

Building Regulations Requirements

- Set out journey/steps to 2030 including change from notional building calculation to prediction and measurement of total energy demand and use in kWh/m2
- Set out forthcoming requirement to verify in-use performance ie eliminate performance gap
- Require Fabric Energy Efficiency to ~2016 Zero Carbon; require lower minimum air leakage (eg 5m3/m2@50Pa)
- Include Review of Ventilation requirements and verification protocols
- · Require overheating mitigation measures
- · Require tenancy fit-out applications in conformity with standard
- Require building 'passport' for all building regulations applications
- Require submetering compatible with DEC: differentiated total use

- Set Thermal Energy Demand limits in kWh/m2 cf Passivhaus for different building typologies
- Require disclosure of performance on completion
- Require Primary Energy calculation and carbon intensity calculation
- Require Display Energy Certificates for all buildings with regulated/ unregulated use differentiated
- · Set systems energy efficiency performance criteria
- · Require peak load prediction and demand profile
- Signal forthcoming requirement for disclosure of halving all energy use with defined kWh/m2 benchmarks including 'unregulated' use
- Require submetering/smart metering disclosing differentiated
 uses

- Require performance verification of kWh/m2 limits plus Primary Energy limits compliance ie including all energy use
- Set peak demand limits

Research and Technology Development

- Enable understanding of current and existing building performance through development of 'smarter' Smart Metering ie disaggregation of energy loads ('regulated' and 'unregulated')
- Generate benchmarks of current building performance of different typologies through correlation of existing data and total energy use information from suppliers (also helps generation of building 'passport' for future changes and for as template for retrofit)
- Develop Thermal Energy Demand limits from benchmark data
- Develop stricter testing regimes for coefficients of performance for building technology systems
- Develop portal for building owners to compare energy use with comparable buildings and upload data on voluntary basis (cf DEC)

- Smart meter development into Home Hub: dataset including air quality information, Relative Humidity, water usage, ambient temperature, room temperature etc
- Develop peak demand prediction techniques to support demand management; differentiated tariffs;
- Energy storage technologies mainstreamed and space-optimal
- Improved systems efficiencies of MVHR/ heat pumps etc
- Improved energy efficiency of home appliances to enable reduced small power usage
- Support development of skills (education and training) for delivery and inform development of digital/industrialised components for verification

- Live energy use info online
- National energy management planning taking into account data loads, electric car charging

Incentives and other drivers

- · Cross-party agreement on objectives
- Enable fast-track planning approval for early adopters of 2025 energy efficiency levels with disclosure of performance on completion
- · Incentivise early adopters with reduced Stamp Duty
- National consumer awareness programme on climate change drivers and energy efficiency
- · Disclosure of building passport part of property marketing
- Consumer awarenesss programme on 'unregulated' energy eg importance of energy efficient home appliances
- Incentivise building-level energy storage through fiscal/tariff benefit
- Government procures only buildings to 2030 standards

- Fiscal incentives for Net Zero buildings
- Net positive buildings to benefit from fiscal bonus (ie net exporters to grid)

*The Green Construction Board convened a time-limited Taskgroup in September 2018, chaired by board member Lynne Sullivan, to inform their recommendations in response to government's announcement on the Clean Growth Grand Challenge to "use new technologies and modern construction practices to at least halve the energy usage of new buildings by 2030".

Over the next five months a series of Taskgroup meetings were held, and recommendations developed in dialogue with Taskgroup Members, Green Construction Board members, and the BEIS 'Mission' team. The recommendations, summarised above, were adopted by the Green Construction Board in March 2019 to be put forward to BEIS along with an accompanying report** including relevant case studies and commentary, with a view to informing the development of policy and measures to further the aims of the Challenge.

As well as consistent representation from the BEIS team and Construction Products Association (supporting GCB), the Taskgroup also welcomed attendees from MHCLG.

Taskgroup Membership comprised industry professionals and buildings specialists across sectors:

| Gwyn Roberts | BRE |
|-----------------------------|---|
| John Tebbit | Robust Details |
| Neil Smith | NHBC |
| Gill Kelleher/John Williams | SPECIFIC, University of Swansea |
| Robert Cohen | Verco/Design for Performance |
| Jon Bootland/John Palmer | Passivhaus Trust |
| John Slaughter | Home Builders Federation |
| Richard Twinn | UKGBC |
| Rick Hartwig | IET |
| Jeff House | Baxi |
| Louise Clarke | Berkeley (Green Construction Board Member) |
| George Adams | Spie (Green Construction Board Member) |
| Louise Ellison | Hammerson (Green Construction Board Member) |
| Lynne Sullivan (Chair) | GHA (Green Construction Board Member) |

^{**} Accompanying report: "Buildings Energy Mission 2030: Background Report to Recommendations from the UK Green Construction Board in response to the 2030 Newbuild Challenge" by Julie Godefroy Sustainability and Etude, March 2019