

# The Clean Growth Plan: A “2050-ready” new-build homes policy

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This paper is one of four papers giving the Energy Saving Trust’s view on home energy efficiency and the Clean Growth Plan. It makes the case for a more ambitious, “2050-ready” highly energy efficient and near-zero-carbon new-build homes policy and explores briefly how such a policy could operate.

For background, the Government were previously committed to introducing “zero-carbon” new homes from 2016 – an ambition that was abandoned in 2015 despite being widely supported by industry and the third sector. In London, the Mayor has introduced a city-wide zero carbon homes policy. The Energy Saving Trust believes a new, national 2050-ready new-build homes policy could be rapidly developed based on the scrapped 2016 policy, and London’s zero carbon policy.

The Theresa May Government has indicated that they are not opposed in principle to such a policy. However, they are concerned about the additional costs it might impose on new home buyers. After considering why a 2050-ready policy is needed, how it could work and the benefits of such a policy, this paper addresses the government’s concern about costs.

## What is at stake?

There is a high demand for housing and a shortage of new homes in the UK. The government, in its recent Housing White Paper focused on the “broken housing market,” referring to a need for 250,000 new homes per year when currently only around 160,000 are being built annually<sup>1</sup>. At the same time, achieving carbon savings in buildings will be key to hitting the UK’s legally binding target of an 80% reduction in carbon emissions by 2050. The Committee on Climate Change (CCC) states that 18% of UK carbon emissions come from buildings – most of them homes – with a further 15% of emissions coming from electricity consumed in buildings<sup>2</sup>. Many analysts have suggested that given the difficulty of saving carbon in other sectors we are likely to need to come close to a complete decarbonisation of our building stock by 2050.

Taking these two major policy drivers into account – the need for millions of new homes and the need for close-to-zero-carbon buildings to hit our 2050 carbon target – the Energy Saving Trust argues that all new homes should be built to a “2050 ready” standard.

The Government is not opposed in principle to the idea of 2050-ready homes. But it is concerned about costs. In its Housing White Paper, the Department for Communities and Local Government states, “We will consult on improving requirements on new homes this Parliament if evidence suggests there are opportunities to do so without making homes less affordable for those who want

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<sup>1</sup> *Fixing our broken housing market*, DCLG 2017

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/590464/Fixing\\_our\\_broken\\_housing\\_market\\_-\\_print\\_ready\\_version.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/590464/Fixing_our_broken_housing_market_-_print_ready_version.pdf)

<sup>2</sup> ‘Meeting Carbon Budgets - 2016 Progress Report to Parliament’ CCC, 2016 <https://www.theccc.org.uk/wp-content/uploads/2016/06/2016-CCC-Progress-Report.pdf>

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to buy their own home. More details will be set out in the Government's Emissions Reduction Plan." We believe that worry about affordability is misplaced. The urgent introduction of a 2050 ready housebuilding policy is the most cost-effective way forward for society and home owners, as we explain in more detail below.

### **What is a 2050-ready home?**

"2050 ready" mean homes built to have minimal energy use and net carbon emissions over the year because they are highly insulated, have low water demand and are fitted with or directly connected to renewable energy systems.

#### *Energy efficiency and water saving*

Energy efficiency is the most-effective long term guarantee of a low-carbon emission housing stock. A 2050-ready home will therefore have to meet a minimum energy efficiency standard for its building fabric. This Fabric Energy Efficiency Standard is already part of building regulations, but the standard would be tightened for a 2050-ready home. Low water use fittings reduce energy demand associated with hot water and also have the benefit of reducing impacts of new build homes on water demand in the community (see "benefits" below).

#### *Net zero carbon through the year*

When it comes to electricity and any natural gas consumption, the idea is that over the course of the year the clean energy generation in a zero carbon home fully substitutes for the carbon emissions associated with the grid electricity and the natural gas used in heating and lighting the property. Exactly how the home achieves this standard is left to the developer who may use different combinations of renewable energy technologies and insulation on different new homes.

More rigorous versions of a zero carbon homes policy also require the grid carbon emissions associated with appliance energy use inside the home (e.g. from fridges or TVs) being fully balanced through clean energy generation. Energy Saving Trust suggests that a national zero carbon homes policy would set a standard for regulated emissions but local communities that want to achieve full zero carbon may be permitted (as currently) to set standards that require a net zero standard for all energy used in the home<sup>3</sup>.

Currently, Building Regulations allow developers to "balance out" achievement of carbon targets across the homes built on one site. Within limits, this can continue under a 2050-ready policy: if one home is built to better-than-zero-carbon standard then others on the same site can be built to a slightly lower standard.

#### *The use of carbon offset*

Using current technologies, not every home can be built to be fully zero carbon within a reasonable cost-effectiveness threshold. For example, it can be difficult to connect homes in small urban development sites to a renewable energy system. The London Zero Carbon Homes policy and the

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<sup>3</sup> Through local authority planning policies or neighbourhood plans

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abandoned national 2016 zero carbon homes policy use carbon offset to resolve this problem. The housebuilder pays to save carbon elsewhere in the community, with the amount of carbon offset equal to the amount of remaining emissions from the new building. Contributions to community carbon saving schemes by housebuilders in this way are known as “allowable solutions.”

To ensure opportunities are not missed for cost-effective low and zero carbon new builds, it is important that allowable solutions should only be used where cost-effective renewable energy and energy efficiency technologies are genuinely not an option. Getting this mechanism right at national scale will be a challenge for regulators. It is also important to consider how Allowable Solutions funding is spent: the Energy Saving Trust supports policies such as those of the London Borough of Islington which spends all receipts from allowable solutions on upgrading the existing building stock in the borough.

### **The benefits of a 2050-ready policy**

Energy Saving Trust have analysed the impact of a 2050 ready policy, assuming 200,000 homes are built each year between 2019 and 2032 (the end of the 5<sup>th</sup> carbon budget). Without a 2050-ready homes policy, these 2.8m new homes will emit at least 43m tonnes of avoidable carbon dioxide emissions between 2019 and 2050. These emissions would be saved through the enhanced energy efficiency and clean energy measures fitted directly to new homes under the 2050 ready policy. At the same time, developers paying into an allowable solutions fund – where it is not technically possible or very cost ineffective to fit a full set of energy efficiency/clean energy measures to the new home - would deliver carbon savings of the same order of magnitude (43m tonnes of CO<sub>2</sub>) through investment in wider low carbon infrastructure<sup>4</sup>.

A new-build home built to a 2050-ready standard will deliver direct benefits that people will be willing to pay for. These homes will be more comfortable, cheaper to run and offer new residents the knowledge they are helping tackle climate change. Housebuilders can easily market these benefits to homebuyers, thus offsetting any additional costs in supplying the homes. And, a 2050-ready policy of building homes with high energy efficiency and cheap-to-run renewable energy can help tackle social and environmental challenges other than the carbon emissions that lead to climate change. The low water demand of 2050 ready homes will ensure that more homes can be built in the growing number of areas under water-stress. And with a rapidly aging society and many older people living on small pensions, we want new homes to have as low bills as possible: highly energy efficient 2050-ready homes will be cheap to run.

### **How much more does a 2050-ready home cost to build?**

The price of not having a 2050 ready new-build housing policy could be high: without it we risk having to pay to refit today’s new homes with additional energy and carbon saving measures in ten,

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<sup>4</sup> Full analysis available on request. Based on policy similar to abandoned 2016 zero carbon homes policy: newbuild mix (flats/terraces/detached) as in 2016; 200,000 homes built per year; carbon emissions based on 2011 DCLG Impact Assessment for Zero carbon Homes policy; Assumed 50% of Zero Carbon standard met by Allowable Solutions (see *Allowable Solutions For Tomorrow’s New Homes*, Zero Carbon Hub 2011)

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twenty or thirty years' time, in order to meet the 2050 target. As such when thinking about the costs of a 2050 ready home policy we also need to factor in the avoided costs that would otherwise have to be paid for refurbishment between now and 2050.

In 2014, the Zero Carbon Hub, working with a specialist construction costs consultancy, estimated that the average additional cost of building a new-build home to the then planned Zero Carbon standard as shown in the table below.

	<b>Estimated additional cost of building to Zero Carbon standard</b>	<b>Average purchase price of this type of home 2014<sup>5</sup></b>	<b>% of 2014 purchase price represented by additional zero carbon cost</b>
Detached home	~£6,700-7,500	£280,675	2.5%
Semi-detached	= ~£3,700-4,700	£163,172	2.6%
Flats (low rise)	~£2,200-2,400	£151,433	1.5%

As can be seen, the additional cost of building to the then Zero Carbon standard was in, in 2014, a very small percentage of the costs of a typical new home. The proportion of additional costs are lowest for the cheapest house type – flats – which further helps to protect first time home buyers: an important consideration in light of the Government's concerns about affordability for "those who want to buy their own home."

It is also important to note that, between the Zero Carbon Hub's 2011 and 2014 analysis the cost of building to the proposed Zero Carbon Standard had roughly halved. This fall in costs shows the benefits of a clear, regulated, national pathway towards 2050-ready new-build homes. A plan for 2050-ready homes, announced now, with an introduction from 2019 or 2020 would likely see costs fall significantly beyond those indicated above.

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<sup>5</sup> Data from historic purchase price data: <https://www.gov.uk/government/collections/price-paid-data>