

**Accelerating the energy productivity of non-domestic buildings**

**The Opportunity**

The Clean Growth Strategy recognises that business energy efficiency could deliver £6bn in cost savings by 2030 and 22MtCO2e towards the fifth carbon budget, one of the single largest carbon-saving measures in the whole Strategy. Commercial buildings could contribute half simply through better fabric, HVAC and energy management.

But the CGS also recognises that efficient buildings can deliver other, non-carbon “multiple benefits”. This is known as “energy productivity” and takes a number of forms:

* **Improved competitiveness:** companies with a high public profile such as retail benefit from the reputational advantage of occupying an efficient store or corporate headquarters; lower energy spend will increase business competitiveness in a post-Brexit world
* **Lower risk profile:**  companies in sensitive sectors such as banking, utilities, energy, pharmaceuticals and defence can offset negative perceptions and boost compliance.
* **Enhanced revenue stream:** efficient buildings are known to attract higher and more consistent rental income as well as longer lease lengths and lower void periods.
* **A more productive workforce:** there is growing evidence thatefficient buildings are more productive and healthier places to work, improving recruitment and retention.
* **“Smart” energy benefits:** energy efficient building portfolios are being used to exploit new digital technologies and approaches such as DSR and peer-to-peer energy trading.

This short paper looks at how UK policy could be configured to significantly accelerate the energy productivity of non-domestic buildings.

**The Problem**

Unlike most other sectors, emissions from non-domestic buildings in the UK are not coming down, and for commercial buildings, are beginning to rise. A key factor is that we regulate the predicted energy use of the fabric and systems and not the actual energy performance of the occupied building, which can be dramatically worse than compliance with regulations would imply. This is known as the “performance gap”, or more precisely the “performance unknown”.

The impact of the “performance unknown” on the market is complex, but it essentially sets up a tension between the demand- and supply-sides of the market:

* On the demand-side there is a **lack of information and agency** because tenants cannot get hold of reliable data on energy performance and therefore cannot make a compelling business case for choosing an efficient building over a standard one.
* The supply-side is **complex and poorly co-ordinated** with a diverse stock and multiple players leading to a confusing “building journey”. There are also perverse incentives from fee structures, poor commissioning, lack of post-occupancy feedback and lack of accountability for outcomes. The sector is also very reluctant to innovate.

In short, tenants who want an efficient building don’t know which buildings are efficient, which depresses supply, because developers see no demand. The result is that classic “circle of blame” generated by the invisibility of operational performance.

**The Solution**

Commercial buildings are difficult to address because of the huge variety of building types and uses and the complexity and fragmentation of the supply side. But arguably more challenging is the fact that energy use in buildings involves both regulated and unregulated loads, and these loads are under the control of different actors: the infamous landlord/tenant split.

Research shows that successful policies use a combination of in-use energy performance ratings and regulation to generate “market pull” to complement the “technology push” of building standards. In Australia the combination of the NABERS building ratings, procurement standards and public disclosure has cut CO2 emissions by 32% since 2005 and increased energy productivity in offices by over 40% since 2001.

The ‘multiple benefits’ impact is arguably more significant. Developers and investors see better returns from highly rated buildings, which have become an investment standard. Tenants see lower costs of occupancy, higher workforce productivity and reputational advantages. But wider productivity benefits are emerging: start-ups are exploiting the “performance culture” with new digital apps and services and energy professionals are getting better at making the investment case for energy efficiency.

Several studies have looked at the success of the Australian programmes and there are 8 key elements:

* They are industry-led and financially self-sustaining, but with clear and substantive involvement from government to provide support and ensure accountability.
* Early “soft regulation” was used in the form of government procurement standards, with 4.5 stars set as the minimum for government tenants.
* Mandatory disclosure of operational energy performance ratings was introduced to accelerate the upgrade of the worst performing buildings.
* A clear and transparent labelling scheme that frames the performance of the building in a positive way so that the focus is on reward (1-6 stars) rather than penalty (A to G).
* To engage the key stakeholders (developers, owners and investors), an initial focus only on the parts of the building controlled by the landlord: the “base building”.
* The calculation and data capture methodology is flexible so that it can adjust in the light of experience and as the market begins to transform.
* Effective marketing and dissemination is used to promote the productivity benefits of efficient buildings to businesses and investors and to showcase market leaders.

**A policy roadmap for the UK**

It is telling that commercial buildings in Melbourne are now between 2 and 4 times as efficient as their equivalents in London. But could we emulate the Australian experience and introduce a similar energy performance-based policy in the UK?

The UK has several key elements already in place, upon which a new package of measures could readily be built:

* The technical and regulatory infrastructure underpinning Building Regulations which enable minimum theoretical performance standards in the form of MEES
* Operational performance ratings in the form of Display Energy Certificates; along with the existing DEC infrastructure, including the Central Register, an extensive network of trained and accredited energy rating assessors, a group of accreditation schemes and various packages of dedicated software
* Good public procurement experience
* An industry which is beginning to gear up through the Better Buildings Partnership Design for Performance pilots

These are excellent foundations upon which to build a programme akin to the transformational Australian one. Assuming that an ideal endpoint is for measured base building ratings to be in place for all new and existing buildings by 2030, what might a UK trajectory look like over the intervening years? An indicative roadmap is set out for discussion below:

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| --- | --- | --- | --- | --- | --- | --- |
| Trigger point | 2020 to 2021 | 2022 to 2023 | 2024 to 2025 | 2026 to 2027  | 2028 to 2029 | 2030 |
| **New building or major refurbishment**– base building rating | ’Soft Start’ | Building Regs; Public procurement |  | Building Regs (2) |  |  |
| Mandatory Scope – base building ratings |  | >2000m2 |  | >1000m2 |  | >500m2 |
|  |  |  |  |  |  |  |
| **Existing buildings**– whole building rating | ‘Soft Start’ | Public procurement  |  |  |  |  |
| Mandatory Scope - whole building ratings |  | >1000m2 |  | >500m2 |  | >250m2 |

Glossary:

* ‘Soft Start’ –
	+ Establishment of central collection point for lodging of anonymous data;
	+ Voluntary data collection begins;
	+ ? Incentivise and/or mandate data collection/submission for certain parts of sector;
	+ Voluntary ratings – linked to incentives
	+ Development, in conjunction with industry, of benchmarks and ratings;
	+ Additional training for energy assessors on the evolving elements of the operational ratings methodology;
	+ Planning reporting – requirement through planning policy to submit operational performance for first five (?) years of operation
* Public procurement – setting minimum standards for central and local government buildings based on operational ratings (Australian model)
* Mandatory Scope – base building ratings: three-step phased introduction of base building ratings for new buildings and major refurbishments
* Mandatory Scope – whole building ratings: three-step phased introduction of whole building ratings for existing buildings
* Building Regs – requirement for appropriate metering and operational performance reporting and disclosure
* Building Regs (2) – metering as above, and operational performance used as the mechanism for compliance with Building Regs