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Real Estate

Carbon Penalties & Incentives

A review of policy effectiveness for carbon reduction and energy efficiency in the commercial buildings sector

Appendices

March 2014

Contents

Appendix A: Acknowledgements

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Name	Representing	Name	Representing
Sarah Meagher	DECC	Charlotte Jacques	Schroders
Jenny MacDonnell	British Council for Offices	Keith Bugden	Better Buildings Partnership
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Appendix C: Opportunities for and barriers to energy and carbon reduction

Many of the sources reviewed point to an array of barriers to energy efficiency and carbon reduction in the commercial buildings sector (and across the non-domestic stock more broadly). For the purpose of this study, it is useful to organise these into two discreet categories:

- Barriers which the policy framework seeks to address; and
- Limitations of the policy framework itself.

This Appendix summarises the technological, market and behavioural barriers which policies seek to address, whilst the reported limitations of the policy framework itself are covered in the main Report.

Barriers which the policy framework seeks to address

- ***Agency barriers*** arise from a multitude of factors which limit or dis-incentivise responsibility for energy performance and management issues and often stem from the myriad relationships and interests which are vested in the realisation of value from commercial property. Such barriers are apparent at multiple stages of the property lifecycle, and can be a function of legal, commercial and behavioural precedents established over a very long period of time, making them especially difficult to surmount. Key examples include:
  - Perhaps most significantly, the institutional leasing model has a divisive effect in separating the cost and benefit of improved energy performance between landlords and tenants. This is commonly known as the 'split incentive', whereby the benefits of energy and carbon savings are typically realised by the tenant, yet the cost is typically borne by the landlord. As the RICS points out, "the benefit to the landlord of making improvements to the property will only be realised if the tenant is prepared to pay an additional rent or if there is evidence that the property will command a more attractive yield in the marketplace. Unless and until such a return can be evidenced there may be little incentive for the landlord to undertake improvements; yet often the tenant will neither be able to afford the work nor have the security of tenure sufficient to justify amortising the cost over the occupation period". The trend of shortening lease lengths in the commercial market compounds the issue by further reducing the scope for investments to pay back within an occupational period. This is further compounded by occupiers being able to select alternative properties to occupy in the event that landlords, who have invested in the energy efficiency of properties, seek to recoup the costs of this investment from occupiers.
  - From the earliest stages of the building lifecycle, and through the on-going cycle of refurbishment, developers and investors concentrate on short-term profit maximisation, rather than lifecycle cost, and are therefore reluctant to incorporate design and technological solutions which deliver additional energy or carbon savings below an industry-standard baseline where there has historically been limited if any impact on the rental or capital value of the completed or refurbished asset. Many existing buildings, which compete with new buildings for occupiers and investors',
  - The fragmentation and externalisation of responsibilities for bringing commercial product to the market and then managing it during its operational phase undermines focus on energy and carbon performance. McKinsey finds that, for example, 61% of commercial space in the UK is leased and 75% of the corporate sector outsources its facilities management capabilities, often without incentives for reducing energy costs. Meanwhile, the work of the Better Buildings Partnership, particularly in the development of its Managing Agents Sustainability Toolkit, highlights the hitherto limited proactivity and empowerment of managing agents in the context of managed investment assets.
- ***Financial barriers*** relate to the absolute availability of capital for energy efficiency and low carbon investment, through to the expectations of individual businesses and CFOs on what constitutes an acceptable payback period. In particular:

- It is common for investments on internal operations to be required to deliver a payback within a period of time that is often much shorter than energy efficiency and renewable energy interventions can deliver (without substantial fiscal intervention). Discounting to reflect inflationary assumptions means that short term returns are relatively more influential than long term.
- Recent analysis by Deloitte LLP for BIS, and published in the NAO Report, *Improving access to finance for small and medium-sized enterprises,* highlights that capital constraints are found to be a particular barrier for SME organisations, although less so for larger corporates.
- For many owners and occupiers of commercial property, energy costs continue to be a small proportion of overall business costs. As such, other cost reduction and profit improvement initiatives, such as those relating to staff and estates, tend to be prioritised within businesses.
- This effect can be compounded in sectors where sales drive business performance. The World Business Council for Sustainable Development (WBCSD) highlights, for example, that in retail, lighting is generally responsible for a significant share of final energy use but is typically considered a "sales force" which drives customer attraction. As a result lighting levels (and energy consumption) are increasing in many retail formats, despite the fact that advances in lighting technology mean that energy consumption can be reduced significantly without detriment to lighting levels.
- High transaction costs on small energy efficiency deals can suppress uptake, including in relation to hidden costs associated with research and management time and the incidental but potentially significant 'opportunity costs' associated with business disruption whilst measures are implemented.
- Perhaps above all in a financial sense, the continuing lack of evidence to support a clear correlation between sustainable property characteristics with real estate value serves to exclude energy and carbon factors from the basket of 'property fundamentals' which in turn has a limiting effect on the market demand for green product, especially amongst investors and the custodians of their capital. Whilst some recent studies have begun to assert evidence of such a correlation, it could be argued that energy performance and environmental ratings are emerging as an additional differentiator of prime product from the rest of the commercial real estate market. Research by Chegut et al. (2011) notes a substantial rental and sale price differential for BREEAM-rated buildings in London compared to un-rated control buildings. However, the research self-identifies a number of quality control limitations in the methodology. More recently, research published by the Urban Land Institute entitled *Green Premium or Grey Discount?* (2013) reinforces the notion of a strengthening association between energy performance, occupier satisfaction and quality, but did not find any form of rental value differentiation related to EPC ratings. Most recently, the latest IPD EcoPAS data provides an insufficient sample from which robust conclusions can be drawn.

- ***Knowledge barriers*** span all sub-sectors and actor groups and continue to be a significant barrier to action and leadership. This includes a lack of awareness of policy requirements, risks and opportunities, as well as limited appreciation of the non-regulatory business issues which can arise from energy and/or carbon intensity. Examples include:
  - World GBC found in its report on the *Business Case for Green Buildings* that perceptions of the cost of delivering green buildings and significantly divergent from the true cost. While there can be an additional costs associated with building green compared to conventional buildings, the cost premium is typically not as high as is perceived by the development industry. Studies show that the actual cost premium for green building is found to be between -0.4% to 12.5%, but estimated cost premium by survey respondents is materially higher at 0.9% to 29%.
  - Skills deficiencies in the construction sector are cited as a key issue. The Final Report of the *Low Carbon Construction innovation & Growth Team*, for example, asserts that the delivery of a low carbon built environment makes demands of the construction industry that it is under-equipped to meet, throughout all layers of the supply chain.

- Limited non-financial performance data collection and the resulting lack of transparency in the market are widely understood to be key issues within the commercial buildings sector. Historically, issues with data collection and disclosure have been two-fold. On the one hand, there has been relatively little data collected by property owners or occupiers on energy consumption in relation to in-use performance, whilst that which has is often subject to disparate reporting frameworks and metrics. As a result, there are multiple energy performance benchmarks which are active in the UK market. Whilst this albeit that this been addressed for a proportion of the market by policy instruments such as the CRC Energy Efficiency Scheme), policy instruments which require a some form of reporting on energy and carbon performance are found to be premised on different boundaries and metrics.
- Limited engagement can be a function of limited knowledge. It is interesting to note that the Department of Energy & Climate Change, in the first phase of its project on non-domestic energy use, found levels of engagement on energy performance and efficiency opportunities from the food and mixed retail sector to be very low. This was the first sub-sector focused attempt by Government to engage with business on energy consumption and reduction opportunities, and highlights the scale of the challenge for policy-makers and the industry. The need for incentives simply to promote greater engagement on policy issues was mooted as a possible solution.

Evidently, there is a key role for professional institutes and other industry bodies in delivering education to the market in such a way that reaches beyond the cognoscenti. In particular, embedding the relevant issues, including in relation to policy requirements and expectations, as minimum requirements of accredited CPD programmes would be an important step, especially as this would reach key actors within the advisory community (valuers, legal advisors etc.) from which knowledge would then flow to their clients and fellow professionals. The benefits of such a 'knowledge campaign' would be greater and more positive engagement with the policy-making process by the industry and, higher compliance rates.

Critically, agency barriers and the disconnect on payback timescales (or hurdle rates), are found to be the two most significant impediments to the uptake of interventions which pose the greatest opportunity for abatement.

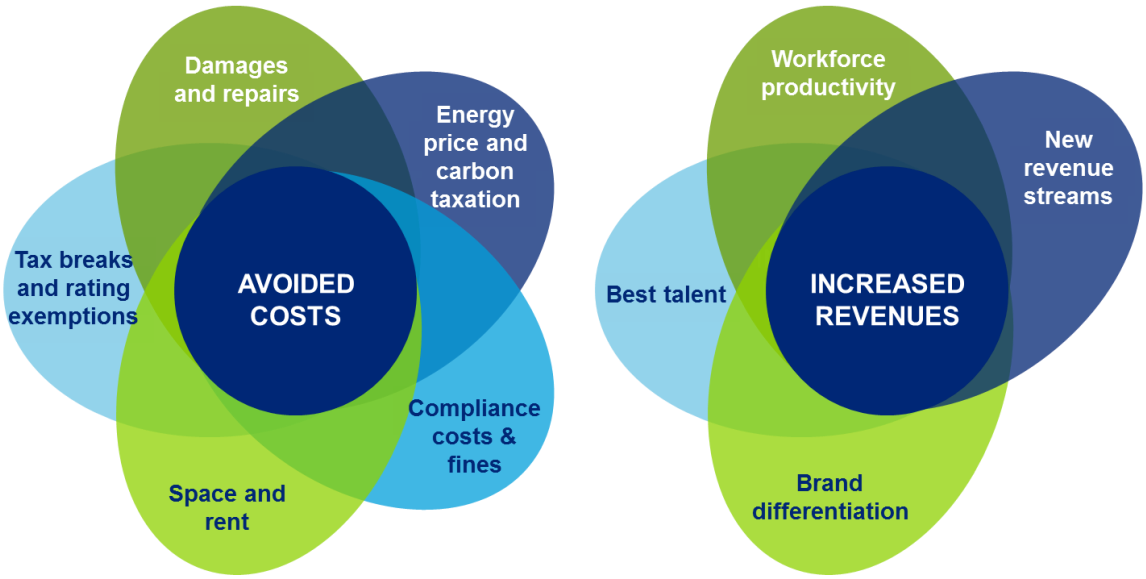
The Opportunity

Many of the published sources reviewed place considerable emphasis on the barriers to energy efficiency and carbon reduction, and with good reason: the effectiveness of policy instruments will in very large part be determined by their capacity to overcome those impediments. There is a flip-side to that coin though, and that concerns the ability of policy to unlock the commercial opportunity presented by improved resource and cost efficiency alongside reduced exposure to supply and pricing risks. As the WBCSD puts it:

> "It is good business to be part of a stable transition to a low-energy world. Energy is vital to business, which prospers best in stable social and economic environments. That stability is threatened by energy insecurity and climate change. Volatility in energy supplies and prices is disruptive; the social upheaval that would follow serious climate change would be damaging to economies, people and the environment. Using more low-carbon and renewable energy will help, but cutting energy consumption is vital because these energy sources are likely to grow slowly, and serious action is necessary now."

From a business point of view, the range of benefits shown in Figure C1 (overleaf) can be attributed to better performing (in energy and carbon terms) buildings:

Figure C1: Business benefits of better performing buildings



Indeed, many business-led associations and campaign bodies (Aldersgate Group, CBI, and UKGBC amongst them) commonly emphasise the competitiveness arguments for UK plc when putting forward arguments for strengthened energy policy (in both the supply and demand sectors).

The World Green Building Council report on the Business Case for Green Buildings highlights a range of business and investment benefits associated with energy efficiency (and wider environmental attributes), including increased marketability, lower operating costs, lower risk exposure and improved workplace productivity. Whilst the latter benefit is perhaps the least developed in terms of evidence, it potentially stands as the most significant driver of business value, and a new collaborative initiative between the World GBC and the UKGBC aims to develop sector and lifecycle stage-specific evidence and advice.

From an investment returns perspective, the Institutional Investors Group on Climate Change puts forward a number of hypothetical but highly credible points which serve to illustrate the potential effect of 'green buildings' (which to a significant extent can be taken as a proxy for low energy buildings) on the underlying drivers of real estate value. These are shown in Table C1 below.

Whilst the effects of energy efficiency and low carbon impact on business and asset value are increasingly understood, there are also a number of sources which point to the economic opportunity of catalysing a green construction and retrofit industry. Job creation and employment is cited as a significant co-benefit of tackling climate change in buildings by UNEP (2009)

Table C1 Underlying effect of green building characteristics on real estate value

If…	Investment implications	Underlying effects on green assets
Tenants prefer to occupy green buildings	Rental differentials should emerge between green and non-green buildings	Either rental growth higher or depreciation lower
Tenants prefer to occupy green buildings	Green assets re-let more quickly	Shorter interruptions to cashflow should attract lower risk premium
Green buildings are cheaper to run	More tenant money is available for rent	Rental growth should be higher for 'green' buildings
Impending government regulation and legislation	Greener assets become de-risked because they are more attractive to and retain tenants better	Risk premium is lower than for 'brown' buildings
Investors prefer 'green' buildings	Green properties prove quicker to transact	Green properties are more liquid and should, therefore, attract lower risk premium

Source: IIGCC, 2010

The advancement of a transformational retrofit market for delivering deep energy savings in the building stock of Europe is considered by Renovate Europe to have the potential to deliver Internal Rates of Return of 11% and upwards for those that invest in it.

Appendix D: Overview of the Policy Framework

The evolution of the green policy agenda

Policies focused on reducing energy demand and end-user carbon emissions have been developing over many years in the UK. The policy timeline shown in Figure D1 (overleaf) illustrates the progressive build-up of policy instruments since 2000. It also projects forward with respect to those policies that are known to be in the pipeline as a result of European Directives and primary UK legislation that has achieved Royal Assent but for which regulatory implementation is yet to occur.

The timeline does not show historic instruments that have been phased out. So, whilst the timeline may not provide an exhaustive chronology of all instruments that have been in effect at some point in time since 2000, it serves to illustrate the growing scope of the regulatory and fiscal framework pertaining to energy and carbon in property over the last decade or so, and the expected continuation of that growth.

The timeline indicates key milestones (denoted by a break in the instrument-specific timeline) such as those which have introduced a tightening of standards (e.g. Part L uplifts under Building Regulations) or a widening of scope (e.g. extending the requirements for Energy Performance Certificates as a result of the recast of the EU Energy Performance of Buildings Directive.

It is interesting to note that instruments which consider energy performance at the whole building level – a key characteristic of effective policy noted by the Green Building Performance Network, UNEP and the WBCSD – have become a more prominent feature of the policy landscape recently.

Notable policy shifts

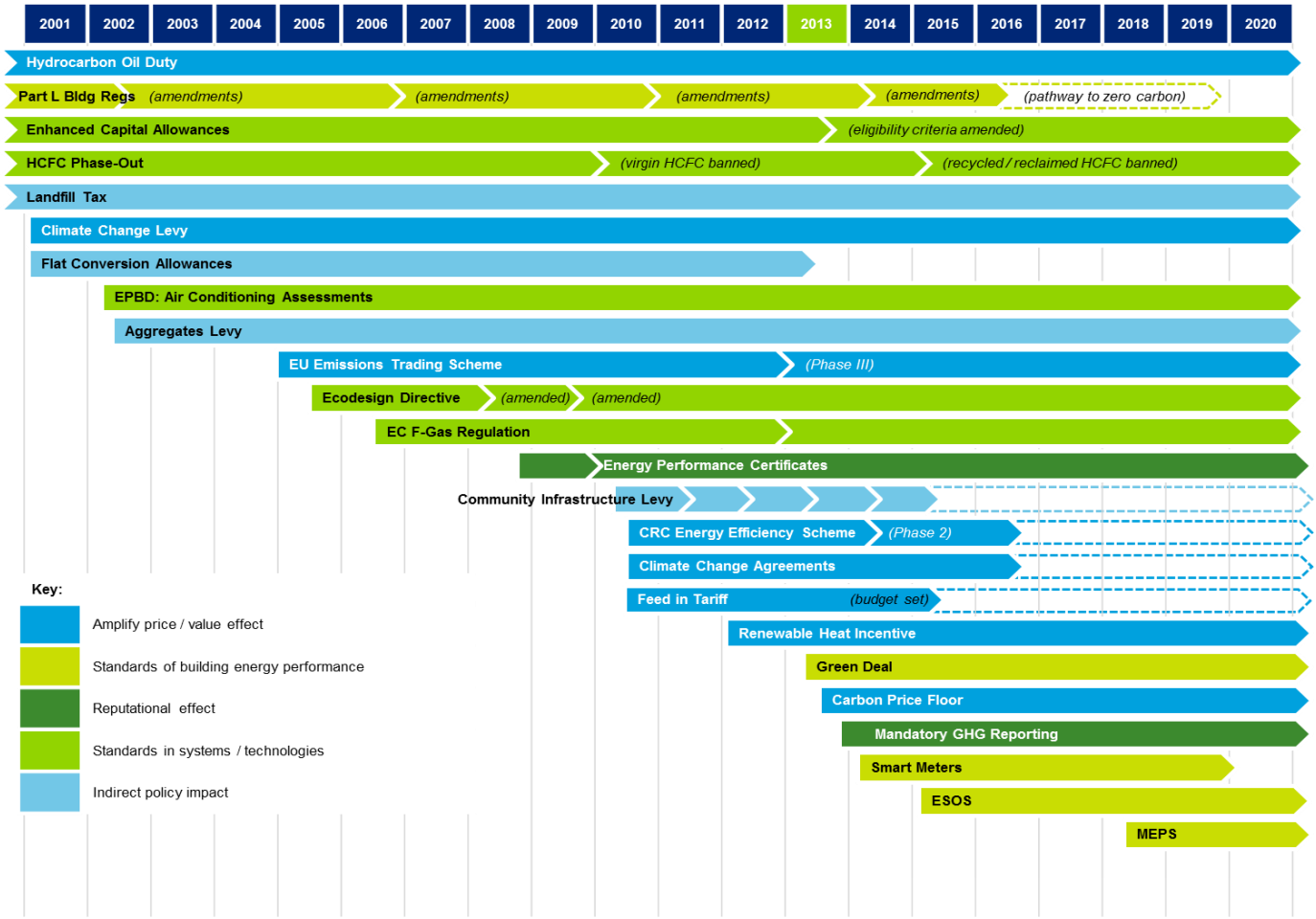
There have been several key policy events which have had a profound effect on the scope of the policy framework in recent years. In particular, it is worth noting:

- The introduction of the zero carbon policy targets in 2007, which set a pathway for new commercial buildings in England & Wales to be zero carbon by 2019, with progressive uplifts to regulated energy efficiency standards en route to that target;
- The enactment of the Climate Change Act in 2008 which set legally-binding targets on the UK Government to achieve an 80% reduction in carbon emissions for the UK as a whole by 2050 highlighted the importance of tackling the operational carbon impact of existing buildings;
- The introduction and recast of the EU Energy Performance of Buildings Directive, which established a range of policy requirements for new and existing buildings, including instruments intended to influence market demand by increasing the transparency of energy performance at the point of transaction; and
- The more recent introduction of the EU Energy Efficiency Directive which, combined with the future introduction of minimum energy performance standards for lettings under the Energy Act 2011, significantly increases the policy focus on the performance of existing buildings.

Departmental responsibilities

The Department for Energy & Climate Change (DECC) is the lead Government department for policy development with respect to climate change mitigation. It has primary ownership of a number of the policy instruments that are being assessed in this project. Of particular note is the relatively recent advent of the Energy Efficiency Deployment Office (EEDO), hosted within DECC but with a cross-Whitehall brief to act as a centre of excellence within Government, and to continue to develop the UK energy efficiency strategy. Part of EEDO's brief is to build the evidence base relating to the effectiveness of existing policies and to assist in generating impact assessments for future policy changes.

Figure D1 Policy timeline



However, there are a number of other Government departments and agencies responsible for different aspects of the policy framework (both in terms of policy-making and implementation), notably amongst them:

Central Government Departments:

- Department for Communities & Local Government (DCLG), which has primary responsibility for Building Regulations, and the implementation of the EU Energy Performance of Buildings Directive, making it the guardian of the Energy Performance Certificates regime. The Department also has responsibility for planning policy, albeit that this is beyond the scope of this study;
- DEFRA, with responsibility for environmental policy matters, such as waste and clean air, as well as climate change adaptation (e.g. sustainable drainage systems for new build); and
- HM Treasury, which is responsible for fiscal policy and budgetary sign-off on all other policies brought forward by other Government departments

In addition:

- Environment Agency, an Executive Non-Departments Public Body, which acts as an administrator of a number of policy schemes, including the CRC Energy Efficiency Scheme and, potentially, ESOS;
- OFGEM, a Non-Ministerial Department, which administers a number of Government energy and low carbon programmes, including RHI, FiTs and CCL, whilst also responsible for regulating energy suppliers; and
- HMRC, a Non-Ministerial Department, which oversees the implementation of a number of direct and indirect tax instruments;
- Financial Reporting Council, which monitors compliance with mandatory greenhouse gas emissions reporting and, perhaps most importantly

- Local Planning Authorities which, whilst out of scope of this study, have an important role to play in policy making and determination through the planning system, through which standards based on national Regulations can often be applied.

This distribution of responsibilities highlights the importance of joined-up policy-making across Government and the challenge that exists in making this happen effectively.

Appendix E: Review of instrument effectiveness based on published sources

Contents

Introduction

Outline

This Appendix provides a review of published sources to determine the effectiveness of the individual energy and carbon policy instruments which combine to form the overall policy framework, as perceived by market actors and commentators.

This document reviews the energy and carbon policy framework on an instrument-by-instrument basis, based on a range of published sources, including Government responses to consultations, press articles and academic/industry reports.

Structure

This section reviewed pre-existing materials originating from a number of sources[1]. Having collated the pre-existing materials, the information was then categorised by 10 policy criteria. These were drawn from a number of references[2] providing guiding principles for effective policy regulation. The template for the analysis can also be found on the following page.

Each of the policy criteria were assigned a RAG rating of 'green', 'amber', 'red' or 'unrated' (white), designed to give a visual prompt as to the relative levels of criticism and support observed in the published sources for each instrument. The explanation attached to each rating is as follows:

Rating	Representation
	Limited criticism and generally supportive comments given.
	Some criticism voiced and/or occasional support (often qualified; a "mixed bag" of opinions)
	Considerable levels of criticism and/or limited support shown.
	Insufficient commentary was found to support a rating.
	Hatched ratings apply only to the over-arching categories of policy 'design' and 'implementation'. They have been applied where there is limited industry commentary in relation to the individual criteria contained within that category (generally indicated by a number of unrated criteria, as above) so that the rating applied is deemed to be tentative.
	For instruments that are yet to be implemented, no overall RAG rating is given for the implementation category.

It is important to note that every effort has been made to ensure that the outputs published within this section are strictly impartial and represent the opinions and views of the market rather than the opinion of Deloitte.

Rationale

The two intended key outcomes of this review are the presentation of:

- Detailed analysis of the perceived effectiveness of the design and implementation of the individual policy instruments
- Material that can be cross-referenced with survey findings and then used to further analyse perceived effectiveness of individual instruments and more general policy areas.

Template

The table below sets out the framework within which each policy was assessed against a standard set of criteria. These criteria have been synthesised from published sources which examine and assess the pre-requisites for robust policy formation

[1] Industry Associations, media, commercial organisations, non-governmental organisations, government sources both UK and EU
[2] CBI, UKGBC, Aldersgate Group/Environmental Audit Committee "A Green Economy", Institutional Investors Group on Climate Change "Investment Grade Climate Change Policy: Financing the Transition to a Low Carbon Economy".

	Criteria	Commentary
Design	**Strategy**	Is there confusion over the purpose of individual instruments? Does the policy lack certainty in relation to the direction it's taking of the tariff levels and pricing mechanisms or policy itself.
	Definition	Has the definition changed to support or political ends or is there a lack of clarity on key regulatory definitions and how they are achieved?
	Certainty	How certain is the policy?
	Metrics	Is the policy or instrument underpinned by significantly robust metrics and rating frameworks? Or, for example; does it include the use of hypothetical modelling tools that don't reflect real performance?
	Alignment	Is the policy unique in its function or does it overlap with other instruments
Implementation	**Market**	How effective is the instrument in application into the market? i.e. how does it work across different property sectors and does it fit into investment timescales and account for the Landlord and tenant interface? Is the instrument well publicised? Could the effectiveness of the policy be restricted by its lack of visibility?
	Complexity	Once implemented is the application of the policy complex? Could it lead to a significant administrative burden for firms? Do implemented requirements align with policy's purpose?
	Incentives & Penalties	Does the instrument provide direct or indirect incentives? Is there a lack of incentives driving efficiency improvements? Do the incentives undermine the policy's purpose?
	Enforcement	Are regulatory requirements poorly enforced?
	Cost	Is the policy cost effective? i.e. does it use the market to minimize costs or does it provide significant cost-benefits? Cost on regulator Market costs

The following table was used to provide an overall assessment for the individual policy instruments, based upon the assessment against the criteria above.

Criteria	Commentary
Design	How effectively does the policy address the design criteria?
Implementation	How effectively does the policy address the implementation criteria?

Part L, Building Regulations (incorporating zero carbon pathway)

Outline

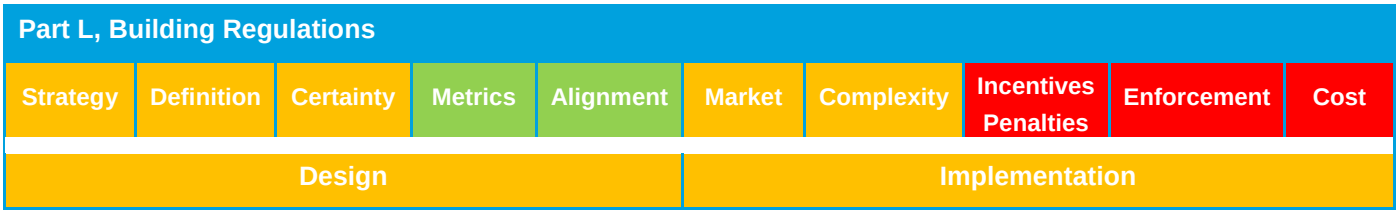
Part L of the national Building Regulations sets out requirements for new and existing buildings with respect to the conservation of fuel and power. The regulations are concerned only with regulated energy uses (that is, HVAC and lighting). The energy efficiency standards enshrined in Part L are subject to periodic reviews and uplifts. Since 2007, these uplifts have been taking effect largely in accordance with a prescribed trajectory towards zero carbon new non-domestic buildings by 2019. There was a significant uplift in 2010 (whereby new buildings were required to be 25% more energy efficient than under the previous (2006) standard).

Most recently, a further uplift was due to take effect in October 2013 but this has since been delayed until April 2014. In a written ministerial statement (released 30 July 2013) The Parliamentary-under-Secretary of State (Baroness Hanham) confirmed that a ***9% improvement on 2010*** standards for non-domestic buildings would come into effect next year, as an aggregated standard across the mix of non-domestic building types. This level of uplift was lower than all of the options set out in the preceding consultation, suggesting to some in the market that the Government's resolve on working towards zero carbon is weakening. However, the statement did also confirm that this amendment would lead towards zero carbon buildings, although the definition and date for implementation of this standard has yet to be set out.

"Again this should be seen as part of the next step towards zero carbon, achievable in most building types through cost effective fabric and services efficiency improvements. I can also confirm a strengthening of the minimum energy efficiency standards when specific building services work including air conditioning and lighting replacements are carried out in existing non-domestic buildings."

Consultation on the planned changes to Building Regulations, Part L took place in 2012. The consultation was part of a wider building regulations survey including Parts A, B, C, K, M, N, P and the building control system. Significantly, the consultation considered an aggregate uplift of between 11 – 20%, much higher than the confirmed improvement of 9%.

A summary of the effectiveness of the policy within certain criteria can be found below.



Assessment of effectiveness

The table below assesses the effectiveness of Part L of the Building Regulations against a standard set of criteria based upon recognised principles of good policy formation. The commentary below is drawn from the summary of responses to the government consultation, held 31 January – 27 April 2012. A number of other sources were also reviewed (as listed at the end of this section), but these served only to corroborate the comments drawn from the government consultation process. Therefore, the statistics referred to in the table below are all drawn from the summary of responses to the government consultation.

	Criteria	Commentary	Rating
Design	**Strategy**	• The principle of energy efficiency standards enforced through building regulations is clear and generally supported. • There is a general acceptance within the industry that a step change is needed towards higher standards of energy performance. This will lead the industry towards the zero carbon standard. • It is important to note that a change in government has not led to a change of direction regarding the principle of enhanced energy efficiency standards and zero carbon. • The consultation identified a need to consider post-occupancy analysis to address what has become know as the 'performance gap' between the designed energy performance and actual consumption in operation. One option which was suggested was to forecast a Display Energy Certificate (DEC) by including non-regulated loads.	

	Definition	• Basic elements of Part L (for example U-values and engineering terms) are well defined and understood.
		• The zero carbon standard is yet to be defined.
		• The confirmed improvement target of 9% on 2010 standards is below the targets set out within the consultation document of 2012, and below what the majority of respondents agreed as an acceptable target.
		• 74% of respondents to the consultation wanted a significant increase in the efficiency target, well beyond the confirmed improvement of 9%.
		• In total, 45% of respondents were in favour of a 20% aggregate uplift.
		  ○ Proportionally, builders/ developers (29%), occupiers (50%), designers, engineers and surveyors (54%), building control bodies (70%), specific interest groups (55%) and the energy sector (100%) supported a 20% aggregate uplift.
		  ○ Those in favour of the 20% aggregate uplift argued that a larger uplift in 2013 would stimulate innovation and reduce the uplift required in 2016 and 2019 on the road to zero-carbon.
		• 29% of respondents supported an 11% aggregate uplift. Proportionally, a majority of manufacturer/ supply chain (43%), property management (40%) and occupiers (50%).
		• 6% of respondents were against any uplift on 2010 standards.
		• 20% of respondents were unsure what an appropriate uplift would be.
		• There is concern regarding the timetable for implementation of zero carbon standards. The definition of the standard is still to be agreed.
		• Broad agreement was found for the principle of consequential improvements. However, many were in favour of a phased introduction.
		• 79% of respondents agreed with the principle of consequential improvements for non-domestic extensions or increases in floor space <1,000m2. 65% were in favour of the requirements staying the same for buildings over 1,000m2.	

	Certainty	• Most commentators accepted that the changes provided much needed clarity to the industry and showed a positive movement towards the zero carbon standard. • However, many industry experts are also concerned that the reduced improvement rating and the delay to implementation could place the zero carbon standard at risk.	
	Metrics	• A majority of respondents (40%) did not know whether the notional building was a reasonable basis for setting standards. • Concern was raised regarding the use of a % reduction. An absolute approach was recommended based on a standard metric (kWh/m2). • There was agreement of the need to adopt and use one standard tool for assessment. However some respondents referred to variance between outputs achieved using different modelling tools and some suggested SBEM was not a sufficiently robust tool, particularly for complex buildings and specific issues like treatment of shading. • The inputs used in preparing the analysis for the consultation assumed a building life of 60 years. However, respondents raised the fact that many non-domestic buildings are designed with a lower life (< 25 years). • There was recognition of the lack of connection between real and calculated performance of occupancy. • The appropriateness of using an aggregate uplift was questioned, as some building types (in particular small warehouses) would struggle technically and feasibly to achieve the standards.	
	Alignment	• There is considerable alignment with other instruments that help to reduce energy demand as well as operational impacts. • A new building (and a substantial refurbishment) will trigger the requirement for an EPC, which will be modelled using SBEM. • Works carried out under the Green Deal would have to comply with standards set out by building regulations and again SBEM will be used to assess the Green Deal. • The proposed zero carbon standard will be set out and enforced through building regulations.	

	Criteria	Commentary	Rating
Implementation	**Market**	• Building regulations are widely understood by the industry. • The timetable for changes to building regulations, in 2010 and proposed changes in 2013 have been widely reported and promoted. However, the planned uplift in 2013 will now not take place until 2014. The announcement for the delay was announced only 2 months before the 2013 proposed changes were supposed to be implemented, creating uncertainty within the market. • Specific industries such as fenestration and lighting were concerned that the proposed aggregate uplifts targets were too ambitious and would not be technically feasible in all cases. Some building types (in particular small warehouse and top-lit buildings) would find aspects of the aggregate uplift technically challenging. • Many developers understand the occupational benefits created by buildings with higher levels of energy performance, these include reduced energy bills and user comfort. • Supporters of the 11% uplift commented that the anticipated increase in build costs associated with a 20% uplift would not translate into higher rent or capital values.	
	Complexity	• Energy assessors now form an integral part of the design team and a competent and appropriately accredited professional is required to prepare and submit compliant documents for building control and planning officers. • The industry has had to quickly adapt and learn in order to deliver buildings which have a lower energy demand. Some commentators believe that a skills gap exists in the supply chain to deliver high quality energy efficient buildings • Complexity is, in past, a natural reflection of the technical challenge associated with a single standard being applied to a highly hetrogenous building sector.	
	Incentives & Penalties	• Building regulations set out minimum standards of performance and must be complied with. • A non-compliant scheme would fail to secure planning permission. • A building that had secured planning permission but failed to achieve the agreed standards may be required to amend the work to achieve the required standard. • If a person carrying out building work contravenes the Building Regulations, the local authority or another person may decide to take them to the magistrates' court where they could be fined up to £5000 for the contravention, and up to £50 for each day the contravention continues after conviction (section 35 of the Building Act 1984).	
	Enforcement	• There is a need for process checking in areas such as design calculations, energy modelling and training of key personnel to ensure that standards can be enforced effectively. • There was also a broad agreement that a clearer and more robust QA process was required and a need for process checking in areas such as design calculations, energy modelling and training of key personnel. • There is evidence to suggest that actual levels of compliance for completed schemes is low (the evidence relates particularly to dwellings, but can be assumed to be relevant for commercial buildings too).	
	Cost	• Changes to building regulations in recent years have led to an overall cost reduction for delivering higher standards of energy performance and efficiency as knowledge and skills have been transferred amongst contractors and manufactures. • A market for energy efficient products and services has been developed. • There is still a concern regarding the impact of higher standards of energy performance on viability. • Analysis prepared for the department of Communities and Local Government on the zero carbon standard (Phase 3 – final report, July 2011) included cost/benefit analysis based on three scenarios of carbon compliance through building regulations. It found that all three scenarios yield a net benefit when the social value of carbon savings is taken into account. The low scenario results in a net benefit of about £2.2bn (over a 10 year policy period), the medium scenario results in a net benefit of about £1.7bn, while the high scenario yields a net benefit of £1.2bn. However, when looking at the net financial cost, i.e. before carbon savings are taken into account, all three scenarios result in a net cost. • According to the Communities department, the small increase in construction costs required to achieve the latest Part L changes will be heavily outweighed by the resulting £384m net energy savings over an average building's lifetime. However, the cost is borne by developers and contractors, and the savings accrued by owners and tenants - and there is little evidence that owners and tenants are willing to pay significantly more for sustainable buildings.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of Part L, Building Regulations the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	Government has clearly articulated the need to drive higher standards of energy performance through building regulations and indeed the approach has remained consistent, despite a change in government and economic pressures during the economic downturn and recession.	

Implementation	Delays to the implementation of changes to Part L in 2013 and a lack of clarity on zero carbon has led to concerns within the industry regarding the impact of building regulations. Many industry leaders and groups (such as the Green Building Council) have called for clarity and certainty on the trajectory and timing of proposed changes to building regulations to be able to effectively plan.	

Sources of Information

Reference	Access Date	Link Address
DCLG (2012) 2012 consultation on changes to Building Regulations in England	22/07/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/38692/2012_BR_SOR.pdf
Additional Sources of Information reviewed:		
http://www.knaufinsulation.co.uk/en-gb/press-releases/all-press-releases/future-of-zero-carbon-homes-uncertain-as-government-drops-part-l-changes.aspx#ixzz2fM8FAjwG		
http://www.building.co.uk/zero-carbon-2016-target-%E2%80%98under-threat%E2%80%99/5058598.article		
http://www.architectsjournal.co.uk/news/part-l-riba-warns-of-uphill-struggle-to-meet-carbon-commitments/8651501.article		
http://www.building.co.uk/sustainability/sustainability-news/government-drops-plan-to-bring-in-part-l-changes-in-2013/5058256.article		

Carbon Reduction Commitment: Energy Efficiency Scheme

Outline

The CRC Energy Efficiency Scheme (often referred to as simply 'the CRC') is a mandatory scheme aimed at improving energy efficiency and cutting emissions in large public and private sector organisations. To qualify, organisations must have an annual half hourly electricity usage >6,000MWh (equating to a total energy bill of approximately £500,000 per annum). These organisations are responsible for around 10% of the UK's greenhouse gas emissions. Participants report annually on their electricity and gas consumption, resultant carbon emissions, and must purchase allowances each year commensurate with those carbon emissions. The monies raised from allowances are retained by government, although the initial design of the scheme intended for these funds to be recycled amongst scheme participants.

The scheme launched in April 2010 under the CRC Energy Efficiency Scheme Order 2010 but saw changes with CRC Energy Efficiency Scheme (Amendment) Order 2011 coming into force on 1 April 2011. The most recent changes to the scheme have come as part of the CRC Energy Efficiency Scheme Order 2013.

The most recent changes sought to simplify and refocus the CRC Energy Efficiency Scheme through reducing the administrative burden, complexity, and overlap with other schemes. Other changes included scrapping the performance league table and simplifying the pricing mechanism, although many respondents to the consultation commentated that the CRC Energy Efficiency Scheme no longer served its initial purpose and it was acting as a form of tax rather than the intended Cap and Trade system.

A summary of the effectiveness of the policy within certain criteria can be found below.

Carbon Reduction Commitment: Energy Efficiency Scheme									
Strategy	Definition	Certainty	Metrics	Alignment	Market	Complexity	Incentives Penalties	Enforcement	Cost
Design					Implementation				

Assessment of effectiveness

The table below assesses the effectiveness of Carbon Reduction Commitment: Energy Efficiency Scheme against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from the summary of responses to the most recent government consultation, held between 27 March – 18 June 2012.

Criteria	Commentary	Rating

	Criteria	Commentary	Rating

Design	**Strategy**	• Many commentators have argued that the CRC scheme has lacked a clear direction and it has been repeatedly challenged and amended since it was introduced in 2010.
		• The main focus of the most recent government consultation was to reduce the administrative burden placed on participants, through the simplification of the policy through changes, including:
		  ○ Decreasing the number of fuels covered from nineteen to two (electricity and gas for heating)
		  ○ Records of emissions are no longer required to be held indefinitely
		  ○ Scrapping the Performance League Table
		• A reversion to the Cap and Trade system in phase two following heavy criticism of the policy currently acting as a form of tax, resulting in some calling for the policy to be scrapped altogether and replaced with an environmental tax.
		• Concern has been raised that the policy is not directed effectively enough to those who actually use the energy supplied, especially in multi-let property.
		• The commencement of Phase 2 has been delayed to 1 April 2014.
		• The policy itself has seen considerable adjustment and as a result there is lack of certainty over the policy and the strength of its overall strategy has become blurred.	

	Definition	• The main focus of the most recent government consultation was to reduce the administrative burden placed on participants, through the simplification of the policy. • Considerable confusion has been caused due to the number of changes, the timing of those changes, and the lack of guidance around implementing those changes. • The policy now acts as a form of environmental tax rather than its intended cap and trade scheme which included reputational drivers to encourage energy reduction.	
	Certainty	• There is considerable uncertainty over the scheme given the constant stream of changes since the initiation of the scheme in 2010, however Government has confirmed it will remain until 2016 when a full review of the Scheme will be carried out. • Following the initiation of the scheme in 2010, there was an Amendment Order in 2011 and another consultation in 2012 leading to further changes for 2014 along with intermediary changes made with the Order of 2012. • There is a considerable uncertainty over the scheme, particularly given the calls from industry for it to be replaced by an environmental tax and partial duplication with the requirements of mandatory GHG reporting.	
	Metrics	• Participants must purchase and surrender allowances based on their emissions. Allowances can either be bought at annual fixed-price sales, or traded on the secondary market. One allowance must be surrendered for each tonne of CO2 emitted. The allowance price in Phase 1 has been set at £12 per tonne of CO2. This will rise to £16 in 2014/15. • There are limited criticisms in terms of the metrics underpinning the scheme. • Participants must report both kWh and carbon emissions from qualifying energy (electricity and gas) supplies. These supplies are deemed where the participant is counter-party to the energy supply. • The metrics are clear but the rules around determining a participant's CRC organisation structure are complex. The reporting boundaries can be particularly confusing for private equity funds and trust structures. It is the highest parent organisation that qualifies and organisations will be aggregated to report together. Therefore the scheme can target those who do not have a direct impact on the management and procurement of energy.	
	Alignment	• In the initial consultation for the CRC there was considerable support for the scheme due to the lack of financial measures that promote energy efficiency improvements in buildings. • It was noted that there is a lack of consistency in the application of metrics between different policies, with the metrics used for CRC purposes unique to this instrument. • There is considerable overlap with other schemes, such as the Climate Change Levy, hence the call for the scheme to be scrapped and replaced with an environmental tax. This is particularly pertinent given the introduction of mandatory GHG reporting, for which many CRC participants will also have to comply with.	

	Criteria	Commentary	Rating
Me	**Market**	• Some respondents argue the CRC doesn't fit well with the construction sector and that the CRC needs to	

		take better account of split responsibilities between landlords and tenants for rented buildings as it portrays the issue too simplistically. • There are also significant issues related to private equity funds and trusts in that the funds themselves and the portfolio companies under them are grouped as one body that either qualifies or does not qualify for the CRC scheme. • Those targeted in the private equity funds are the fund managers and trustees rather than the actual property managers who have a direct day-to-day influence over the management and procurement of energy efficiency measures. • 93% of respondents to the latest consultation were in favour of the changes to disaggregation as it increased flexibility allowing organizations to participate in a way which suited their business best and would not lead to a reduction in the emissions coverage by the scheme. • It was argued that the Performance League Table was ineffective as a reputational driver of the scheme and was criticised by the industry for applying the same scoring system across differing sectors. In particular, it was argued that the metrics used in the first year were unfair with those already having smart metres not necessarily being rewarded. • The scheme applies to organisations consuming a threshold of 6,000 MWh of electricity so is compulsory for many of the larger property owners and occupiers. The CRC Performance League Table (when in place) failed to achieve significant recognition from the press, which could have increased the visibility of the scheme dramatically, and therefore the reputational driver. • There has been confusion regarding whether or not landlords can recharge tenants for costs related to the CRC.	
	Complexity	• There is considerable industry confusion over the implementation of the scheme, given the policy has seen significant changes since the consultation prior to its introduction in 2010. • The complexity is compounded by the lack of clarity for participants on when changes come into effect, the timing of guidance produced, and whether changes are just proposals or actually to be implemented. • It is proposed that for Phase 2 there will be two sales for allowances – the first based on forecasting emissions at the start of the CRC Year, and a final 'buy-to-comply' sale at the end of the reporting year. However, details have not yet been published on how this will be implemented.	
	Incentives & Penalties	• Currently the CRC looks to penalise rather than incentivise industry. Some argue that burdening the industry with further emissions related costs does not necessarily incentivise organisations to take action in reducing their emissions. • The Performance League Table was intended to act as a reputational driver to promote energy reduction. However the latest consultation showed that it is an ineffective tool as 79% of the respondents requested a different reputational driver to be used. • Various financial penalties are in place to penalise those captured by the scheme that fail to register or report. These include an immediate fine of £5,000 for failure to report, followed by an additional £500 per day (up until July) for each additional working day of delay. • There will also be publication of non-compliance to create a reputational incentive to register.	
	Enforcement	• A number of those who should be involved have evaded the scheme. The owners were charged and within the matrix of property ownership, the direct owners and managers of the buildings, those who had no responsibility over the actual procurement of the building were charged. • The first CRC civil penalty totalling £99,000 for non-compliance was handed out by the Environment Agency in 2012. The penalties were enforced on four participants who each failed to provide required reports on time. The highest penalty was £41,000 and the lowest was £10,000. Further penalties were issued in 2013 totalling £60,000. • There is anecdotal evidence that a number of organisations may not have participated or have not registered correctly given the complexity of the qualification rules, particularly for private equity or trust structures.	
	Cost	• The CRC is effectively a carbon tax so currently increases costs related to the property but also adds to administration costs. • It is estimated that the scheme adds 5-12% on top of companies' energy costs.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of the Carbon Reduction Commitment: Energy Efficiency Scheme, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	There is a strong need for financial measures that look to encourage energy efficiency improvements; but the CRC Scheme, despite posing financial tariffs, is not considered effective enough at driving efficiency improvements. It is also argued that the Scheme does not always target the right entities in terms of those that have direct control or an ability to influence energy consumption.	

Implementation	The scheme has been poorly implemented with two legislative amendments along with many minor adjustments. The timing of proposed changes, ongoing reporting requirements, implementation of changes, and publication of guidance on those changes is also often very unclear.	

Sources of Information

Reference	Access Date	Link Address
DCLG (2012) Consultation on simplifying the CRC Energy Efficiency Scheme	24/07/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/68946/Consultation_on_Simplifying_the_CRC_Energy_Efficiency_Scheme_-_Government_Response.pdf
UKGBC (2011) Carbon Reductions in Existing Non-Domestic Buildings	24/07/13	PDF File
E2B Pulse (2013) Rhian Kelly expects Energy Bill to deliver, seeks more stability and simplicity from government	24/07/13	http://www.e2bpulse.com/Articles/363163/Rhian_Kelly_expects_Energy_Bill_to_deliver_seeks_more_stability_and_simplicity_from_government.aspx
BBC (2013) Energy policies 'reduce bill rises'	24/07/13	http://www.bbc.co.uk/news/business-21949758
The Telegraph (2010) Don't fine CRC offenders, says Sabien boss	24/07/13	http://www.telegraph.co.uk/finance/businessclub/8000721/Dont-fine-CRC-offenders-says-Sabien-boss.html
CoStar Group (2012) Expert calls for Autumn Statement changes 2012	24/07/13	http://www.costar.co.uk/en/assets/news/2012/December/GVAs-Autumn-Statement-wishlist/
Estates Gazette (2012) Industry welcomes move to GHG reporting	24/07/13	http://www.estatesgazette.com/blogs/ed-cooke/2012/06/industry-welcomes-move-to-ghg-reporting/
The Guardian (2012) Marks & Spencer green chief attacks government's 'uncertain' policy	24/07/13	http://www.theguardian.com/environment/2012/nov/11/marks-and-spencer-green-government?INTCMP=SRCH
The Independent (2012) Cable says green tax must be cut to save companies	24/07/13	http://www.independent.co.uk/news/business/news/cable-says-green-tax-must-be-cut-to-save-companies-7544698.html?origin=internalSearch
The Independent (2012) CBI calls for overhaul of fines for carbon emissions	24/07/13	http://www.independent.co.uk/hei-fi/business/cbi-calls-for-overhaul-of-fines-for-carbon-emissions-7294000.html?origin=internalSearch

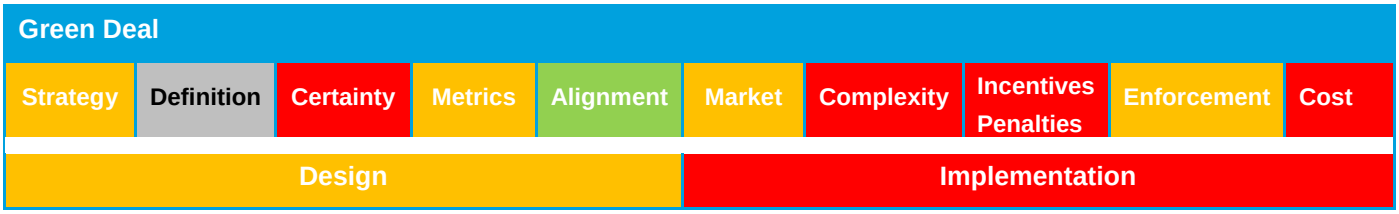
Green Deal

Outline

The Green Deal provides a new mechanism for financing energy saving improvements in buildings. A Green Deal assessment must be carried out by an Accredited Assessor who will identify a schedule of works to be undertaken by a Green Deal Provider. A loan is then taken out, through Green Deal Finance Company, to cover the cost of works. The loan is attached to a property (not an individual) and is repaid over an agreed period through the energy bill by energy savings achieved following completion of the works.

The legal framework for the Green Deal was established by the Energy Act, 2011. However, the programme was not fully launched until January 2013 and is therefore in its infancy. To date take up of the scheme in the domestic sector has been much lower than Government expected.

A summary of the effectiveness of the policy in certain criteria can be found below:



Assessment of effectiveness

The table below assesses the effectiveness of the Green Deal against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from the summary of responses to the government consultation, held between 23 November 2011 – 18 January 2012.

	Criteria	Commentary	Rating
Design	**Strategy**	• The Green Deal is to establish a framework to enable private firms to offer consumers energy efficiency improvements to their homes, community spaces and businesses at no upfront cost, and recoup payments through a charge in instalments on the energy bill. • There has been significant focus ensuring that those who receive the benefit of the Green Deal pay the cost of it, known as the "Golden Rule". • Affected suppliers raised concerns over reduced competition in the energy retail market.	
	Definition	• In "The Green Deal – A summary of the Government's proposals", the "Green Deal plan" is explained as "an innovative financing mechanism which allows consumers to pay back through their energy bills". • There was no commentary on the definitions within the policy.	
	Certainty	• Respondents to the latest consultation stated that non-domestic buildings are more complicated than domestic buildings and so will need specialist assessment, specification and design. • Respondents also wanted the Green Deal to be implemented later for non-domestic buildings due to the increased complexities. • The future form and function of the GD has been called into question by political parties due to its very low early impact.	
	Metrics	• There is no accreditation in place at present[3]. • "Golden Rule" is accepted in principle but subject to concerns over its reliability. • It was found that SBEM needed to be kept up to date and needed to account for operational energy consumption data. Industry experts have also commented that SBEM needs further improvement[4]. • There was a strong response from the consultation that assessors needed better knowledge on the pathology and types of buildings. • Assessors could adjust assessment to increase chances of sale on behalf of the provider.	

[3] At the time of consultation; however, both domestic and non-domestic GD Assessors are now accredited by schemes.
[4] On 29th May 2013, BRE updated iSBEM GD Tool to version 5.1.c, which was approved for creating live Green Deal Advice Reports for non-domestic buildings.

	Criteria	Commentary	Rating
	Alignment	• The policy is not unique in its function or relationship. There is significant alignment with: ○ Building regulations through the use of SBEM and minimum standards of performance, although the absence of consequential improvements in Building Regulations is seen as an opportunity missed to drive GD demand. ○ Feed-in Tariffs for eligible equipment ○ Renewable Heat Incentive for eligible equipment • The assessment will form an integral part of proposed Minimum Energy Performance Standards. Property which falls below the minimum standard required on the EPC when the policy takes effect (this is likely to be E on the EPC scale) will have to commission a Green Deal assessment and implement works which pass the 'golden rule'.	
Implementation	**Market**	• The Green Deal's framework requirements were deemed to be sufficient by the great majority of consultation respondents however fears were raised about the degree of variation across property sectors, although there was seen to be little to resolve this. • Concerns were raised about SMEs being excluded due to expenses and administrative burden involved in accessing the Green Deal - Around 16% of respondents felt that some sort of financial support should be provided to SME's for the application. • Consultation respondents outlined fears in applying the policy to rental and leasehold scenarios even though the requirements were straight forward for the owner occupier sector. • There were fears that the Green Deal could have a negative impact on the competition in the energy retail market due to costs associated with the Green Deal for suppliers. • Concern over vested interests by Green Deal Assessors as the Information Commissioner's Office (ICO) have found that companies have been cold calling consumers, as well as assessors using "impartial" advice to increase business for providers. • One of the main themes of the Green Deal is that those benefitting from the installation should be the ones paying the charge. However, once the property is sold or let this can lead to complications and a number of participants requested a longer redress period (90 days rather than 30 days). • Consultation respondents suggested increased marketing through the use of TV advertising as there was a need for clear easy to understand information targeted at consumers[5]. • Concern has been raised that there are not enough qualified assessors competent to deal with the requirements for non-domestic buildings. • There is uncertainty how the market will respond to the attachment of a Green Deal loan to a property. • A lot of concerns were raised about the Green Deal possibly limiting innovation.	
	Complexity	• Many consultation respondents thought that the authorisation and oversight process was too complicated, confusing customers. • Some consider that as the scheme progresses and knowledge increases that its complexity will reduce. • Much of the green deal documentation was also thought to be too industry focussed and would lead to content being incomprehensible to consumers, although this is less of an issue for the commercial market. • Take up would be increased if the scheme was simplified according to consultation respondents.	
	Incentives & Penalties	• Although the policy provides financial incentives such as Energy Company Obligation (ECO) for domestic properties to implement efficiency improvements a minority wanted additional incentives in relation to increasing the uptake of heat pumps and the use of renewable energy. • For non-domestic buildings, the requirement of minimum energy standards in the Energy Act is thought to be the key drive. However, it is yet unknown how government plans to implement the policy in practice. • One of the main criticisms of Green Deal has been lack of incentives: No consequential improvements High cost of finance (7-8% interest rate) Limited direct incentives to stimulate take-up	
	Enforcement	• There was considerable concern by the consultation respondents that vested interests in the assessment of Green Deal applications could lead to an unfair scheme. There was a request for a single entirely independent accreditation body that ensures comprehensively skilled testers. • Over sixty firms have been disciplined for misusing the Green Deal quality mark over the last year.	
	Cost	• Fears were raised around liability of those who advise the customer incorrectly as this could lead to increased costs for the customer. • 38% of consultation respondents raised concerns that further proposed accreditation requirements would incur further costs, impacting SMEs in particular and reduce their participation as a result. • The vulnerability of smaller suppliers was raised by consultation respondents and requested that a levelisation system was introduced for the administration fees. • Cost of finance is prohibitive and highly uncompetitive for much of the market.	

[5] DECC has since launched a high profile advert campaign "Green Deal with it", but has drawn critics of potential misleading. The ad watchdog the Advertising Standards Authority (ASA) launched an investigation following a complaint in July 2013.

Scoring

To quantify commentators' opinions as to the overall effectiveness of the Green Deal, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	The Green Deal was designed for the domestic sector and has been extended to include non-domestic buildings. As a consequence, the 'pay-as-you-save' model does not always suit the complex arrangements between landlord and tenants.	
Implementation	The Green Deal scheme has seen little or none take up so far from the non-domestic sector; Majority of the effort from the Government has been focused on the domestic market up till now. The scheme needs to be more effectively marketed to the business consumers. The uncertainty around the Minimum Energy Standards has also delayed the uptakes of the Green Deal in non-domestic sector.	

Sources of Information

Reference	Access Date	Link Address
Information Commissioners Office (2013) ICO continues crackdown on nuisance calls as energy company fined £45,000	25/07/13	http://www.ico.org.uk/news/latest_news/2013/ico-continues-crackdown-on-nuisance-calls-as-energy-company-fined-45000
Sustainable Building Solutions (2013) Green Deal Will Take-Off In The Autumn	25/07/13	http://www.sustainablebuildingsolutions.co.uk/views/green-deal-will-take-off-in-the-autumn
DECC (2012) The Green Deal and Energy Company Obligation: Government Response to the November 2011 Consultation	25/07/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42983/5521-the-green-deal-and-energy-company-obligation-cons.pdf
Green Deal Summary Proposal	23/10/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47978/1010-green-deal-summary-proposals.pdf
DECC forced to tweak Green Deal messaging	23/10/13	http://www.businessgreen.com/bg/news/2284749/decc-forced-to-tweak-green-deal-messaging
GD Tool for Non Domestic buildings	23/10/13	https://www.ncm-sbem.org.uk/

Energy Performance Certificates (EPCs)

Outline

Energy Performance Certificates (EPCs) assess the hypothetical energy performance of a building according to the National Calculation Methodology and contain information about regulated energy use and typical energy costs. An EPC is required whenever a property is built, sold or rented since 2008. There are some exemptions when an EPC is not required. The EPC provides a building with an energy efficiency rating from A (most efficient) to G (least efficient) and it is valid for 10 years for non-domestic buildings. It is issued with a Recommendation Report which provides information about how to reduce energy use of the building.

Energy Performance Certificates (EPCs) were implemented on a phased basis from August 2007 to October 2008 by the Energy Performance of Buildings (Certifications and Inspections) Regulations Act 2007 on the back of the Energy Performance of Buildings Directive (EPBD) that came into force in the EU in December 2002. They are now required, save for some limited exceptions, for all non-dwellings constructed, sold or let. Subsequently, a requirement was introduced following the recast of the EPBD for EPCs to be displayed in commercial premises larger than 500m² that are frequently visited by the public, and where one has previously been produced for the sale, construction or renting out of the building.

A summary of the effectiveness of the policy within certain criteria can be found below.

Energy Performance Certificates (EPC)									
Strategy	Definition	Certainty	Metrics	Alignment	Market	Complexity	Incentives Penalties	Enforcement	Cost
Design					Implementation				

Assessment of effectiveness

The table below assesses the effectiveness of Energy Performance Certificates (EPCs) against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from the summary of responses to the government consultation, held between July – October 2009.

	Criteria	Commentary	Rating
Design	**Strategy**	• Energy Performance Certificates are a standardised rating system designed to provide assessment of buildings' predicted energy performance and recommendations to improve their energy efficiency. • There is little or no correlation between EPC ratings and actual energy performance. Many commentators have questioned the effectiveness of the Certificates as a tool to inform occupiers and investors of likely energy consumption and reduction. • Many within the industry have called for DECs to be applied to non-domestic buildings as an alternative to EPCs with many stating that Display Energy Certificates (DECs) were a much more effective measurement of energy efficiency. • The reliance on EPCs as a policy tool is increasing as it has become aligned to Feed-in-Tariffs and Minimum Energy Performance Standards. • EPCs must now be displayed in commercial buildings visited by large number of the public.	
	Definition	• The definition of an EPC has not been altered since the requirement for preparation was introduced and remains consistent and aligned to standards set out by the Energy Performance of Buildings Directive.	
	Certainty	• The requirement to produce an EPC for buildings which are built, sold or let is clear and certain.	
	Metrics	• There is a considerable variation in assessment quality, although the quality of the EPCs has been steadily improved through long term quality assurance enforcement by DCLG. It is believed that such quality assurance scheme has now stopped in 2013. • Assesses predicted building performance with little relationship to actual performance, so real energy and carbon performance measurement is missed. • Perhaps the most significant impact from the EPC is having created a need to collect all building energy information in a standard format for existing buildings, whenever they are entering the market. Such data collection method has become the basic of building energy analysis nowadays.	

	Criteria	Commentary	Rating
	Alignment	• The mechanism against which a number of fiscal and regulatory instruments are based, including Feed in Tariff rates payable, and future lettability of property under the Energy Act.	
Implementation	**Market**	• The provision of low cost EPCs has led to concern that the Certificates have been devalued. • As a requirement of the transaction process, it was hoped that procurement of EPCs would lead to market transformation in favour of energy efficient assets. There is little evidence in the market place to demonstrate a link to value for commercial property as yet. • There appears to be a lack of clarity over whether the landlord or tenant is responsible for preparing the document. • Out of 140 respondents to the latest consultation, 94% believed EPCs should be provided when advertising a non-domestic/domestic property as it would help raise energy efficiency awareness among the public and could create demand for energy efficient buildings. • As a result of the consultation there was also a request for making all EPC data publicly available to increase the EPC's transparency. • There is considerable confusion over the responsibility of compliance and the conditions that lead to an EPC needing to be advertised. • Until the recently introduced prospect of Minimum Energy Performance Standards, EPCs were seen merely as a licence to transact in the existing property market. This has led to a drive to the bottom of the Assessor market to reduce costs and resulted in a high proportion of poor quality.	
	Complexity	• Several industry experts outline that there is a lack of clarity for who is responsible for ensuring an EPC is produced and various conditions such as the building size. • As this is not a new policy many of the policies peculiarities have been amended. However the requirements continue to be changed. More recently, the introduction of requirement to display EPCs in buildings visited by large number of the public is vague.	
	Incentives & Penalties	• The scheme does not incentivise improved occupational efficiency and as such does not lead to cost reduction from in-use energy management.	
	Enforcement	• EPCs form part of due diligence and non-compliance holds up any sale, as well as incurring a maximum £5,000 fine. • From research conducted under the Regulatory Impact Assessment, up to 50% of landlords or owners of non-domestic buildings being put up for sale or rent are not providing the EPC to prospective buyer or tenant at the appropriate time leading to a reduced influence of EPCs over decisions to buy or rent properties. • A study by the National Energy Services also found that 47% of agents didn't know or think an EPC was needed to be provided when marketing a domestic or non-domestic property. • It is widely considered that the scheme is poorly enforced. • There is a concern regarding the quality of low cost EPCs and the poor standards of some accreditation bodies.	
	Cost	• EPCs can still be procured at very low cost (when compared to the overall cost of a transaction) but the industry generally acknowledges that this will reduce quality and confidence in the rating. • A maximum fine of £5,000 is applied where a required EPC is not produced. • Procuring EPCs for large portfolios for Minimum Energy Performance Standards can be potentially expensive.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of EPCs, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	EPCs assess the design performance of a building in terms of energy. There is often a significant gap between as designed performance and operational performance. This has led to criticism of the certificates and caution over the reliance placed on EPCs to deliver other policy goals, for example minimum energy performance standards. Much of the industry has called for DECs to be applied to non-domestic buildings in place of EPCs.	
Implementation	In terms of delivering the EPCs, the legislation has been implemented fairly effectively with the main concern coming from the consultation respondents only being related to a need for the EPC to be more accessible to prospective buyers or tenants. This issue has since been dealt with as all EPCs are now publicly available from Landmark, a centralised registration database. Furthermore, although the quality and assurance of the Certificates can vary considerably, the overall quality of EPCs has improved significantly as a direct result of constant quality assurance audit by DCLG. However, many initial prospects of the legislation have not materialised, especially the influence on the traditional property market. Nevertheless, the EPC legislation has provided UK property market a precious tool and assessment platform that could have a big impact on its low energy future.	

Sources of Information

Reference	Access Date	Link Address
DCLG (2010) Making better use of Energy Performance Certificates and data, consultation	26/07/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/8555/1491167.pdf
DCLG (2010) Making better use of Energy Performance Certificates and data, summary of responses	26/07/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/8556/37907201.pdf
Property Week (2013) Commercial property must display valid EPCs from today	26/07/13	http://www.propertyweek.com/professional/commercial-property-must-display-valid-epcs-from-today/5048436.article
Building.co.uk (2012) No Private sector roll-out of DECs, says minister	26/07/13	http://www.building.co.uk/no-private-sector-roll-out-of-decs-says-minister/5046646.article

Display Energy Certificates (DECs)

Outline

Display Energy Certificates (DECs) should be produced each year for public buildings larger than 500m2 to display the operational energy use of the building for the previous year. The requirement for DECs in public buildings came into effect 1 October 2008. There is currently no policy which requires DECs to be in place in commercial buildings, although some private sector organisations have been using them on a voluntary basis.

Government has previously indicated its intention to make DECs mandatory and this was a key feature of the Energy Bill in 2011. However, shortly prior to the Bill being enacted, the requirement for DEDCs was removed, despite a high profile campaign in support of them. More recently, Government is consulting on the possibility of making DECs an eligible tool for building energy audits under the Energy Saving Opportunities Scheme.

Out of the 75 respondents to the latest consultation, 19 (25%), including energy providers, voiced strong support for the application of DECs to the private commercial sector. The Committee on Climate Change, DECC, CIBSE, UKGBC, RIBA, CBI and the Carbon Trust have also registered there support for DECs to be extended to the private sector.

A summary of the effectiveness of the instrument within certain criteria can be found below.

Display Energy Certificates (DEC)									
Strategy	Definition	Certainty	Metrics	Alignment	Market	Complexity	Incentives Penalties	Enforcement	Cost
Design					Implementation				

Assessment of effectiveness

The table below assesses the effectiveness of Display Energy Certificates against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from the summary of responses to the government consultation, held between July – October 2009.

	Criteria	Commentary	Rating
Design	**Strategy**	• There is currently no policy which requires DECs to be in plae for commercial buildings.	
	Definition	• The requirements and definition of a DEC has been consistently applied since it came into effect in 2008.	
	Certainty	• The roll out of DECs to the private sector remains unclear. Following consultation in 2010 the previous government stated it would apply DECs from September 2011. The current government stated that it would implement DECs to commercial buildings by October 2012 as part of the Carbon Plan in March 2011. They were drafted into the Energy Bill 2011 but subsequently removed but are now mooted as a possible instrument for use in connection with ESoS.	
	Metrics	• In general there is agreement that the metrics for a DEC are sound. • A response from a Professional Institute identified that it was difficult to account for occupational density, which was argued to have an impact on DEC recordings. However it was argued that measuring energy consumption per m2 was a good enough account for occupation density as occupational density currently cannot be modelled accurately. • The treatment of operational hours in the calculation methodology has also been challenged. • Separable energy uses (energy not associated with the buildings) also needs to be accounted for building comparisons. At present 0.3% of DEC buildings contain the sub-meters that are required to measure this energy use (CIBSE)	
	Alignment	• Although the proposed Minimum Energy Performance Standards are to be based on EPCs, industry experts have called EPCs 'arbitrary' and believe real energy efficiency performance is measured better by DECs.	
Implement ation	**Market**	• A response from a Professional Institute raised the issue that multi-let offices are less easy for occupiers to act more efficiently due to complexities surrounding ownership, management and servicing. Rather than seeing this as a fault of DECs, it was considered that DECs will help uncover and resolve these issues and if not applied energy efficiency practises will not evolve. • Some commentators believe that DECs will help enable the innovative firms to stand out and receive	

Criteria	Commentary	Rating
	recognition. • Currently DECs are applied to only public buildings leaving them targeting only a small portion of building stock. • 63% respondents to the latest consultation were in favour of increasing the scope of the policy to public buildings just above 250m2 (rather than just above 1000m2). • 93% of respondents stated that DECs should be applied to commercial buildings as DECs provided the potential for buildings to make quick energy savings through increased awareness of operational activities. It would also provide greater clarity on energy performance to the public creating greater transparency and leading to underperforming firms being "named and shamed" • The GBC also argue that the DEC will not place a burden on businesses as evidence indicates that energy cost savings from the DEC outweigh the costs associated with the scheme from year one. • The 7% that disagreed argued that DECs are unlikely to affect consumer choices and they struggled to see the benefit of applying DECs to commercial buildings. There was also a fear that buildings providing catering facilities would be unfairly represented due to more intense energy consumption used through this process.	
Complexity	• There is no significant complexity associated with the policy although it does require participants to report its operational energy consumption annually.	
Incentives & Penalties	• Although the DEC does not act as a fiscal incentive, it has the potential to be a significant behavioural motivator in relation to operational energy efficiency and is considered a much more effective measure of energy efficiency than EPCs. • A DEC can act as a monitoring and an engagement tool to reduce energy consumption and lower energy costs.	
Enforcement	•	
Cost	• Many industry experts believe that the potential cost savings generated through the use of a DEC as a performance monitoring tool would outweigh the costs associated with implementing the necessary improvements recommended by the assessor.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of DECs, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	DECs have a significant role to play in both monitoring and reducing energy consumption within public buildings. If applied to commercial stock there could be significant benefits to the sector and would increase the sustainability agenda for many firms as it is a more robust tool than the EPC to display an organisation's or building's energy consumption.	
Implementation	DECs have not been implemented as a policy requirement for commercial buildings.	

Sources of Information

Reference	Access Date	Link Address
DCLG (2010) Consultation on the recast of the Energy Performance of Buildings Directive, Summary of responses	29/07/13	http://www.bre.co.uk/filelibrary/accreditation/compliancehub/general_guidance/Consultation_on_the_recast_of_the_EPBD.pdf
DCLG (2010) Making better use of Energy Performance Certificates and data, Consultation	29/07/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/8555/1491167.pdf
DCLG (2010) Making better use of Energy Performance Certificates and data, summary of responses	29/07/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/8556/37907201.pdf
George Martin (2013) Why we need DECs	29/07/13	http://www.building.co.uk/sustainability/why-we-need-decs/5055760.article
Building.co.uk (2013) Green for Growth: Display Energy Certificates	29/07/13	http://www.building.co.uk/sustainability/green-for-growth/green-for-growth-display-energy-certificates/5049106.article
Building.co.uk (2012) Government approach to DECs "quite absurd"	29/07/13	http://www.building.co.uk/sustainability/sustainability-news/government-approach-to-decs-"quite-absurd"/5047776.article
Building.co.uk (2012) No private sector roll out of DECs, says minister	29/07/13	http://www.building.co.uk/no-private-sector-roll-out-of-decs-says-minister/5046646.article

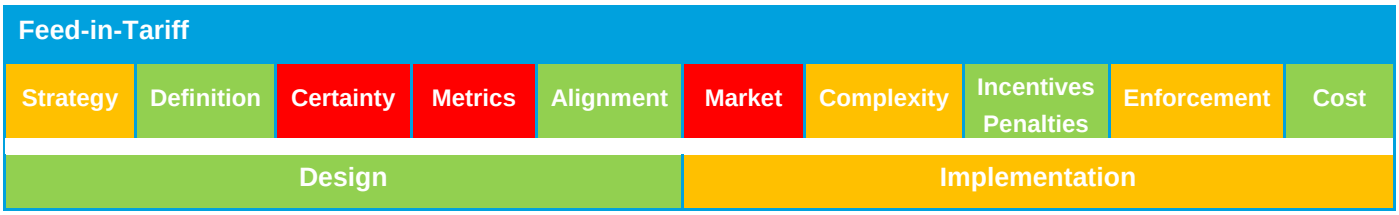
Feed-in-Tariff

Outline

The Feed-in-tariff scheme (FITs) was introduced in April 2010 to replace UK government grants as the main financial incentive to encourage uptake of renewable electricity-generating micro-technologies, including; solar photovoltaics (PV) (roof mounted or stand alone), wind turbines (building mounted or free standing), hydroelectricity, anaerobic digesters and micro combined heat and power (CHP).

A comprehensive review of FITs began in October 2011. Following consultation, government proposed a reduction in tariff rates for solar photovoltaics (PV). Available rates are now lower and subject to an energy efficienty differential with eligibility for the higher rates dependent on an EPC rating of D or above on the underlying property.

A summary of the effectiveness of the policy within certain criteria can be found below.



Assessment of effectiveness

The table below assesses the effectiveness of Feed-in-Tariffs against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from the summary of responses to the government consultation, held between 11 October – 23 December 2011 (Phase 1) and 9 February – 26 April 2012 (Phase 2b). A number of other sources were also reviewed (as listed at the end of this section), but these served only to corroborate the comments drawn from the government consultation process. Therefore, the statistics referred to in the table below are all drawn from the summary of responses to the government consultation.

	Criteria	Commentary	Rating
Design	**Strategy**	• Feed-in-tariffs have enabled a strategic shift away from grant based giving for renewable energy generating technology. •	
	Definition	• In general FITs are widely accepted to be well defined and have been consistently applied. • There is, however, a need for definition of “community” installations that included social enterprises, charities and social housing. Some respondents felt that the definition of community installation should extend to schools, co-operatives, community buildings, village halls, local clubs and social landlords. • There has also been some debate over the definition of ‘social enterprises’ with some wanting it limited and others wanting a more inclusive definition.	
	Certainty	• Once an installation is approved the FIT is generated by Government for 20-25(?) years, providing a reliable and low risk Return on Investment. • There has been strong criticism over the lack of clarity of the scheme and in particular changes to tariff levels. Much of the consultation reports focussed on creating robust tariff levels. • A lack of clarity over enforcement powers of Ofgem. • There has also been considerable concern regarding misselling by providers.	

	Criteria	Commentary	Rating
	Metrics	• The majority of respondents were happy with Microgeneration Certification Scheme (MCS) as a metric system and did not want it replaced. However, some requested for the MCS accreditation to become more robust and the MCS was not suitable for all technologies (e.g. low volume products such as hydro). • There was a strong focus on the solar PV panels by the consultation and the following issues and suggestions arose: • 63% of consultation respondents thought that the original export tariff didn't represent the value to the suppliers that benefited from the FITs generation. A suggested increase to 5-6p/kWh was most common although it ranged from 4 to 8p/kWh. Despite this the government only increased the tariff to 4.5p/kW. • In terms of the reduction in the tariff for the generator's use, a number of respondents argued the reduction didn't reflect a reduction in installation cost. Many respondents disagreed the rate of return the proposed tariffs would provide and many also believed charities and social projects should receive a higher rate • Many believed the changes were being introduced too quickly and stated that the speed of the changes would lead to business closures, job losses and rushed orders to meet the 12 December deadline. Local authorities, charities and other public bodies felt that with the processes needed to secure agreement of funding the revised timescale was particularly harsh. Some respondents suggested a delayed date of April 2012 and this was taken up by government • Enforcement of eligibility for the solar PV tariffs on meeting an EPC rating of D or above has been included as the government believes the demand for energy should be prioritised, however 43% disagreed with the need for an energy efficiency standard to be met while only 34% were for it. Those against argued it would lead to customers having to agree to intrusive time consuming and costly measures improving the energy efficiency of the building. • Some argued the EPC energy efficiency should be relative i.e. improved by 2 ratings, however a number also argued for energy efficiency improvements to be made before installing photovoltaic. Some respondents outlined fears that it is more difficult to get listed buildings up to level C compared to other buildings, providing a big obstacle to one of the few measures that is relatively easy to implement in listed buildings. • Respondents required a transitional period if the EPC threshold was implemented due to the bureaucracy and cost involved. Many argued for a longer period of up to two years, and there was significant support for the implementation of changes after the Green Deal was in action.	
	Alignment	• To achieve higher rates of FITs a rating of D or above on the EPC scale must be achieved. • The majority of respondents were against the energy efficiency requirement for non-solar PV as the technologies are not linked to building to building performance. • There is further alignment to Green Deal products.	
Implementation	**Market**	• Government initially struggled to respond to rapid changes in the market as costs for products and installation reduced rapidly. • As a result a cost control mechanism was introduced in phase 2a to ensure the scheme budget was kept under control. Fears over tariffs were raised by the scheme's participants as it would decrease investor confidence. • The scheme accounts for a number of technologies and only solar PV was over-deployed. As a result of this tariff and respondents demanded the tariff levels and trigger points were disaggregated among the different technologies. • Some respondents outlined concerns that it is more difficult to get listed buildings up to level C compared to other buildings, providing a big obstacle to one of the few measures that is relatively easy to implement in listed buildings. • For solar panels, the tariff was found to be too high leading to it being exploited by commercial investors, as a result the government looked to reduce the tariff rate for solar PV panels, however there were a number of concerns from respondents that the tariff would be decreased by too much, too quickly.	

	Complexity	• Some respondents outlined that there was no list of approved meters leading to confusion among consumers.
		• There were also issues related to multiple installations on single MPANs.
		• Many consultation respondents called for a clearer definition of 'commissioned' and should be the date when the technology is generating, however technologies such as wind are not always generating electricity due to the nature of the energy source, which provides complexity.
		• Most respondents felt that information and advice regarding FITs was not sufficient and there was a confusion over the roles of the DECC and Ofgem.
		• Over 80% of respondents thought that the terms of the FIT were sufficiently clear. The only criticism was that they were perhaps too 'wordy' and could be bullet pointed.
		  ○ The main complexities stemmed from a lack of information available as:
		  ○ Consultation respondents outlined difficulty with entering the FIT scheme as the roles of each supporting energy needed to be more transparent and they needed guidance on what they should expect from their installer. The provision information booklet was suggested when installers gave customers quotations.
		  ○ Furthermore, when there was any technical issue that was not covered in the legislation it was difficult to find suitable guidance as the DECC is not permitted to comment on individual projects and Ofgem cannot provide eligibility advice until an application is made.
		• The issue of a lack of information was noted by the government.	

	Criteria	Commentary	Rating
		• There was also confusion as to where participants should direct a complaint. • Confusion over the difference between the REAL Assurance Scheme and MCS.	
	Incentives & Penalties	• According to consultation respondents the FIT makes the technologies covered an attractive investment as they act as an inflation hedge with the index-linked tariffs, particularly in the application of solar PV panels • This is represented by the fact that 84% of consultation respondents wanted the tariff to continue being index-linked. • However several respondents stated that the first FIT payments would take a while to arrive and thought that the payment should be guaranteed within 3 months of application. • A small number of respondents argued that behaviour change was equally if not more important than the fabric of the building and that there should be incentives linked to good behaviour.	
	Enforcement	• The majority of consultation respondents thought that Ofgem needed increased powers of enforcements and the current powers of Ofgem were unclear to respondents. • Respondents outlined a need for the imposition of penalties by Ofgem when FIT licensees do not perform adequately.	
	Cost	• The cost of available technology (in particular PV) and installation has reduced considerably in line with the introduction of FITs reducing payback periods and IRR calculations. • Costs associated with fixing the technology are in affect subsidised.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of Feed-in-tariffs, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	Feed-in-tariffs have enabled a strategic shift away from grant based giving for renewable energy generating technology.	
Implementation	There has been considerable concern raised by the industry regarding changes to tariff levels introduced in 2012 (including in relation to the manner in which they were introduced) but many also recognise that FITs have played a key role in catalysing the market..	

Sources of Information

Reference	Access Date	Link Address
DECC (2012) Feed-in Tariffs Scheme Consultation on Comprehensive Review Phase 2B: Tariffs for non-PV technologies and scheme administration issues	30/07/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42913/4311-feed-in-tariff-scheme-phase-2b-consultation-docume.pdf
DECC (2012) Feed-in Tariffs Scheme Government Response to Consultation on Comprehensive Review Phase 1 – Tariffs for solar PV	30/07/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42841/4312-feed-in-tariff-review-phase-i-gov-response-.pdf
Additional Sources of Information reviewed: http://www.peterboroughtoday.co.uk/news/local/500k-peterborough-solar-scheme-has-not-made-money-1-5303640 http://www.walesonline.co.uk/news/wales-news/monmouthshire-council-sorry-sun-fails-5671193 http://www.bbc.co.uk/news/uk-england-dorset-23549664		

Mandatory Greenhouse Gas Reporting

Outline

The Greenhouse Gas Reporting policy was introduced by DEFRA and DECC in 1 October 2009 on the basis of the Climate Change Act 2008 releasing guidance on companies wishing to report their emissions. Following a government consultation published in 2012, the Government decided to make Greenhouse Gas Reporting mandatory for quoted companies. The requirement comes in to place for company reporting years ending on or after 30 September 2013.

Much of the market opinions were derived from this consultation, although other sources were used such as the Institute of Chartered Accountants in England and Wales (ICAEW), Deloitte, PwC, the Carbon Disclosure Project (CDP) and Environment Agency EA.

A summary of the effectiveness of the policy within certain criteria can be found below.

Mandatory Greenhouse Gas Reporting									
Strategy	Definition	Certainty	Metrics	Alignment	Market	Complexity	Incentives Penalties	Enforcement	Cost
Design					Implementation				

Assessment of effectiveness

The table below assesses the effectiveness of Mandatory Greenhouse Gas Reporting against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from the summary of responses to the government consultation, held between 11 May – 5 July 2011.

	Criteria	Commentary	Rating
Design	**Strategy**	• The vast majority (94%) of respondents to the government consultation were in favour of mandatory reporting requirements. • Government strategy has been clearly articulated throughout the consultation process.	
	Definition	• There is a clear definition of the need to report direct and indirect emissions. • There was a mixed response in relation to reporting direct and indirect emissions separately, with a slight majority against (55%) as there would be considerable complexities involved in separating emissions in respect to the costs of auditing, reporting and liability. However there was no indication of a confusion over the definition of these terms.	
	Certainty	• The fact that 92% of consultation respondents were in favour of the policy being applied to more companies than has actually been enforced, outlines the strong support for the policy. • Further analysis will be conducted in 2016 to analyse the policy further and perhaps look to add further requirements if necessary. •	
	Metrics	• Companies currently report both direct and indirect emissions. • There was a suggestion by government that emissions which occur under sources that the organisation is not under control of but are caused by the organisations actions should be included. • The majority 86% supported the scope to be widened to these emissions, however according to the consultation documentation this is mainly from individuals and a number of companies, investors and trade associations actually opposed the increase in scope due to the difficulties collecting the data and the cost involved. • Those for argued it would lead to increased understanding of emissions intensive activates and prevent outsourcing of high emissions activities. The government on the basis of complexity of this implementation did not propose these emissions to be included.	

	Criteria	Commentary	Rating
	Alignment	• The majority were against the proposal to set GHG emission reporting based on an electricity consumption threshold as there would be an overlap with the CRC scheme, which has a different reporting mechanism on the basis of emissions reductions from 2008 levels and would exclude companies without half-hourly metres, even though it would in theory target the highest emitters • There was a mixed response (58% for, 42% against) in terms of the need for third-party assurance as although it would ensure more reliable information, it would increase costs with little benefit and assurance is already required by the CRC and EU ETS so would place unnecessary burden upon companies. The Companies Act also rules out the possibility of the use of third-party assurance. • The Climate Change Act 2008 supports Greenhouse gas emissions reporting as it requires that regulations are introduced to require some form of reporting in the directors' report of their annual company reports.	

Implementation	**Market**	• Despite the consultation's support, there is considerable uncertainty upon whether the government's imposed mandatory requirements for quoted companies will be met according to studies by Deloitte and ICAEW (cited in DEFRA, 2010), which found that many didn't have the sufficient framework in place to meet their upcoming reporting obligations.
		• Research from the CDP and EA (cited in DEFRA, 2010) found that as of 2010 51% of all FTSE listed companies and 69% of FTSE 350 companies responded voluntarily to an emissions data request. However, only 54% reported GHG emissions and 50% made their disclosures public. This demonstrates that although greenhouse gas emissions reporting is common, the policy has the introduction of mandatory reporting has the potential to have a significant impact.
		• There was clear support from consultation respondents for mandatory reporting to be required, with 94% voting for some form of mandatory reporting.
		• The overwhelming majority of respondents (92%) supported GHG reporting for private and public companies (17,000-31,000 companies in total) rather than all quoted companies (1,100 companies in total) of which only 1% were in favour of that was actually implemented by the government. The main arguments that arose were as follows:
		  ○ More companies covered, quoted companies as respondents felt that large emitters would be missed and too few companies would be included
		  ○ Quoted companies are the most likely to be reporting their emissions already
		  ○ Only enforcing quoted companies to report would lead to an uneven playing field, hindering quoted companies and giving bigger, private companies more freedom
		  ○ However the minority against enforcing the schemes for both private and public organisations argued that this would lead to a number of new participants causing significant administrative and cost burdens.
		• The majority of trade associations/professional bodies and a significant minority of companies supported voluntary rather than mandatory reporting.
		• Despite the overwhelming majority of consultation respondents being in favour of mandatory reporting, Deloitte found that barely a third had made necessary disclosures of scope and only 8% disclosed their reporting boundary, both of which will be required.
		• This coupled with ICAEW's report (cited in DEFRA, 2010) that under 25% of the surveyed 42 companies do not have sufficient accounting software to meet the mandatory requirements imposed by the government outlines concerns that the difficulties companies now face meeting these obligations.
		• Reporting on an annual basis was considered by some companies to be difficult.
		• Separating of emissions through either the scope of emissions (direct or indirect) and geographic location (UK or non-UK) would provide too burdensome to companies according to consultation respondents and these were found to be unrealistic expectations in application to industry.	

	Complexity	• To reduce irregularity between respondents' reporting, 93% argued for the need of setting an organisational boundary, although there was a requirement for flexibility in the boundary and that providing guidance would be helpful. Respondents also outlined the need for a single approach to the boundary and sector specific guidance, as well as outlining a fear of a loss of comparability between sectors. • In terms of overseas reporting, the majority (72%) were for oversees emissions reporting, to give the whole picture and prevent off-shoring of emissions. Although fears were raised about the incurred costs, administrative burden and increased complexity, especially if having to separate between overseas emissions and UK emissions. As a result, the government proposed overseas emissions and their breakdown are reported where appropriate. • Although the inclusion of base year reporting was favoured by 81% of consultation respondents, some respondents raised fears that this would lead to significant administrative burden, especially if organisations have just began reporting on emissions. Also some flexibility was suggested as changes within the organisation as well as the nature of variations could lead to difficulty in yearly comparisons.	
	Incentives & Penalties	• It is apparent that the policy doesn't provide financial incentives to increase the energy efficiency of buildings but many consultation respondents outline that it does increase the awareness and the CDP underlines this by stating that reporting acts as an 'enabler' rather than acting as a driver of emissions reductions • A number of organisations commented in a DEFRA report the fact that target setting is a key part of the reporting practise and target setting was one of the suggestions by consultation respondents that was not undertaken by government. This could be a route for increasing the impact of emissions reporting on energy efficiency improvements.	

Criteria	Commentary	Rating
	• Some commentators have suggested that penalties for non-compliance should be seen should be a final step and favoured an approach which would have non-compliant companies referred to the Financial Conduct Authority who could force companies to re-issue their report.	
Enforcement	• Due to the concerns of causing administrative burden, the policy has not been applied as rigorously as some consultation respondents had hoped. • Consultation respondents largely supported the policy to be applied to private as well as public companies, increasing the policy scope but this was not followed through due to the cost implications for government in enforcement.	
Cost	• A small number of respondents (6%) were against mandatory reporting. • Respondents' concerns and comments against proposals in the consultation were regarding the potential administrative burden and costs of any imposed regulation. This was despite a number of suggestions for the authorisation of emissions reports, as well as calls for direct and indirect emissions, as well as UK and oversees emissions to be reported separately. • Costs were surveyed by the CDP (cited in DEFRA, 2010) in 2010 and it was found that the majority of companies surveyed experienced costs of reporting of less than £75,000 and only a small number of companies seeing costs in excess of £150,000. • There was found to be significantly reduced government costs associated with implementation of the policy to quoted companies rather than public and private companies, hence the government's decision to implement the policy only to quoted companies	

Scoring

To quantify commentators' opinions as to the overall effectiveness of mandatory Greenhouse Gas Reporting, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	The number of companies publicly reporting emissions will significantly increase following the introduction of mandatory greenhouse has reporting. Reporting may not directly lead towards improvements in energy efficiency and carbon reduction yet it is hoped that the policy will act as a strong enabler for emissions awareness within companies and a reputational driver for change.	
Implementation	There are some concerns that the cost and burden of compliance could be significant yet there was broad support within the market for mandatory reporting.	

Sources of Information

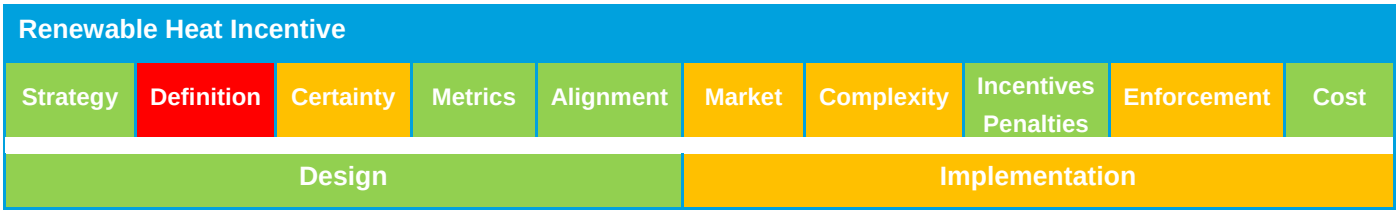
Reference	Access Date	Link Address
DEFRA (2012) Measuring and reporting of greenhouse gas emissions by UK companies, Summary of Consultation Responses	02/08/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/86569/20120620-ghg-consult-sumresp.pdf
DEFRA (2010) The contribution that reporting of greenhouse gas emissions makes to the UK meeting climate change objectives, A review of the current evidence	02/08/13	http://archive.defra.gov.uk/environment/business/reporting/pdf/corporate-reporting101130.pdf

Renewable Heat Incentive

Outline

The Renewable Heat Incentive (RHI) was introduced to encourage heat generation from renewable sources to help meet the 2020 UK Renewable Energy Roadmap target of 15% of energy and 12% of heat coming from renewable sources. The scheme opened to the non-domestic sector in 28 November 2011 to provide financial incentives to eligible, non-domestic renewable heat generators and producers of biomethane, for the life of the installations or up to a maximum of 20 years.

A summary of the effectiveness of the policy within certain criteria can be found below.



Assessment of effectiveness

The table below assesses the effectiveness of the Renewable Heat Incentive against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from the summary of responses to the government consultation, held between 20 July – 14 September 2012.

	Criteria	Commentary	Rating
Design	**Strategy**	• The Renewable Heat Incentive has enabled a strategic shift away from grant based giving for renewable energy generating technology. • There are concerns that the RHI encourages unnecessary heat generation and acts as a disincentive to energy efficiency. • However, uptake has been lower than expected and the scheme is currently under budget.	
	Definition	• Concern has been raised that a significant number of qualifying systems have unexpectedly been categorised as 'complex', rather than 'simple', creating unnecessary cost and administrative burden. • 90% of consultation respondents were in favour of redefining the installation category that applicants fell into regarding to the number of meters being needed to be implemented. • The definition of simple and complex systems been clarified.	

	Criteria	Commentary	Rating

	Certainty	• 5% of respondents disagreed with degression, stating that it created uncertainty and was not needed as spending was unlikely to exceed budget during this financial year.
		• 76% of respondents stated that uncertainty caused by degression would reduce deployment of renewable heat.
		• There was uncertainty regarding the size of the imposed tariffs going into the future, although it was a smaller than that noted for FIT tariff reviews.
		• Some respondents outlined that a tariff guarantee would help increase certainty and demonstrate the government's commitment to the policy.
		• Respondents observed that the deployment of heat pumps was being held back by ineligibility for preliminary accreditation. Preliminary accreditation was required to provide greater certainty for the technology.
		• Much of the consultation focussed on imposing a degression on tariffs:
		  ○ 77% were in favour as they accepted degression would ensure the longevity of the scheme and reduce future modifications. However there was considerable debate over the implementation of the degression triggers due to different technologies' cost effectiveness with a number of arguments from respondents found below:
		  ○ 54% agreed to cost effective technologies (those generating more heat per money spent) being treated more generously.
		  ○ Those against warned that this would lead to the majority of the policy's budget being spent on the most efficient technologies
		  ○ Biomass was the identified technology that would suffer if an individual trigger was used as it accounts for over 90% of accredited installations according to the consultation document, whereas industries such as the solar industry were less concerned about individual triggers. As a result, some suggested biomass should be viewed as lower cost technology or excluded.
		  ○ Those against individual triggers stated some technologies would lose out and the system would increase in complexity.
		  ○ As a result some suggested the government's proposal for setting different individual triggers for more cost effective technologies should be made clearer and questioned its use	

	Metrics	• A significant minority of consultation respondents requested higher limits for installations, arguing that a 1MW thermal capacity plant will use much less biomass than a plant with 1MW electrical capacity. • Capacities of 3-5MW were suggested as a result. • However the government did not implement these changes as it was through this would lead to the scheme becoming more complex.	
	Alignment	• Some respondents wanted criteria and guidance to align as much as possible with the RO (Renewable Obligation) to reduce burden on suppliers.	
Implementation	**Market**	• The budget is under utilised, indicating that take-up has not been as significant as other incentive schemes such as the Feed-in-tariff. • Consultation respondents wanted data provided more frequently (weekly rather than monthly) in a more transparent format among a number of suggestions regarding data. However, government did not increase the frequency, citing Ofgem as already releasing weekly data. • It was feared that infrequent reviews and larger degressions would destabilise the market and as a result respondents were in favour of a more regular review of the budget. • Some respondents stated that tariff reductions could influence the planning process of projects and could therefore have an influence over their financing. • Respondents observed that more frequent degressions may also put pressure on suppliers/installers as the projects would need to be completed before a tariff reduction took place and so could lead to liabilities being passed onto suppliers/installers. • Respondents feared that longer triggers would also lead to budgetary overspend and emergency reviews could harm investor confidence. • In conclusion, it was stated by many respondents that 'the issue of accurate, regular and timely notification of updated deployment data' was critical to the scheme's success.	

	Complexity	• The proposed Approved Supplier Scheme attracted the most comments (52 consultation respondents)::
		  ○ 13% urged greater clarity to reduce uncertainty for developers
		  ○ 12% opposed its use and stated that it would add 'unnecessary bureaucracy' and that existing schemes were sufficient to ensure fuel sustainability/quality.
		  ○ 88% of respondents agreed upon the use of the approved supplier scheme
		  ○ Those for the supplier scheme stated however it needed to be a relative light touch to not create a barrier to smaller suppliers
		• There was a request for more detail about the 'other' category of technologies. Respondents were concerned about the treatment of new technologies.
		• Some respondents outlined a need for trigger reviews for degression to be set out in advance to provide greater transparency and certainty.
		• 91% of respondents agreed that in order to prevent a secondary market they would support restrictions on	

Criteria	Commentary	Rating
	sale of preliminary accreditation. However, there were concerns that this could hinder re-financing and make accreditation over complicated. • There were concerns of speculative applications as a result of the preliminary accreditation proposal but a majority of respondents agreed that these could be mitigated. • Given the recent introduction of the policy a large number of comparisons have been made to previous schemes such as the Feed in Tariff. Recommendations have included reducing administrative burden and reducing complexity to make the scheme more flexible.	
Incentives & Penalties	• Commentators recognise and praise the financial incentive that the scheme provides for industry. • In relation to the complexities surrounding imposed tariff reviews by degression, many respondents especially those from the biomass sector argued that technologies should not be penalised if they are deploying well and achieving the government's targets. As a result an under-deployment mechanism was proposed that means tariffs will not be reduced when overall deployment is significantly below target.	
Enforcement	• The policy is currently under budget which represents a lack of take-up. This is possibly explained by the issue many respondents raised regarding meters and the categorisation of applicants into the 'complex' category.	
Cost	• The policy is currently under budget. However, there was a general acceptance in the need to control the policy's costs. • 77% were in favour of the degression system being used to control the policy's implementation costs, as it was recognised it would save taxpayers money and ensure the longevity of the scheme. This would increase industry certainty and avoid further modification in the future. • Some felt early irreversible tariff reductions as a result of this would undermine the scheme and potentially reduce the viability of some technology. This could create a rush for installation of technologies to achieve for higher rates of returns at the start of the policy. • 25 respondents were in favour of disincentives. Those in favour preferred the use of a deposit system. • 24 respondents were against disincentives, believing that it would lead to additional upfront costs and require more financing. This same group assumed that it would be difficult to implement fairly between large and smaller companies. • Many suppliers of renewable energy recognised the benefits that the scheme is providing to the industry, although there is a fear that the most cost effective technologies will be penalised in the future because of degression.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of the Renewable Heat Incentive, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	The policy clearly has a role to play in incentivising the use of renewable energy sources and this has been recognised by industry.	
Implementation	The scheme has learnt from similar policies such as the Feed-in-tariff and as a result has effective implementation strategies in place to secure the longevity of the scheme. There has also been acknowledgement of the effect of the policy on industry.	

Sources of Information

Reference	Access Date	Link Address
DECC (2013) Final Impact Assessment for Budget Management in the non-domestic Renewable Heat Incentive scheme	05/08/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/120669/2013-02-26_Final_Impact_Assessment_RHI_Cost_Control_Budget_Management_2013.pdf
DECC (2013) Non-Domestic Renewable Heat Incentive, A Government Response to 'Providing Certainty, improving performance' July 2012 consultation	05/08/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/128679/Gov_response_to_non_domestic_July_2012_consultation_-_26_02_2013.pdf

EU Emissions Trading Scheme

Outline

The European Union Trading Emissions Trading Scheme (EU ETS) launched on the 1 January 2005. It initially covered energy-intensive installations and aircraft operators, accounting for 50% of the EU's carbon dioxide emissions and requires participants to monitor their emissions and surrender a number of allowances based on a 'cap and trade' system.

The third phase of the scheme (effective 1 January 2013 - 2020) has set a tighter cap in aiming to reduce EU emissions by 60-80% by 2050. To strengthen the EU ETS the European Commission applied for a delay in auctioning the carbon allowances, which was rejected by MEPs in April 2013 and has led to considerable concerns over the future of the scheme. The EU Parliament also rejected backloading proposals to restrict the flow of credits in April 2013, adding further uncertainty to the scheme's future. In June 2013 this decision was eventually reversed and the auctioning has been delayed from 2013-2015 to 2018-2020

The UK published a consultation assessing the UK application of the EU ETS on the 8 August 2013. The consultation will remain open to respondents until 19 September 2013, following which a summary of responses will be made available.

A summary of the effectiveness of the policy within certain criteria can be found below.

EU ETS

Strategy	Definition	Certainty	Metrics	Alignment	Market	Complexity	Incentives Penalties	Enforcement	Cost
Design					Implementation				

Assessment of effectiveness

The table below assesses the effectiveness of the EU ETS against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from the commentary from industry leaders and commentators.

	Criteria	Commentary	Rating
Design	**Strategy**	• Many industry groups have strongly voiced fears over the long-term future of the policy as an effective environmental policy' and whether it could ever create a market for carbon. • Implementation of the carbon price floor by the UK to compensate for the low market price for carbon indicates to critics the weakness in the policy framework supporting the EUETS. • According to an NGO, the policy has been watered down as a result of fears that it places additional pressure on the struggling manufacturing sectors across Europe. • There are concerns that the policy has been poorly implemented and the EU does not have a clear strategy in place. • Supporters of the scheme argue that the policy supports the EU target for carbon reduction by 2020.	
	Definition	• No comments have been made regarding the definition of the policy.	
	Certainty	• European Parliament's vote against backloading in April 2013 followed by the subsequent reversal suggest to critics of the scheme that the policy remains uncertain.	
	Metrics	•	
	Alignment	• Within the UK there is a strong overlap with the Carbon Price Floor. • Commentators argue that the introduction of the CPF illustrate the failings of the EUETS.	
Implementation	**Market**	• There is evidence to show a reduction in support for the policy as it has moved to target the manufacturing sector, a sector which has been particularly sensitive and weak following the financial crisis. • The European manufacturing sectors lobbied against Phase 2 EUETS, claiming it harmed business. • After the rejection by the EU parliament in April, commentators observed that the policy was "effectively dead" and would be "irrelevant in terms of reducing total emissions in Europe". • Industry analysts argue that the policy is dependent upon industry performance. The effectiveness is directly related to market performance.	
	Complexity	• No comments have been observed regarding the complexity.	

Criteria	Commentary	Rating
Incentives & Penalties	• Supporters of the policy claim that the EUETS gives businesses certainty in the form of a cap on emissions that decreases on an annual basis creating an incentive to invest in energy efficiency improvements. • The recently released UK government consultation has focussed around penalties which has attracted a number of comments from industry found below: ○ Businesses that inadvertently fail to comply with Europe's carbon scheme could be excused from having to pay fines under the proposed amendments according to a report by BusinessGreen. ○ An environment lawyer, said the changes could help companies that make honest mistakes when reporting emissions. ○ An NGO commented that the use of this 'discretionary' treatment of fine cases and believe it may be another measure reducing the certainty and effectiveness of the EUETS policy in the UK.	
Enforcement	• The UK has recently released a consultation proposing to make fines for non-compliance to the scheme 'discretionary'. Commentators argue that this is evidence of a weakening of the policy position. • The rejection of the European Commission's to delay the auction of carbon allowances and backload the scheme suggests at the lack of strong legislative support for the scheme and problems related to enforcement.	
Cost	• The costs associated with the scheme according to the European Energy Review are passed through to power prices, thus increasing the electricity prices for consumers and profits for power producers. • However, the European Energy Review policy argues this is a carbon-efficient policy and the profits for power producers can be addressed by taxing or auctioning emissions allowances. • As a result of the failings of the policy and the reduction in the carbon price, the cost it imposes on companies has reduced significantly. This reduces the incentive for investing in green technologies.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of the EU ETS, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	Supporters of the policy would argue that the scheme has played a role in the reduction of Europe's emissions and has helped to raise awareness needed for carbon management. The EU has not made significant legislative changes behind the policy leading to many in the industry seeing the EU ETS as a 'dead' policy. It is thought that this is because the policy has not be designed well enough to mediate industry pressure to relax tariffs.	
Implementation	The collapse in the price of carbon has reduced the significance of the scheme to large energy users and led to many of its failings.	

Sources of Information

Reference	Access Date	Link Address
The Guardian (2013) EU emissions trading scheme 'set to cancel out renewable energy gains'	05/08/13	http://www.theguardian.com/environment/2013/jun/25/eu-emissions-trading-scheme-energy
EuropeanVoice.com (2013) EU climate policy in crisis after ETS rejection	05/08/13	http://www.europeanvoice.com/article/2013/april/eu-climate-policy-in-crisis-after-ets-rejection/76969.aspx
The Guardian (2013) EU carbon price crashes to record low	05/08/13	http://www.theguardian.com/environment/2013/jan/24/eu-carbon-price-crash-record-low
Mother Jones (2013) Cap-and-Trade in Europe is Working Just Fine	05/08/13	http://www.motherjones.com/kevin-drum/2013/04/cap-and-trade-europe-working-just-fine

Ecodesign Directive

Outline

The Ecodesign Directive aims to promote energy efficiency and technical improvements in market products. It was adopted in 2008.

A summary of the effectiveness of the policy in certain criteria can be found below:

Ecodesign Directive									
Strategy	Definition	Certainty	Metrics	Alignment	Market	Complexity	Incentives Penalties	Enforcement	Cost
Design					Implementation				

Assessment of effectiveness

The table below assesses the effectiveness of Ecodesign Directive against a standard set of criteria based upon recognised principles of good policy formation. There is a considerable lack of commentary from the UK on the market response to the Directive. As a result this analysis has collected commentary primarily from an EU report reviewing the effectiveness of the Ecodesign Directive, prepared April 2012.

	Criteria	Commentary	Rating
Design	**Strategy**	• The definition of the product scope has been identified as an issue. • Commentators believe that the scope could be increased to capture more products and sectors. • It has been argued that while the directive has been widely accepted, the focus should be on refining the policy's processes rather than on extending the scope of products covered.	
	Definition	• The purpose and definition has not been altered. • Conformity of implementation is a risk as the regulation is subject to different interpretations from different stakeholders and Market Surveillance authorities.	
	Certainty	• Certainty is provided by the overarching directive.	

	Metrics	• 35% of the EU's report respondents stated that the Eco-Report tool MEEuP methodology was not adequate.
		• Key criticisms of the scheme:
		  ○ surrounds the fact that it doesn't account for environmental aspects besides energy
		  ○ greatest weight is applied to the in-use phase, especially in respect to energy-related products
		• Those for the MEEuP argued that it provided a good balance between the very detailed theoretical life cycle analysis and the need for a practical and operational tool.
		• 54% (of 61 who responded) stated that Voluntary Agreements are adequate or very adequate as an instrument, while 38% considered them 'inadequate'. There was stiff criticism of the transparency of procedures for establishing the Voluntary Agreements.
		• 71% of industry associations were in favour of Voluntary Agreements due to the flexibility it provides over the implementation of measures. However there were concerns from industry over whether they could reach agreements and that they would be enforced in a fair way avoiding the potential for free-riding.	

	Alignment	• The EU report argued that there was a need to improve the coherence and alignment of the Ecodesign directive with other policy tools such as WEEE, RoHS and Construction Products Regulation and that guidance documents should be produced clarifying the areas in which the policy overlaps with other policies.	

	Criteria	Commentary	Rating
Implementation	**Market**	• The majority of respondents stated that the objective of a 'harmonized market' has been effectively reached. However those speaking out most against the effectiveness of the scheme were industry representatives, 40% of whom had a negative view and outlined there was weak market surveillance. • 52% of the EU report's stakeholders considered the Ecodesign Directive procedure adequate or very adequate, while 20% considered it inadequate. • 57% stated that there was potential for significant improvement • 25% considered it inappropriate.	
	Complexity	• The selection criteria set appears generally accepted by the market.	

		• However, it is less clear as issues arise from identifying products with significant sales and trade volumes.	
	Incentives & Penalties	• The Centre for Strategy & Evaluation Services argues that the scheme does not drive innovation, especially for complex and/or B2B products.	
	Enforcement	• In the UK, DEFRA estimated that in 2010 the rate of non-compliance in the UK was around 10-15% at manufacturing level and 20% at the retail level. • A more recent study by the UK's National Measurement Office examined the labelling of washing machines, fridge and freezers, televisions, audio-visual audiences and domestic lighting. Of the eight washing machines tested half performed lower than the standard claimed and one freezer that was A-rated was actually an F rating. Of the 20 televisions tested, four failed and only 15% would be compliant under future requirements. 100% of DVD players were compliant and 85% would be with future requirements	
	Cost	• The EU report outlined that the costs for SMEs can be of a much higher proportion of their turnover and thus much more significant, than for larger companies. • One medium size EU member state firm employs 4 full-time employees just to monitor the Ecodesign process. • However it was also found that the policy was very cost-effective in that the costs associated with it were outweighed by the benefits it provides.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of the Ecodesign directive, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	The policy has a role to play in improving the efficiency of energy products and as a result has a role to play in reducing EU and UK emissions, particularly as they make up 40% of EU emissions.	
Implementation	Despite the majority of the participants being satisfied with the policy the majority also agreed there is room for improvement in terms of the scope of products covered and the consistency of product assessments particularly in the UK.	

Sources of Information

Reference	Access Date	Link Address
Centre for Strategy & Evaluation Services (2009) Evaluation of the Ecodesign Directive	06/08/13	http://www.cses.co.uk/upl/File/Ecodesign/CSES-Ecodesign-evaluation-Executive-Summary.pdf

EED Article 8: Energy Audits (Energy Saving Opportunity Scheme)

Outline

The EU Energy Efficiency Directive (EED) was agreed upon by member states on 25 October 2012 and came into force on the 14 November 2012. Article 8 of the EED requires member states to conduct regular energy audits for 'large enterprises'. The Energy Savings Opportunity Scheme (ESOS) is the UK's proposed scheme to meet this requirement and requires audits to be undertaken by the 5 December 2015.

A consultation was published in July 2013 with proposals regarding the ESOS and closed on 3 October 2013.

A summary of the effectiveness of the policy in certain criteria can be found below:

Energy Saving Opportunity Scheme									
Strategy	Definition	Certainty	Metrics	Alignment	Market	Complexity	Incentives Penalties	Enforcement	Cost
Design					Implementation				

Assessment of effectiveness

The table below assesses the effectiveness of the Energy Savings Opportunity Scheme against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from the articles and papers on the subject and the proposals within the main consultation document.

	Criteria	Commentary	Rating
Design	**Strategy**	• A UK manufacturing organisation argues that the EED is overly prescriptive and highlights the legislation of mandatory energy audits as one of its three primary concerns. • The European Trade Union Confederation has argued for the cut-off date of 2014 to be bought forward and argues that small as well as large undertakings 'should be obliged to have energy audits performed.' – referring to firm size? • Energy audits are argued by the European Trade Union Confederation to be already widespread and should be enforceable.	
	Definition	• The consultation is seeking to define 'enterprise' and what a 'large enterprise' is considered to be.	
	Certainty	• No comments were made.	
	Metrics	• No comments were made.	
	Alignment	• The government consultation makes reference to the policy alignment with the CRC Energy Efficiency Scheme and the greenhouse gas reporting scheme. • ESOS has a wider remit that the CRC or mandatory reporting scheme as it includes energy consumption from transport uses as well. • According to energy demand of the 7,300 businesses expected to fall into the ESOS programme, between 4,000 and 6,000 are already in the CRC energy efficiency scheme. • Rachael Dillon of the Freight Transport Association argues that confusion has been created by the myriad of policies which has led to duplication. The FTA has recommended that the policy is simplified.	
Implementation	**Market**	• General commentary from the market suggest broad support with the policy although there is concern regarding the subsequent detail and definition of key elements of the scheme, such as 'enterprise'. • There is considerable concern from the Freight Transport industry although this is not very relevant to the impact on commercial property.	
	Complexity	•	
	Incentives & Penalties	• The scheme does not provide incentives for compliance. • The EED does require member states to enforce a penalty for non-compliance.	
	Enforcement	• The policy is yet to be implemented. • Companies are required to undertake the audits by 5 December 2015. However some industry leaders have called for the start date to be bought forward and the scheme applied to SMEs as well as large firms.	

	Criteria	Commentary	Rating
	Cost	• The Coalition for Energy Savings argues that SMEs should be able to cover audit costs and receive some form of financial support to undertake the audits and recover their costs. • Critics of the scheme have raised concern that it will create considerable financial burden. • DECC claims that the ESOS could lead to companies saving a figure of £1.9 billion over 2015 to 2030.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of the ESOS, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	The policy overlaps considerably with the CRC energy efficiency scheme and the greenhouse gas reporting policy. The policy is unique in the fact that it accounts for emissions from transport.	
Implementation	Given the policy has yet to be implemented and the results of the consultation on its implementation have not been released, it is difficult to make a judgment on its implementation.	

Sources of Information

Reference	Access Date	Link Address
Energy Live News (2013) Freight firms fear "burdensome" cost of energy audits	06/08/13	http://www.energylivenews.com/2013/07/25/freight-firms-fear-%E2%80%9Cburdensome%E2%80%9D-cost-of-energy-audits/
SHD Logistics (2013) burden of energy audits	06/08/13	http://www.shdlogistics.com/news/view/fta-voices-concerns-over-financial-burden-of-energy-audits
The manufacturers' organisation (2013) Energy Efficiency Directive	06/08/13	http://www.eef.org.uk/representation/key-issues/climate-and-environment/Energy-Efficiency-Directive.htm
WWF (2012) UK pulls the plug on saving energy	06/08/13	http://www.wwf.org.uk/what_we_do/press_centre/?unewsid=6040
ETUC Resolution Comments on the proposal for a Directive on Energy Efficiency COM(2011) 370 final of 22 June 2011	06/08/13	http://www.etuc.org/IMG/pdf/Resolution-on-energy-efficiency-directiveEN.pdf

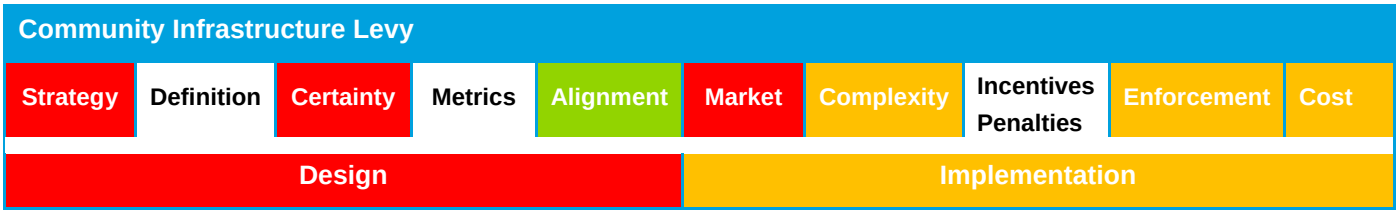
Community Infrastructure Levy

Outline

The Community Infrastructure Levy was introduced in 2010 as part of the Community Infrastructure Levy Regulations in 2010, which enables local authorities to raise funds from developers building new projects in their area. The aim of the policy is to encourage locally-led sustainable development and provide funding for infrastructure that helps mitigate the effects of the proposed development and create a funding pool to deliver key infrastructure projects that will benefit the local area.

The levy has been reformed through the Localism Act in 2011 and 2012 and a consultation on 'further reforms' has been released as recently as April 2013 - the responses from this consultation are yet to be published. At present, the policy has not been implemented by all councils but the government is encouraging all local authorities to implement the policy by April 2014.

A summary of the effectiveness of the policy in certain criteria can be found below:



Assessment of effectiveness

The table below assesses the effectiveness of the Community Infrastructure Levy against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from anecdotal evidence in the market place, including press articles, analysis and publicly available reports.

	Criteria	Commentary	Rating
Design	**Strategy**	• The British Wind Energy Association has called for energy-infrastructure to be exempt from the Community Infrastructure Levy. However this was rejected by government. • Local authorities may choose what infrastructure projects may be funded through the CIL. This is articulated through the Regulation 123 list. It is only optional for councils to direct the funding to renewable energy programmes.	
	Definition	• No comments has been made as to the definition of the policy.	
	Certainty	• There have been calls for the policy to be scrapped and there has been considerable criticism of the policy on its damaging effect on the market. • The certainty of the policy in its current form is under threat especially with the recent consultation released	
	Metrics	• This policy is not heavily reliant on metrics and so no issues have arisen.	
	Alignment	• The policy does not overlap with other policies that look to implement efficiency improvements	
Implementation	**Market**	• Some argue that the policy is acting as a barrier to development and will not help the government's target for economic growth • Critics observe that the approach local authorities take in applying CIL can be perceived as inflexible. • Government has proposed in its recent consultation for more flexibility in relation to the charge, allowing "payments in kind" to resolve fears that infrastructure projects may not be developed. • Government also proposed for the charge to not be fixed and dependent on the use and scale of a development. • A property industry group commented that the levy could be used to resist developments undesirable to councils. Business lobby London First agree with BPF and outline that this has already been seen in draft charging scales being developed in London. • These arguments are backed by a recent study by the CPA, finding through a stakeholder consultation that a uniform 'City CIL' would create certainty in the market. Comments were made by some stakeholders that it could be useful and encourage rather than restrict development. • There was also a suggestion of exempting certain developments such as town centre shopping centres. However, others have argued that this would make the CIL too 'onerous' for developers and local authorities. • Particular concern has been raised on the timing and scope of Regulation 40, which states that if a building has not been in use for 6 of the previous 12 months then the charge will be applied to the whole	

Criteria	Commentary	Rating
	building. This has been opposed by developers with large projects with phased delivery as site assembly would take place in stages creating a risk and exposure to the charge. The recent consultation looks to amend this.	
Complexity	• A lawyer commented that the CIL has introduced 'unexpected difficulties' to already complex development projects. This is exemplified where the regulation imposes that different parties owning different parts of the site have to pay payments which are proportionate to the value of their interest. It is anticipated that the authority's' collections of these values are likely to be controversial. • In response to the consultation, the BPF outlined a need to introduce speed and certainty. • There is agreement that further changes are required.	
Incentives & Penalties	• n/a	
Enforcement	• The policy is understood to be well enforced by local authorities that have established a levy. • The BPF argues that local authorities are setting the CIL rate too high.	
Cost	• Some argue that the CIL has led to a considerable increase in costs for developers and believes that it is having a negative impact upon viability.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of the CIL, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	The policy does not make a clear contribution to the improvement in the energy efficiency of buildings.	
Implementation	The policy has caused considerable disruption to the market and despite the strong implementation of the policy in general, there has been a lack of energy efficiency enforcements deriving from the scheme particularly as energy infrastructure was not granted exemption from the levy.	

Sources of Information

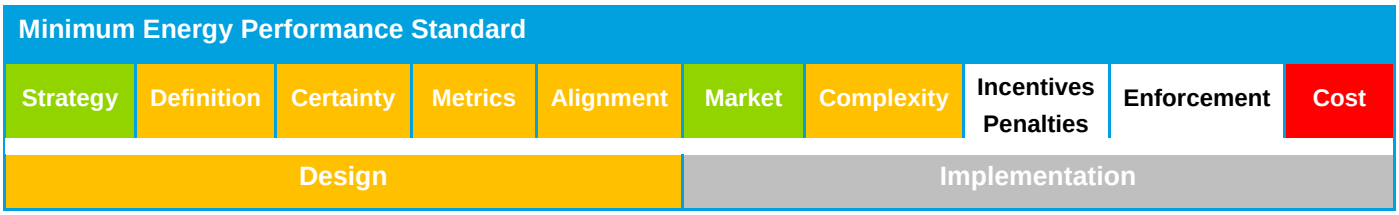
Reference	Access Date	Link Address
IEMA (2013) Energy Infrastructure Should Be Exempt from Community Infrastructure Levy says BWEA	07/08/13	http://www.iema.net/news/energy-infrastructure-should-be-exempt-community-infrastructure-levy-says-bwea
Stuart Robinson (2012) Guest post: CIL rethink doesn't go far enough	07/08/13	http://www.estatesgazette.com/blogs/focus/2012/10/guest-post-cil-rethink-doesnt-go-far-enough/
Stuart Andrews (2012) Guest Blog: Navigating the Minefield	07/08/13	http://www.estatesgazette.com/blogs/midlands-property/2012/04/guest-blog-navigating-the-minefield/
BPF (2013) Development tax reform welcomed, but property industry warns of 'frustrated growth'	07/08/13	PDF File
Stuart Robinson (2013) Welcome U-turns on ill-conceived community infrastructure levy	07/08/13	http://www.propertyweek.com/professional/welcome-u-turns-on-ill-conceived-community-infrastructure-levy/5053798.article
Property Week (2013) Variable levy plan splits pack	07/08/13	http://www.propertyweek.com/professional/public-sector/variable-levy-plan-splits-pack/5055561.article
Property Week (2013) Radical overhaul of CIL regulations	07/08/13	http://www.propertyweek.com/news/news-by-sector/radical-overhaul-of-cil-regulations/5053259.article
Property Week (2012) Momentum builds in row over community infrastructure levy	07/08/13	http://www.propertyweek.com/professional/public-sector/-momentum-builds-in-row-over-community-infrastructure-levy/5040698.article

Minimum Energy Performance Standards

Outline

As part of the Energy Act published on the 18th of October 2011, it was announced that from April 2018 it will be unlawful to rent out residential or commercial properties where a minimum energy performance standard (MEPS) has not been achieved. The required standard has not been clarified although the DECC suggested it is likely to be an EPC rating of E. It is also important to note that the 1 April 2018 is a long stop date and the rule could be earlier.

A summary of the effectiveness of the policy in certain criteria can be found below:



Assessment of effectiveness

The table below assesses the effectiveness of the Minimum Energy Performance Standards against a standard set of criteria based upon recognised principles of good policy formation.

The government is yet to publish any proposal and thus there is no consultation with feedback. As a result the material from a working group advising the government over the policy in a series of meetings in early 2013 has been assessed.

	Criteria	Commentary	Rating
Design	**Strategy**	• There was a broad consensus from the working group that the EPCs were the best tool currently available for the purposes of the MEPS despite its faults. • Some argued that it would be easier to administer through building regulations. However there were questions over how enforcement would be undertaken or minor refurbishments would be assessed. • The UK Green Building Council (GBC) argues that DECs would be more appropriate for compliance as they would avoid issues of new fit-outs, the validity period of EPCs and poor quality Certificates.	
	Definition	• The policy has not been clearly articulated. • Commentators have however already begun to challenge the definition of key items. • The legislation restricts the ability to “let the property” or to “continue to let the property”. The latter would significantly increase the scope of MEPS and capture existing properties with an EPC rating below the required minimum standard and not just new lettings.	
	Certainty	• Clarity is required on the exact threshold that would be set for minimum standards. It is likely (and assumed) to be E on the EPC scale but this may be subject to change. • It is also possible that the regulations could be bought into effect before 1 April 2018. • Industry leaders have observed that certainty is required in order to plan effectively to manage the risk. • The UKGBC also calls for increased certainty. It argues that the implementation needs to be communicated even if it is not applied immediately. • Clarity was also required to determine how the regulations would treat different building types and tenures such as industrial warehouses and holiday lettings.	
	Metrics	• There was a lack of commentary surrounding metrics of the MEPS, although it would be inter-related to any issue with EPC metrics and the Green Deal. • Concerns have been raised regarding the quality of EPC assessments. • Furthermore, the calculation methodology which control EPCs has changed to match higher standards of energy performance mandated through building regulations. Therefore a building built in 2010 would achieve different rating to a building built in 2014.	
	Alignment	• In the working group there was a concern that the act would override existing policies and legislation • Concerns have been raised over the effectiveness of the Green Deal in working to meet these regulations and the Golden Rule. • MEPS will be reliant upon the quality of EPCs and energy modelling tools.	
mentat	**Market**	• The policy could have a significant impact on values, particularly older stock. • Analysis has identified that secondary warehouse and industrial units may be most exposed to MEPS. • An agent commented that ‘millions of pounds could be wiped off the portfolios of owners and occupiers’ if	

Criteria	Commentary	Rating
	improvements are not made to comply with the legislation. • The RICS has found that 18% of commercial stock would be affected by proposed MEPS regulations, assuming a minimum standard of an E rated EPC. This analysis was based on a review of the EPC register in 2012. • Some fund managers have begun to see leases drawn up which exempt the tenant from any liability for energy efficiency improvements. • EPCs are valid for 10 years and this could lead to a temporary shield from the MEPS until a refurbishment occurs or a buyer/tenant requests a new certificate. This could create a sudden price shock.	
Complexity	• Some have commented that there is uncertainty as to who will ultimately pay for the improvements that are required to comply with the legislation. Tenants are likely to be resistant while the landlords will argue it is not covered by any of the service charge provisions. • In particular, concerns have been raised in the context of shared services within common areas of multi-let premises, in which there is likely to be much debate over who is liable for the work required especially if the liability falls with the tenants. • The working group recommended that the legislation would need to be as simple as possible and highlighted exemptions as a key area. • This was also outlined by the RICS who commented that it maybe impractical for listed buildings to meet requirements and sought exemption for these buildings.	
Incentives & Penalties	• There was a lack of commentary surrounding the incentives or penalties of the MEPS.	
Enforcement	• No commentary was provided on the matter of enforcement.	
Cost	• There were concerns over costs involved and how the lower end of the market would meet costs. • Further concerns have arisen regarding the Green Deal and the Golden Rule as a cost exercise for assessing the viability of required improvements.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of MEPS, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	The policy plays a significant role in UK policy in improving energy efficiency standards and while some thought it would be better to base the performance standards on DECs and Building Regulations it is thought that at present EPCs are the most favourable. Further clarity is required to clearly define the standard and certainty is required to ensure landlords have sufficient time to plan and prepare.	
Implementation	The policy has not yet been implemented but there are significant fears over a lack of clarity over the exact date when the policy will be imposed as well as the standard that will be set and whether the changing nature of the EPC will effect implementation	

Sources of Information

Reference	Access Date	Link Address
Bill Hughes (2012) Fund managers are still in the dark over Energy Act	08/08/13	http://www.propertyweek.com/professional/sustainability/fund-managers-are-still-in-dark-over-energy-act/5042618.article
Nigel Oliver (2013) Energy act 'may wipe millions off property values'	08/08/13	http://www.midlandsbusinessnews.co.uk/2013/01/energy-act-may-wipe-millions-off-property-values/
ScottFraser (2011) RICS gains clarity on energy efficiency regulations	08/08/13	http://www.scottfraser.co.uk/news/view/rics-gains-clarity-on-energy-efficiency-regulation
Lambert Smith Hampton (2012) Viewpoint: The Energy Act: a wolf in sheep's clothing?	08/08/13	http://www.lsh.ie/pages/views_detail.asp?id=257&q
IPF (2012) Costing Energy Efficiency Improvements in Existing Commercial Buildings	08/08/13	http://www.sweettgroup.com/viewfile.cfm?id=306&h=F22723A632B9FBB77AA6AF91DE66E47D54429008441BFFBEB345EB77F402C791
Gov.uk (2013) The Advisory Working Group on Non-Domestic Private Rented Sector Regulations (Under The Energy Act 2011)	08/08/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/205918/prs_non_dom_working_group_meeting_15_april_2013.pdf https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/187017/prs_non_domestic_working_group_meeting_11_mar_2013.pdf

EPBD: Air Conditioning Assessments

Outline

As a result of the Energy Performance of Building Directive (EPBD) in 2002 and the Energy Performance of Buildings Regulations building owners and managers are required to have air conditioning systems regularly inspected by a qualified assessor.

In 2010 there was a UK consultation on 'making better use of Energy Performance Certificates and data' as part of the UK's implementation of the recast of the EPBD Energy Performance Buildings Directive. This included the proposition of making Air Conditioning Assessments mandatory for all air-conditioning systems in the non-domestic sector rather than those over 12kw.

A summary of the effectiveness of the policy in certain criteria can be found below:

Air Conditioning Assessments									
Strategy	Definition	Certainty	Metrics	Alignment	Market	Complexity	Incentives Penalties	Enforcement	Cost
Design					Implementation				

Assessment of effectiveness

The table below assesses the effectiveness of the EPBD: Air Conditioning Assessments against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from responses to the 2010 consultation.

	Criteria	Commentary	Rating
Design	**Strategy**	• 84% of consultation respondents were in favour of the reports being made mandatory as it would ensure compliance. • Support was provided for the recording of the assessments in a similar layout and style to EPCs and DECs to create a uniform format of energy certificates.	
	Definition	• No clarification on definitions or the scope of the policy have been raised recently	
	Certainty	• No comments were made over the certainty of the scheme	
	Metrics	• There was no commentary on metrics related to the policy.	
	Alignment	• There appeared to be limited confusion within the market regarding how air conditioning assessments align to F Gas reporting and R22 replacement programmes and who would have responsibility for compliance.	
Implementation	**Market**	• Aside from low compliance there were no adverse impacts on industry	
	Complexity	• There was no commentary on the complexity of the scheme.	
	Incentives & Penalties	• In 2009, there was criticism that the level of fine was not proportionate and has led to low compliance.	
	Enforcement	• ACI Reports Ltd outlined that prior to the amendment, a 'soft touch' was in place with few fines given and those who didn't take the legislation seriously are now in for a shock after increased enforcement.	
	Cost	• 70% of respondents agreed with the fee for lodging air reports being the same as EPCs as they considered it a viable rate for the costs and is minor relative to the time taken to produce the report. • The main argument from imposing similar costs to the EPC was that the air conditioning report was much more simple than the EPC assessment.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of the Air Conditioning Assessments, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	The policy has a clear role to play in increasing the energy efficiency in air conditioning, which contributes	

	significant emissions to the UK's building stock, the support for the policy was outlined through large proportion of consultation respondents that were for the policy to be made mandatory	
Implementation	Many of those undertaking the reports complained of low compliance. However since the consultation document and Energy Performance of Buildings Directive Amendment in 2012 compliance is considered to have significantly increase.	

Sources of Information

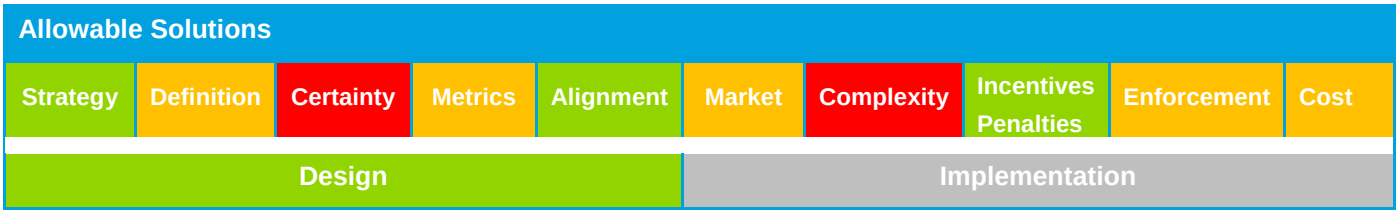
Reference	Access Date	Link Address
DCLG (2010) Making better use of energy performance certificates and data, Summary of responses	09/08/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/8556/37907201.pdf
ACI Reports (2012) DCLG TM44 Policy update sets the scene for Trading Standards non – Compliance Notices, Enforcement, Fines	09/08/13	http://www.acireports.co.uk/2012/DCLG_TM44_Trading_Standards_non_-_compliance_notices.html
ACI Reports (2012) Trading Standards Issue Notices For No TM44 Air Conditioning Inspection Certificates	09/08/13	http://www.acireports.co.uk/2012/Air_Conditioning_Inspections_Trading_Standards.html

Allowable Solutions

Outline

The government has recognised that it would not be cost-effective or technically feasible to meet the proposed zero carbon standard for all building types and in all locations through on-site measures only. It is therefore proposed that an agreed amount of carbon emissions would be offset through 'off-site' vehicles under an Allowable Solutions scheme. The proposed Allowable Solutions framework has been designed to offer flexible routes for participants and for administrating bodies, to provide for a variety of compliance routes.

A summary of the effectiveness of the policy in certain criteria can be found below:



Assessment of effectiveness

The table below assesses the effectiveness of Allowable Solutions against a standard set of criteria based upon recognised principles of good policy formation. For allowable solutions, a host of market studies from the Zero Carbon Hub and Climate Energy Group were assessed, as well as a government consultation released in December 2010. The government released a more recent consultation in 2013 for the domestic sector that included 51 questions. Responses have not been made available. Much of the analysis has to date focussed on the domestic sector. The commentary below addresses non-domestic stock where specific reference has been made or infers terms and an approach from the domestic sector.

	Criteria	Commentary	Rating
Design	**Strategy**	• The UK GBC welcomed proposals that allowable solutions would be applied to non-domestic properties. • According to the Zero Carbon Hub, the UK GBC and others, zero carbon is often not achievable through an entirely on-site strategy. The allowable solutions framework offers a cost effective route to achieve the proposed zero carbon standard. • The Combined Heat and Power Association states that without allowable solutions, district heating has no direct financial support. • Six of the nine questions in the government's consultation on allowable solutions were approved by 75% or more of participants demonstrating strong support for the scheme. • Consultation respondents from 2010 outlined that there was a need for on-site measures to remain a priority but agreed there was difficulty in reaching zero-carbon just through on-site measures. As a result, only 23% of consultation respondents were just for on-site measures. • In relation to the options available under allowable solutions, the creation of district heating networks and local renewable energy were the most popular according to the 2010 consultation. Suggestions such as energy efficiency retrofits received mixed responses.	
	Definition	• Zero Carbon Hub outlined that the notion of 'additionality' provoked significant debate. • WWF outlined that off-site schemes needed to be solutions that are truly additional rather than projects which would have happened anyway. • Zero Carbon Hub also raised the question of how local is local when imposing the boundary for allowable solutions. • There is also some debate over whether allowable solutions should be limited to local projects or opened up to the whole of the UK. The UK GBC outlined that allowable solutions should be applied locally first, whereas other commentators believe that the expanding the scope of the offset schemes to the whole of the UK opens new possibilities. • 82% of consultation respondents in 2010 were for the government's proposal of applying the same standard to the non-domestic sector as the domestic sector as a common approach would provide 'consistency, clarity and simplicity' and reduce barriers to mixed-use schemes and increase knowledge transfer. It was pointed out however that not all of allowable solutions would be equally appropriate for the domestic and non-domestic markets.	
	Certainty	• The Federation of Master Builders' stated the recommendation needed to be clear as the lack of certainty is causing considerable concern. • Turley Associates observed how there has been considerable lobbying from the industry for more clarity to plan and budget for the policy.	

	Criteria	Commentary	Rating
	Metrics	• In 2010, 84% of consultation respondents were for the use of kWh/m²/year as it would ensure consistency with the domestic market and the market was already familiar with this metric. • Those against the use of kWh/m²/year argued a need to be consistent with international standards.	
	Alignment	• There is general agreement observed within the market that the policy has a clear role to play in the funding of off-site green investment. • It is aligned to building regulations.	
Implementation	**Market**	• Zero Carbon Hub argues that developers are wary of investing into long term land deals until clarity is provided regarding allowable solutions. • Views have been expressed by a number of house builders on the importance of having a market ceiling price for allowable solutions to ensure viability. If the cost of offsetting carbon is too high then it could have a significant influence over development planning stage. As a result it was suggested that a future price of carbon could be set out for the proceeding 10 years. • There is a general concern within the domestic market that consumers are not aware of what a zero carbon building is, and what the benefits of owning and living in a zero carbon home could be. The Zero Carbon Hub established a working group to consider the marketing of zero carbon. It is assumed that the same issues may arise in the commercial sector.	
	Complexity	• The House Builders Association outlines that the policy could put small house builders out of business due to its complexity. This statement is limited to the domestic market but it raises the issue that small businesses in the non-domestic sector could be affected by lack of knowledge and technical awareness as well as finance. • In a study by the Climate Energy Group, 85% of local authorities expressed a preference for simple allowable solutions which are easy to deliver and provide a clear benefit. • All of the interview respondents (13 local authorities) from the Climate Energy Group's consultation expressed a need for more clarity on the allowable solutions proposals. • 78% of consultation respondents in 2010 agreed that an element of allowable solutions should be applied in 2016 as it would create certainty for providers, market certainty for community scale infrastructure such as heat networks and being applied at the same time as the domestic sector would enable economies of scale for non-domestic and domestic providers.	
	Incentives & Penalties	• There was considerable support for allowable solutions as they provided an incentive for off-site green investment. • A well designed and appropriately priced allowable solutions framework is believed to offer a cost-effective route to achieving the proposed zero carbon standard. • Despite developers arguing for a cap on the cost of allowable solutions, the UK Green Building Council argued for greater certainty over future costs. It was argued that a cap could undermine the case for energy efficiency improvements if the cap is too low with cheaper technologies used and definitions of the zero carbon building becoming watered down.	
	Enforcement	• Consultation respondents in 2010 were mixed over whether the proposed allowable solutions package was enough to make progress to zero-carbon with 35% agreeing and 35% disagreeing. • The majority of concerns surrounded funding and the monitoring and enforcement of the policy. • Clarity is required to determine who would enforce and administer the allowable solutions framework.	
	Cost	• It has been estimated that the policy could cost the house building industry an additional £224 million each year. It is assumed that the policy would have significant cost implications for the non-domestic sector. However, the proposed allowable solutions framework has been designed to offer a cost effective route to achieving the proposed zero carbon standard. An on-site only route to zero carbon would likely be both technically and financially prohibitive for all building types. • Over half of the local authorities in the Climate Energy Group consultation identified limited resources as a key challenge in implementing allowable solutions. The respondents were open to collaborating with neighbouring LAs and the private sector to deliver allowable solutions, although those with Carbon Offset Funds did not report an issue with funding. • Some of the respondents from the Climate Energy Group argued that developers may not be able to pay the required sums and doubted whether carbon offset payments would be able to fund the most worthwhile projects.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of the Allowable Solutions, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	There is considerable support for allowable solutions as they have a key role to play in reaching zero carbon standards according to consultation respondents through providing the opportunity to invest in off-site efficiency improvements rather than on-site measures that are not as cost effective.	
Implementation	Although the policy has not been implemented yet, it is apparent that there is considerable concern on its future implementation particularly with respect to enforcement and monitoring.	

Sources of Information

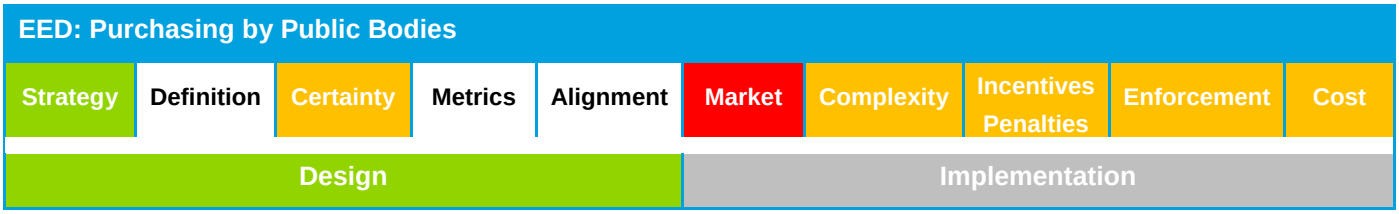
Reference	Access Date	Link Address
ZeroCarbonHub (2012) Allowable Solutions: Evaluating Opportunities and Priorities	12/08/13	http://www.zerocarbonhub.org/resourcefiles/Allowable_Solutions_Oct_2012.pdf
ZeroCarbonHub (2011) Allowable Solutions For Tomorrow's New Home	12/08/13	http://www.zerocarbonhub.org/resourcefiles/Allowable_Solutions_for_Tomorrows_New_Homes_2011.pdf
Building.co.uk (2013) Fears government zero-carbon plan will harm recovery	12/08/13	http://www.building.co.uk/fears-government-zero-carbon-plan-will-harm-recovery/5058913.article
CNN (2011) Are zero carbon homes a lot of hot air	12/08/13	http://edition.cnn.com/2011/WORLD/europe/02/22/zero.carbon.homes/index.html
CHPA (2013) Industry welcomes 'promising' Allowable Solutions proposals, but new building regulations 'disappointing'	12/08/13	http://www.chpa.co.uk/industry-welcomes-promising-allowable-solutions-proposals-but-new-building-regulations-disappointing_1585.html?Parent=680
Turley Associates (2013) Allowable Solutions	12/08/13	http://turleyassociates.co.uk/wp-content/uploads/2013/08/130809-Allowable-Solutions.pdf
Climate Energy (2013) Allowable Solutions and Community Energy Funds: An analysis of viewpoints from local authorities in the East of England	12/08/13	http://www.climateenergy.org.uk/images/PDF/Allowable%20Solutions%20and%20Community%20%20Energy%20Funds%20Report.pdf
DCLG (2010) Zero carbon for new non-domestic buildings consultation on policy options	12/08/13	https://www.gov.uk/government/consultations/zero-carbon-for-new-non-domestic-buildings

EED Article 5: Purchasing by Public Bodies

Outline

Article 5 of the Energy Efficiency Directive looks to address purchasing by public bodies and encourages central governments to purchase products, services and buildings with high energy performance so long as they are suitable and cost-effective. So, although the obligations falls to the public bodies, the scope of the policy includes leased premises and will therefore have implications on the commercial property sector as part of the supply chain. This article will be reviewed on the 5 December 2015 to review the effectiveness of its implementation and perhaps propose further measures.

A summary of the effectiveness of the policy in certain criteria can be found below:



Assessment of effectiveness

The table below assesses the effectiveness of the EED: Purchasing by Public Bodies against a standard set of criteria which define the principles of good policy. The information was drawn from anecdotal evidence in the market place, including press articles, analysis and publicly available reports.

	Criteria	Commentary	Rating
Design	**Strategy**	• A European federation of business chambers outlines that public procurement can stimulate innovation and improve sustainability practises. • The Concerted Action for the Energy Services Directive (CA ESD) argues that energy efficiency public procurement can become a driver for the green transformation of the market, using public market power to bring major economic and environmental benefits on both local and national scales.	
	Definition	• No concerns were raised over the definitions of the policy.	
	Certainty	• No concerns have been raised about the practicality and uptake of the policy.	
	Metrics	• No comments were made regarding metrics related to the policy.	
	Alignment	• There is no commentary over the policy overlapping with other policies.	
Implementation	**Market**	• A European federation of business chambers strongly opposes any initiative which would make sustainable procurement rules mandatory. • A European federation of business chambers argues that public procurement rules should be made soft law and only highly efficient products should be considered. • There was concern that if buildings services are to be purchased, it would lead to constraint and substantial administrative requirements for public bodies.	
	Complexity	• The Coalition for Energy Savings warned that a lack of public sector resources and tight and restrictive procurement rules, which are highly complex, would lead to great difficulty for the public sector and slow down energy efficiency improvements. • The Coalition for Energy Savings called for simple yet ambitious rules with an emphasis on energy efficiency rather than economic and technical assessments. • The Concerted Action for the Energy Services Directive (CA ESD) outlines that operational barriers have led to the energy efficient public procurement having a limited influence on market transformation. • These barriers mainly surround a lack of clarity according to the CA ESD, with unclear criteria for public procurement assessments, a lack of clear guidance and a shortage of practical toolkits, as well as limited experience of implementation among member states.	
	Incentives & Penalties	• The policy does not provide any incentives and there does not appear to be any examples of penalties for non-complying member states.	
	Enforcement	• The CA ESD argues that a lack of provisions making energy efficient public procurement obligatory are preventing it from becoming mainstream. • Climate change campaign of the Greens/EFA group in the European Parliament outlines that the current proposals allow too much flexibility and too much conditionality to achieve any concrete results and	

	Criteria	Commentary	Rating
		argues public procurement must be made compulsory from now on.	
	Cost	• ClientEarth argues that it is important to differentiate between upfront cost and real cost and argues the cost of contracting a product, service or building is much greater than the price at the moment of purchase as energy efficient investments can render decreased costs associated with energy bills in particularly but also maintenance and repair costs.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of the EED: Purchasing by Public Bodies, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	It is evident that public procurement has a key play to role in energy efficient behaviour as many commentators and actors argue that energy efficient public procurements can lead to a market transformation.	
Implementation	Currently this element of the Energy Efficiency Directive is not mandatory. However there is a mixed response within the market to making purchasing by public bodies mandatory.	

Sources of Information

Reference	Access Date	Link Address
Client Earth (2011) Is Article 5 of the proposed Energy Efficiency Directive contrary to the existing or future EU Public Procurement legislation?	14/08/13	http://www.plasticseurope.org/information-centre/press-room-1351/press-releases-2012/energy-efficiency-directive-more-ambitious-building-renovation-targets-would-create-two-million-jobs.aspx
European Commission's Proposal For An Energy Efficiency Directive	14/08/13	http://www.agcc.co.uk/find-information/doc_view/1378-european-commission-s-proposal-for-an-energy-efficiency-directive/
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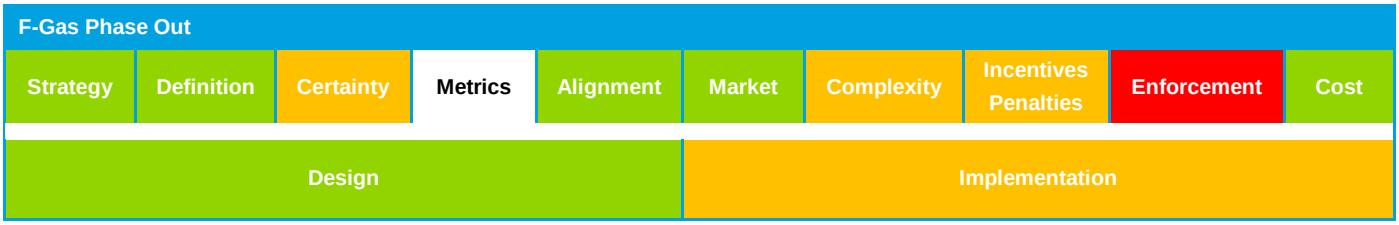
EC F-Gas Regulation

Outline

The F-gas regulation was drawn up through the EC Regulation No 842/2006 on Certain Fluorinated Greenhouse Gases that is made up of HFCs, PFCs and SF6. The policy came into force in 4 July 2006, although most of the regulation applied from 4 July 2007. The F-gas regulation looked to reduce emissions mainly through containment addressing leakages of fluorinated greenhouse gases, although there was no ban put in place on the use of HFCs in static refrigeration or air conditioning.

In 2012 the European Commission drew up plans to completely outlaw a main F-gas, HFC by 2015 and 2020, however these plans were abandoned after significant lobbying from the industry and so a phase-down approach was undertaken instead to reduce the emissions to a third of today's level by 2030. The time-scale of this phase-down approach can be found below:



Assessment of effectiveness

The table below assesses the effectiveness of the EC F-Gas Regulations against a standard set of criteria based upon recognised principles of good policy formation. A DEFRA consultation was released in 2009. However, the proposals were largely a continuation of the 2008 UK regulation and related to specifics such as certification. As a result a lack of information was acquired and other sources of information focused on the application of the policy in Europe were collated as a result, including a European consultation.

	Criteria	Commentary	Rating
Design	**Strategy**	• The Environmental Investigation Agency (EIA) has outlined the importance of the policy, stating that the use of F-gases is a major contributor to emissions and their phase-out would save at least 60 million tonnes of CO^2 a year. • The EIA also pinpoints F-gas HFC as a potential to lead to considerable emissions reductions and called for its immediate ban in 2012 and that using alternatives would lead to energy efficiency gains as well as emissions reductions.	
	Definition	• The Food & Drink Federation outlines that the definition of those liable for compliance, termed the "operator", can become blurred when applied to a landlord-tenant relationship, such as an air-conditioned office building.	
	Certainty	• Given the recent phased-down approach being implemented in 2012, it is clear that the policy is to remain for a sizable number of years and although the proposals were not as stringent as first proposed the EU and its member states such as the UK are committed to the abatement of F-gases. • During the 2012 European Commission consultation of 261 stakeholders, almost all agreed for further action on F-gases and over 40% requested further legislation to be put in place, as well as a large majority either requesting or accepting the phase-down approach.	
	Metrics	• No comments were made in respect of the policy metrics.	
	Alignment	• In the Directorate-General for Climate Action's consultation, some respondents called for greater alignment of the policy with other policies such as the Eco-Design Directive.	

	Criteria	Commentary	Rating
Implementation	**Market**	• EU Commission stakeholders held some fears over the effects of a ban or phase-down of F-gases on SMEs. • According to the EU Impact Assessment in 2012, there would be little or no negative impact on market competition and SMEs and the phasing down of F-gases would lead to innovation and the creation of alternative technologies. • Stakeholders from the EU Commission argued that under current market conditions greener alternative technology were difficult and tougher legislation on F-gases were required to enhance innovation • A manufacturer has argued that the some of the conditions of the regulation ignore the differences between Northern and Southern Europe. •	
	Complexity	• According to the World Future Council, one of the major drawbacks of the phased-down approach is the difficulty of applying the policy consistently across countries due to differing legal frameworks, which effect the implementation, evaluation and legislative procedures.	
	Incentives & Penalties	• In the UK consultation little or no participants objected to the proposed fine as of the 2009 UK F-gas regulations. • The policy currently provides no fiscal incentives but the World Future Council argues that there is a need for incentives to encourage the uptake of alternative technologies.	

	Enforcement	• The EIA argues that since the adoption of the F-gas regulation in 2006, emissions of these gases has risen by 20 per cent.
		• The Air Conditioning and Refrigeration European Association (AREA) outlines that operators are not always aware of their obligations and RAC contractors report that too few operators are asking for an F-gas certificate maintenance check. AREA argues that legal obligations would resolve this issue.
		• AREA also highlight that non-monobloc systems can be purchased by anybody and are often installed by non-professionals without being charge leading to bad leakage rates, so AREA calls for legislation requiring refrigerant distributors to only be able to sell HFC refrigerators if they are qualified.
		• The 3kg threshold set in 2006 has since seen a rise in technology leading to a decrease in the F-Gas charge for the same power capacity and AREA thus recommends that the threshold should be lowered to 1kg.
		• In 2011, The Air Conditioning and Refrigeration Industry Board found in its consultation that F-Gas emissions have decreased in the UK particularly over the last 2-3 years.
		• In relation to other F-gases aside from the HFC gas, there was also a call for the ban of SF6 by a commentator as the alternatives are of the same price and already widely sold and it is clear that SF6 is as outdated as old fashioned light bulbs.
		• In a report by the Swiss Federal Laboratories for Materials Science and Technology, it was found that Western Europe's emissions of HFC-23s was between 60-140% higher than officially reported and in the UK itself it was twice as high as reported.
		• In response to the phasing down proposed in 2012:
		  ○ European Partnership for Energy and the Environment (EPEE) states that the proposed phase-down strategy is the most effective mechanism as it allows flexibility of the best solutions for different applications.
		  ○ The EIA however commented that it is as a missed opportunity and wanted more ambitious plans.
		  ○ The EIA also outlines that the proposal shows the effects of heavy ambitious lobbying and the proposed 2015 ban of HFCs has been removed
		• It was commented that the bans on commercial refrigeration as for this sector it is a 'no-brainer' to move away from HFCs in this sector but argued the phase down was not ambitious enough and wanted tougher targets at the beginning and more bans.
		• A manufacturer argued that the phased down proposals are ambitious enough, and bans aren't required to reach the objective. It was also commented that it could act as a barrier to trade and expects the proposals to be challenged under WTO rules by exporting industries.
		• The World Future Council also argues that a phase-down approach enables legislative flexibility allowing the development of alternatives. However it was also argued that with no incentives or obligations for lobbying groups, they will continue to pollute as normal.	

	Cost	• According to the EU's impact assessment, the phasing down introduced in 2012 will lead to limited administrative costs for participating enterprises.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of the EC F-Gas Regulation, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	The policy plays a key role in reducing the emission of F-gases, which includes HFC, a major greenhouse gas.	
Implementation	There is significant debate among the industry over whether there should be a complete ban over F-gases or a phased-down approach. The EU decided upon a phased-down approach as a result of much industry	

	lobbying from the trade sector to the disappointment of many NGOs such as the EIA. On the whole it was agreed that although the proposals could be more ambitious its current implementation will help to reduce the emission of f-gases.	

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Refrigerants Review (2013) Environmental groups want F-gas phase-out	15/08/13	http://www.refrigerantsreview.com/environmental-groups-want-f-gas-phase-out/
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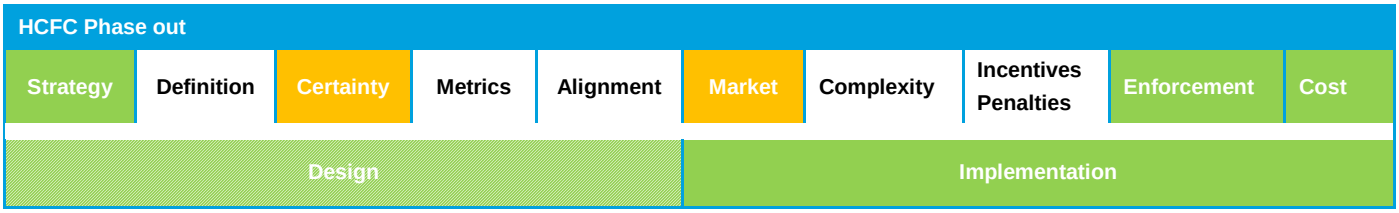
HCFC Phase out

Outline

Limitations on the use of HCFCs were first proposed as part of the EC Regulation 2037/2000. However, EU Ozone Regulation has since been recast as part of the EC Regulation 1005/2009. As a result of these two pieces of legislation, new equipment using “transitional” HCFC (such as R22) were banned in 2001 (and 2004 for small air-conditioning systems). From 1 January 2010, the use of virgin HCFCs to service and maintain existing refrigeration and air-conditioning (RAC) equipment is banned, leaving only recycled and reclaimed which are plan to be banned from the 1 January 2015.



Assessment of effectiveness

The table below assesses the effectiveness of the HCFC Phase out against a standard set of criteria based upon recognised principles of good policy formation. No consultation document has recently been released and as a result both UK and EU sources of information have been thoroughly inspected to find little market commentary on the policy.

	Criteria	Commentary	Rating
Design	**Strategy**	• It is widely accepted within the industry that the policy has a strong role to play in removing HCFCs from the market. • HCFCs have a significantly higher global warming potential than that of CO^2.	
	Definition	• No issues were raised over the definitions of HCFCs and the different implementation dates.	
	Certainty	•	
	Metrics	• No comments were made in regards to the metrics of the policy.	
	Alignment	• No comments were made regarding the alignment of the policy.	
Implementation	**Market**	• The British Refrigeration Association survey found, in 2007, that the reclamation of R22 had not increased to meet future demand with the 2010 deadline for virgin R22 looming and there was concern that the industry was not ready for the ban. • As a result of The British Refrigeration Association survey in 2007 there was some concern that industry would not be able to meet the virgin HCFC ban. The survey found that 70% of retail firms surveyed had at least one refrigeration or air-conditioning system running on HCFC-22 and in 2008 one supermarket chain still had 25% of its refrigeration systems running on HCFC-22. • In 2009 it was noted that sales of virgin HCFCs had not fallen as sharply as anticipated and sales of reclaimed CC had not risen as much as expected. • Since the 1 January 2010 ban there has been a lack of commentary over how the industry has responded. • The BBC outlined in 2008 that the legislation had already led to the increase in price of HCFCs, leading to a decrease in the demand for HCFCs refrigerators.	
	Complexity	• No fears were raised over the complexity of the policy	
	Incentives & Penalties	• Rather than incentivising, the policy applies legal obligations on enterprises to not use HCFCs.	
	Enforcement	• Despite strong implementation of the policy with clear deadlines set as to the removal of HCFC producing products from the industry, fears by the EIA were raised in 2011 over the smuggling of HCFCs. This fear was raised as in January 2010 the demand for HCFCs within the EU outstripped the supply of legal reclaimed or recycled HCFCs. Thus the price of virgin HCFC from developing countries was much cheaper and could provide a strong incentive for smugglers. There was also an increase in the number of seizures running in the 3 years running up to 2011 and smuggling issues had already had a considerable effect on the removal of CFCs. • Since the EIA raised this fear there has been no commentary following and the legislative dates remain so it has been assumed that smuggling has not had a significant effect on the legislation	
	Cost	• In 2001 the WWF outlined some fears over the cost of replacing banned HCFC products, however this fear has seemingly not materialised with a lack of commentary over the cost associated with the HCFC	

	Criteria	Commentary	Rating
		ban.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of the EC F-Gas Regulation, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	The policy has a clear role to play as it looks to remove the use of a heavy greenhouse gas emissions polluter, although it has become clear that HCFCs have been replaced by F-gas HFC which is also a big contributor to greenhouse gas emissions.	
Implementation	There is little commentary on the implementation of the policy, although it is scheduled to completely remove HCFCs from the market in 2015 and as of now there is little criticism from industry.	

Sources of Information

Reference	Access Date	Link Address
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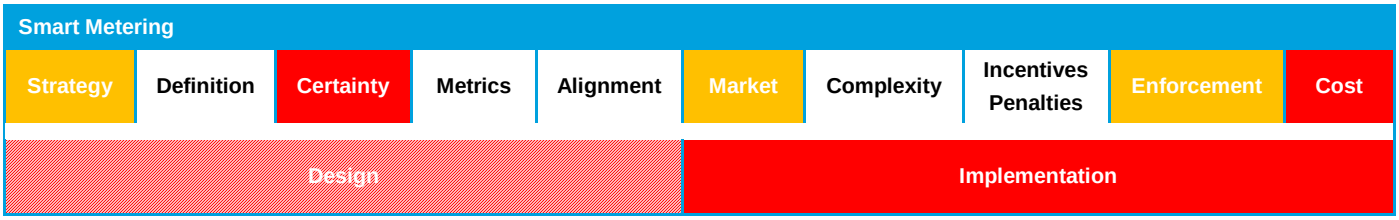
Smart Metering

Outline

On the basis of the European directive to put smart metres in 80 per cent of homes by 2020, the UK government has launched a mass roll-out of smart meters to both the domestic sector and to certain non-domestic sites. A foundation stage began in April 2011, although the planned mass roll-out was not expected to start until 2014. The start date has now been put back to 2015 and the roll-out is expected to be completed by the end of 2019.



Assessment of effectiveness

The table below assesses the effectiveness of Smart Metering against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from the summary of responses to the government consultation, held between April - June 2012 with a summary of responses released December 2012.

	Criteria	Commentary	Rating
Design	**Strategy**	• Energy UK commented that the plans to roll out smart meters provides a 'once-in-a-generation chance' to engage consumers on their power use and help decarbonise the economy. • The Institution of Engineering and Technology (IET) and the Energy and Climate Change Committee's (ECCC) report state that smart metering has an important role to play in the 'context of future UK energy infrastructure'. • Energy UK further picks up the point from the ECCC report that smart metering has a role to play in benefitting the UK's future energy security as Sir Robert Smith (chair of the ECCC) outlined that smart grids have the potential to lead to demand side responses as consumers are encouraged to voluntarily use less electricity during peak times. Thus the IET were strongly in favour of the policy. • However, a survey by Nutech Training found that only half (54%) of engineers think that the roll-out of smart meters will help the UK reduce its energy consumption. • An Energy Demand Research Project found that smart meters themselves don't have an effect on reducing energy consumption but with a real time display (the In-Home Displays in the case of this policy), there was a reduction of 3%. As a result the ECCC argue for a need to offer free In-Home Displays (IHDs). • It is argued that the proposed scheme is simply throwing away money as the scheme has limited benefits for energy savings. This is backed by an Energy Demand Research Project that points to smart meters having no effect on energy consumption. • Despite the intense scepticism over the impact of the scheme on energy efficiency, the government through its cost-benefit analysis accounts for a £4.6billion consumer benefit derived by a 2.8% reduction in energy consumption as a result of the scheme.	
	Definition	• There have been no clear comments or objections to the definition.	
	Certainty	• There is considerable uncertainty over the implementation of the scheme. In 2007 the government announced that the scheme would have been implemented within 10 years yet the current programme will not be delivered until 2019. • There was considerable concern by the industry over the viability of implementing the scheme by 2014 and so the delay to 2015 was welcomed by many, such as Energy UK, Which?, SmartReach, Sir Robert Smith of the ECCC and watchdog Consumer Futures. All stated that the delay could be used to make the scheme more cost-effective. •	
	Metrics	• No comments were made.	
	Alignment	• No comments were made.	
Implementation	**Market**	• According to the BBC, MPs on the Commons Public Accounts Committee said it was far from certain that consumers would benefit from smart meter savings. • It was commented that the fact that deployment in the UK is led by retail companies whereas in the rest of the world distribution network operators are responsible and has led to the delay as trials of communications technologies have failed outlining the uncertainty of the deployment of the policy.	

Criteria	Commentary	Rating
	• Nutech Training's survey also showed that only 40% of registered engineers were ready to deal with the impact of smart metering on their business and while 94% knew of the changes being imminent, only a third were planning to undertake the qualifications required to install meters, with only 13% being already qualified. • The Centre for Sustainable Energy also outlines concerns of smart meters not being safe due to health fears over the proposed wireless technologies in relation to electromagnetic sensitivity. According to the Centre for Sustainable Energy the DECC has looked to address this by requiring certain health and safety standards. • Despite addressing privacy fears the Centre for Sustainable Energy states that consumer perceptions of the scheme being a rip off could be a much more likely sticky point for the rollout due to the uncertainty surrounding the costs of the scheme. • There was a fear from consultation respondents that low income customers would be able to make very limited savings as it was highly likely that they were already economising over their energy consumption. • Consultation respondents also raised concerns over the provision of information as it could duplicate that provided by energy service companies. • In October 2012 a survey, by Ipsos Mori in accordance with DECC, found that only 50 per cent of people had heard of smart meters. • SmartReach argues that consumer engagement is vital for the success of the scheme and the Central Delivery Body is seen as a positive step in doing this. • The Centre for Sustainable Energy argues that a great threat to the policy is the distrust in energy suppliers by consumers, as well as fears over data security.	
Complexity	• No comments were made.	
Incentives & Penalties	• No comments were made.	
Enforcement	• It was outlined by one commentator that the effectiveness of the policy's enforcement will be weakened due to the retailers rather than network operators being responsible for the roll out of the smart meters. This is because ideally the meters use the right communications technology for its area and with network operators being responsible for discrete geographic areas this could easily be implemented. Whereas retailers work across a national scale and so have decided to run with the cheapest cellular-based communications with mixed results. • The Centre for Sustainable Energy outlines there is a potential for strong opposition from consumers over the smart meter acting as a 'spy in the home'. This is highlighted by the implementation of the meters in Netherlands where consumer opposition held up the implementation of the metres. The Centre for Sustainable Energy however outlines that these have been considered in the UK's proposals and should not be a cause of concern, especially given the lack of hard evidence the argument rests on.	

Cost	• The Telegraph has produced figures to estimating that the programme could cost £12 billion and the bill is set to be passed on to consumers, whose costs will be overridden by a benefit of £18.8 billion from participating in the scheme.
	• The methods of the cost-benefit exercise performed by government have been heavily scrutinised with academics pointing out that in 2007 a net cost of £4 billion was calculated and that this country's roll-out of the scheme will be the most complex and thus the most costly.
	• The ECCC has also warned that there is need for the cost of the scheme to be 'kept under tight control'.
	• Academics point to the following studies showing the large cost of the smart meters;
	  ○ Carbon Trust smart meter trial in 2004 found a net disbenefit to smaller SMEs
	  ○ Mott Macdonald in accordance with BERR found in 2007 that smart metering was 'heavily burdened by the high costs'
	  ○ An Impact Assessment in April 2008 delivered a negative net benefit, although following assessments found a net benefit yet it was argued that this is due to the government stretching cost assumptions
	• The National Audit Office further has outlined concerns that suppliers could seek to profit from the installation of smart meters, with others commenting that leaving the cost of the scheme up to the market is a high risk strategy given the reliance on 'competitive pressures' to force down costs. This fear was also highlighted by the ECCC and Ofgem's analysis for the Retail Market Review.	

Scoring

To quantify commentators' opinions as to commentators' opinions as to the overall effectiveness of Smart Metering, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	The policy is under significant criticism due to considerable debate from industry over the effectiveness of the policy in improving energy efficiency, especially as the scheme looks set to come at a large cost to consumers.	
Implementation	There is heavy criticism from industry over the government giving energy suppliers rather than network operators the responsibility for the roll-out of the scheme and many believe it could lead to costs for the roll-	

	out spiralling out of control.	

Sources of Information

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Aggregates Levy

Outline

Aggregates Levy is a tax on the commercial exploitation of rock, sand and gravel in the UK, introduced in April 2002. The Levy is charged, at a rate of £2 per tonne, on the first person who subjects the aggregate to commercial exploitation in the UK, such as quarry operators and other extractors. That person is liable to register for the Levy and pay it to HMRC. The cost of Aggregates Levy forms part of the cost of raw materials to construction companies who purchase aggregates.

Typically, the quarry operator accounts for the Levy when materials are removed from the extraction site or supplied to a customer. The purchaser of aggregate pays the cost of the levy to the extractor (and will then incorporate it in the price of their own activities). Exemptions and reliefs are available in certain circumstances.

Aggregates Levy is not charged when aggregates which have already been commercially exploited are recycled for further use. The Levy may therefore have an impact on embodied carbon by disincentivising the use of virgin aggregates in construction.

A summary of the effectiveness of the policy within certain criteria can be found below.

Aggregates Levy									
Strategy	Definition	Certainty	Metrics	Alignment	Market	Complexity	Incentives Penalties	Enforcement	Cost
Design					Implementation				

Assessment of effectiveness

The table below assesses the effectiveness of the Aggregates Levy against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from commentaries, reports, letters and press releases produced by government, industry bodies and commentators since the Levy was introduced.

	Criteria	Commentary	Rating
Design	**Strategy**	• The government's aims in introducing the Levy are clearly understood as being: (1) reducing certain environmental impacts of quarrying, such as noise, dust, vibration, visual intrusion and damage to wildlife habitats; and (2) encouraging a shift from the use of virgin aggregates to alternatives such as recycled aggregates. • There is considerable dispute over the effectiveness of the Levy as an instrument for pursuing these aims. • A 2012 CBI report considered that the aim of increasing the use of recycled aggregates had been successful. A government analysis in 2005 credited the Levy as the principal reason for reduced sales of primary aggregate and increased use of recycled aggregates and waste by-products in construction. • However, the British Aggregates Association ("BAA") has stated in 2013 that the Levy has "*comprehensively failed to meet its stated objectives*" and has destabilised the market in construction aggregates. • In a 2003 analysis of effects of the Levy in its first year, the Quarry Products Association ("QPA") concluded that it had reduced sales of low quality virgin aggregate, but had not reduced production of this material (which occurred as a by-product of high quality mineral extraction). The QPA also stated that the major substitution effect was the increased supply of material from untaxed quarrying (both legal and illegal), while the increased use of recycled material was not due to the Levy. The BAA continues to warn in 2013 of a growing number of illegal quarries and operators. • The QPA concluded that the Levy was ineffective in reducing environmental impacts of quarrying because reduction in demand was a poor proxy for reducing environmental impact: reduction would occur where costs were highest, not where environmental impacts were greatest. In 2013 the BAA stated that the Levy had a predominantly negative environmental impact by stimulating unlicensed sites and causing exempt materials to be transported further. • There is little indication of strongly felt concerns about the Levy's effectiveness beyond the aggregates industry.	

	Criteria	Commentary	Rating
	Definition	• Most of the key definitions in the legislation have been sufficiently clear to enable the industry to apply the Levy for over a decade without significant confusion. • However, there have been disputes between individual taxpayers and HMRC on how particular exemptions from the Levy are defined. Tax Tribunals have decided cases on the meaning of exemptions for: stone cut with flat surfaces, aggregate extracted while excavating the foundations of a building, and aggregate returned to the ground at the site of its extraction. Since the tribunal's decisions are publicly available, other taxpayers can refer to them, with the result that the clarity of definition of these terms has improved over time. • HMRC are proactively challenging businesses on the application of the Levy to construction projects, specifically in relation to whether exemption applies: where construction projects (such as tunnels) do not involve buildings, HMRC's view is that exemption does not apply. • The Office of Tax Simplification ("Review of Tax Reliefs", March 2011) has noted that the current structure of the Levy, which involves basic charging provisions with numerous exclusions, may be unnecessarily complex, and that a more defined set of inclusion criteria may be more appropriate.	
	Certainty	• There have been few substantial amendments to the Levy since it was introduced in 2002. • Rates have only increased twice since the Levy was introduced, most recently in 2009, with rate changes being announced a year in advance of implementation. However, government does not give forward guidance on planned rates several years into the future, and a rate increase announced in 2010 as due to take effect in 2011 has been postponed three times. • Since 2002 the BAA has mounted a lengthy legal challenge to the Levy on the basis that certain exemptions breach EU State Aid rules. In the BAA's view, this casts doubt on the legality of the entire Levy. In July 2013 the European Commission launched an investigation into whether certain exemptions and reliefs violate State Aid rules. The BAA and HMRC disagree on whether this creates uncertainty on the legality of the entire levy or just the particular exemptions and reliefs which are subject to investigation.	
	Metrics	• The Levy is charged per tonne of extracted aggregate based on weighbridge measures or an alternative agreed method.	
	Alignment	• Aggregates Levy is unique as a national policy instrument aimed at reducing local environmental impacts of quarries, although local planning policies also target the management of these impacts. • A 1996 report from the Institute of Public Policy Research, advocating introduction of the Levy, considered that it should function alongside a landfill tax to reduce quarrying and increase the use of secondary aggregates, with the Levy making primary aggregate more expensive and the landfill tax making disposal of construction waste more expensive. The Levy may work alongside Landfill Tax in this way, but there is little indication in published material that this was a design aim of the government.	
Implementation	**Market**	• There is little commentary specifically from the property industry on the impact of the Levy. • Given the Levy's indirect impact on property industry participants it is unlikely that there are particular industry concerns surrounding e.g. visibility of the Levy and its impact on investment timescales and the landlord and tenant interface.	
	Complexity	• The administrative burden of complying with the Levy is borne by the extractor: construction companies do not need to deal with any compliance formalities. • In 2012 the CBI commented that Aggregates Levy is very simple to manage. • There is relatively little complaint from aggregates industry bodies on the complexity of administration, as compared to their strong disagreement with the design and strategy of the Levy.	
	Incentives & Penalties	• For extractors of aggregate, there is a clear legal incentive to comply with the law by registering for the Levy and accounting for the tax due. Penalties are levied for failure to comply.	
	Enforcement	• In 2013 the BAA has stated that HMRC frequently fails to take enforcement action against illegal quarry operators, and that HMRC officers have told it that they are short of manpower and that their priorities lie elsewhere.	
	Cost	• The BAA considers that the Levy "*is probably without equal for the amount of damage it has caused relative to revenue achieved*". However, there is little indication of a similar strongly-felt view of the Levy's cost/benefit profile outside the aggregate extraction industry. • The Levy was intended to be revenue neutral for the exchequer. It brought in receipts of £265 million in 2012/13. • Costs to the property industry are indirect, through the cost of materials, and we are not aware of a published estimate of these costs.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of Aggregates Levy, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	There is considerable dispute over the effectiveness of the Levy in meeting its stated aims, and a perception that the legislation could have been structured more clearly with regard to exemptions. Rates have been stable but with limited forward guidance, and there is little concern about metrics or	

	overlaps with other policies.	
Implementation	The Levy is viewed as relatively simple to manage, especially for end users of aggregates who do not bear direct compliance responsibilities. However there is strongly expressed concern in the aggregates industry about the scope for avoiding the tax.	

Sources of Information

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Thompson H. & Parkes M. (2013) "Environmental Taxes", *Tolley's Property Taxation 2012-2013*, Reed Elsevier (UK) Ltd	27/08/13	N/A

Landfill Tax

Outline

Landfill tax ("LFT") is a tax on disposal of waste at landfill sites, introduced in 1996. It applies to all such disposals and is charged according to the weight of material disposed. However, a considerably lower rate applies to qualifying inert materials.

Landfill site operators are responsible for registering for the tax and accounting for it on all taxable disposals at their sites. Site operators charge the cost of the tax to those making disposals, who in turn may incorporate the cost in their charges to customers.

A summary of the effectiveness of the policy within certain criteria can be found below.

Landfill Tax									
Strategy	Definition	Certainty	Metrics	Alignment	Market	Complexity	Incentives Penalties	Enforcement	Cost
Design					Implementation				

Assessment of effectiveness

The table below assesses the effectiveness of Landfill Tax against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from a range of commentaries and reports produced since the tax was introduced.

Criteria	Commentary	Rating

	Criteria	Commentary	Rating
Design	**Strategy**	• LFT is clearly presented and understood as intended to discourage landfill and encourage alternative, more sustainable means of waste management, such as recycling, by reflecting the environmental costs of landfill use more accurately in its price. • LFT is seen as a key mechanism in enabling the UK to meet the targets set out in the EU Landfill Directive (1999/31/EC): the Directive requires waste sent to landfill to fall to 50% of 1995 levels by 2013. The Directive's overall aim is to prevent or reduce damage to the environment and human health from the landfilling of waste. Is there confusion over the purpose of individual instruments? • When the tax was introduced trade bodies doubted that it would be effective in reducing waste going to landfill, and complained of the high costs it would impose. Environmental groups such as Friends of the Earth (FoE) agreed that the tax was unlikely to be effective, but called for a higher tax rate in order to increase effectiveness. • Studies after the first year of the tax suggested that it was of limited effectiveness at its initial, low, rates. A Coopers and Lybrand survey suggested that a large majority of waste producers had not even tried to reduce their taxable waste since LFT was introduced. Many respondents to a government review considered that the rate would need to be much higher to influence behaviour away from landfill towards re-use, recovery or recycling. • A 2003 academic assessment of the tax found that it had failed to provide sufficient incentive for alternative methods of waste management by local authorities. • A government assessment in 2005 claimed that LFT had been successful in diverting waste from landfill. It claimed that initial analysis of waste management planning decisions suggested a shift away from landfill towards investment in alternative waste management solutions. The government noted that the total volume of waste sent to landfill had fallen by 20% from 1997/8 to 2003/4, and that the quantity of inert waste had fallen by 60% in that period. • Many observers noted that the fall in volumes of active, polluting waste sent to landfill was much less than the decrease in volumes of inert waste, showing that the tax was ineffective in meeting key environmental goals. The CBI noted that the tax was not targeting the emission of methane gas and water pollution associated with disposal of active waste at landfill. • The potential for LFT to encourage illegal fly-tipping has been recognised since the government's intitial consultation on introducing the tax: 38% or respondents and 57% of local authorities believed the tax could or would lead to increased fly-tipping. A Coopers and Lybrand survey indicated a measureable increase in fly-tipping in the first year of LFT. When the rate of annual increase in the standard rate of LFT under the "escalator" was increased to £8 per year in 2007 the Countryside Alliance warned that this would merely exacerbate the problem of fly-tipping. • Following the introduction of an annual tax "escalator" in 1999, the rate of LFT for active disposals has increased significantly. From £7 per tonne when introduced it reached £18 per tonne in 2005 and £72 per tonne in 2013/14. • The Local Government Association, though critical of the use of LFT revenues by central government, accepts that the rising rate of landfill tax has clearly helped to divert waste from landfill. • The UK Energy Research Centre has reported that the higher, and steadily increasing rates of LFT in recent years have reduced waste going to landfill and resulted in increased use of recycling facilities, gasification plants and other alternatives to landfill, and that the tax rates are now a good driver for investment in alternative waste treatment options. The report also noted that LFT had resulted in there being no recent investments in new landfill sites. • A 2012 CBI report concluded that LFT has a clear purpose and function.	
	Definition	• The Office of Tax Simplification ("Review of Tax Reliefs", March 2011) has noted that the current structure of the tax, which involves basic charging provisions with numerous exclusions, may be unnecessarily complex, and that a more defined set of inclusion criteria may be more appropriate. • The legal definition a taxable disposal of waste at a landfill site has proved to be open to significant doubt. In 2008 the Court of Appeal held that many materials used in site engineering at landfill sites were outside the scope of the tax. Since this contradicted the government's policy objectives for LFT, it was then necessary to implement further primary legislation in the 2009 Finance Act to bring these disposals back within the scope of the tax. • Definitions of the types of material subject to the lower rate of LFT have proved a source of uncertainty and contention between HMRC and waste businesses. Prior to 2012, some waste businesses treated "waste transfer station fines" as qualifying for the lower rate. HMRC then clarified that it did not accept this treatment, and several waste management businesses have blamed the resulting increase in costs for financial difficulties or closure.	
	Certainty	• Since 1999, the standard rate of LFT has increased according to a pre-announced escalator (a £1 per tonne increase each year from 1999, rising to £3 per tonne in 2005 and £8 per tonne in 2007). • Respondents to a 2009 CBI survey who factored LFT into expenditure decisions noted that the certainty of knowing future rates allowed easier forecasted and helped when making investment decisions. • In a 2012 report, the CBI commented that the LFT escalator "*provides certainty when making long-term investment decisions and is perhaps the best example of an environmental tax mechanism which has delivered for government and business.*"	
	Metrics	• LFT is charged according to the weight of material disposed of as waste. • Many respondents to the government's initial consultation on introducing the tax favoured a per tonne tax, rather than the alternative of a tax levied on the value of waste disposed. • There has since been little discussion of any possible alternative metrics.	

	Criteria	Commentary	Rating
	Alignment	• A Friends of the Earth report published after the first year of LFT concluded that a tax on aggregates (which had not yet been introduced) was necessary to avoid perverse incentives from the operation of LFT. FoE noted that landfill sites had switched to using untaxed virgin aggregates for engineering purposes, instead of taxed inert waste. Although Aggregates Levy was subsequently introduced, the government's main response to this problem was to amend the impact of LFT on materials used for some site engineering purposes. • Otherwise, LFT is distinct as a tax measure aimed at reducing waste sent to landfill. • A 2012 CBI report concluded that LFT functions well alongside other policy measures.	
Implementation	**Market**	• There is little commentary specifically from the property industry on the impact of LFT. • Given LFT's indirect impact on property occupiers and other property industry participants it is unlikely that there are particular industry concerns surrounding e.g. visibility of LFT and its impact on investment timescales and the landlord and tenant interface.	
	Complexity	• The government's compliance cost assessment when LFT was introduced concluded that, because the tax would fit with existing practices involved in implementing waste management regulations and accounting for VAT, the cost of compliance would be very low. • There is little complaint from waste industry bodies on the complexity of administration.	
	Incentives & Penalties	• A 2009 CBI survey found that while a majority of businesses responding considered that LFT was relevant to their business, very few included it in the costing decisions for projects, and none considered it to be a key driver of decision making. This may reflect the indirect route through which LFT affects most businesses (as a cost component of certain waste disposal options rather than as an individually identified cost). • The survey was conducted after the rate of LFT for active disposals had begun to increase significantly under the escalator, but there have since been further annual significant increases, making the standard rate of tax considerably higher (and the differential between inert and active waste more marked). • The UK Energy Research Centre has reported that there is a widely held view that the higher rates of LFT in recent years now provide a strong incentive to switch away from landfill. • In a 2012 report, the CBI considered that LFT's behavioural drivers hit the right mark because they reflect the way in which the waste industry operates.	
	Enforcement	• There is no body of published comment suggesting that LFT obligations are not well enforced by HMRC. • The principal enforcement concern relates to preventing the use of illegal fly-tipping as an alternative to the payment of LFT on legitimate waste disposals. • The government has viewed the waste management regulatory framework (such as licensing requirements and a statutory duty of care for waste) and criminal penalties as providing the main security against fly-tipping.	
	Cost	• LFT was introduced as a revenue-neutral measure. • In its first full year LFT brought in revenue of £361 million but this has since increased significantly to £1.09 billion in 2012/13, even as the amount of waste landfilled has fallen, due to sharply increased rates of tax. • The general perception reflected in published material is that the significant increase in tax rates, and therefore in the cost of disposing of active material to landfill has been necessary to make the incentives of the tax effective. • The Local Government Association, whose members bear a significant proportion of the cost of the tax, has complained that money raised from LFT is not returned to local authorities for investment in waste management infrastructure.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of Landfill Tax, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	It is generally accepted that LFT was initially introduced at too low a rate to have a significant impact on the quantity of active waste sent to landfill. However, there also seems to be a consensus that, following the rate escalator (which has also provided certainty for long term investment), LFT is now a highly effective instrument with a clear purpose.	
Implementation	LFT is perceived as simple to administer and as providing the intended incentives to business, now that rates have reached an effective level. While there are few concerns about enforcement of the tax itself, controlling illegal fly-tipping, which may be exacerbated by the cost of LFT, remains a concern.	

Sources of Information

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HMRC (2013) Landfill Tax Bulletin	26/08/13	http://www.hmrc.gov.uk/statistics/landfill.htm
House of Commons Library (2009) Landfill Tax: Introduction and early history, Standard Note SN00237	26/08/13	http://www.parliament.uk/briefing-papers/SN00237/landfill-tax-introduction-early-history
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Hydrocarbon Oil Duty

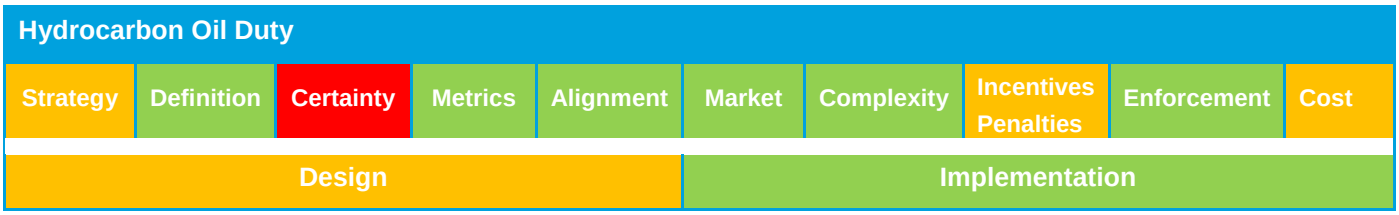
Outline

Hydrocarbon Oil Duty ("HOD") is a tax on the use of hydrocarbon oils as fuels. It is charged per litre of oil. The current duty is based on a 1979 Act of Parliament and is intended to be permanent.

For hydrocarbon oil, bioblend and bioethanol blend, duty is charged when the oil is imported into the UK or, if produced in the UK, when it is released from excise duty suspension. For biodiesel, bioethanol and fuel substitutes, duty is charged when the substance is set aside for use as fuel. The cost of the duty is then passed on in the price of fuel to the end user.

HOD primarily affects fuel used for transport, but some industrial occupiers of buildings may burn oils subject to the duty as fuel. Fuel for use in many construction vehicles, such as cranes and excavators (but not, for instance, trucks taking materials to or from a construction site) is subject to a substantially rebated rate of duty (approximately 20% of the standard rate).

A summary of the effectiveness of the policy within certain criteria can be found below.



Assessment of effectiveness

The table below assesses the effectiveness of Hydrocarbon Oil Duty against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from a variety of reports, commentaries and press statements produced over recent years.

	Criteria	Commentary	Rating
Design	**Strategy**	• The principal goal of HOD is to raise revenue for the exchequer, and HM Treasury has clearly communicated that it does not regard HOD as an environmental tax (which it defines as having the primary objective of encouraging environmentally positive behaviour change). • However, the Institute of Public Policy Research ("IPPR") has pointed out that government documents also refer to behaviour-changing goals of HOD. • The CBI, in 2012, noted that the role of fuel duty in tackling environmental impacts is not clearly delineated from its role as a revenue-raiser. It observed that the government has often suggested that rates rise for environmental reasons whilst still considering the tax to be a revenue raiser. • The RAC Foundation notes that there is no clear answer to the question, "what is the point of fuel duty?" and considers that the tax has "inadequate rationale". It notes that revenue raising and seeking to change behaviour by requiring fuel users to "pay the external costs" of their consumption are quite distinct principles. • As a tool for internalising external costs, the RAC Foundation, Institute of Fiscal Studies ("IFS") and Institute of Economic Affairs ("IEA") believe that HOD is relatively poor since it is incapable of capturing variation in external costs according to the time and location of fuel use. • The RAC Foundation, IFS, and IPPR agree that the duty is in principle an appropriate instrument for internalising the cost of carbon emissions through fuel use. However, the IFS has pointed out that it could target this goal more directly if it included a specific charge reflecting the carbon price of burning a litre of fuel. • All the motoring organisations appearing before the House of Commons Transport Committee in 2009 agreed that fuel tax is the most efficient, equitable and effective way to tax road users. It was seen as a fairer tax than Vehicle Excise Duty ("VED") since those who consume and pollute the most pay the most.	
	Definition	• The requirements of the duty appear to be clearly defined and not to have been the subject of significant dispute over the course of its history.	

	Criteria	Commentary	Rating
	Certainty	• The RAC Foundation and IFS point out that rate changes are frequent and that proposed rate changes are made and altered even more frequently. From 1993 to 1999 a "fuel duty escalator" gave certainty about future rate increases, while resulting in a 70% increase in real duty rates. Since the end of the escalator, "*the most notable feature of recent fuel tax policy has been the large amount of uncertainty about what rates will be set, with duty increases repeatedly announced, then delayed, then abandoned altogether under successive Chancellors.*" • Delayed and abandoned rate increases have been the result of effective and high-profile campaigning by organisations representing motorists and hauliers, such as the FairFuelUK Campaign. • The IPPR has called for planned annual increases in fuel duty to be restored as part of a rational government policy designed to change behaviour and raise much needed revenue to fund sustainable transport measures. • The CBI in 2012 noted that being subject to yearly rate alterations at the Budget meant that there was little certainty over fuel duty rates. This meant that even fuels which are incentivised as less polluting alternatives, such as natural gas, do not have the long-term rate certainty needed to encourage a change in usage. • The Green Alliance has commented on the current government's attempt to set duty rates using a "stabilizer" mechanism under which there are no, or limited, increases when oil prices are high, and greater increases when prices are low. The Green Alliance argued that any such mechanism must accept that oil prices will continue to increase and not attempt the futile task of trying to halt the long term upward trend in oil prices. • The RAC Foundation also considers that increased fuel efficiency makes a fall in revenue from fuel duty inevitable in the future. It notes the uncertainty that this creates for future tax levels, since both reduced revenues and large increases in rates both appear politically unpalatable.	
	Metrics	• The duty is charged per litre of fuel and there is no suggestion of any difficulty in calculating the duty due.	
	Alignment	• As a tax aimed primarily at motorists (including business use of road vehicles), both for revenue-raising and environmental goals, HOD has a similar role to VED.	
Implementation	**Market**	• There is little commentary specifically from the property industry on the impact of the Levy. • Given the indirect impact of HOD on the property industry, via the cost of fuel for vehicle users and some business occupants, there may be few particular industry concerns surrounding e.g. visibility of the Levy and its impact on investment timescales and the landlord and tenant interface. • There does not appear to be a body of published comment on how the rebated rate of duty, and the boundary between qualifying and non-qualifying vehicles affects the construction industry. • The IEA comments that fuel duty discriminates against businesses in rural, semi-rural and suburban areas as compared to those in inner city areas.	
	Complexity	• The duty is paid by suppliers of fuel oils, and so there is no significant administrative burden for businesses in the property industry. • In 2012 the CBI commented that fuel duty is very simple to manage. • There is little evidence of complaint from fuel suppliers about administrative challenges of implementing the duty, in comparison to the significant level of high profile comment from fuel users about the design and cost of the duty.	
	Incentives & Penalties	• There does not appear to be a body of published comment on the extent to which HOD incentivises property industry participants to use other fuel sources or to reduce their demand for transport, which might both be theoretically likely outcomes. • The RAC Foundation and IFS have commented that HOD does not create an incentive to reduce congestion by changing the time and place of road transport activities.	
	Enforcement	• The RAC Foundation points out that fuel duty is easy to collect and "almost impossible to evade" • Court cases indicate that there is some ongoing activity aimed at evasion through the use of marked, rebated fuel ("red diesel") in non-qualifying vehicles.	
	Cost	• HOD is a very significant source of government revenue, raising £26.57 billion in 2012-13. • As noted, the primary aim is revenue-raising and HOD is not represented by government as a cost-effective way of reducing environmental impacts. • The Institute of Economic Affairs ("IEA") points out that the UK has the highest rates of fuel duty of any major economy and argues that the resulting higher fuel prices hamper almost all economic activities by raising the costs of trade, lowering labour mobility, preventing economies of scale, and hindering competition. • The IPPR states that high UK fuel duty rates are offset by other taxes and charges being lower.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of Hydrocarbon Oil Duty, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	While the duty is relatively clear in its definition, there is confusion over the extent to which an	

	instrument originally designed for revenue raising, and still primarily intended for that purpose, is also used to achieve CO2 emissions reductions. There is strong concern about uncertainty in the way the duty rates have been managed over time, particularly in recent years when rate increases have largely ceased, but at the cost of much increased uncertainty.	
Implementation	The duty is perceived as easy to administer and collect, and easily enforceable. Concerns about the extent to which the duty incentivises behaviours to minimize environmental impact and the cost of duty mainly seem to relate to confusion over its environmental role.	

Sources of Information

Reference	Access Date	Link Address
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Climate Change Levy

Outline

Climate Change Levy ("CCL") is a tax on the use of four taxable commodities by businesses and the public sector, introduced in 2001. The taxable commodities are:

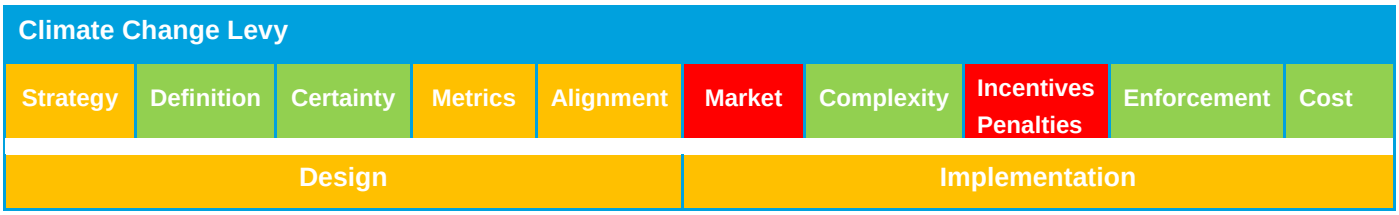
1. Electricity;
2. Natural gas when supplied by a gas utility;
3. Liquid Petroleum Gas and other gaseous hydrocarbons in a liquid state;
4. Coal and lignite; coke; and semi coke of coal or lignite; and petroleum coke.

CCL is charged at a specific rate per unit of energy and there is a separate rate for each of the four categories of taxable commodity. Exemption is available for renewable electricity and entities with Climate Change Agreements ("CCAs") are entitled to relief. CCAs are analysed separately in another section. Energy used for charitable or residential purposes (e.g. many schools, university halls of residence, care homes etc.) is excluded from the levy.

The tax is charged on the person who supplies the taxable commodities, and this person must register and account for the tax to HMRC. The cost of the levy will be incorporated in the price paid for energy by the supplier's customers.

Additional rates of CCL, known as Carbon Price Support rates, were introduced from 1 April 2013 as part of implementation of the Carbon Price Floor. This assessment covers the existing "main rates" of CCL: the Carbon Price Floor is analysed separately in another section of this document.

A summary of the effectiveness of the policy within certain criteria can be found below.



Assessment of effectiveness

The table below assesses the effectiveness of the Climate Change Levy against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from a range of reports and commentaries published since the tax was introduced.

Criteria	Commentary	Rating

	Criteria	Commentary	Rating
Design	**Strategy**	• The government's aim in introducing CCL was to reduce emissions of CO2 by 2 million tonnes per year, making a significant contribution to the UK's targets under the Kyoto Protocol. • A government assessment of CCL published in 2005 projected that by 2010 it would have reduced energy demand in the commerce and public sector by around 15%, saving around 3.5 million tonnes of carbon dioxide a year. • However, in a 2012 report the CBI observed that the purpose of CCL was somewhat unclear. • Many commentators and respondents to consultations on CCL, from the pre-introduction stage onwards, objected that a tax on downstream electricity use does not discriminate between sources of non-renewable electricity according to their carbon content. These commentators viewed CCL as a poor alternative to a true carbon tax, which was less efficient in targeting the environmental goal of reducing CO2 emissions. (However, the introduction of the Carbon Price Floor would appear to have addressed this issue.) • A 2005 report from the Institute of Public Policy Research argued that the rates of CCL for different taxable commodities failed to match the differing levels of CO2 emissions associated with each commodity: on the basis of CO2 emissions, the CCL rate for gas was higher than for LPG and nearly double the rate for coal, and this was part of the reason why coal use had increased following the introduction of CCL. • Responses to the government's initial consultation prior to the introduction of CCL, observing that it would damage the competitiveness of British industry, led to the introduction of reliefs for some energy-intensive sectors through the mechanism of Climate Change Agreements. • However, CCL reliefs for energy-intensive sectors have been criticised on the basis that the worst offenders had most to gain in comparison with those businesses which had already undertaken to promote energy efficiency. • In 2001, in the first year of CCL, the CBI considered that the way in which some – but not all – energy intensive industries were relieved of the burden of CCL through CCAs led to too many anomalies. The CBI believed that 2,300 companies with energy bills of greater than £100,000 were not entitled to a rebate through CCAs because they did not have a high potential to pollute, even though they were intensive users of energy. • The Engineering Employers' Federation also complained of anomalous impacts between sectors, complaining that the introduction of CCL had severely affected the rubber and plastics industries. • The House of Commons Environmental Audit Committee concluded that the majority of CCL's impacts were established before it came into operation (from businesses re-assessing their energy use in anticipation of the introduction of CCL). The Committee suggested that the actual effect of CCL on energy prices is limited. • In 2007 the National Audit Office reported that the cost of CCL is a relatively unimportant element of energy costs outside of energy intensive sectors	
	Definition	• There have been few complaints of a lack of clarity in the way the CCL is structured and there have been no significant legal disputes based on poor definitions of any key aspects of the tax legislation. • The introduction of the Carbon Price Floor has the potential to lead to more complexity and confusion of definitions in the future.	
	Certainty	• In the 2006 Budget the government announced that from 1 April 2007 CCL rates would increase in line with inflation each year, and this has happened since. • Changes in rates are generally announced at Budgets approximately one year in advance of taking effect.	
	Metrics	• CCL taxes commodities based on their energy content, using a measure of energy content appropriate to each fuel type • The Marshall Report (1998), originally recommending the introduction of CCL, had suggested that it be based on the carbon content of fuels, but the government rejected this. The government argued that this was simpler and that, given the structure of the electricity market, it was only possible to determine the carbon content of electricity as a broad average, • Proposed changes to the European Energy Tax Directive contemplate a move towards taxing products based on their CO2 content.	
	Alignment	• Reporting on the results of a business survey in 2012, the CBI considered that CCL formed part of a confusing number of carbon measures with multiple overlaps with other domestic and European measures (e.g. the Renewables Obligation and European Emissions Trading Scheme): "*The vast majority of members interviewed reported a genuine lack of appreciation of how these various measures are intended to work together.*").	
Implementation	**Market**	• Respondents to a 2009 CBI survey who stated that CCL was not an influential factor in investment decisions gave reasons including a lack of transparency and understanding of how much CCL was paid. • In 2005, the Engineering Employers' Federation argued that the bulk of CO2 reductions as a result of CCL were achieved from the commercial and public sectors where initial energy savings could be made relatively easily without major restructuring, whereas the levels of reduction in industrial sectors had been, and would continue to be much lower. • A survey for *Energy in Buildings and Industry* in 2001 found that, in the first year of CCL: 79% of respondents said that CCL had not altered the priority given to energy efficiency in their organisation and 62% said they were not taking any further energy efficiency measures as a result of the levy. • The certification requirements for CCL reliefs can create confusion where a landlord receives energy	

Criteria	Commentary	Rating
	supplies from a utility, but a tenant is the ultimate consumer. In some situations the landlord can certify a tenant's entitlement to relief but this can lead to contractual difficulties between landlord and tenant in allocating the risk of inadvertent underpayment. Where a landlord cannot certify on behalf of a tenant it can lead to overpayment of CCL, unless remedial steps are taken.	
Complexity	• In 2012 the CBI commented that CCL is very simple to manage. • The compliance burden is mainly borne by energy suppliers, except where end users need to provide certificates of their entitlement to reliefs. • There is little evidence of significant complaint from energy providers about administrative complexity.	
Incentives & Penalties	• In 2007 the National Audit Office reported companies do not recognise CCL as a major decision driver. CCL had no discernible material effect on the investment decisions of any survey participants outside energy intensive industries (where CCAs had an impact). Businesses that had invested in energy efficiency were unable to quantify how much of an influence CCL had been in their decisions, if any. • A 2009 CBI survey found that while the great majority of businesses responding considered that CCL was relevant to their business, only half considered that it influenced their investment decisions included it in the costing decisions for projects, albeit mainly as an indirect influence. Only one respondent considered CCL to be a very important factor – the exemption for electricity generated at good quality CHP plants (subsequently withdrawn) was critical to the decision to invest in new CHP facilities. • In 2012 the CBI noted that the ease of compliance with CCL for energy end-users, through an addition to energy bills, can mean that it is not visible enough to decision makers, which can reduce some of its behaviour-changing impetus.	
Enforcement	• There is no body of published comment suggesting that CCL obligations are not well enforced by HMRC.	
Cost	• CCL was introduced as a revenue neutral tax • It generated revenue of £635 million in 2012/13	

Scoring

To quantify commentators' opinions as to the overall effectiveness of Climate Change Levy, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	While the overall aim of CCL seems relatively clear, there are doubts about whether it is as well-targeted on reducing CO2 emissions as either a carbon tax, or a tax based on the carbon content of fuel, would be. There is also doubt about whether measures taken to relieve the burden on energy-intensive industries undermine CCL's environmental objectives. It is not clear that CCL has a significant impact in redirecting business towards less polluting sources of energy. There is some confusion as to how CCL fits with other policies aimed at CO2 reduction. However, the structure of the tax appears to be reasonably clear.	
Implementation	CCL is considered to be simple to manage and enforce. It may create some difficulties for landlords and tenants, and have quite different impacts for property occupiers in different sectors. A lack of clear visibility about the cost of CCL to end-users of electricity, and the fact that CCL represents a relatively small proportion of energy costs mean that it provides a relatively poor incentive for carbon reduction.	

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Carbon Price Floor

Outline

The Carbon Price Floor ("CPF") is a policy to support the price of carbon dioxide at a steadily increasing minimum level, by imposing a tax on fossil fuel used in the generation of electricity. It came into effect 1 April 2013.

The CPF introduces a new charge to tax when fossil fuels (gas, coal and oil) are supplied for use in power generation. Depending on the fuel involved, the tax charged is either the "carbon price support rate" of Climate Change Levy (for gas and coal), or an equivalent Hydrocarbon Oil Duty carbon price support rate. The tax is payable by electricity generators and it is expected that the cost of the tax will then be incorporated in the price of electricity. It will be a commercial decision for suppliers of electricity as to how the cost is passed on to electricity users.

The mechanism is intended to incentivise investment in low-carbon power generation by providing greater support and certainty to the carbon price in the UK's electricity generation sector.

The carbon price floor is initially £16 per tonne of carbon dioxide and will gradually increase to £30 per tonne of carbon dioxide in 2020. Tax rates are set with the aim of underpinning these minimum carbon dioxide prices.

A summary of the effectiveness of the policy within certain criteria can be found below.

Carbon Price Floor									
Strategy	Definition	Certainty	Metrics	Alignment	Market	Complexity	Incentives Penalties	Enforcement	Cost
Design					Implementation				

Assessment of effectiveness

The table below assesses the effectiveness of the Carbon Price Floor against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from the summary of responses to the government consultation, held between 16 December 2010 – 11 February 2011, and from other published reports.

	Criteria	Commentary	Rating
Design	**Strategy**	• The motivation for introducing a CPF is the government's belief that it is necessary to incentivise investment in low carbon power generation technologies. Several witnesses to the House of Commons Environmental Audit Committee shared this view. However, many businesses and the previous government considered that a CPF was not necessary to achieve this goal. • The government argues that there is considerable uncertainty about long term carbon price trends. Since the carbon price is a significant driver of decisions to invest in renewable generation technology, this restricts the levels of investment, and possibly diverts capital into less risky fossil fuel generation. The CPF is intended to improve long term price certainty and so boost investment in low carbon generation. • The government noted the conclusion of the Stern Review, that a transparent and predictable carbon price is the most cost-effective way of encouraging emitters to invest in alternative low-carbon technologies. • The mechanism chosen by the government for maintaining a floor price for carbon is the taxation of fossil fuels used to generate electricity, at rates which take account of the fuels' average carbon content. The rates represent the difference between the government's target carbon price and the futures market price for carbon in the EU ETS. • The government estimates that the CPF will drive £40-£40 billion of new investment in low-carbon electricity generation, equivalent to 7.5-9.3 GW of new capacity. • Some respondents to the government's consultation commented that the CPF acts more like a tax than an incentive for green investment. There was widespread concern with the idea that, as a result of the CPF two different types of CCL would be charged on some transaction chains. • There was general concern that the mechanism was not transparent enough. • The House of Commons Select Committee was critical of the policy. The Committee stated that it did not believe that the policy will have an impact on real emission reductions and raised concerns over the policy's strategy in relation to improving energy efficiency. The Committee was concerned that the CPF would raise the UK carbon price, while that in the rest of the EU remained very low, resulting in "carbon leakage" since electricity production and industries could relocate to other Member States.	
	Definition	• There was not a significant body of published concern relating specifically to the clarity of definitions used in the CPF legislation. However, there was general concern about the complexity of the policy instrument.	

	Criteria	Commentary	Rating
	Certainty	• The government has announced its long-term target for the CPF, increasing along a linear path from £16 per tonne of carbon dioxide to £30 per tonne of carbon dioxide in 2020 (in 2009 prices). Indicative carbon price support rates have been published for the years up to 2017-18. • There was considerable fear from respondents to the government's consultation over the long-term future of the policy. Those against the policy wanted it scrapped whereas those in favour doubted that the government would go through with its planned increases for 2020. • A trade association group responded that given its potential effect on the competitiveness of UK Industry it is surprising that it is unclear how long the policy will remain in force. • The Renewables Energy Association noted that investors would have greater certainty it the government's commitment to the policy extended beyond 2020.	
	Metrics	• The equivalent carbon price support rate is expressed in pounds per tonne of carbon dioxide, and represents the difference between the government's target price and the futures price in the market. • The carbon price support rates of CCL and HOD by which the CPF is delivered are set in pence per unit of energy, weight or volume (kilowatt hour, kilogram, gigajoule, or litre) according to the type of fuel involved. These rates are arrived at by multiplying the equivalent carbon price support rate by the standard emission factor of the fuel involved. • There is no significant body of published concern relating specifically to the choice of metrics used in implementing the CPF.	
	Alignment	• The government acknowledged that, on its own, the CPF would probably be insufficient to encourage the total amount of low-carbon investment required to decarbonise the power sector, and viewed the CPF as complementing a range of other measures for electricity market reform • The Carbon Price Floor will be working in unison with the EU ETS. • The government argued that the CPF complements the EU ETS and leads to faster progress in meeting binding 2050 decarbonising targets. One energy supplier outlined the need for complementary regulation on top of EU ETS to ensure faster progress. • However some respondents have raised fears that the carbon price floor could undermine the EU ETS and reduce the EU ETS' effectiveness. As a consequence some respondents recommended that the EU ETS cap should be tightened or a price floor agreed within the EU ETS. • The government noted to parliament's European Scrutiny Committee that the draft revised EU Energy Taxation Directive would remove the EU law *vires* for the carbon price floor by preventing mandatory exemptions from carbon emissions taxes on energy products which are subject to the EU ETS. • Some respondents observed that the CPF overlapped with the feed-in tariff, leading to increased costs and administrative complexity for companies.	
Implementation	**Market**	• The CPF caused considerable reaction amongst the industry although reactions were mixed. • Those against the policy argued that it: – created an 'unfair playing field' as some suppliers were worse affected than others – was poorly implemented; and – should be scrapped, with Eon arguing it just acts as a tax and does not help green technology investment, subsidising hydro and nuclear which already receive financial support. • Those for the policy argued that it: – encourages green investment as it penalises suppliers that use fuels with high emissions – strengthens the EU ETS' regulations and is fundamental in reaching the UK's binding 2050 targets that aim for a substantial decrease in the consumption of carbon. • Some respondents raised concerns over the effect of the CPF on disadvantaging UK companies in a global market and one respondent outlined in particular there will be a cumulative burden on manufacturers. This fear was also made apparent in industry responses to the policy's implementation. • Further fears were raised on the effect of the carbon price floor on UK-based generators, in that the price floor could act as an incentive to import electricity from Europe. • The Confederation for Paper Industry considered that there are severe implications for energy intensive industries as the energy cost cannot be passed on to consumers, since the rest of its European competitors do not face the same costs. • Government consultation respondents raised concerns over the risk of the policy limiting the diversity of energy suppliers as coal plants, for example, would struggle with lower efficiencies in electricity production. This fear was also expressed by suppliers that rely on coal for their electricity production. • Most respondents to the government's consultation agreed with the government's proposal that reduced carbon price support rates of CCL should apply to commodities used in power stations using carbon capture and storage ("CCS") technology, since otherwise the additional tax would prejudice the economics of using CCS to reduce emissions. • Concern was raised by some respondents on how the policy would impact on Combined Heat and Power (CHP) generation: CHP requires a higher level of input fuel per kilowatt hour compared with an electricity-only power station and so there was concern that the CPF may make it attractive to stop operating as a CHP. As a result, the government has provided relief for CHP plants. The government also agreed to calls for relief for those that undertake carbon capture and storage. • Consultation respondents also raised fears over the application of the policy to Northern Ireland's single energy market, considering that it could hinder Northern Ireland's ability to meet its renewables target.	

	Criteria	Commentary	Rating
	Complexity	• Many respondents queried how the CPF would interact with the Feed-in Tariff, outlined in the electricity market reform. A representative from the manufacturing sector stated that only one of these proposals is required and that they add complexity and costs to UK manufacturers • Some consultation respondents raised concerns that the person who supplies the fossil fuels would be responsible for paying the tax, but would not know how much of the fossil fuel provided would be used to generate electricity. It was suggested that the generator should be made responsible for the tax as they would be able to accurately determine how much of the fuel was used to generate electricity. In response the government stated that 'It is the final supplier of fuel to a generator who will be liable to pay the carbon price support rates of CCL to HMRC'. However, the tax has in fact been implemented such that the electricity generator is responsible for accounting for tax to HMRC.	
	Incentives & Penalties	• The government believes that the CPF will play an important role in building incentives for investment in cleaner technologies by creating a more stable environment for investment and imposing larger costs on generators of electricity produced from less efficient sources.	
	Enforcement	• The scheme is still in its infancy and there is limited evidence on implementation and enforcement.	
	Cost	• The government's regulatory impact assessment concluded that the CPF would have a resource cost of around £6.1 billion for investment in new technology in the period 2013-2030. Over the same period there would be a carbon saving of £7.2 billion and savings due to improvement in air quality of £0.9 billion. • Many industry respondents to the government's consultation considered that the CPF is ultimately a tax that builds on the existing EU ETS framework, adding additional costs to UK energy suppliers and energy intensive industries.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of Carbon Price Floor, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	There is a logical rationale for the introduction of the CPF as a means to encourage investment in renewable generation by improving price certainty but dispute as to whether this will be effective in practice. There is recognition that the CPF will only accomplish this goal as part of a broader policy framework of electricity market reform measures. There is concern that the CPF will impose increased costs on businesses for uncertain benefits. While announcements about the trajectory of the policy to 2020 have somewhat improved certainty up to that date, the lack of certainty beyond 2020 may continue to affect long term investment decisions. Opinion is divided as to whether the CPF will support or undermine the EU ETS.	
Implementation	The scheme is still in its infancy and analysis is required to assess the success of the policy. There has been a mixed market reaction to the policy, and it remains to be seen whether it will provide an effective incentive to investment and whether concerns about economic competitiveness and the overall complexity of electricity market reform instruments will be borne out. The government's initial cost analysis is positive, but as yet untested.	

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Climate Change Agreements

Outline

Climate Change Agreements (CCAs) are voluntary agreements which allow energy-intensive businesses to receive up to a 90% discount from the Climate Change Levy (CCL) in return for meeting energy efficiency or carbon-saving targets.

"Umbrella" agreements are negotiated between the government and industrial sector organisations, and set commitments for the sectors. "Underlying" agreements contain targets allocated by the sectors to individual operators.

Umbrella agreements are currently in place with more than 50 industrial sectors, such as steel, chemicals and cement and intensive agricultural sectors, with about 4,300 underlying agreements covering some 9,900 facilities.

When originally introduced in 2001, the discount on CCL was 80%. This reduced to 65% in April 2011, and increased to 90% in April 2013, when a new set of CCAs, lasting until 2023, were introduced. At the same time, responsibility for administering the scheme was transferred from DECC to the Environment Agency. In 2016, there will be a review of CCAs and of progress towards meeting the efficiency targets which have been set in the 2013 agreements.

A summary of the effectiveness of the policy within certain criteria can be found below.

Climate Change Agreements									
Strategy	Definition	Certainty	Metrics	Alignment	Market	Complexity	Incentives Penalties	Enforcement	Cost
Design					Implementation				

Assessment of effectiveness

The table below assesses the effectiveness of the Climate Change Agreements against a standard set of criteria based upon recognised principles of good policy formation. The information was drawn from published reports and commentaries, and the summary of responses to the government consultation, held between January – March 2012.

	Criteria	Commentary	Rating
Design	**Strategy**	• The policy aims to compensate energy intensive firms that are taking measures to improve their energy efficiency, since these businesses would otherwise pay high charges through the Climate Change Levy, with potential implications for the competitiveness of UK businesses in energy intensive sectors. • CCL also aims to achieve reductions in energy consumption and emissions by energy-intensive sectors. • There is clearly some tension between the goals of reducing costs for energy intensive businesses on the one hand and achieving environmental goals on the other. There is also some lack of clarity as to how the environmental goals of reducing consumption and reducing emissions are prioritised against each other. • In 2007 the National Audit Office (NAO) found that sectors subject to CCAs had made greater energy efficiencies and emissions reductions than sectors which were not subject to CCAs and which faced the full rate of CCL. • The NAO noted that most CCAs were designed to promote energy efficiency rather than absolute reductions in carbon emissions, and that CCAs were not projected to achieve the ambitious carbon reduction targets announced when they were introduced. In 2000 the government had anticipated annual savings of at least 2.5MtC in 2010 against business as usual projections, and by 2007 this had been revised down to 1.9MtC of annual savings. • A government report on the performance of CCAs to 2010 reported that 38 of 54 sectors met their targets outright, and that over 99% of facilities had their CCL discounts renewed. • In a 2007 npower survey, 50% of major energy users said that compliance with the agreements had resulted in energy savings, with the other 50% saying it had not. • DECC has claimed that if all energy efficiency targets under the 2013 CCAs are met, then by 2023 they will cut up to 19 million tonnes of carbon emissions, reduce energy consumption by 100 terawatt hours and lead to an estimated £300 million in savings for 9,000 sites.	

	Criteria	Commentary	Rating
	Definition	• Two respondents to the government's 2012 consultation requested clarification of eligibility under the scheme rules and sector Umbrella Agreements. • Responding to the government's consultation on draft regulations for implementing the 2013 CCAs, 11 sector associations suggested that it was unclear what was meant by a "facility" entitled to a CCA: whether this is intended to mean a single facility, group of facilities or a target unit. • 27% of respondents argued for greater definition of the responsibilities of an industry sector. • There was considerable doubt among respondents about the meanings of infringements under the new penalty regime, with 51% of respondents wanting infringement 1 clarified and 24% wanting greater clarity on the definition of genuine errors with infringement 2. Some respondents noted a lack of clarity in respect of what constitutes minor and major misdemeanours that could lead to termination of participants.	
	Certainty	• Commenting on the targets in the 2013 CCAs, the UK Emissions Trading Group (representing businesses covered by the EU Emissions Trading Scheme) commented that the targets set were challenging but provided industry with a degree of certainty about the goals to be achieved over the next eight years. • Five respondents to the government's 2012 consultation outlined the need for guidance on the potential change of the target currency in the 2016 target review. • Many respondents to the government's consultation commented that the use of fixed factors would be 'predictable, transparent and provide certainty'.	
	Metrics	• Initially eligibility for CCAs depended on meeting criteria set by the EU Integrated Pollution, Prevention and Control (IPCC) Directive, which are based upon processes emitting certain pollutants rather than intensity of energy use. • In 2006, eligibility was extended to businesses meeting measures of energy intensity under the EU Energy Products Directive: energy intensity must be greater than 10 (i.e. energy costs account for more than 10% of production costs), or be between 3 and 10 with a 50% or greater import penetration ratio. • The metrics used for measuring performance under specific CCAs vary between sectors. These are converted into tonnes of CO2 equivalent for the purposes of reporting and comparing performance. Conversion to tonnes of CO2 is based on the fuel mix used in each sector. Where sectors reduce emissions of gases other than CO2 these are converted to CO2 using established conversion factors. • Respondents to the government's 2012 consultation expressed considerable concern over the lack of accounting for the use of renewable energy.	
	Alignment	• According to a major energy provider, many of its customers are concerned with the cumulative impact of energy policies on their business and regard CCAs as part of an over-burdensome set of policies aimed at carbon emission reduction. • CCAs are intended to complement CCL, by relieving the burden of tax on businesses in energy intensive industries, which might otherwise find the UK uncompetitive, whilst providing an alternative means of incentivising carbon reduction in these businesses. • As a strategy to improve energy efficiency, CCAs are intended to align with the Carbon Reduction Commitment ("CRC"): emissions already covered by CCAs are exempt from the CRC. • There was much debate among respondents to the government's 2012 consultation over the alignment of the policy with other reporting schemes such as the EU ETS, CRC and GHG reporting guidelines. However, the largest group of respondents favoured the government's approach of using fixed factors for target setting and assessment. Only 15% were for total alignment with GHG reporting guidelines. • Respondents to the 2012 consultation feared that the publication of results from the CCA would lead to confusion if different in format to other schemes such as the EU ETS.	
Implementation	**Market**	• The Engineering Employers' Federation ("EEF") has stated that the targets underpinning the current round of CCAs are based on evidence submitted by industry representatives and reflect reductions that are cost effective, realistic and energy efficient. However, the EEF would like more industrial sectors to have access to CCAs. • Some contributors to consultations have observed that the changes to CCAs implemented in April 2013 are a positive example of the government and industry working together to meet climate change targets through enabling industry to assess realistic emissions savings. • The response to the September 2011 consultation showed that 76% of the 99 respondents were in favour of the introduction of a buy-out mechanism to the CCA scheme, which has now been implemented. • 60% of consultation respondents warned that there would be unintended consequences for the industry as a result of the revised agreements introduced in 2013, with a significant number raising fears over commercially sensitive information being released and expressing concern that Sector Associations' confidential relationship with their operators would be put at risk. • Further concern was raised by a number of respondents that the time frame allowed for new entrants to join should be extended and it was currently unfair.	
	Complexity	• The new CCAs in place since April 2013 have been simplified in comparison to the previously existing CCAs. Simplifications include preventing new sectors from joining the scheme; enabling installations with 70% eligible energy use to have CCL relief on all their energy use (whereas previously there was a 90% threshold for this); and changing the way in which target units report and calculate energy and carbon, including using fixed factors for target setting and assessment. • Respondents to the government's 2012 consultation indicated that the role played by sector administrations helped reduce the administrative burden placed on independent companies/target units (TUs).	

Criteria	Commentary	Rating
	• Respondents to the 2012 consultation differed on whether the biannual reporting required under CCAs is more or less complex than annual reporting. Advocates of annual reporting alignment believed that complexity would be reduced by aligning CCA reporting with other schemes such as CRC and EU ETS. • To obtain CCL relief as a result of a CCA, companies must provide certificates to their energy providers. . • Two respondents to the 2012 consultation feared that it would be administratively burdensome to re-apply to the scheme if a CCA was terminated due to failure to meet targets.	
Incentives & Penalties	• The NAO found in 2007 that the process of negotiating CCAs and the development of monitoring regimes to measure progress against emissions targets had raised awareness of the potential for energy efficiencies in the affected industry sectors, and this had led to these efficiencies being made. • The NAO also noted that many CCAs originally introduced had not been as challenging as they could have been, with many businesses achieving emissions reductions far in excess of their CCA targets, suggesting that the CCAs themselves were not incentivising additional reductions. However, the NAO also observed that some overachievement against targets was the result of genuinely significant improvements in efficiency as much as of weak targets. • The NAO observed that some underachieving businesses can continue to benefit from the CCL discount even if they meet their targets, if other members of their sector have overachieved. Approximately 250 target units passed the 2004 milestone despite failing to achieve their individual efficiency targets. • Two thirds of businesses with CCAs surveyed by the NAO in 2007 said that CCAs had no discernible effect on decision-making and that they were not a direct material consideration in investment decisions. • Respondents to the government's 2012 consultation identified the tension between encouraging energy efficiency and keeping costs for industry low to boost UK competitiveness, observing that increasing energy costs do encourage energy efficiency but if these energy costs continue to escalate, then energy intensive industries may migrate abroad. • Prior to March 2013, the only penalty for non-compliance was de-certification or termination of a CCA (and it was possible for non-compliance facilities to have CCAs renewed if overall sector performance was good enough). Since April 2013 there has been a system of financial penalties for minor infringements that do not warrant decertification or termination of CCAs. Infringements are categorised as category 1 – for which there can be a 10% loss of CCL rebate, or the less serious category 2. • For a category 1 infringement, 19 respondents to the government's 2012 consultation felt that the 10% loss of the CCL rebate was disproportionately harsh • Respondents expressed general support for the penalties relating to category 2 infringements, though reassurance was sought over the use of a pragmatic approach and following the consultation the Environment Agency has been granted discretion in imposing penalties. Some respondents were concerned that the minimum fine would be too high. As a consequence, the minimum fine was cut from £500 to £250. The government rejected a call by some respondents for a "de minimis" threshold due to the vast range of organisation sizes taking part in the scheme.	
Enforcement	• Compliance with the scheme is monitored by the Environment Agency (previously by DECC) and there has been little suggestion that it is not effectively enforced. • However, as noted it has been possible for individual companies to remain in the scheme while failing to meet their targets, if their overall sector has performed sufficiently well.	
Cost	• The scheme looks to help reduce energy costs for energy intensive firms that are meeting targets to reduce energy consumption through energy efficiency improvements. • The NAO noted that CCAs carry a cost to the exchequer in terms of CCL foregone but because this is received by businesses, the net effect to the UK is zero. In 2006 the government considered that CCAS would bring a net benefit to the UK of £90 for every tonne of carbon saved (because businesses were expected to save more in energy bills than they spend making new investments and because there is an economic benefit of improved air quality as a result of reduced emissions). • Under the arrangements in place from 2013, the administration costs of implementing the scheme have been transferred to the scheme's participants by charging Sectors and Target Units to participate in the scheme. • In the government's 2012 consultation, there was some resistance to the administrative costs of the scheme being placed on the sectors rather than the governments: half of the respondents to the relevant question proposed that no fee should be required especially given the benefit the EA acquire from having the Sector Associations in place. 16% of consultation respondents commented that Sector Associations help to reduce data publication costs for individual companies.	

Scoring

To quantify commentators' opinions as to the overall effectiveness of Climate Change Agreements, the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	Although evidence is disputed, it appears that the CCA scheme appears to be relatively effective in encouraging energy efficiency improvements and resulting carbon reductions, especially when compared to CCL. Energy intensive sectors also appear to agree that, by reducing the costs of CCL, CCAs mitigate economic disadvantage. While there are some concerns about definitional clarity, the policy appears to have worked well over a long period of time. Respondents observed that CCA's help bring government and industry together to address climate change.	

Implementation	While CCAs appear to be an example of cooperation between government and industry, there are significant concerns that CCA data publication requirements will damage commercial confidentiality. The scheme's incentives appear generally effective, and have been enhanced with efficiency targets increasing from April 2013, when a more stringent enforcement and penalty process was also introduced.	

Sources of Information

Reference	Access Date	Link Address
AEA Technology Plc (2011) Climate Change Agreements: Results of the Fifth Target Period	01/09/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/49000/3366-cca-5th-target.pdf
DECC (2012) Climate Change Agreements: Government response to the January and March 2012 consultations	01/09/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42867/5890-cca-cons-response.pdf
DECC (2012) Climate Change Agreements: Government response to the September 2011 consultation	01/09/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42830/4175-cca-cons-gov-response.pdf
DECC (2010) Government Response to the second Consultation on the Form and Content of New Climate Agreements	02/09/13	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/43213/1_20100323111626_e____ccaGovernmentResponse.pdf
DECC and Environment Agency (2013) Industry agree stretching energy efficiency targets with government	02/09/13	https://www.gov.uk/government/news/industry-agree-stretching-energy-efficiency-targets-with-government
Engineering Employers' Federation (2013) Climate Change Agreements	02/09/13	http://www.eef.org.uk/manufacturingagenda/climate-change-agreements.aspx
Environment Agency (2013) Climate Change Agreements Scheme	03/09/13	http://www.environment-agency.gov.uk/business/topics/pollution/136236.aspx
GreenWise (2013) Government agrees new Climate Change Agreements with energy intensive industries	03/09/13	http://www.greenwisebusiness.co.uk/news/government-agrees-new-climate-change-agreements-with-energy-intensive-industries-3884.aspx
Mineral Products Association (2010) Response to DECC Second Consultation on the Form and Content of New Climate Change Agreements	03/09/13	http://cement.mineralproducts.org/documents/2010-02-15-%20MPAC%20response%20to%20the%20DECC%202nd%20new%20CCA%20condoc%20F.pdf
Sustainable Review (2013) Climate Change Levy breaks promised for energy efficient businesses	02/09/13	http://sustainablereview.net/climate-change-levy-breaks-promised-for-energy-efficient-businesses/

Enhanced Capital Allowances

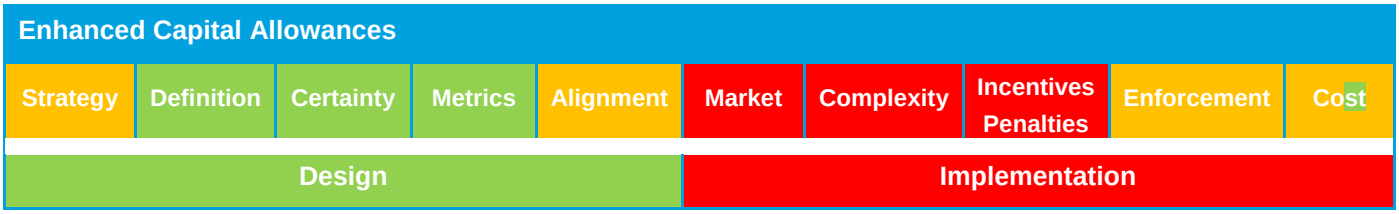
Outline

The Enhanced Capital Allowance (ECA) Scheme is a key part of the Government's programme to manage climate change. It provides businesses with enhanced tax relief for investments in equipment that meets published energy-saving criteria.

The Enhanced Capital Allowance (ECA) scheme enables businesses to claim a 100% first year capital allowance on investments in certain energy saving equipment, against the taxable profits of the period of investment. Capital allowances enable businesses to write off the capital cost of purchasing new plant or machinery (e.g. boilers, motors), against their taxable profits. Additionally companies within the charge to UK corporation tax but in a tax loss position may surrender tax losses attributable to expenditure incurred on ECA assets in exchange for a first year tax credit. This provides a cash benefit to companies with no taxable profits against which to utilise their losses.

The general rate of capital allowances is 18% a year on a reducing balance basis. Some technologies supported by the ECA Scheme (e.g. boilers, lighting) are included in a special capital allowances pool where the general rate of capital allowances is 8%. Additional benefits of purchasing ECA qualifying energy efficient technologies could include: improved cash flow, lower energy bills, reduction in Climate Change Levy or CRC payment.

A summary of the effectiveness of the policy within certain criteria can be found below.



Assessment of effectiveness

The table below assesses the effectiveness of Enhanced Capital Allowances against a standard set of criteria which define the principles of good policy. The information was drawn from the government evaluation of the scheme published in May 2008

	Criteria	Commentary	Rating
Design	**Strategy**	• The ECA scheme has resulted in changes to purchasing patterns for relevant technologies. However, the scheme may only have been effective in incentivising businesses to purchase specific types of energy saving technologies.	
	Definition	• The objectives, definition and benefit of the scheme are well documented on government websites and information from the carbon trust	
	Certainty	• The scheme was brought into existence in 2001 and is set to continue for the foreseeable future.	
	Metrics	• Assets qualifying for tax relief under the ECA scheme are determined by either inclusion on a product list, reference to performance specifications or by certification on a case by case basis (as is the case with Combined Heat and Power equipment). The product list for both energy and water saving technologies is updated regularly and the specifications for criteria based assets are available on the ECA website.	
	Alignment	• Whilst governed by the Carbon Trust, the scheme does not overlap with any other instruments.	
Implementation	**Market**	• With the introduction of the scheme, it was hoped there would be a noticeable shift towards the procurement of energy efficient products. Surveys indicate that about 42% of medium sized companies and 58% of large companies were aware of ECAs. • 68% of the companies aware of ECAS purchased any (efficient and non-efficient) boilers, lighting, motors & drives and refrigerant equipment (a sample of ECA qualifying assets) and 25% of aware companies purchased energy efficient equipment / assets. • Although the scheme is applicable to individuals, partnerships and companies, the scheme is criticized for excluding individuals and partnerships from obtaining first year tax credits which are available only to	

Criteria	Commentary	Rating
	companies within the charge to UK corporation tax. The first year tax credit allows loss making companies to benefit from investing in ECA assets. Additionally, government bodies or organisations derive no monetary relief for such investments although take up is comparatively high in this sector. • Surveys suggest that awareness of the scheme is not a major factor when companies invest in assets qualifying for ECAs. Often membership of other energy saving/trading schemes or the level of energy usage of a company play a role in whether assets qualifying for ECAs are purchased in favour of non-energy efficient assets. • The effectiveness of the scheme is restricted in part due to a lack of awareness and the complexity/administrative burden of making a successful claim for ECAs	
Complexity	• The complexity surrounding the scheme is a major reason for businesses not making a claim for ECAs. The administrative burden and process is often cited as extensive and time consuming.	
Incentives & Penalties	• The potential direct tax benefits are often conceived as being too low to offset the added administrative burden and complexities surrounding the scheme. Reputational benefits for businesses using assets qualifying for ECAs are insignificant.	
Enforcement	• The scheme is not mandatory, however, claims for ECAs are frequently reviewed by HMRC, especially where these lead to tax repayments for loss making companies.	
Cost	• Apart from the administrative burden to purchasers, suppliers are required to certify their products and submit the specifications to the Carbon Trust. Getting products accredited can often be a time consuming procedure.	

Scoring

To quantify the overall effectiveness of Enhanced Capital Allowances the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

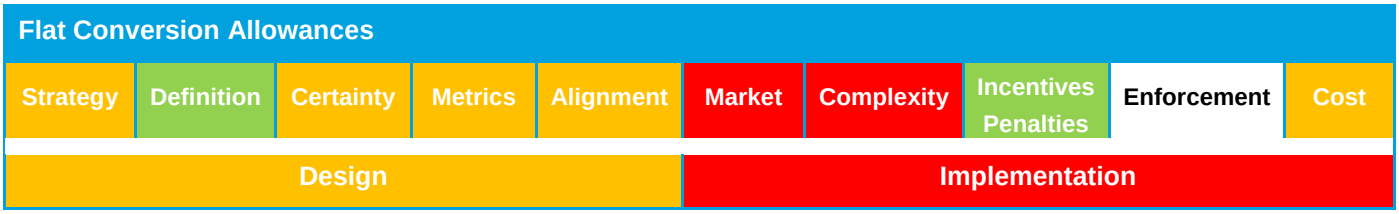
Criteria	Commentary	Score
Design	The scheme incentivises the procurement and use of low carbon technologies helping to reduce operational carbon emissions.	
Implementation	The effectiveness of the scheme is restricted in part due to a lack of awareness and the complexity/administrative burden of making a successful claim for ECAs.	

Flat Conversion Allowances

Outline

This relief provides 100% per cent capital allowance for the conversion or renovation of empty or underused space above shops and other commercial premises to residential uses. Introduced in 2001 as a result of the Urban Task Force and aimed to increase the number of affordable residential properties available to let.

A decision to repeal the Flat Conversion Allowances came in the Finance Bill 2012 and took effect from April 2013.
A summary of the effectiveness of the policy within certain criteria can be found below.



Assessment of effectiveness

The table below assesses the effectiveness of Flat Conversion Allowances (FCAs) against a standard set of criteria which define the principles of good policy. The information was drawn from the summary of responses to the government consultation.

	Criteria	Commentary	Rating
Design	**Strategy**	• The policy was viewed as useful in promoting empty or underused space above shops and other commercial premises to residential uses, albeit that the uptake was very low. • Upon the policy being abolished, some responses to the government consultation commented that there was still 'sufficient policy rationale' for its continuation.	
	Definition	• The definition of the policy was sufficiently clear.	
	Certainty	• The relief has been abolished from April 2013. In the event that the full 100% allowance was not claimed, any residual unclaimed qualifying expenditure was then written down at a rate of 25% per annum. In instances where the tax payer has qualifying expenditure, entitlement to claim writing down allowances in respect of this has now ceased as of April 2013.	

	Metrics	• There are a number of conditions that must be satisfied in order to be eligible for relief.
		• Broadly the major conditions are:
		  ◦ The property must have been built before 1980, have no more than 4 storeys above the ground floor and each flat must have no more than four rooms;
		  ◦ The ground floor must be solely for business use and, when the property was constructed, the floors above the ground floor were primarily for residential use.
		  ◦ These upper floors must have been either unoccupied, or used only for storage, for at least one year before the conversion work starts;
		  ◦ The flats must be suitable for letting as a dwelling and be available for short-term letting (but cannot be let to someone connected with the person who incurred the conversion or renovation expenditure); and
		  ◦ The flats created must not be high value. This is calculated by reference to a table of notional furnished rent, and the figures have remained unchanged since 2001.	

	Alignment	• The policy was unique in its function	
Implementation	**Market**	• Studies reveal that the relief does not influence behaviours and that the work would be carried out anyway for commercial reasons • The FCAs were poorly publicised during their existence and the rules were considered too restrictive for taxpayers to qualify. • Evidence provided by HMRC suggested that take-up of this measure (which was always envisaged as being modest in its effect), has been lower than expected, and it appears that it may not have achieved its objectives to any significant extent. The reasons for this are unclear but it could be that commercial landlords are often reluctant to take on residential tenants because of the perceived risks and "hassle factor". In addition, potential properties are often subject to leases so that it can prove difficult to secure agreement between all parties. There can also be issues of security, insurance and access, which may act as barriers to the greater take-up of this relief.	
	Complexity	• The main complexity is the sheer number and detail of the conditions that must be met. To ascertain whether the project involves a qualifying building and a qualifying flat, there are 21 separate conditions to be met.	

Criteria	Commentary	Rating
	• The administrative burden of ensuring that all of the conditions are complied with is relatively high compared with the benefit and acts as a deterrent. A 2006 evaluation found that 69% of FCA claims were made by an accountant. • Notional rent limits, which have remained unchanged for ten years, may mean it is better from a commercial point of view to not claim the relief in order to obtain greater rents.	
Incentives & Penalties	• The relief was intended to provide a tax incentive by providing a 100% allowance for capital expenditure incurred in relation to flat conversions for residential purposes.	
Enforcement	• No comment.	
Cost	• Demonstrating entitlement required the taxpayer to satisfy many conditions in a complex area of law and therefore take up has been low. Notwithstanding this, the benefit of switching all development costs from ineligible to tax deductible in the first year was a generous tax incentive.	

Scoring

To quantify the overall effectiveness of Flat Conversion Allowances the following table attributes a score against two distinct categories; design of policy/ instrument and implementation of policy/ instrument.

Criteria	Commentary	Score
Design	The policy was viewed as useful in promoting empty or underused space above shops and other commercial premises to residential uses, albeit that the uptake was very low. This scheme has, indirectly, helped to promote reuse of building stock and recycling of embodied energy and carbon.	
Implementation	Studies reveal that the relief does not influence behaviours and that the work would be carried out anyway for commercial reasons. The FCAs were poorly publicised during their existence and the rules were considered too restrictive for taxpayers to qualify.	

Appendix F: Findings of the market survey

A market survey was undertaken to investigate the current views of real estate industry actors on the framework of energy and carbon instruments. The survey posed a number of questions about the policy framework as a whole, and also a series of questions on the individual instruments within the scope of this study.

The survey is a particularly important element of the study because it:

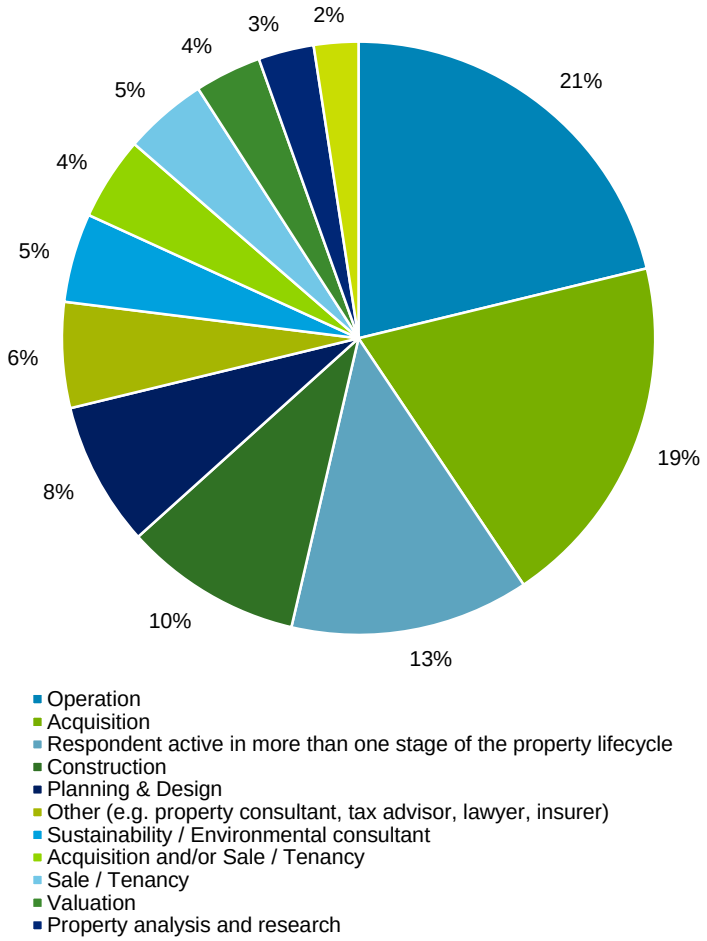
- Adds a current perspective to the review of published sources discussed earlier in this report, most of which are now historic in the context of the rapidly evolving policy landscape, the fluidity of market circumstances, and the changing nuances of political rhetoric and announcements which may have an influence on confidence and certainty.
- Allows analysis to be undertaken at a finer level of granularity, owing to the fact that survey respondents can be segmented into their respective roles and employer types.
- Serves to highlight the varying levels of awareness within the sector with respect to the energy and carbon policy agenda, rather than relying on sources which are generally expert as is the case with those covered in the published sources.

Following a brief summary of the survey methods, this Appendix of the report focuses on the responses to the questions on the policy framework as a whole, and their possible implications. Responses to instrument-specific questions are covered later in this Report.

Methods

A questionnaire survey of professionals working within the commercial buildings sector was undertaken. This survey was administered electronically and was sent to an extensive list of recipients, including through the membership distribution lists of the Green Property Alliance member organisations. The survey was also promoted via social media, so it is impossible to say how many individuals or organisations the request for survey responses reached. By extension, it is not possible to state the response rate of the survey. Respondents were able to submit responses via a Survey Monkey web-based tool between 26 July and 30 August 2013. Although it is acknowledged that this period included the summer vacation, a satisfactory number of responses was achieved with 330 individual useable responses being recorded. Furthermore, actors involved in all stages of the property lifecycle responded, with a leaning towards those responsible for the operation (21%) and acquisition (19%) of commercial real estate (see Figure F1 below).

Figure F1 Breakdown of survey respondents by involvement in property lifecycle stage (%)



The respondents were actively working in the commercial buildings sector across the UK, providing a broad geographical spread; the majority of respondents had a nationwide role or within firms with a national or international presence. In terms of the size of organisation within which the respondents were working, 55.8% were employed by large firms (i.e. with more than 250 staff). At the other end of the scale, 14.2% of respondents came from micro businesses, with 23.6% employed by SMEs and the balance of 6.4% categorising themselves as being self-employed. Again, there was a pleasing spread in terms of the size of organisation that respondents worked in across the property lifecycle, as shown in Figure F2.

Awareness of the broad framework of carbon-related policies

In general terms, respondents indicated that they were very familiar with carbon and energy-related instruments. The survey revealed that only 2% were “not very familiar” with such instruments, whereas 56.3% and 23.3% of respondents classified themselves as “familiar” or “very familiar” respectively. That level of familiarity is perhaps to be expected; those motivated to respond to a survey on policy instruments are more likely than not to consider themselves to be familiar with them, in order to provide a meaningful response.

Although there was little variance in terms of respondents’ familiarity with the broad framework of energy and carbon policies as determined by the size of their organisation, there was some variance determined by the stage in a lifecycle that they worked within; those participants involved in the planning, design and construction phases of the lifecycle were more aware of the policies, arguably because they have been dealing with regulations in the planning and construction arenas (i.e. in local planning policies and building regulations) as a matter of course for longer than those working at other stages. The group with the highest familiarity was the “Sustainability/Environmental consultant”, as one might have expected. These indications are observable in Figure F4.

Figure F2 categorisation of respondents by size of organisation and stage in property lifecycle

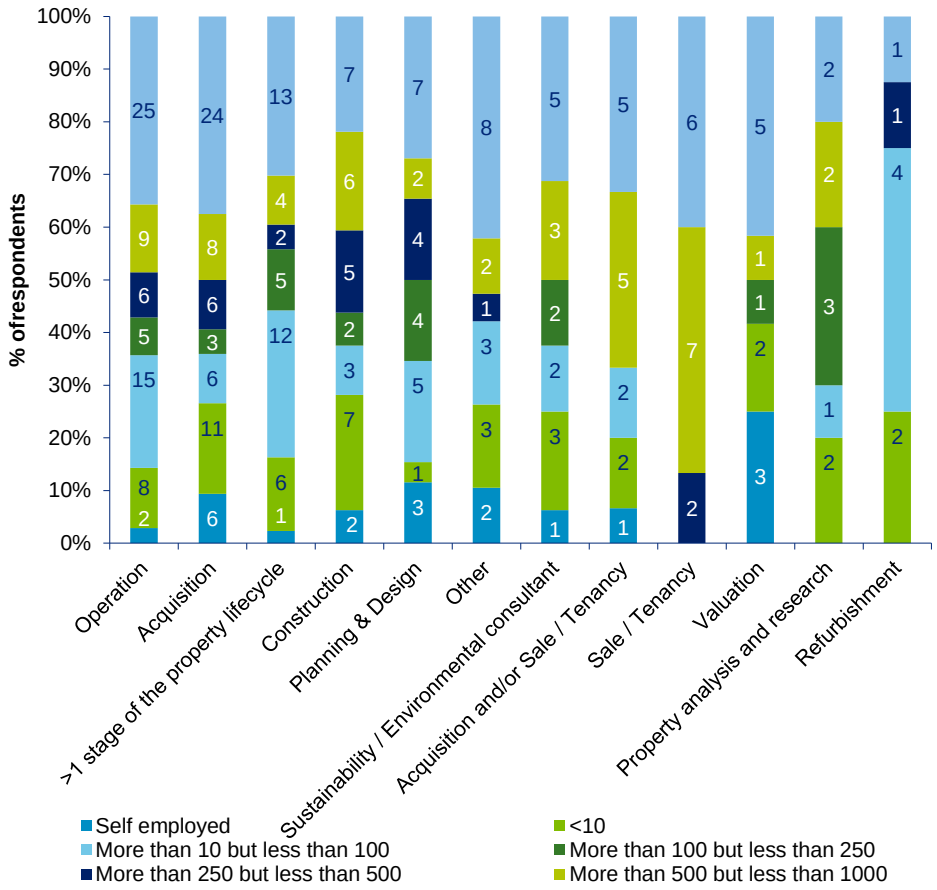


Figure F3 Levels of familiarity as a percentage of total respondents

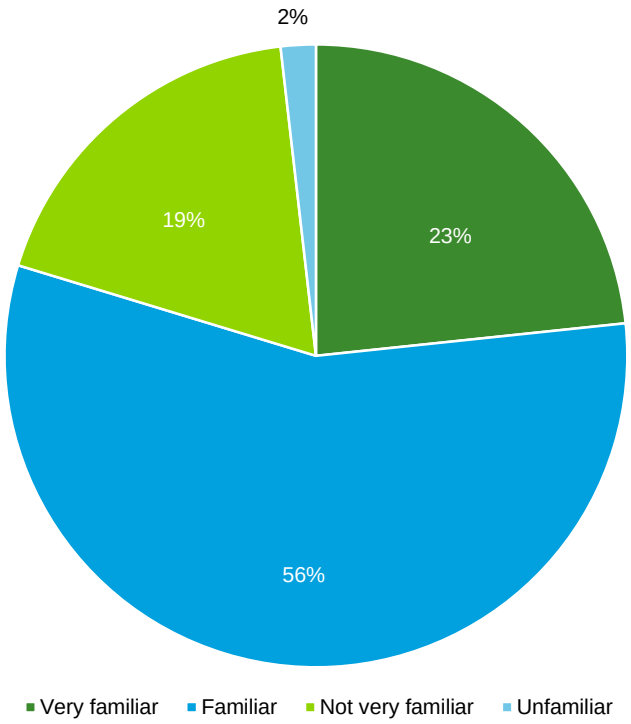
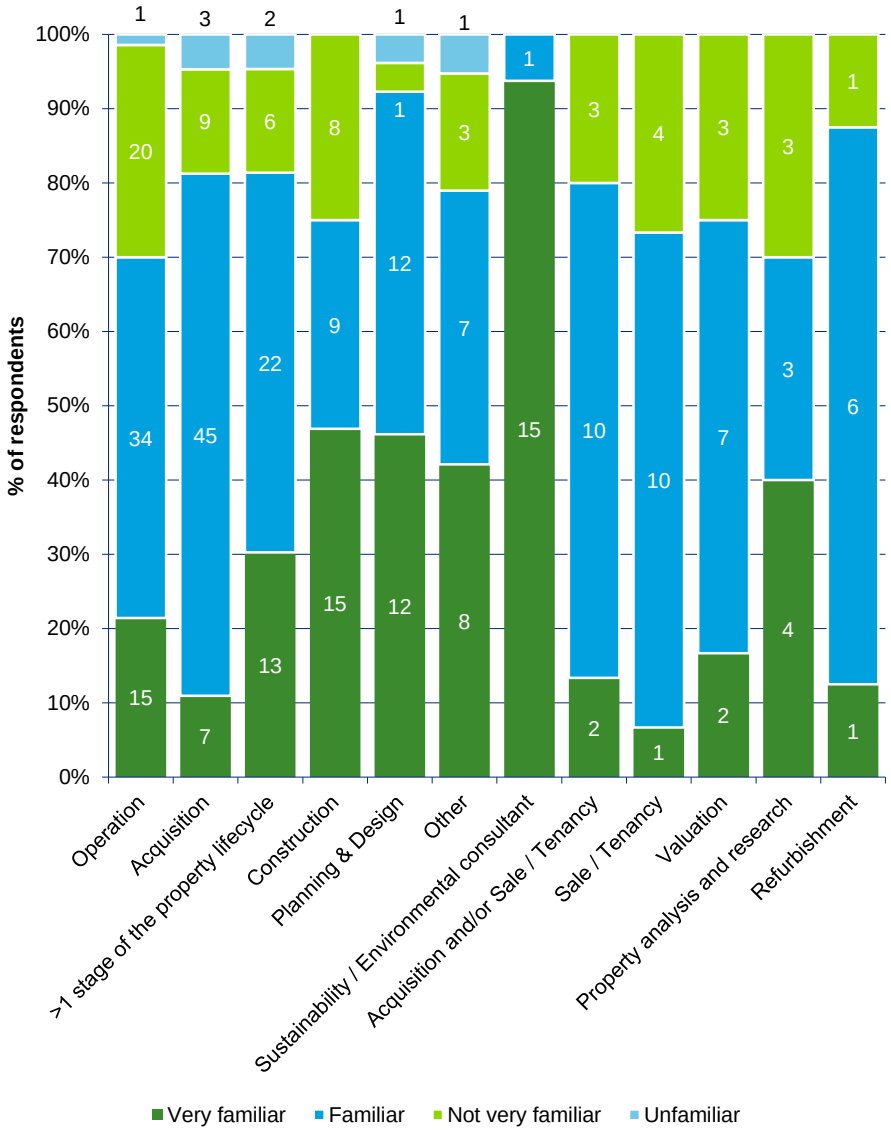


Figure F4 Respondents' familiarity with relevant instruments measured against their role or function



Complexity, burden & benefit

Some very clear evidence emerged from the survey relating to respondents' perceptions of the complexity of the policy framework and of some of the individual instruments themselves. The results convey the perception of a 'crowded', complex and /or confusing array of policies which affect the procurement and operation of commercial properties. Figure F5 shows how apparently difficult market participants find it to understand and administer the overall framework of relevant instruments whilst Figure F6 straightforwardly sets out respondents' views regarding the complexity of the framework.

Figure F5 The extent to which respondents agree that the instruments' framework is "clear" and "simple" to administer and understand.

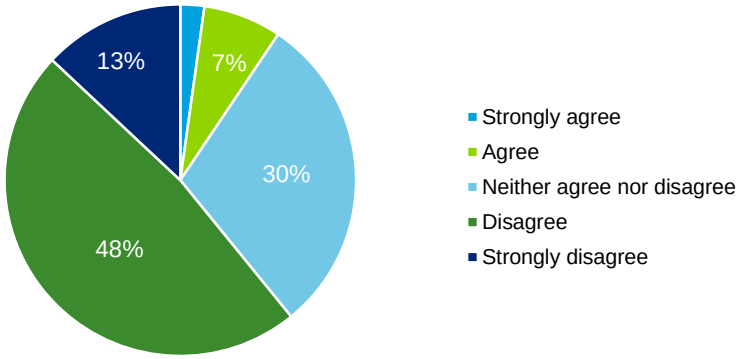
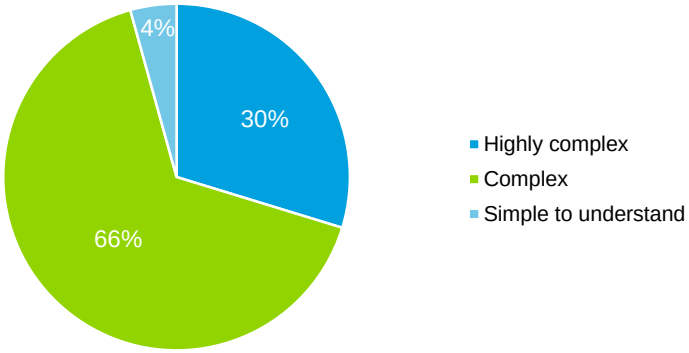


Figure F6 The complexity of the framework of instruments



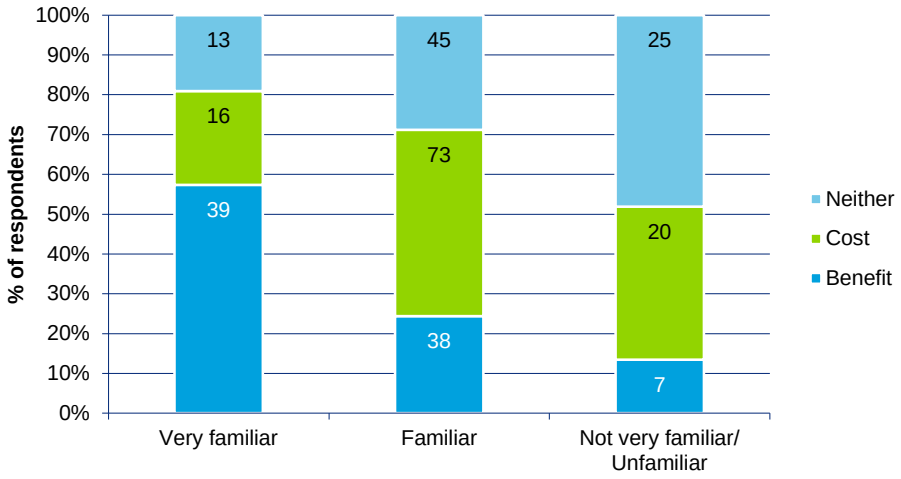
It is revealing that 96% of respondents stated that the current framework of energy and carbon-related instruments is either complex or highly complex. Perhaps the reasons for this are explained by the fact that 61% of survey respondents indicated that the current framework of instruments is unclear and not simple to administer or understand (against 9% with the opposite view).

The data do not tell us whether market participants feel that this complexity is avoidable or a necessary function of a complex and fragmented sector. However, if one considers the nature of real estate assets and, in particular, the requirements and expectations of the significant number of stakeholders involved in these assets throughout the property lifecycle, it is clear that "real estate" is in itself a complex system. The multifaceted relationship between carbon and buildings serves only to amplify that complexity. Therefore, it might be argued that regulating carbon and real estate is bound to be a complex process, although this does not necessarily mean that the instruments themselves need to be complicated.

Notably, the WBCSD report on *Energy Efficiency in Buildings – Transforming the Market* highlights the need for a segmented approach to building energy and carbon policy, because of the complexity of the sector. In particular, it finds that "*the nature of decision-making about energy use in buildings means it is important to take a "bottom-up" approach to identifying the barriers to energy efficiency and the means to overcome them, rather than proposing "top-down" prescriptions based on economy-wide data and analysis*".

If there is a perception, though, that this complexity is unnecessary and an impediment to market efficiency, it needs to be addressed somehow. The survey does not allow the question of whether or not the market considers policy complexity to be a necessary response to the complexity of the sector, but it is notable that the survey responses indicate that where there are high levels of familiarity with individual instruments, market participants are likely to perceive them as providing some benefit to their organisations, as per Figure F7 overleaf. Indeed, there appears to be a reasonably strong correlation between familiarity and perceptions of benefit. It could therefore be presumed that if familiarity with instruments is increased then any negative associations with the complexity of them might be diminished.

Figure F7 The relationship between familiarity and perceived benefit of relevant instruments to respondents' organisations



The perception of complexity is perhaps exacerbated by the fact that overlap exists between the purpose and effects of some policies & incentives. This may not be a negative situation: 'Bundles' of policy instruments are perceived by some to be more effective than individual policies, not least because of the dynamic effects needed to deal with the complexities outlined above which occur throughout the property lifecycle. For example, bundling policies with a linear relationship through the building lifecycle, such as Building Regulations and the forthcoming Energy Savings Opportunity Scheme, could have a significant role to play in bridging the performance gap which commonly exists between the design and post-construction phases.

A contention can be made that perceptions of complexity demonstrate – or may in fact cause – a lack of engagement with the carbon and energy policy 'agenda'. Whether or not there is such a causal link would be interesting to explore further not least because it would have implications for the development of knowledge and understanding amongst the commercial property community as well as policy makers in particular.

Despite the fact that respondents generally perceive themselves to be very well informed about the framework of policy instruments and that with familiarity comes a perception of benefit, respondents' also felt that the instruments do present an administrative burden. Although the clear majority of respondents stated that they're spending less than 10% of their time in dealing with such instruments, it is perhaps surprising that more than 20% of respondents are spending between 10 and 50% of their time on them. That having been said, opinion was split almost 50:50 between those who did and did not feel that, overall, the instruments presented an administrative burden effect which was soaking up time and resources to deal with. Figure F8 demonstrates that respondents felt that their time taken as individuals in dealing with relevant instruments was not on the whole very significant, whereas Figure F9 reveal that half of respondents felt that dealing with the instruments presents an administrative burden. This is perhaps inevitable given that many of the instruments require mandatory compliance or relatively high levels of technical competency.

Figure F8 Time taken dealing with carbon and energy related instruments (% of total respondents)

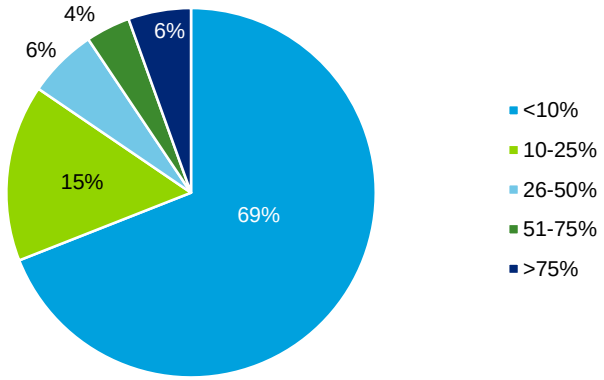
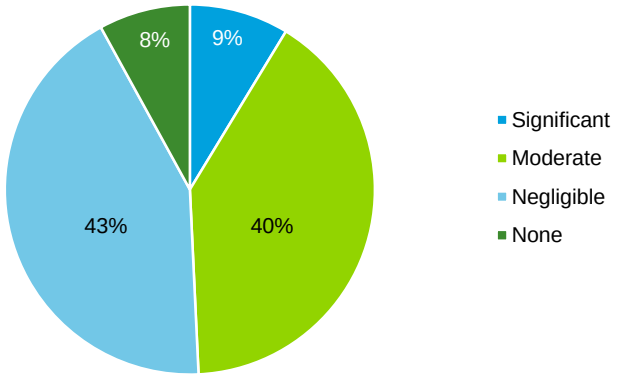


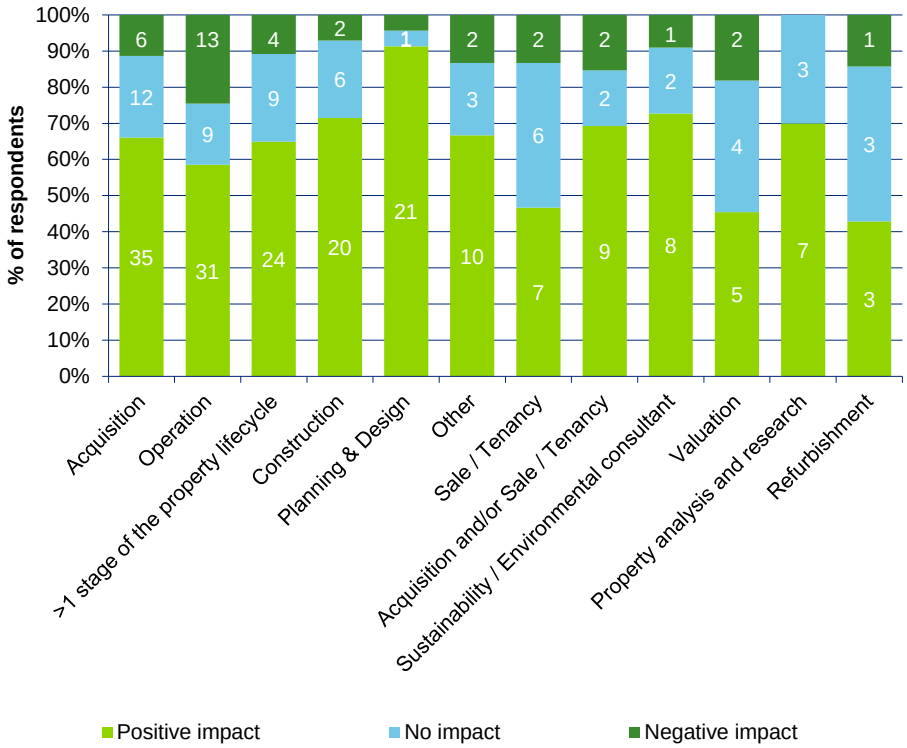
Figure F9 Administrative burden (time and resource) % of total respondents



Policy effects on changing behaviours

It is interesting to note whether or not respondents felt that their behaviour has been changed by the framework of policies, particularly in how they behave within their role. Most respondents consider their behaviour to be positively affected by the policies, as evidenced in Figure F10. The results indicate that behaviour has been most affected during the acquisition and operational stages of the property lifecycle, followed by the construction and the planning and design stages (the latter of which may be significantly influenced by planning policies that are beyond the scope of this study).

Figure F10 Policy influence on behaviour

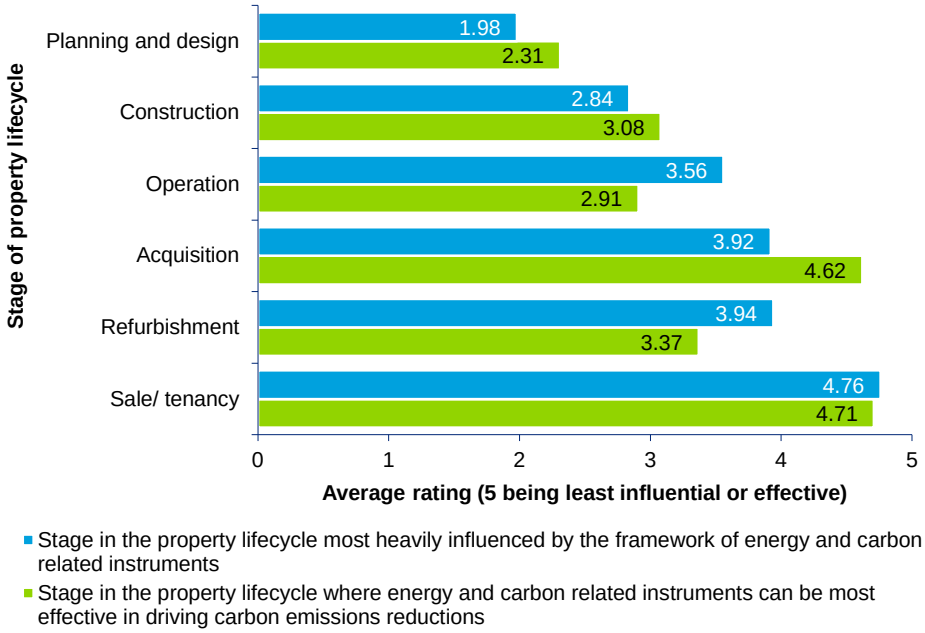


Interestingly, the property lifecycle stage in which the highest proportion of respondents deems the effect on behaviour to be negative is the operation stage. As noted in the Main Report, this is the stage of the lifecycle to which the highest number of instruments relates. It is also the stage for which there is the greatest number of instruments yet to be implemented, so the relatively high number of negative responses may be a reflection of the uncertain impact of prospective obligations.

It is important for all stages of the lifecycle to encourage positive behaviours amongst market participants and stakeholders if policy objectives are to be achieved. Given the lack of a policy focus on embodied carbon, as discussed in the Main Report, it is beneficial to see respondents indicating positive behaviour at the planning and design and the construction stages, where decisions will have a significant influence upon the amount of embodied

carbon in a particular building. These stages also set the tone for the operational performance of properties in relation to the fabric and systems efficiency. There is a related evidence from the survey which indicates respondents' views as to the stages within the lifecycle at which instruments could and do have influence (see Figure F11 below).

Figure F11 Lifecycle stages which are and which should be most influenced by relevant instruments



Findings of the market survey in relation to individual policy instruments

In addition to posing questions to the market on the overall framework of energy and carbon policies, responses were also sought in relation to each individual instrument. The response rate for these instrument-specific questions was significantly lower than those received for the generic survey questions. Nonetheless, with a mean average of 63.6 (and a median of 61) responses to questions on the individual instruments (and within a range of 43 to 107), these are still deemed to be significant.

Familiarity with particular policy and incentive instruments

It was possible to identify which of the particular instruments within the scope of the study were most and least familiar to respondents, as per Figure F12 below.

Alongside this, it is also interesting to examine the relationship between familiarity with specific instruments and whether or not their organisations are affected by them. This relationship is shown in Figure F13.

Figure F12 Respondents' familiarity with specific instruments

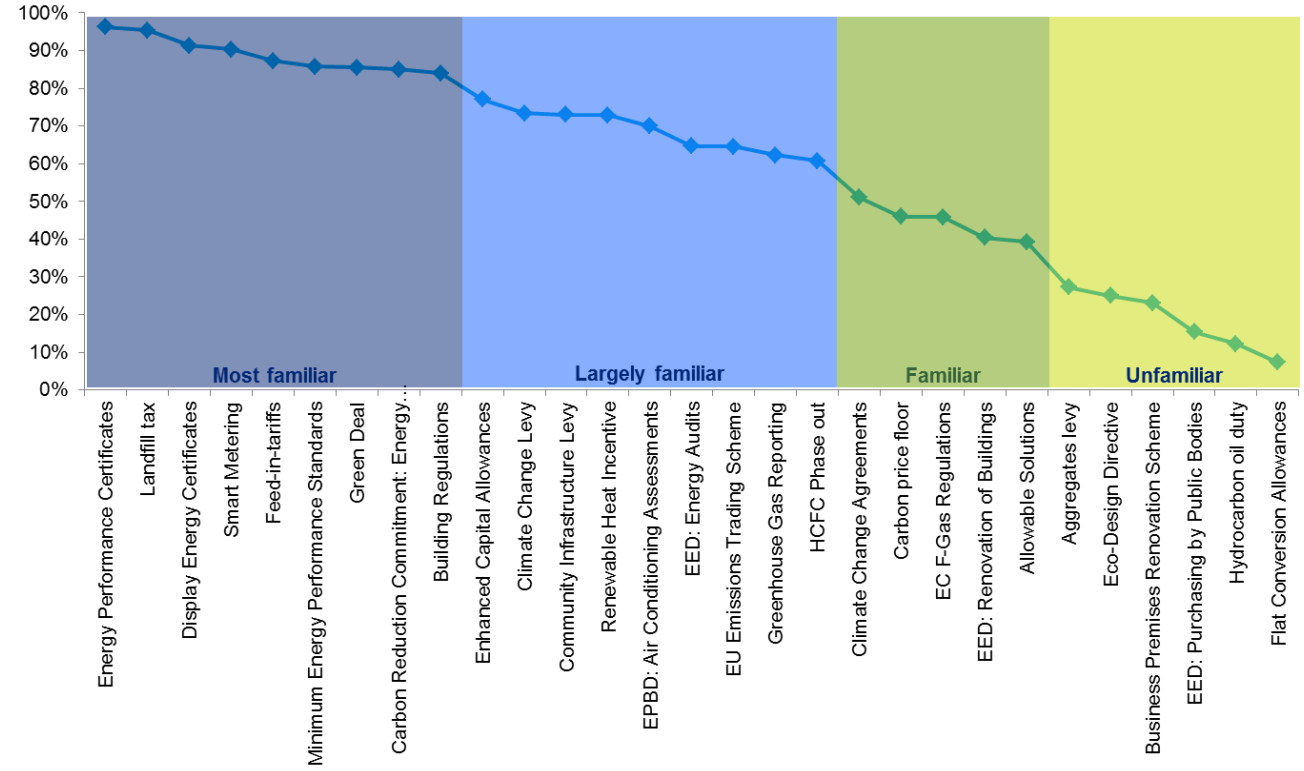
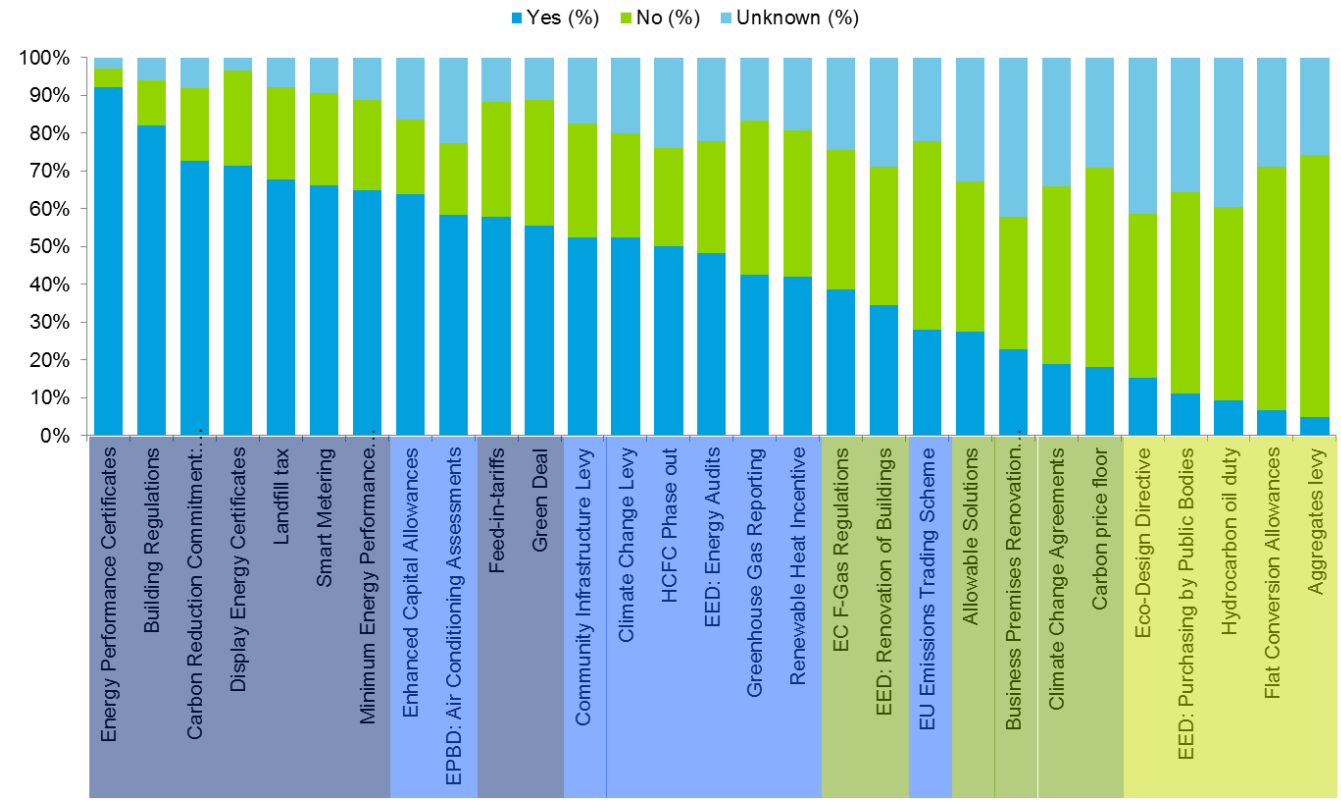


Figure F13 Proportionate effect of instruments on respondents' businesses



There are potentially a number of reasons for the ranking of the individual instruments by the survey respondents' familiarity with them. It is fair to say that the bias towards respondents coming from the 'operational' stage of the lifecycle rather than the pre-construction and construction stages meant that there was likely to be more familiarity with certain instruments rather than others. This is the reason why we see that Energy Performance Certificates (ranked 1st) are much more familiar than, say, the Aggregates Levy (24th).

Another likely factor in the familiarity rankings is that there are a greater proportion of mandatory compliance instruments higher up the ranking scale, as we can see with six of the nine instruments in the most familiar category. There are some anomalies in this regard however, with, for example, the F Gas Regulations being ranked 21st out of 29.

A third factor likely to have influenced respondents' familiarity with individual instruments is the presence of press stories associated with them. Over the four months leading up to the survey, press coverage of Green Deal (albeit largely in the context of the residential market), Part L uplifts and the implementation of Energy Performance Certificates pursuant to the Energy Performance of Buildings Directive) was notable.

Looking at some of the detail in the ranking of the instruments' effect on respondents' organisations, the first obvious conclusion to be drawn is that the more familiar with the instruments respondents were, the more likely their organisation was affected by them. Another interesting factor is the relative prominence of Display Energy Certificates (DECs) in the rankings (3rd in terms of familiarity and 4th in terms of effect on organisation), given that they only mandatorily apply to large buildings occupied by public sector organisations. Although it is true that some private sector organisations procure DECs for their buildings, the more likely reasons for their high positions in the rankings relate to the significant 'campaign noise' associated with attempts to encourage government to roll-out DECs to private sector buildings.

There are some forthcoming/proposed regulations which appear relatively highly in the rankings, perhaps more highly than one might have thought as far as the effect on organisations ranking is concerned. Minimum Energy Performance Standards (MEPS), for example, appear 6th in the familiarity and 7th in the effect on organisations rankings, despite the fact that their proposed implementation date is likely to be some four or five years after the survey, in April 2018. It is considered likely that this is due to the influence which MEPS are already beginning to have which is in part down to the very clear signposting the policy has had, the participation members of the real estate industry have had in helping to frame the forthcoming regulations and the potential significance of MEPS having an impact on the value and risk drivers of asset and fund performance.

Allowable Solutions bucks this trend somewhat, coming further down the scale of familiarity and relevance. This might be due to the fact that consultations and policy emphasis to date has been predominantly focused on the domestic sector, even though Allowable Solutions will potentially form part of the zero carbon hierarchy for non-domestic buildings too. It is widely acknowledge that the detail on proposed non-domestic building standards under the zero carbon pathway is much less developed than for dwellings.

The fact that respondents are mostly familiar with Feed in Tariffs, and that many see them as relevant to their businesses, is perhaps not unexpected given the prominence given to the instrument in property market press in the last couple of years. FiTs have been acknowledged as creating a new asset class within the property sector [see, for example, Estates Gazette, 17 September 2011; Property Week, 1 November 2013] with PV installations on commercial property providing opportunities for new revenue streams with potential for capitalisation. This has led to several innovations within the market in relation to income stripping, leasing of roof space, and as a marketing tool for landlords who are looking to attract and retain tenants with stable energy costs and reduced carbon intensity.

Enhanced Capital Allowances also features as an instrument with which the market is largely familiar and is also considered by a majority of respondents to have an effect on their businesses. This is somewhat more surprising, given that ECAs receive overwhelmingly negative comments in respect of their implementation, and that the funding available for qualifying expenditure has historically been under-utilised (Experian, 2008). This under-utilisation has stemmed from their marginal benefit being downgraded as development returns have increased over time, resulting in less familiarity with the detail of their benefits amongst consultants and developers and consequential poor take-up.

Appendix G: Glossary

Policy Instrument Abbreviations

- AirCon – Air Conditioning Assessments required under the Energy Performance of Buildings Directive
- Building Regulations – Part L of the Building Regulations
- CCA – Climate Change Agreements
- CCL – Climate Change Levy
- CIL – Community Infrastructure Levy
- CRC EES – CRC Energy Efficiency Directive
- DECs – Display Energy Certificates (required of public bodies occupying commercial buildings).
- ECA – Enhanced Capital Allowances
- EED Article 6 – Purchasing by Public Bodies required under the Energy Efficiency Directive
- EPCs – Energy Performance Certificates
- ESOS – Energy Saving Opportunities Scheme
- EU Eco-Design – Eco-Design Directive
- FCA – Flat Conversion Allowances
- FIT – Feed in Tariff
- GHG Reporting – Mandatory Greenhouse Gas Emissions Reporting
- HCFCs – HCFC Phase-Out
- HOD – Hydrocarbon Oil Duty
- MEPS – Minimum Energy Performance Standards, pursuant to the Energy Act 2011

Other Acronyms

BREEAM – Building Research Establishment Environmental Assessment Method

CBI – Confederation of British Industry

CCC – Committee on Climate Change

Delphi - A structured communication technique used in research and forecasting which relies on a panel of experts

GCB – Green Construction Board

GPA – Green Property Alliance

GRESB – Global Real Estate Sustainability Benchmark

GBPN – Green Buildings Performance Network

HMT – Her Majesty's Treasury

HVAC – Heating, Ventilation & Cooling

IIGCC – Institutional Investors Group on Climate Change

IPD EcoPAS – IPD Eco-Portfolio Analysis Service

ISA – International Sustainability Alliance

KPIs – Key Performance Indicators

NAO – National Audit Office

RAG Rating – Red | Amber | Green Rating

RIA – Regulatory Impact Assessment

UKGBC – UK Green Building Council

ULI – Urban Land Institute

WBCSD – World Business Council for Sustainable Development