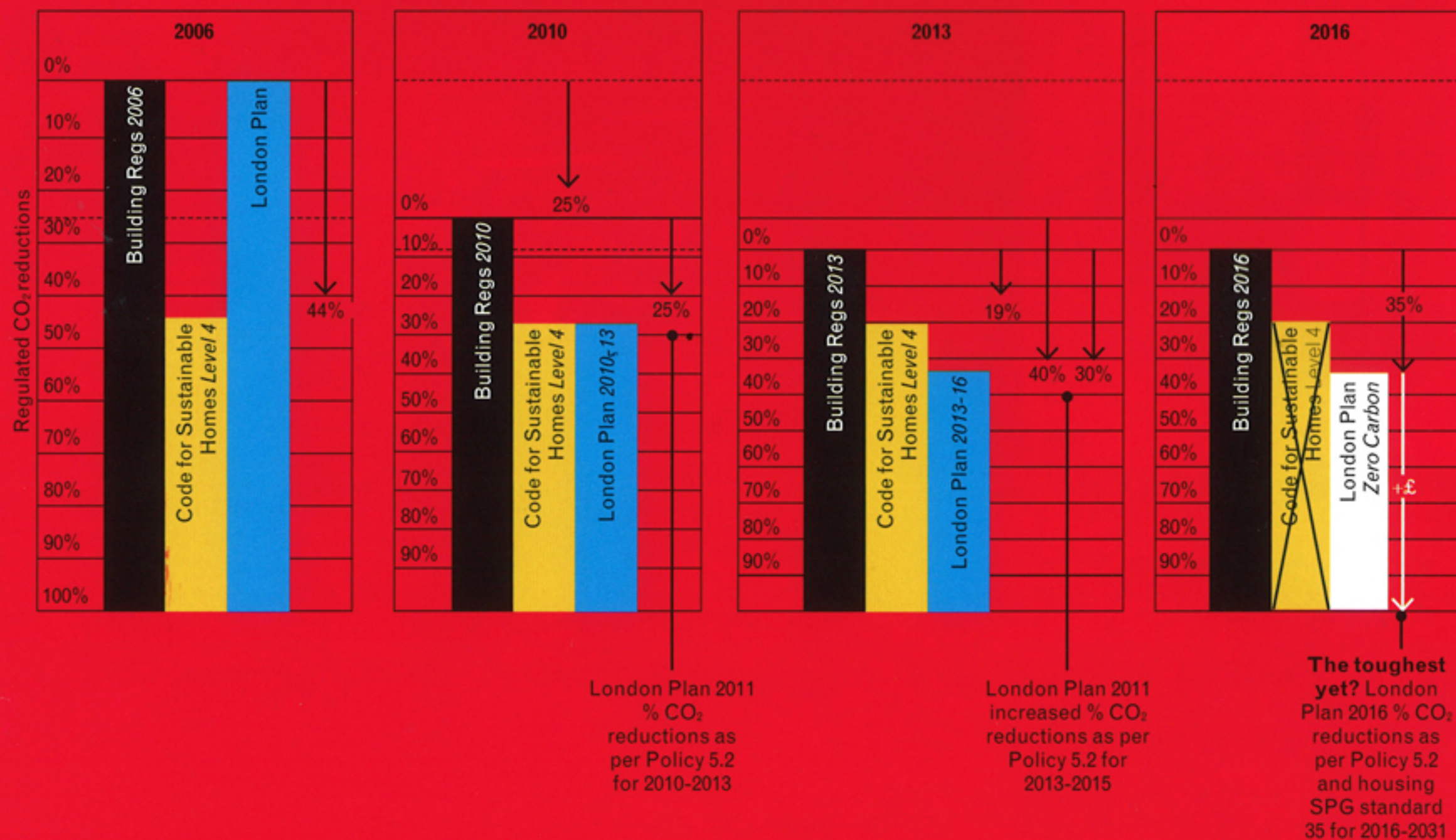


News feature

Comply or cough up: Unpicking London's radical zero carbon rules

Are the capital's tough new rules for major residential schemes trailblazing or just another tax on development? *Ella Braidwood* reports

Understanding CO₂ reduction targets for residential buildings



From the beginning of next month all new housing schemes in the capital with more than 10 homes will have to meet a tough new zero carbon requirement.

Developers in London will either need to comply or pay up.

This shift which is set out in Policy 5.2 of the London Plan is, in some ways, trailblazing. In May, the government effectively abandoned zero carbon for the rest of England following a back-and-forth between the House of Commons and the Lords.

The new London policy ramps up the capital's existing rules, which require all new homes to reduce their carbon emissions by 35 per cent more than the Part L minimum.

From 1 October, if a new home fails to achieve net zero carbon emissions either through its building fabric or on-site renewables, the developer will have to make an offset payment, representing the percentage of shortfall, to a ring-fenced local authority pot.

But many are unconvinced. For a start, there are concerns about whether it is realistic or even possible to deliver zero-carbon homes on tight, high-density city sites.

'It is just about impossible to deliver zero-carbon homes in London,' says Steve Sanham, development director at HUB. 'It turns into yet another tax on house-building – an industry that the GLA (Greater London Authority) is desperately trying to stimulate. It will inevitably also end up being a tax on affordable housing, which is totally perverse, as it will make all new housing schemes less viable, and therefore less capable of delivering affordable housing as part of the mix.'

Sanham's concerns over affordable housing are echoed by developer Gus Zogolovitch, chief executive at Inhabit Homes.

'[It] won't necessarily be [developers] who bear the brunt,' he says. 'It could be consumers with higher priced homes or the council with less affordable homes.'

The difficulty of achieving the GLA's new standard on site is demonstrated by the lack of significant zero-carbon schemes in the capital.

A key issue when designing

an inherently low-carbon home is the land available for carbon-reducing measures such as solar panels.

Pollard Thomas Edwards' head of sustainable design Tom Dollard says: 'As most of London is high density, then it follows that "zero carbon" will be extremely difficult to achieve.'

Alex Ely, principal at Mae Architects, adds: 'We have competing demands for rooftops, both for amenity in our dense urban centres and to help mitigate the heat island effect with blue and green roofs. On-site renewables in the form of photovoltaics will be another demand for limited space.'

The methodology for calculating zero carbon itself has also been called into question, as Levitt Bernstein's head of sustainability Clare Murray argued in the AJ earlier this month.

Murray claimed the standard assessment procedure (SAP) – used to work out the amount of energy achievable on site and the offset payments – created models that 'couldn't be further from reality'.

She wrote: 'Predicted system efficiencies often far exceed those installed, and combined heat and power plants (CHP) included in the calculations

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often don't get switched on. It is these gaps between design and reality that render the carbon dioxide reductions on paper meaningless, and prevent the best outcome for residents and maintenance teams.'

Lynne Sullivan, former chair of the Building Regulations Advisory Committee (BRAC), says that the committee had previously recommended 'evolving' the calculation methodology, but its advice was not taken on board.

'I applaud the GLA's ambition,' she says, 'but I would like to see them being more flexible about methods for demonstrating compliance.'

BRAC's recommendations were also supported by Zero Carbon Hub, a non-profit

What is zero carbon?

Starting on the 1 October, the London Plan Policy 5.2, Minimising Carbon Dioxide Emissions, will require residential projects of more than 10 homes to go beyond the currently required 35 per cent reduced carbon and instead head for zero carbon.

In England, the government definition of a zero carbon home is one where CO₂ emissions from regulated energy use – such as heating, hot water, fans and lighting – are reduced to zero, meaning that there are no annual net carbon emissions.

Zero carbon in London will require

a minimum 35 per cent reduction below Building Regulations Part L 2013 on site, with any remaining carbon shortfall accounted for with an offset payment of £60 per tonne of carbon dioxide per year for a period of 30 years. This will typically result in payments of between £1,000 and £2,000 per dwelling to the local borough, to be earmarked for carbon dioxide savings elsewhere. Projects that can demonstrate zero-carbon compliance on site will not have to pay this cash levy.

'Zero carbon' is achieved using a combination of three

factors: fabric, on-site measures and off-site measures (which could include the offset payment to the local authority).

The current definition of zero carbon does not include 'plug-in' appliances, such as computers and televisions. Moreover, a zero-carbon home is not limited to renewable energy. Surplus energy from renewables generated on site – for example photovoltaic cells during summer – could be used to offset non-renewable energy taken off site from the National Grid at another point in the year.

organisation that worked with the government and industry to achieve zero carbon.

But the organisation closed in March and its demise is cited by Dollard as one of the reasons the GLA's policy is ill thought out. With the Zero Carbon Hub no more, a major consultation tool between the government and the industry has been lost.

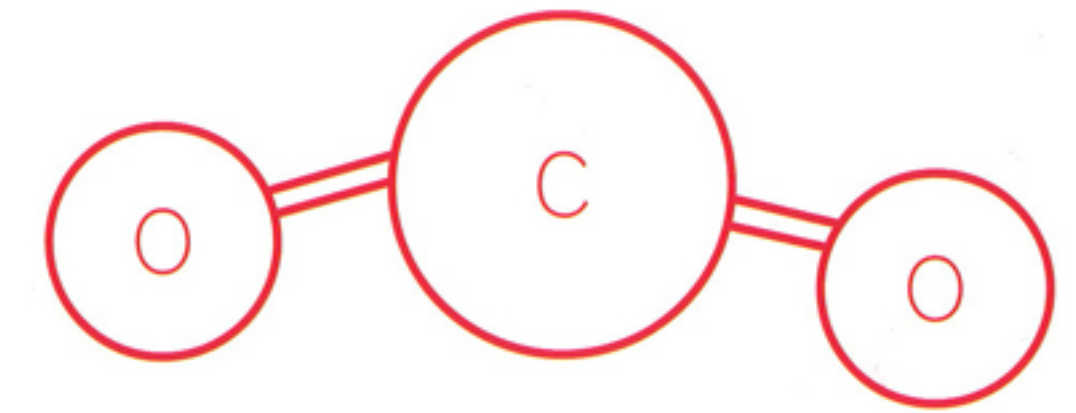
'From a strategy point of view,' says Dollard, 'it's right to be pushing energy policy in London. However the detail of how [the GLA] has done it is way off. It's not appropriate to London apartment typology at all.'

Therefore the cash-in-lieu contribution – earmarked for carbon offsetting – looks set to become the norm because hitting the target is so difficult to achieve.

Yet some have criticised the GLA's suggested offset payment – £60 per tonne of carbon dioxide per year for a period of 30 years – for being too little to persuade developers to make designs more energy efficient; suggesting they will opt to stomach the cash levy.

Sofie Pelsmakers and Loreana Padron, ECD Architects' respective heads of research and sustainability say: 'The relatively low cost per dwelling is likely to disincentivise developers to push the envelope further, as it will be cheaper to pay to offset the remaining [tonnes of carbon dioxide], rather than adding more insulation, reduce thermal bridging, or increase airtightness, which are measures lasting beyond the 30 years of the offset payment.'

With a 'carbon tax' the likely practical outcome of the new rules, questions have also been raised about whether this money will be spent effectively.



Indeed, a number of architects and developers the AJ spoke to were unsure what the offset payments would be used for.

Sam Cooper, director of E2 Architecture, queries whether the right infrastructure is in place at local authorities to ensure the money is well-spent on carbon offsetting.

Cooper also points out that zero carbon as it is defined still allows for the possibility of fossil fuels, so long as the overall net emissions of carbon are nil.

But the zero carbon policy does have its supporters, particularly those who believe it will spur innovative design in the city, as well as a greener environment.

While stressing the importance of the GLA consulting with developers, Richard Twinn, policy adviser for the UK Green Building Council, praises the new rules for driving higher building standards and setting the bar for other local councils.

'It's an ambitious policy which has the potential to drive higher performance and encourage innovative ideas in the London market,' he says. 'But it will be crucial for the GLA to work closely with developers over the coming months to ensure it

works effectively and to avoid any unintended consequences.'

Some architects, too, have defended the policy – arguing that it will encourage design innovation.

Bill Dunster, who designed the first major community to be classed as 'zero carbon' – the 2002 BedZed development (pictured below) in London Borough of Sutton, welcomes the 'zero carbon' rules, saying they confirm London as a 'responsible world-class city gearing up to meet the COP21 [Paris climate conference] targets'.

He adds: 'Seen at a city scale, it makes much more sense to produce energy-efficient new buildings powered by building-integrated renewable energy than it does to pay for draconian trade deals to import fossil fuel, or worse, aggressive foreign policies that end up in lives being lost.'

'There will be the usual raft of cynical professionals paid to try and meet this target with minimum costs and no concern over its implementation. However, there will be many clients that see this target

as defining civilised urban behaviour; and some genuine progress in delivering a zero carbon society will be made'

Incoming RIBA president Ben Derbyshire is similarly positive about the rules. He believes the responsibility of a building's performance lies with the architect.

'Pressure from the GLA, through what is effectively a 'carbon tax', is exactly what is

'What is effectively a carbon tax is exactly what is needed to push innovation and experimentation in the industry'

needed to push innovation and experimentation in the industry,' he says.

The GLA clearly hopes to shake up sustainable

architecture in the capital.

The danger is that, instead of encouraging a new generation of zero-carbon homes, this policy will simply act as an anti-development tax. Housing design is unlikely to alter dramatically as developers pay the cash in lieu, rather than forking out the extra cost to make schemes 'zero carbon'. It seems, in many ways, that the GLA's policy is right in spirit – but not in practice.

• *The GLA was contacted for comment.*

Comment



Joanna Lindley of JL Studio is an architect and certified Passivhaus designer, who is researching large-scale and affordable Passivhaus adoption overseas

This bold policy could be viewed as an all-stick-and-no-carrot approach. However the GLA should be applauded for its commitment to achieving a zero-carbon future, especially in the wake of central government's dismissal of such targets. Developers will now be forced to take a more ethical approach to construction, levelling the playing field for those who already commit to sustainable practices voluntarily.

The policy guidance places a strong emphasis on reducing the energy demand first before looking to heating networks, renewable technologies and carbon offsetting. This aligns with Passivhaus, which offers an affordable method to significantly reduce heating demand and improve comfort standards. The Passivhaus institute has responded to the EU target for all new buildings to be nearly zero carbon from 2020 by introducing two new classifications: Passivhaus Plus and Passivhaus Premium.

Using these new classifications would ensure that efforts put into achieving zero carbon are not wasted. Currently there is a risk that zero carbon on paper will not mean zero carbon in practice, as the standard assessment procedure (SAP) is widely considered unsuitable for very low energy designs. It would be beneficial to overhaul SAP and incorporate the Passivhaus Planning Package (PHPP), or an equivalent calculation method with a proven performance record.

The challenge of achieving zero carbon on-site should be embraced. Initially there is likely to be a skills gap in the design and construction workforces – but this is where a bit of carrot would complement all of that stick. A proportion of the carbon offset payments could be reinvested in training and guidance. Over time, this would reduce the instances of a shortfall in CO₂ reductions and help achieve the ultimate goal of zero-carbon buildings.

