/heat are also available) and is calibrated on a linear scale running from true zero-carbon (at zero) to a benchmark median value (at 100) and on up. For market transformation purposes, the Ratings are grouped in to seven Grades, from A (0 to 25) to G (over 150, i.e. 50% above the benchmark upwards)

Each building 'type' is allocated to one of 29 Categories (e.g. Hotel, general office, large food store etc.) each of which has a single benchmark. The approach differs from, say, Energy Consumption Guide 19¹³, which sets different benchmark values for naturally-ventilated, air-conditioned and prestige offices. For DECs, buildings have to demonstrate that they are more heavily used in order to earn a bigger benchmark. At the 'entry level' (an attribute that will become ever more important as the building size threshold is reduced), prestige air conditioned buildings will tend to get a poor DEC rating in comparison to other standard office buildings.

However, those producing DECs can go on to use the procedure at a more advanced level, for example to increase the benchmark (e.g. where an office contains a restaurant or has extended occupancy hours) or to set special energy uses, also known as 'separables' (e.g. large server rooms and trading floors¹⁴, which are unusual and/or highly variable) on one side and to review their efficiency in their own right - but only if they are sub-metered and have reports on improving their energy efficiency. The procedure supports the drive towards radical savings in energy use and carbon emissions and provides a double motivation for occupiers of intensively-used buildings to dig deeper - both to get a better rating and to understand more about what is required in order to improve it further.

Since the DEC for an individual tenant includes the energy use by the landlord's services, it represents the total footprint attributable to that tenant, and so the data can be benchmarked¹⁵ in exactly the same way as for a self-contained building which provides transparency and motivation by those in control of the systems.

The LES would need to be benchmarked to enable 'landlord DECs' and also to enable 'league tables' to be drawn up. This is more difficult, as both the provision of services and the split between landlord and tenant varies considerably within and between sectors. The current LES incorporates a prototype system for offices, based on a menu of services provided. Benchmarking can be developed through the soft launch as discussed in the 'Proposed timetable for rolling out DECs' section.

¹³ <http://www.cibse.org/pdfs/ECG019.pdf>

¹⁴ Further definition in CIBSE TM46

¹⁵ The DEC benchmarking system differs substantially from those normally used, in that the benchmarks start small and bigger benchmarks have to be earned by quantifying 'stress factors' such as mixed use, hours of occupancy, and 'separable specials'. The system also covers all buildings. It can be complemented by voluntary benchmarking schemes.

Many of the problems identified could potentially be overcome by providing simple guidance on how to take account of special areas - see DEC and LES Guidance section, and by initiating the roll out of DEC to the private sector through a 'mandatory soft start', where the DEC and LES system is initially used without benchmarking to collect and report data and enable those with special areas to organise sub-metering. The data gathered could then be reviewed and the insights used to set and revise benchmarks. This will be particularly relevant for sectors where there is little or no DEC data. The practicalities and challenges associated with this proposal are discussed in the 'Proposed timetable for rolling out DEC' section.

A major industry concern was that the DEC benchmarks did not take account of high occupation densities in offices. However, this was not an oversight by the developers of the DEC method, but because it was not possible to identify any robust, low-cost ways of verifying data. Occupation level and density indicators can be developed in time; and as better verification processes are established they could be considered for incorporation within the DEC. In the meantime, organisations are already permitted to display supplementary data alongside the DEC as a narrative where necessary.

DECs need to reach all buildings within the non-domestic sector. The system therefore needs to be cheap, simple and stringent at the entry level. Complementary systems that can provide sector-specific information in greater depth would generate further benefits and can be applied at a voluntary level. Their results could be co-displayed alongside the DEC and inform the future development of DEC, for example providing detail about occupancy levels and special uses.

SEPARABLES AND ADJUSTMENTS

The key to DEC is that energy wastage is highlighted and that occupiers and managers are motivated to improve both their understanding and the performance of their buildings, along with unusual features (such as 'separables') that skew comparisons if they are not considered in their own right.

The CIBSE benchmarking committee is currently considering whether more separable energy uses should be added to the existing CIBSE TM46 benchmarking procedure for DEC, and the need to re-calibrate certain benchmarks and adjustments. This will require stakeholder engagement, and a review of requirements will expand as new types of private sector building begin to enter the scheme. The soft launch assists this by allowing data to be collected through pilot use of the scheme, and only displayed once the system has been run-in and its calibration checked.

Emissions from the industrial sector will fall into three categories:

- a. Process Incidental - DEC are relevant
- b. Process Significant - DEC are relevant if process can be covered by 'separables'
- c. Process Dominant - DEC ratings are a second order metric

DEC can be applied to industrial buildings where process energy is not dominant i.e. 'Incidental' and 'Significant' process. Outdoor activities e.g. aggregate quarrying, construction, etc. would fall into 'Dominant' process. In the industrial sector where emissions are process dominated i.e. DEC ratings are a second order metric these would need to calculate associated energy performance and carbon emissions through GHG reporting.

RATING SCALE

The A-G rating scale was reviewed and compared with star systems used in the Australian NABERS scheme and US Energy Star scheme. It was recognised the DEC rating scale, unlike the star system suits all sectors (commercial, retail and industrial) and has proven to be successful through the improvement of manufactured white goods as highlighted in Appendix A. It was however suggested that in the simple 'DEC and LES Guidance', much more emphasis needed to be placed on the numerical rating which gives a much finer resolution of performance than the A-G rating.

CROSS SECTORAL BODY

To underpin a wide range of policy measures and technical activities an independent, authoritative and properly funded technical support is required to review DEC and LES data and benchmarks, provide advice to government, and develop and maintain a sound technical platform for communicating building energy and carbon performance.

Whilst it is recognised that there is no appetite within the current government to create another separate ‘body’ responsible for working with the commercial sector to reduce energy and carbon emissions, it is felt that the impact of existing non domestic buildings on meeting legally binding carbon targets is significant enough to warrant a review of this proposal. Current policy affecting building energy and carbon performance in use is being formulated in different government departments causing un-joined up policy and time consuming and bureaucratic frustrations within industry and technical advisory groups.

It is proposed a science and engineering-based industry-aware, centre of gravity is created. This should be separate from industry to remain independent, and funded to support and advise government departments. This responsibility does not currently sit clearly with any organisation, particularly with the recently reduced funding to the Carbon Trust.

The remit should be clear and transparent to include work around reducing energy and carbon from existing non-domestic buildings, developing and reviewing benchmarks in line with DECs and associated LES, continuing technical development of energy and carbon related policy for existing buildings. The scope of the group could provide advice on the development of realistic minimum tenant guidelines e.g. where government is leasing a building they could require minimum standards. They could also advise building regulations around minimum standards such as the recommendations from the IGT¹⁶.

A business model that can fund effective support is required. Property companies tend to use voluntary systems as a differentiator, while compliance activities tend to be outsourced. At present DCLG supports DEC assessors, accreditation schemes, and proprietary software vendors but not benchmarking activities (currently funded by CIBSE). It is suggested that funding for an independent body could be provided by a levy on lodging DECs.

PUBLIC DATABASE

In order to assist with technical development of DECs and wider policy development relating to energy and carbon saving within buildings, a publicly accessible and free database should be made available. The database should hold full, transparent data on DEC and LES information. A controlled and technically reviewed version should be published on an annual basis providing DEC and LES information, together with an analysis report reviewing progress, following trends, identifying emerging issues and advising on possible revisions to benchmarking.

Data collected as part of the mandatory soft launch, as discussed in the ‘Proposed timetable for rolling out DECs’ section, should be made confidential and available for technical review only and not be made publicly available as this will be informing benchmarks for certain building types where this information is scarce or not available.

As the system is extended, it will become increasingly important for data collection to be automated where possible, for example to update meter readings. Links can also be made to energy management systems and websites such as Carbon Buzz¹⁷ or LESSen¹⁸, to help

¹⁶ A clear trajectory should also be declared: for example, to improve DEC ratings from an average of an E rating today to C by 2020 (with all buildings achieving at least an F rating by the same date, where this is cost-effective), and to achieve A ratings by 2050. Currently, the biggest group of DECs, at 29%, are at the lowest (G) rating. 41% come in at F or lower, 63% at E or lower, and 87% at D or lower.

¹⁷ <http://www.carbonbuzz.org>

¹⁸ <http://less-en.org>

communicate results to industry and to inform research.

DEC AND LES GUIDANCE

DECs can be used in their present state to assess all non-domestic buildings including commercial buildings (for tenant, landlord, and/or at a building level). As mentioned earlier further work is of course required around benchmarking. However, the Task Group identified that many of the concerns originally expressed about DECs arose from widespread misunderstandings of:

- the purpose, approach, methodology, features and scope of DECs, and the interpretation of results
- the strategic benefits they offer in understanding and improving performance and
- how they could evolve and bring a variety of initiatives together.

There needs to be a clear, simple non technical explanatory publication about how the DEC and LES process and benchmarks work, how its graduated approach allows a simple entry level but can then be used for example to take account of special energy uses, and the scope for future evolution as more information becomes available. It was deemed that the existing guidance manuals are too procedural and there needs to be more about the strategy behind the system.

ROBUSTNESS

The DEC methodology rests on a robust universal rating infrastructure deliberately conceived to provide a low cost yet insightful operational rating for any non-domestic building. The system captures all energy use and emissions associated with the use of a building or premises and, by virtue of it being repeated on an annual basis, is designed to motivate all stakeholders, but specifically occupiers, building managers and owners, to improve the buildings actual energy performance year-on-year.

A system to provide accredited calculation software, trained and accredited energy assessors, a quality assurance process, the logistics for centrally capturing all DEC data for each building and the considerable human resources to serve all these functions has been developed and honed in the last three years. The DEC system was purposely designed as a foundation for future policy initiatives, such as the proposed roll-out to private sector buildings, and underpins future building related policy such as the CRC-EES and Green Deal for business. To ensure the DEC system can be rolled out robustly to the private sector, issues highlighted below have been reviewed and recommendations made:

- Robust advisory report
- Improved compliance, training and Quality Assurance
- Quality and availability of data
- Reliable metering.

ADVISORY REPORT

Currently the advisory report is regarded as poor value. However, some form of advisory report is required under EPBD2 and required every ten years (in England & Wales a DEC is required annually and an advisory report every seven years). The advisory report is largely driven by a simplified drop down menu approach which allows the Operational Rating Calculation software to auto-generate recommendations for consideration by the energy assessor before inclusion in the report. The current advisory software is therefore restricted to giving generic improvement measures, although an assessor can add bespoke measures as free text.

Some of the less appropriate recommendations from the advisory reports are removed by the DEC assessor prior to lodgement; however this does not always occur. This approach has led to questions in the marketplace around the quality of DECs and especially the value of the advisory report.

The current system does not differentiate between the skills needed to produce a DEC and those required to produce a robust advisory report, some for the most complex non-domestic buildings in the country. There is a need to differentiate between energy assessor skills levels as has been addressed with the EPC.

A number of options were reviewed around enhancing the advisory report or removing the mandatory requirement for one. The main issue revolved around whether the mandatory roll out of DEC's would take place through the EPBD 2 or national legislation. The EPBD2 requires a supporting advisory report.

It is therefore recommended that the advisory report should remain a part of producing a simple, low cost DEC but improvements should be made to the training of assessors in how they approach this report and the report itself. There should be clear options to allow a zero cost report not entailing a site visit. This should be in the form of an advisory report with clear generic recommendations which are presented to the occupier or landlord to review and action where appropriate. However where a further bespoke energy assessment is required or, especially for F and G grade buildings, it should be possible to recommend, in due course that a rigorous energy assessment is required - at extra cost by a suitable assessor. The costs for this will depend on the size and complexity of the building and is discussed further in the 'Costs to industry of a mandatory roll out'.

COMPLIANCE, QUALITY ASSURANCE, TRAINING

Work by CIBSE on the existing DEC data set has revealed widespread non-compliance, in terms of eligible public sector premises not obtaining and lodging a DEC. There is little doubt that the current system of enforcement requires a review.

There are likely to be decisions made by the assessors regarding separable and benchmark adjustments, as well as ensuring that rigour is applied to measuring floor areas and identification of all meters to provide comparable DEC's. There are also likely to be questionable DEC's due to estimations of meter readings.

Options to resolve this issue were reviewed. These include incentivising action through making DEC's an accepted building block for various building related policy such as CRC-EES and GHG reporting, imposing penalties, creating awareness raising campaigns, stricter enforcement and better training.

Although these options may be necessary in the longer term it is suggested that the roll out process and measurement periods should be gradual and flexible to enable adequate resourcing of measurement, compliance and enforcement.

There is a need to increase the pool of suitably accredited DEC assessors. There will be a need for training and assessment of new assessors and, with the introduction of the LES, for further training of existing assessors. This needs to be carefully managed to achieve a balance of reasonable costs, adequate standards of assessors and certificates/reports and to avoid an early feast of DEC work followed by famine. Industry and government need to work together to devise a robust programme of assessor training and accreditation that delivers the required quality and standards at reasonable costs.

QUALITY AND AVAILABILITY OF DATA

Considerable effort is often required to obtain accurate energy and floor area data. If DEC's are rolled out to private sector buildings, then the above issues and the costs to businesses to obtain accurate floor area data in particular could be prohibitive - certainly during the initial roll out.

The options reviewed include streamlining the data collection process to become more accurate and repeatable through existing data sources. DEC software in time could be linked to a website carrying annual energy statements for every electricity and gas meter supplying energy to non-domestic buildings. This is currently done for the CRC-EES and it is anticipated that this could, at some cost, be rolled out to all non-domestic buildings. Entry by an assessor of the Metering Point Administration Number (MPAN) for an electricity meter or the Meter Point Reference Number (MPRN) for a gas meter would be sufficient to extract in electronic form the energy data required by a DEC.

Similarly, it should be reasonably simple to enable the Valuation Office Agency (VOA) database to be used by a DEC assessor to determine the floor area of a building or part thereof. A fully joined up system would require the VOA system to include the Unique Property Reference Number (UPRN) of the premises for which a DEC is being done and enable entry by a DEC assessor of the UPRN on the VOA web site to deliver the floor area for that premises in electronic form. Some work is required to join up the VOA and DEC systems however this is not insurmountable.

DECC is currently developing the NEED¹⁹ data framework project to track energy use of the stock through utility meters. In due course, it is envisaged all MPANs and MPRNs will be assigned UPRNs. Once meters are registered, as above, then one can update DEC's automatically. This would enable at least a simple, entry level DEC to be issued automatically at minimal cost. It would also add depth to the NEED, which would no longer stop at the meter but could know something about the premises it serves.

There should be an ambition to develop the systems needed to provide fully automated DEC's by 2015. By linking directly to utility metering data, the costs of annual updates will be reduced, and DEC's can be extended to large numbers of small buildings at very low cost. The connection between DEC's and utility data would also improve the insights about building performance in DECC's data framework project.

This, along with a graduated process for carrying out a DEC through initial simple data collection which can build up to more detailed data collection through good metering will make the roll out process more manageable. Where no data is made available a default low rating will be given. There is also potential for energy suppliers to provide default data where none other is available. A phased roll-out of DEC's starting with larger buildings will enable automated collection of data to be tested and verified to ensure that the system is robust.

METERING

DEC's can be produced using a simple set of data points and at the 'entry level' stage, metering is not a requirement at this stage. A DEC can be refined and made more accurate with a greater level of granular data where sub-metering is installed or through data provided via the LES.

Although there is guidance to sub-metering, it does not relate very well to the practicalities and priorities in commercial buildings. The BBP²⁰ are currently developing new guidance and Appendix B considers the metering requirements for the roll-out of DEC's, and draws on the proposals from the landlord/tenant approach. The issues address:

- minimum and desirable levels of metering for each of the three models (push down, pull up and split) as outlined in the landlord/tenant section and how these can also feed into data collection for the CRC,
- guidance on responsibility for implementation,
- recommendations on access to data,

¹⁹http://www.decc.gov.uk/en/content/cms/what_we_do/consumers/saving_energy/esdirective/data_framework/data_framework.aspx

²⁰ <http://www.betterbuildingspartnership.co.uk/>

- requirements for advisory notes for DEC assessors, local authorities, designers and installers
- notes on some basic technical/compliance requirements

DESIGN VERSUS ACTUAL PERFORMANCE

The Energy Performance Certificate (EPC) is currently required for completion, sale or let of a building and concentrates on the potential of the physical asset to be energy and carbon efficient, whereas the DEC is based on actual energy use with a view to motivating improvements in all aspects of performance, especially in the use and management of the asset. Where the building is multi tenanted, the landlord DEC based on the LES can motivate the manager of the base building and reflect the owner's performance.

The remit of the group was to focus on rolling out DEC's. It was felt the issues highlighted below surrounding EPC's were outside its scope.

- EPC's are based on optimised performance from predicted energy usage patterns, rather than actual energy usage
- EPC's do not account for small power loads/unregulated loads
- EPC's are essentially additional interpretations of CO₂ emissions for Part L, hence they are only required and useful for new build projects where the energy usage is unknown.
- Evidence²¹ suggests that predicted energy usage, through either EPC's or Part L, is consistently less than actual energy usage.
- As EPC's and DEC's are aimed at different people and communicate different information, it would therefore be unwise to combine the two on the same certificate to prevent confusion.
- The EPC process, dictated by the National Calculation Method, requires reform to offer better predicted energy usage. This is consistent with the aims of the Zero Carbon Hub work on domestic buildings and carbon compliance where the focus is shifting to a 'built performance' standard of CO₂ emissions.

However, the group felt that a future ambition should be to increase the focus on actual energy performance. In time the role of EPC's might even become less of a focus around communicating building performance, eventually to be replaced by modelling to provide a specified DEC and/or 'landlord DEC' rating. Similar situations are unfolding through the Commitment Agreement²² that NABERS operates in Australia. The group also commented that many people were confused by the fact that EPC's and DEC's looked similar but told you very different things: at the very least this needed to be better explained.

²¹ See <http://www.carbonbuzz.org>

²² <http://www.nabers.com.au/page.aspx?cid=628>

Proposed timetable for rolling out DECs

DECS

The proposal for a roll out of DECs (and LES) is based on an initial soft launch. This will allow data to be collected by an independent technical body to review and inform benchmarks.

The initial phase will involve consultation with industry, developing rules and the infrastructure around DECs and LES. Government will need to publish enabling Regulations; the options have been highlighted in the below in the 'Legislation' section.

The remaining public sector buildings (under 500m² and 250m²) currently not required to display a DEC can be programmed to roll out DECs from 2013.

The first stage for private sector buildings, in 2012, would be a soft start for whole building/single let commercial buildings over 1000 m² which are visited by the public e.g. hotels and retail. This will then inform benchmarks where this data is not available. Thereafter, depending on size, buildings will be required to display DECs in phases as highlighted in the timeline.

LES

A phased roll out of the LES is required to commence as a mandatory 'soft start' from 2012/13. This will need to take place following a review, piloting, software development, training and development of a central register in 2011/early 2012. Once benchmarks have been set for the LES there should be a mandatory requirement for landlords to pass data to tenants using the LES for multi tenanted buildings over 1000m² - or equivalent tool which is consistent with the LES. This will also enable the mandatory roll out of landlord DECs on landlord services - based on the LES in 2014.

A clear data collection, review and appeals process should be funded and an expert group should provide judgements on these adjustments for ongoing best practice.

A more detailed timeline can be found in Appendix C.

AUTOMATION

As discussed in the 'Methodology' section there is a need to develop a process for fully automated DECs ideally by 2015. This development process could be initiated with a pilot phase in 2013 and a view to enabling all non-domestic buildings to have automated DECs potentially by 2017. Automation becomes essential as DECs are applied more widely owing to the number of buildings involved. For example, spaces over 1000m² gross internal area represent about half the area of offices in the UK, but only 5% of office premises by number.

Summarising the business case for DEC's

The benefits of mandating the roll out of DEC's to the private sector include:

- Making actual measured building and energy performance visible and incentivising action
- Creating a level playing field for industry to rate buildings' energy performance
- Providing a clear benchmark to compare against the performance of peers (both for landlords and tenants). Motivates all players in the supply and demand chain - occupiers are responsible for energy used and displaying their DEC's and landlords for base systems which can be communicated through a Landlord's DEC using a benchmarked LES
- Providing an open and transparent marketing of a base building's performance to potential tenants through a landlords DEC
- Assisting the inclusion of performance requirements within leases or other contractual arrangements between landlord and tenants through mandating required performance levels through a landlord DEC
- Including an expected DEC rating in contracts for new building or refurbishment reducing the credibility gaps between expectations and outcome
- Mandatory annual updates will motivate property managers to review energy performance and review opportunities to make real energy and carbon savings at the lowest capital cost; and possibly with overall cost savings
- Using data generated from DEC's to help coordinate a variety of related policy measures such as the CRC-EES, GHG reporting and Green Deal for business
- This data will also provide much more realistic assessment of the emissions from existing building stock and will assist the UK government in determining the work it has to do to reach its binding carbon targets in the Climate Change Act
- Creating a feedback loop for the performance of enabling designers and building operators to better understand what works and what does not, which will help to target management, investment and innovation where it will make a real difference.

Over time it is believed that buildings with lower DEC ratings will reflect on their owners, occupiers and managers, while multi-tenanted buildings with poor landlord DEC ratings will either fail to attract new tenants, or will inevitably generate lower rents. It is important that stakeholders begin to use the DEC ratings in property marketing and investment options. This has been demonstrated in Australia and the US, where the government and some private sector organisations have set a minimum energy requirement before they will move into a rented building.

THE COSTS TO INDUSTRY OF A MANDATORY ROLL OUT

DEC's are significantly cheaper to produce and provide more meaningful information for occupiers than Energy Performance Certificates (EPC's) in turn providing motivation for owners, occupiers and managers to improve actual performance in use. Once DEC's become routine, they will help management and investment to be targeted on what makes real reductions in energy and carbon, improving the cost-effectiveness of these investments and increasing the levels of savings. However, these benefits are not sufficient to initiate the widespread use of DEC's on a voluntary basis because energy is not currently a major cost for owners and occupiers.

The costs associated with generating a DEC can initially be very low - to obtain an initial DEC you require only four pieces of basic information (which in many cases will not require a site visit):

- Building type(s)
- Area (GIA (m²)) and occupancy hours of each building type
- Annual fossil fuel use (kWh)

- Annual electricity use (kWh)

Cost of DEC

An 'entry level' DEC, with generic advisory report, could be produced for an estimated maximum of £350, this would not include the cost of an advisory report. The proposal from the Task Group in the Advisory Report section suggests a zero cost advisory report can be produced as part of a basic, 'entry level' DEC. The additional costs associated with preparing a DEC would be reduced as the exercise becomes repeated.

The cost for preparing a LES is £500 worst case scenario, for organisations that already collect and collates the data this would be a negligible cost.

Specific data around numbers of tenants/landlords is difficult to access to enable precise calculations to be made however a DCLG report²³ states the annual average cost to provide DEC for private sector buildings is £14.5m per year however it was not possible to get a breakdown of this cost. We do know however the cost for the offices sector which is £41million over a 30 year period.

A rigorous energy assessment will of course cost more. However, general experience is that such assessments frequently identify opportunities for low-cost measures with energy cost savings potential in the region of 20%. Provide management is motivated to act on the results; the cost of the report can usually be recouped within a few months.

Energy costs

Assuming average energy costs are £18/m² per year this would imply the total energy costs associated with office buildings (total floor area = 51.2 million m²) over 1000m² is £922million/m² per year.

Therefore, in the offices sector using the above assumptions, a minimum saving of 1% and maximum of 5% saving on energy bills would have to be made to cover the cost of producing a DEC. As data becomes available, automated and the market for DEC certification grows, the cost to deliver a basic DEC will decrease and almost become negligible.

There is potential for the energy performance of buildings in use to be incorporated into valuation criteria where a common reporting and benchmarking methodology is required within the market. Valuers will potentially include DEC and LES performance in the professional rules for valuation far more readily if DEC is mandated. Mandatory DEC will also raise awareness and incentivise landlords and tenants to work together to reduce energy consumption for reputational and other reasons.

Once completed, the DEC can also serve a number of purposes in terms of supporting other carbon related policy for the buildings sector, thereby reducing the cost of measuring building related energy and carbon emissions many times. This will streamline the process and enable consistency between policy and measurement and reporting of actual building performance.

LEGISLATIVE REQUIREMENTS

The extension of displayed energy certificates to some commercial buildings is already required under EPBD2. The wider implementation of DEC advocated by the Task Group, IGT and others could be legislated through EPBD2 - but there are challenges associated with this. Alternative legislation could be used, for example the Building Act or more favourably, the Energy Bill currently being passed through Parliament. The Energy Bill is primarily concerned with improving energy efficiency in the existing building stock through the introduction of the Green Deal.

²³ <http://www.communities.gov.uk/publications/planningandbuilding/extendingdecia>

Simplification of the CRC-EES for the property and construction sector

The Carbon Reduction Energy Efficiency Scheme (CRC-EES) started in April 2010 and is central to the UK's strategy for improving energy efficiency and reducing CO₂ emissions, as set out in the Climate Change Act 2008. It is designed to raise awareness of energy efficiency in large organisations, encouraging escalation of decision making on the subject to senior level, and encourage changes in behaviour and energy efficient retrofit.

In the recent Comprehensive Spending Review 2010 (CSR) it was announced that “...the scheme will be simplified to reduce the burden on businesses, with the first allowance sales for 2011-12 emissions now taking place in 2012 rather than 2011. Revenues from allowance sales totalling £1 billion a year by 2014-15 will be used to support the public finances, including spending on the environment, rather than recycled to participants.”

Since the announcement in the CSR, the government has consulted on the wider simplification of the CRC-EES scheme. The UK-GBC agrees with the policy intent of the CRC-EES but believes that the current scheme is too complicated and does not fit well with the structure of the built environment sector, thus preventing it from meeting its overall objectives.

In order to feed into the consultation process, the Task Group focused on two aspects of scheme in particular: 1) the league table and 2) the issue of whether the scheme should become a tax in future phases, or revert to being a cap and trade scheme.

LEAGUE TABLE

UK-GBC supports the principle of league tables to drive behaviour change, and acknowledges that government is keen to keep a league table for corporate reputational reasons.

The general view from the Task Group however is that the CRC-EES league table in its current form - comparing organisations from completely different sectors - will not motivate action to reduce energy use and carbon. As currently proposed the league table will not enable like-for-like comparison between organisations of a similar type.

A DEC based approach

As recommended earlier in the report, the Task Group is calling for the mandatory roll out of DEC's to all private sector occupiers and landlords. A roll out of DEC's will enable the compilation of DEC based league tables to enable peer to peer comparison as set out in the 'Landlord/Tenant' chapter. The Task Group believes that, once established, DEC's could be used to produce league tables for emissions from buildings.

The Task Group believes this offers a number of benefits:

- DEC's will clarify the roles that landlords and occupiers play in consuming and reducing energy;
- DEC's will facilitate and encourage more collaboration between occupiers and landlords/building management to reduce energy consumption;
- DEC league tables would make use of the existing certification and assessment infrastructure already used for certifying public buildings and so reduce administrative costs for participants and reduce lead-in times for a roll-out;
- With adaptation, DEC's would allow for multi-tenanted situations;
- DEC's allow aggregation of scores across portfolios;
- The DEC methodology provides incentives for sub-metering of tenancies, and in particular sub-metering of special uses (with the incentive being that sub metered

special uses can be discounted from consideration in the overall rating), and thus enables more detailed understanding of energy use and better targeted improvements;

Once the DEC data is in place, the Task Group believes DEC based league tables could replace the current CRC-EES league table for buildings.

Capturing non-building emissions in the CRC-EES

There are, however, other emissions captured under the CRC-EES such as manufacturing, process and construction emissions. Little information exists on what proportion of the emissions within the existing CRC-EES relate to building energy use, and what proportion are process/industrial/construction emissions.

As outlined in the 'Methodology' section, the Task Group believes that **some** of these other emissions could be captured by DEC's in industrial buildings where process energy is not dominant, using the separable methodology. However, there will be some remaining industrial and process emissions which cannot be measured by DEC's and thus will not be captured in a DEC based league table.

In the time available to us we have been unable to identify a solution to address the reputational needs under the CRC-EES for these other emissions. Clearly this needs reviewing urgently and we recommend the government appoints an appropriate group to undertake this. The Task Group believes that more work is needed to:

- i. Understand the scale and nature of non-building emissions under the CRC-EES.
- ii. Determine the extent to which DEC separable methodologies are relevant for measuring industrial/process/construction emissions; and
- iii. Identify solutions for those remaining CRC emissions which are not captured through DEC's or other policy mechanisms such as the EU Emission Trading Scheme (EU ETS) and the Climate Change Levy.

GREENHOUSE GAS EMISSION REPORTING

The Task Group also believes that mandatory greenhouse gas (GHG) emissions reporting should be introduced. This would help businesses to understand their carbon foot printing and ensure that reducing carbon emissions is escalated to the board level.

As outlined in the 'Methodology' section the Task Group believes that once the DEC methodology is implemented, it will enable a consistent and robust way to collect data from buildings which can then be used for different purposes, including collation of data for GHG emission reporting. This would reduce administrative costs and allow for more effort to be devoted to improving performance.

The government, in implementing GHG emission reporting, should be sensitive to existing industry initiatives and should build on the work which has already been conducted by, for example, the Green Property Alliance, the Global Reporting Initiative Construction and Real Estate Sector Supplement and the Greenprint Foundation.

PROPOSALS FOR GOING FORWARD

The Task Group believes that once the data is in place, DEC based league tables could replace the current CRC-EES league table for buildings. However, it is acknowledged that DEC based league tables will take several years to come online as highlighted in Appendix C and they will also not offer a solution for non building related emissions.

Until DEC data is available, the Task Group understands that government may decide to keep the current CRC-EES league table. Once the data is available, however, the Task Group recommends that the CRC-EES league table for buildings should be based on DECs.

For the manufacturing/industrial/construction sector more work needs to be done to understand the nature of the emissions, and develop a solution to address them.

Driving change in the sector going forward

INTRODUCTION

Under the changes announced in the CSR in 2010, the CRC-EES charge effectively became a ‘tax’ rather than a cap and trade scheme as originally intended. As mentioned in the previous chapter, UK-GBC supports the policy intent of the CRC-EES but believes its application to the built environment creates a number of challenges. These include:

- For the property sector, the CRC-EES does not take account of split incentives and responsibilities for energy procurement, management, control and use within rented non-domestic buildings, which form the majority of the existing commercial stock;
- The ability to forecast emissions is hampered by the lack of agreed measurement standards for buildings in use within the non-domestic built environment;
- The scheme has become very complicated and opaque to participants. Arguably its current complexity obscures the clear and simple incentives the CRC-EES is trying to set to industry: prioritisation of energy efficiency and encouraging a strategic approach toward it at board level.

This chapter explores these issues in greater detail and considers various options to overcome them. The Task Group identified three main alternatives to the current CRC-EES. It was considered that an alternative CRC-EES to be successful, it would need to meet a range of objectives:

- Minimise losses to emissions coverage compared to that currently covered under the Scheme.
- Grant an equivalent level of revenue to the Exchequer²⁴
- Ensure that incentives and penalties are directed toward those who hold most control over energy efficiency, carbon abatement and management.
- Simplify the overall administration of the Scheme.
- Considers the productivity of different buildings to avoid any policy being regressive.²⁵

Three alternatives for the CRC-EES were evaluated:

1. A simplified emissions trading model;
2. A retrospective annual carbon tax; and
3. A merger of the Climate Change Levy (CCL) and CRC-EES.

Legal Context

Under the Energy Products Directive (EPD), member states are required to institute a tax on energy use; in the UK this obligation is currently fulfilled via the Climate Change Levy (CCL) and the Fuel Duty.

To change the fiscal mechanics of the CRC-EES to a carbon tax, the government will need primary legislation (the Climate Change Act only permits the government to establish a trading scheme). This would require sufficient Parliamentary time to enact in advance of the end of the Introductory Phase of the CRC-EES.

A simplified emissions trading scheme could arguably be instituted within the legal confines of the existing enabling powers underpinning the CRC-EES.

²⁴ The revision of the CRC-EES from a revenue neutral instrument to a revenue raising instrument for the Exchequer was assumed by the Task Group to be a continuing feature of the Scheme, at least in the short to medium term. The Task Group therefore sought to ensure that any recommendations it made did not decrease revenue to the Exchequer.

²⁵ E.g. to avoid introducing an incentive which is effective in motivating behaviour change in large cities but which in other locations could become a business burden.

ALTERNATIVE APPROACHES (SEE ALSO APPENDIX D)

The Task Group weighed each of the 3 options against a range of critical success factors which included:

- i) reducing burden on business;
- ii) removing investment uncertainty;
- iii) inspiring industry trust in its arrangements;
- iv) flexibility;
- v) creating business opportunities;
- vi) potential to drive behavioural change.

The Task Group also consulted with a range of UK-GBC members, and the findings from this process are presented in the matrix in Appendix E of the full report.

Alternative 1: Simplified Emissions Trading Model

Description

The Task Group devised a simplified emissions trading model, with various options for how allowances would be sold to participants, many involving retrospective sales. As currently configured following Comprehensive Spending Review 2010, the first sale of allowances for 2011/2012 will be retrospective at a fixed price.

The Task Group felt there were a number of components which could be combined to encourage the development of a carbon market which would otherwise be lost by the transition from a forecast (prospective) sale to a retrospective sale of allowances:

- **Sub-Option A:** A prospective sale of allowances at the beginning of the Compliance Year, without a cap at a fixed price.
- **Sub-Option B:** A prospective sale with either the market setting the price of carbon via auction or via a fixed price, accompanied by a retrospective sale in which a defined minority percentage of allowances are sold at a lower fixed price.
- **Sub-Option C:** A retrospective auction/sale of allowances with the market setting the cost of carbon as the incentive for participants to reduce emissions.
- **Sub-Option D:**
 - A cap set per participant (e.g. 3% absolute/relative year on year reduction or whatever is set by the government under advice from the Committee on Climate Change).
 - Retrospective sales at a lower fixed price for allowances under the emissions cap (in line with the carbon floor price²⁶) and at a higher price for any additional emissions.
 - Participants emitting less than their cap can receive allowances from government priced at a rate competitive with the carbon floor price per tonne of CO₂ to sell via the secondary market to other participants who require them.
- **Additional feature:** Permit banking of allowances within years in a given phase to promote the secondary market and encourage forecasting of emissions among those participants whom are able to do so.

Scope

The Task Group thought that the pool of participants under a Simplified Emissions Trading System would likely be drawn using the same inclusion criteria as the current Scheme.

²⁶ http://www.hm-treasury.gov.uk/d/consult_carbon_price_support_condoc.pdf

Costs and Benefits

Under the existing legislation, the government may not operate anything other than a trading scheme beyond the end of the Introductory Phase of the CRC-EES. A simplified emissions trading scheme approach would arguably enable the government to avoid the need for primary legislation, and each sub-option above has been designed to encourage some form of a market for carbon (although some were thought to do this more successfully than others).

Sub-options A and B are variations on proposals included within the government's discussion papers issued in January 2011 concerning further simplification of the CRC-EES. The fixed price element of Sub-options A and B respond to concerns over the complexities of participating in an allowance auction, and simplifies matters by making some or all allowance sales fixed price. Participants would still be able to exercise marginal cost abatement strategies, but the government would have to take an active hand in deciding what the carbon price should be.

Sub-option A compares favourably to recommendations from the Committee on Climate Change that the phase following the Introductory Phase should be a fixed price sale. However, the availability of an unlimited number of allowances at a fixed price does little to stimulate a market for carbon, or an appreciation in the price of carbon. If the price of carbon was known in advance (perhaps via the use of an escalator) Sub-Option A could help to provide greater assurance to participants over the carbon price, compared with a market driven approach, assisting investment decisions concerning energy efficiency.

A key benefit of Sub-Option B which merges both prospective and retrospective allowance sales is that it permits scope for participants to adopt their own strategy toward participation in an emissions trading scheme. It is also more sympathetic to the relative lack of sophistication in the market towards energy management, and would permit 'course correction' at the close of the year for those with an excess or surfeit of allowances without immediately incurring the significantly higher costs of the secondary market (via additional broker's fees and value added tax payments).

A forward looking cap and trade mechanism should deliver a market-determined price which could be a valuable component of the scheme by encouraging cost-effective emissions reductions as well as actively engaging companies in potential efficiency improvements and help provide investment certainty. These efficiency gains could result not only in lower costs under the CRC-EES but may also bring benefits elsewhere (such as reduced energy costs). Taxes or simple sales of allowances may not incentivise energy efficiency improvements in the most cost effective way.

However, a reversion to a prospective sale of allowances would likely necessitate a double sale of allowances within a single year (due to the fact that the first sale of allowances will now take place at the end of the year rather than the beginning). To address this, sub-option A contains a provision for an auction of a fixed percentage of emissions allowances at the end of the year as well as a prospective sale.

The rationale for a prospective sale derives from the positive benefits of market price discovery. Participants would exercise marginal cost abatement strategies²⁷ based on the number of allowances they are able to obtain at a given price and the cost of undertaking improvements which would mitigate emissions and thereby reduce the participant's exposure to the carbon market.

Any approach which relies upon the market to set the price of carbon and upon the judgement of government to set an emissions cap in turn relies upon sound evidence. Though a cap has long

²⁷Marginal emissions are the emission reductions saved through the most cost effective measures that business have at any given moment. It is anticipated that the cost of achieving these marginal emission savings will go up as more and more complex technologies are applied to save an additional tonne of CO₂. This is of relevance when developing any tax pricing structure or pricing of units through a cap and trade scheme, as dependent on these prices and the cost of marginal emission reductions, business will decide to invest in energy saving technologies or not.

been a feature of the CRC-EES, the Committee on Climate Change, has raised concerns that the extent of cost-effective opportunities open to CRC-EES participants was not certain. It is likely that additional sources of data, such as that from mandatory DECs, will be required so that the government may set a sensible and appropriate but stretching emissions reduction target. A roll-out of Display Energy Certificates as advocated in this report will help to inform government of the extent of cost-effective opportunities, in turn helping to inform the level of any future emissions cap.

In respect of Sub-Options C and D, there was a recognition that perhaps the market was not adequately prepared for the introduction of a fiscal mechanism which relied upon emissions forecasting, given the lack of systematic collection of actual energy use data (and an accompanying lack of accurate benchmarks). Some members of the Task Group felt that there was a need to address this lack of data either alongside or in advance of the introduction of a cap and trade scheme and its accompanying focus (either wholly or partially) on forecasting emissions and purchasing allowances in advance.

A further advantage of a retrospective sale lies in the fact that organisational change may be accommodated (including sales and acquisitions of assets in the case of property owners, changes of use or increased intensity of use of space).

It is important to note that any approach which involves sales of allowances via auctions are likely to place unfamiliar requirements on a range of sectors (particularly those where auctions are uncommon occurrences).

Alternative 2: Retrospective Carbon Tax

The government could introduce a carbon tax applied to business entities, making use of existing company law definitions used to define organisations under the CRC-EES.

The organisation would monitor emissions throughout the compliance year, collate and submit a 'return' based upon their self-assessed footprint and surrender the appropriate funds proportionate to their total footprint.

In order to focus the industry's attention on the potential to reduce marginal emissions, a tiered taxation approach should be followed, whereby the majority of an organisation's emissions would be set at a lower tax rate, with the remaining emissions taxed at a much higher rate. This higher rate threshold could be adjusted downward year on year baselined to the original reporting year. The size of the yearly downward adjustment could be used to reflect the government's decarbonisation objectives, providing clarity to business about how their tax burden would increase if they maintain their status quo, or reduce if they carry out abatement measures. The pricing of the high tax rate above this threshold should be set so that carrying out energy efficiency improvements would be the more cost effective than paying the tax.

Scope

It is likely that existing qualification criteria and company law definitions could be retained for this option (although we are aware of the need for changes to the regime to accommodate unintended outcomes where property unit trusts are employed)²⁸.

Costs and Benefits

The Task Group considered that the issue of forecasting requirements for allowances was a significant challenge to organisations, but also acknowledged the argument that 'price discovery' within a forecasting regime could encourage companies to understand their energy usage in

²⁸ In certain circumstances, where property unit trusts are employed, current CRC-EES rules direct responsibility for the CRC-EES to the legal owner of the property (a registered owner who has little to do with the day-to-day running of the property) rather than its beneficial owner (the landlord, who will comparatively speaking have a stronger influence over energy use within the property).

detail and to learn how to lower energy use in advance. Creating this level of understanding may incentivise earlier action to reduce energy usage. The dearth of readily available and accurate benchmarks for buildings in use, coupled with the unpredictable effects of building transactions throughout the Compliance Year, means that property owners and occupiers would find forecasting emissions a challenge.

A retrospective allowance sale would circumvent issues concerning emissions forecasting, and grant a greater degree of predictability to the Scheme for its participants. However, there is a danger that a retrospective tax could be simply absorbed into general costs without driving behaviour change. In the longer term, incentivisation of energy efficient building retrofit under a carbon tax may depend upon stable and material carbon price signals which may be factored in to financial appraisal among building owners and occupiers to calculate the net present value and the discount rate of building improvements. Such an approach would likely have mixed rates of success in a cap and trade system where the market sets the price of carbon, unless a finely tuned market cap can be set.

Drawing together a 'Carbon Tax Return', which participants would submit under a Retrospective Carbon Tax approach would focus organisational attention on expenditure, whilst granting the additional benefit of a reduced administrative burden compared to the level of reporting required under the current CRC-EES on both the Administrator and upon participants.

A disadvantage of a tax levied on an organisational basis is that many of the current complications inherent in the Scheme (and which were explored in the discussion papers issued by the government in January 2011) would remain as many of them stem from the complexities of interpreting company law. However, this could also manifest as a strength for organisations who have already prepared for the Scheme and who have expended resources doing so (e.g. roll-out of voluntary AMR metering, adoption of the Carbon Trust Standard and equivalent schemes). Furthermore, an organisational carbon tax permits emissions arising from wider energy usage (such as process energy) to be included within the scope of the Scheme, although the government has been considering whether organisations covered by CCAs and the EU ETS should be removed from the CRC-EES entirely.

Given the issues of poor commissioning, maintenance, lack of understanding and minimal exchanges of information on building performance between building owners, landlords and tenants, it was felt by some that the market is not yet ready for the introduction of a cap and trade scheme.

Alternative 3 - Merger of the Climate Change Levy and the CRC-EES

The CRC-EES could be merged with the CCL in order to arrive at an escalating energy tax. Incentives to reduce emissions could be set via an escalator (akin to the approach taken by the Landfill Tax) which would be set in consultation with the Committee on Climate Change at 3 yearly intervals. Further scrutiny would be provided by the Energy and Climate Change Select Committee.

A key differentiating factor between Alternative 3 and Alternative 2 in this paper is that Alternative 2 would use existing company law definitions used by the CRC-EES to assign responsibility. Alternative 3 would set a levy on the energy bill. However, both alternatives are compatible with the use of an escalator (akin to the one adopted under the Landfill Tax) whereby industry gains predictability of the price of carbon over a set time horizon, but the price is gradually ratcheted by government over time.

Via the use of an escalator, participants would be able to exercise marginal cost abatement strategies and make educated choices as to whether to purchase allowances or to make building improvements to reduce exposure to future hikes in the cost of energy and carbon under the CCL.

Scope

Approximately 990,000 organisations accounting for 51 MtC are currently covered by the CCL, of which up to 5,000 organisations accounting for 14 MtC were the original target group for inclusion within the CRC-EES (the actual number of current CRC-EES registrants is closer to 3,000, which the Administrator attributes to mergers and acquisitions). There are some 3m small businesses which do not pay the CCL (accounting for 1MtC).

The CRC-EES is deemed to have no overlap with the EU ETS or Climate Change Agreements (CCAs) by virtue of a series of exemptions which apply to organisations' partial emissions footprint under CRC-EES when captured by one or more of the schemes. The CRC-EES does not operate a similar exemption for those who pay the CCL.

In rented buildings, occupiers will likely pay the CCL on their supplies which they purchase **direct** from energy suppliers and the CCL will likely be passed through to tenants by landlords on the energy they procure on their tenant's behalf for common parts and common services. This will be subject to the exemptions for generators and combined heat and power and those covered by a Climate Change Agreement (who are likely to be heavy emitters subject to sector or underlying agreements with DECC). The government has guaranteed the continuation of CCAs up to 2023 at Budget 2011 and has increased the level of support from a 63% to a 80% discount on the CCL.

This means that it is possible for those who pay the CCL to also be subsumed within the CRC-EES, but this will depend upon the amount of energy they procure as an organisation.

Due to the lack of assurance within existing leases concerning whether the costs of the CRC-EES can be passed on by landlords to their tenants, it is likely that as far as many rented properties with existing leases are concerned, landlords will be liable for the whole cost of their participation in the CRC-EES, whereas tenants will continue to pay the CCL for both the energy they purchase directly and the energy which is bought on their behalf by the landlord. Some tenants, particularly high street retailers and large corporates, may also be drawn into the CRC-EES.

To have responsibilities for each scheme split in such a way in rented buildings seems uncondusive to promoting carbon effectiveness, one of the key objective of the CRC-EES, and encouraging joint energy efficiency programmes by landlords and tenants.

Continued exemption of renewable energy supplies from an escalating energy tax would act as a demand side incentive for take-up of low and zero carbon microgeneration, in addition to the supply side incentives derived from the stable pricing mechanism for carbon which is afforded by an escalating tax.

Costs and Benefits

Under this approach, exemptions for Climate Change Agreement participants and proportions of emissions covered by the EU ETS could be retained. There would be little need for an Administrator and other apparatus of the CRC-EES since the CCL is administered by HM Revenue and Customs and the level of the tax could be set by DECC under advice from the Committee on Climate Change.

Like the simplified emissions trading model, participants would arguably have to collect data throughout the Compliance Year to prepare for the allowance sale at the close of the year, administrative burden will be minimised upon participants in that they will no longer have to submit multiple reports during the year. The escalating tax approach also negates the need for a double allowance sale as a corrective measure at the start of the Second Phase.

Whereas under a simplified emissions trading scheme the participant may only be required (under some options) to account for a proportion of their total footprint, under an escalating tax approach there is a presumption that the tax pathway would follow existing lines set by the CCL. This would also potentially increase the pool of revenue available to the Exchequer, but some of this revenue is already hypothecated for purposes such as funding the Carbon Trust.

In order to be effective, the Task Group considers that an escalating carbon tax will have to be accompanied by some form of reputational measure, since it has the potential to perpetuate the status quo in that energy bills will either be simply passed for payment (in the case of owner-occupiers and those on fully-repairing and insuring leases) or passed through via the service charge (in the case of the majority of leased non-domestic buildings). A key objective of the CRC-EES has been to focus high level decision makers on the importance of energy efficiency, and price alone may not be sufficient to do this.

A further point to be made in favour of an escalating tax is that a private action may not give rise to socially optimal outcomes when regulating externalities (which carbon dioxide emissions are) as the marginal social cost of the emissions will not feature in the market, where as with a centrally determined tax they may feature alongside the primary goal of encouraging energy efficiency.

Finally, the government has signalled its intention to set a carbon floor price utilising the CCL in order to remove the natural hedge which carbon intensive energy generators have over low carbon energy generators, due to the fact that the price of energy closely follows the price of fossil fuels. This alternative would therefore fall in line with HM Treasury's policy objectives.

However, on balance the merger of the CCL and CRC-EES is not thought to be the most effective option as the CCL is inherently absorbed by business at the billing stage so has not proved to be a very strong driver for energy reduction.

CONCLUSION

A number of different viewpoints emerged with opinion divided on which method would be most effective overall. Some were strongly in favour of a tax, with others strongly in favour of a cap and trade approach. On average, the majority narrowly preferred an organisational level retrospective tax - see Appendix E for more details.

Three clear findings emerged from the process:

1. A trading mechanism was considered to be the most 'efficient' way of distributing the 'abatement cost burden' between businesses i.e. the shared cost of carbon reductions.
2. A tax would pose the 'least fixed cost burden' on business.
3. A tax would be the best way of overcoming the current market institutional problems (e.g. landlord/tenant issues)

In order to arrive at a sustainable built environment, price signals and blunt reputational factors alone were not deemed to be sufficient drivers. It is vital that institutional barriers are tackled too, which neither the CRC-EES as currently framed nor a simplified emissions trading scheme would be able to achieve in isolation. Change over time was recognised to be a critical factor. Better information on energy use and management, greener leases and behavioural change are all seen as prerequisites to a more sustainable existing non-domestic building stock and complementary measures such as DEC's and reputational drivers which are more finely attuned to the complexities of the built environment are key to unlocking a short term improvement in performance - predicted to be within the range of 5-30% within most buildings - and providing a sound basis for longer term improvement.

A retrospective organisational level carbon tax focusing on marginal emissions reductions is felt to hold the most promise in stimulating greater efficiencies in the use of buildings in the short

term, whilst retaining sufficient simplicity and clarity of mechanism to be intelligible to an industry which is in 'learning mode'.

On balance the recommendation is that the CRC-EES should remain as an annual retrospective charge for the first Phase of the scheme to combat the market institutional problems. A carbon tax would help to address these issues, whilst not imposing a cap and trade scheme too quickly.

In the medium to long term, we believe there is scope for the reintroduction of a cap and trade scheme (perhaps along the lines of Alternative 1). In a more sophisticated market, which has benefited from the introduction of DECs, industry would be better placed to compete and capitalise upon the dynamics of a carbon market. The introduction of DECs would also give government a better insight into the cost effective opportunities in non-domestic buildings and enable it to set an emissions cap in an accurate and proportionate manner.

The Task Group believes that this will provide the most efficient way, in the long run, of reducing GHG emissions within organisations.

Conclusion - the Business Case

We will not achieve radical reductions in carbon emissions from our private sector non-domestic buildings unless we have consistent and robust data and a clear, comparable rating system that works for all building occupancy types. With minor improvements, DEC's provide the basis for this. This report also highlights how a roll-out of DEC's can align with other policies, notably the CRC-EES, and ways in which the CRC-EES itself can be improved.

However, the recommendations are not only geared towards energy and carbon reductions. The proposed way forward will result in significant advantages for business:

- Reducing energy use is impossible without good data on which to make management and investment decisions. Evidence is emerging of the benefits that DEC's can bring in terms of their impact on reduced energy bills, which far outweighs the cost or perceived administrative burden.
- Good data on energy use is a valuable source of information for research and enables feedback to designers, which in future results in better quality, lower cost buildings.
- A voluntary approach to DEC's penalises those who measure and report their energy use, inviting criticism of poor performance. A level playing field provides a reputational benefit to improving performance, allowing benchmarking against peers.
- A comparable and reliable energy rating scheme will increase the value of sustainable buildings, and could reduce vacant periods, sending a signal to developers and investors that sustainable buildings are higher quality buildings.
- Aligning methodologies between carbon policies will reduce the administrative and cost burden of adhering to those policies. DEC's have the potential to provide the basis for building related emissions within the CRC-EES, the Green Deal and mandatory GHG reporting. Therefore, the roll out of DEC's to the private sector should not be seen as an additional piece of regulation, but an essential component in a larger system for delivering energy efficient non-domestic buildings.



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