

THE FUTURE HOMES STANDARD NATIONAL CONSULTATION

Sample response from Ann Stewart (Updated 6 Jan, 2020)

Note: If you are planning on drawing on some of this to draft your response, please use your own words and change the format enough so that all submissions are seen as separated submissions and not lumped together as one.

INTRODUCTION.

In February 2019 the Committee on Climate Change (CCC) issued the report “UK Housing: Fit for the Future”¹. It made 36 detailed recommendations, a number of which are directly relevant to this consultation. This report was issued when the government’s emission reduction target for 2050 was still 80%. Since then this target has been increased to zero net emissions. Moreover, a number of political parties and local authorities are proposing yet earlier target dates for zero net emissions. In the light of this the CCC recommendations should be seen as the barest minimum, with an obligation to increase the scale and ambition of their recommendations in these regulation changes.

In November 2019 the United Nations (UN) issued their annual “Emissions Gap” report². This estimates that globally we now need to reduce our emissions by 7.6% a year to have any chance of keeping within the target for 1.5⁰ C increase in global temperatures. In fact, our emissions continue to rise, with a global increase of 2.7% reported for 2018³. The UN report states that, had emission targets been met from 2010 onwards, the required annual cut would have been 3.3% rather than the current 7.6%. This shows that any further delay makes the actions that we will have to take at a future date will be even more stringent and painful. This consultation needs to take the option of radical action as quickly as possible.

These statistics are for global emissions, but the CCC makes clear that the UK has an obligation to adopt particularly tight targets as a matter of equity⁴. Housing makes up about 20% of UK emissions. Emissions reduction is very slow in this sector and have actually increased in recent years⁵. This is partly due dilution of tighter regulations, and the CCC has been critical of such policy reversals. The CCC strongly advocates firm actions to make up for this. This consultation needs to respond to the CCC’s warning that the housing sector needs to both reduce emissions and future-proof all new building.

In June 2019 the government passed the legally binding commitment to net zero emissions by 2050 into law. This consultation has to comply with the law and deliver changes in the regulations that will deliver the necessary emission cuts and future proof all new homes effectively.

Q1

Do you agree with our expectation that a home built to the Future Homes Standard should produce 75-80% less CO2 emissions than one built to current requirements?

The CCC¹ states that “New homes should deliver ultra-high levels of energy efficiency as soon as possible and by 2025 at the latest, consistent with a space heat demand of 15-20 kWh/m²/yr.” As this recommendation was made before the legal commitment to net zero emissions by 2050, this should be considered a bare minimum with the aspiration to

improve on this. This needs to be measured directly in terms of the actual energy consumed in the buildings. The CCC advocates very strongly that energy performance should be based on actual performance, rather than on estimated performance. Relying simply on a percentage estimate provides too many opportunities for some developers to avoid the highest fabric standards.

Q2

We think heat pumps and heat networks should typically be used to deliver the low carbon heating requirement of the Future Homes Standard. What are your views on this and in what circumstances should other low carbon technologies, such as direct electric heating, be used?

Both heat pumps and heat networks will have a role to play in reducing CO² emissions in future homes. However, they should not preclude other low carbon options, such as solar thermal water heating and solar pv, especially in the South of the country. It is important to ensure the best system is used for each location. Direct electrical heating would only be acceptable if the electricity is from a renewable source and annual heat requirements are low as it raises both the issue of having sufficient capacity to deliver direct heating and the issue of expense to householders. At present direct electrical heating is likely to be expensive to households, unless the very highest levels of insulation have been used. Direct electrical heating should not be widely promoted.

It is vital that these low carbon heating systems are installed alongside energy efficient fabric to all buildings. This must not be an either/ or situation. Heat pumps rely on electricity, and the less efficient the fabric of the building, the more electricity this requires. It is clearly important that the source for the electricity is renewable, such as wind or photovoltaic (pv) panels. However, the increasing reliance on renewable electricity in all aspects of future society will make considerable demands on capacity. Moreover, reduced demand for electricity for the heat pumps will mean lower energy bills for consumers.

Energy efficient buildings are also important in reducing the demand on heat networks. These are most efficient in high density areas, so regulations should ensure that these are sited appropriately. They also require an energy source and it is important that low carbon sources are used. Opportunities to use waste heat are particularly important. However, heat networks have a history of problems, and these need to be ironed out before they are used more widely

The CCC emphasises the importance of regulations to ensure that heating systems really do deliver low CO² emissions. It is important that regulations ensure both that energy efficiency and low carbon energy systems employed together, and that the low carbon energy system chosen are the most suitable in their circumstances. Heat pumps have the advantage of cooling buildings as well as heating them. In conurbations this would add considerably to the heat island effect, and regulations should insist on passive cooling systems to avoid this. Ground sourced heat pumps, especially those using vertical boreholes, can present problems for local ground and water temperatures, water quality and aquatic habitats⁵. Regulations must ensure that these systems are not adopted wholesale without accommodating for such important issues.

Q4

When, if at all, should the government commence the amendment to the Planning and Energy Act 2008 to restrict local planning authorities from setting higher energy efficiency standards for dwellings?

The government **should not** commence this amendment to the Planning and Energy Act. The CCC is critical of the obstacles, financial and in policies, that the local authorities face in promoting their own low carbon initiatives^{1a}. Some local authorities have been able to lead in low carbon housing, well ahead of the bulk of the building industry. An example is the award winning schemes⁸ initiated by Nottingham City⁷ council. It is of the utmost importance that such initiatives are not stifled by the new regulations. Efforts to do so will actively restrict progress in the roll out of low carbon housing. These standards should be seen as a minimum standard. Exceeding them is desirable, and the government should provide local authorities with incentives to exceed them.

Q5

Do you agree with the proposed timings presented in figure 2.1 of the consultation showing the Roadmap to the Future Homes Standard?

These timings lack ambition. All delays will mean that houses will continue to be built at lower standards and are likely to require expensive retrofitting at a later date. This exacerbates the harm done by the withdrawal of zero carbon housing regulations in 2016. This has resulted in at least four years of new housing that has forced higher than necessary fuel bills on householder and is likely to require expensive retrofitting at a future date. The CCC^{1b} condemns such short-sighted policies. The longer the delay in the introduction to higher standards, the more likely it is that developers will rush to build the tens of thousands of houses that already have planning permission, at the lower standards. Housebuilders should already have done much of the development work towards lower carbon housing in readiness for the previous, but withdrawn, low carbon-housing deadline of 2016. What is missing is a sufficient workforce with the appropriate skills, and this skills gap needs to be urgently addressed. A more ambitious timeline, although not easy, should be possible.

Q6

What level of uplift to the energy efficiency standards in the Building Regulations should be introduced in 2020?

According to the guidance document the government has two preferred options. The recommended uplift for carbon-saving technology rather than high fabric standards would produce lower energy bills in the short term but is likely to require expensive retrofitting at a later date. It is essential that high fabric standards and installation of carbon-saving technology are combined, as recommended by the CCC and then carbon savings in excess of 31% will be achieved. It is imperative that energy efficiency is as high as possible, and a 31% carbon saving lacks ambition. The net zero target for 2050 will require an actual zero-carbon target in housing by 2050; that is a 100% carbon reduction in housing. The carbon offsetting

implied by the **net** zero target will be needed in areas where zero carbon will be particularly difficult to achieve, such as agriculture and transport. A zero-carbon standard can be achieved in buildings. We need to work towards this radical reduction as quickly as possible, and a minimum of at least 50% reduction in new buildings in 2020 is needed so that further reductions can be made incrementally to reach 100% by 2050.

Q7

Do you agree with using primary energy as the principal performance metric?

The principal performance metric should be the actual energy used in the home. It should not be any indirect measure. This would deliver the CCC's key recommendation of "Closing the 'performance gap' between how homes are designed and how they actually perform when built"¹. This would have to rely on the metered energy used within buildings. This should help to deliver the primary aim of reducing energy use within buildings, and this in turn would encourage builders to use the highest fabric standards to ensure minimum energy use. Using metered energy as a performance metric would also help deliver the CCC's requirement of avoiding overheating^{1f} and energy used in keeping buildings cool in the increasingly higher temperatures that we can expect. It will encourage builders to develop passive cooling systems rather than air conditioning.

Q8

Do you agree with using CO2 as the secondary performance metric?

Yes, in as much as this will support installation of renewable energy in housing. It is important that this performance metric is based on actual performance as recommended by the CCC^{1e}.

Q9

Do you agree with the proposal to set a minimum target to ensure that homes are affordable to run?

Yes. It is essential. This will discourage builders from using systems that are cheaper for them but increase the costs to the homeowners. Low carbon solutions could be unfamiliar and controversial for some time. It is important that the more tangible advantages, such as lower energy bills and long-term savings, are made clear and apparent to householders. Again, this reflects the importance of monitoring the actual performance of buildings.

Q10

Should the minimum target used to ensure that homes are affordable to run be a minimum Energy Efficiency Rating?

The CCC is highly critical of the performance gap between new buildings as planned and their actual performance^{1c}. Any minimum target system needs to address the problem of accurately assessing actual performance. Current Energy Efficiency ratings do not deliver this level of accuracy.

Q21

Do you agree with the proposal to adopt the latest Standard Assessment Procedure, SAP 10?

The CCC comments on the need to update SAP standards to take account of recent development in carbon reducing systems^{1d}. SAP is not able to deliver the level of detailed accuracy in actual performance that is required.

Q60

Do you agree with the introduction of photographic evidence as a requirement for producing the as-built energy assessment for new dwellings?

Yes and no. According to the CCC “ greater levels of inspection and stricter enforcement of building standards are required”^{1e}. A reliance on self-monitoring has been shown to be ineffective and resulted in new homes that lose heat and have high energy bills. An article in Housing Today reinforces this¹⁰ “If they don’t do a recruitment drive around building control, there is going to be a market in dodgy photos.” While the use of photos may provide some evidence, it is essential that proper inspection, enforcement and enforced penalties for non-compliance are central to the monitoring regime.

Q65 & 67

Do you agree that the transitional arrangements for the energy efficiency changes in 2020 should not apply to individual buildings where work has not started within a reasonable period – resulting in those buildings having to be built to the new energy efficiency standard?

The term “reasonable” provides a loophole that will allow many builders to deliver below standard homes for years to come. The industry has a history of abusing such loopholes. The transitional period should be short, no longer than a year. Subsequently all new buildings should be subject to higher standards. This is essential to delivering low carbons homes fit for conditions in a climate changing world.

Q69

Overall, do you think the impact assessment is a fair and reasonable assessment of the potential costs and benefits of the proposed options for new homes?

There is a real concern that, while these proposals address the housing needs for the 2020s, they do not consider adequately the needs for 2030 and beyond. Projections are that at current rates of progress global temperatures are likely to rise by more than 3⁰ C by the end of the century. Our homes need to be future proofed for these extremes. The CCC in its report “UK Housing : Fit for the Future” has made a number of realistic and ambitious recommendations. It is disappointing to note that not all of these, such as emphasising high fabric standards combined with renewable energy systems or introducing a stringent inspection system, have been included in this consultation.

1. Committee on Climate Change. *UK Housing: Fit for the Future*. February 2019. <https://www.theccc.org.uk/wp-content/uploads/2019/02/UK-housing-Fit-for-the-future-CCC-2019.pdf>

2. United Nations Environment Program. November 2019. *Emissions Gap Report*. <https://wedocs.unep.org/bitstream/handle/20.500.11822/30798/EGR19ESEN.pdf?sequence=13>
3. Carbon Brief. December 2018. <https://www.carbonbrief.org/analysis-fossil-fuel-emissions-in-2018-increasing-at-fastest-rate-for-seven-years>
4. Committee on Climate Change. May 2019. *Net Zero: The UK's contribution to stopping global warming*. <https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/>
5. CCC. July 2019. *Reducing UK emissions 2019 Progress Report to Parliament* <https://www.theccc.org.uk/wp-content/uploads/2019/07/CCC-2019-Progress-in-reducing-UK-emissions.pdf>
6. Environment Agency. *Environmental good practice guide for ground source heating and cooling*. https://www.gshp.org.uk/pdf/EA_GSHC_Good_Practice_Guide.pdf
7. Nottingham City homes. <https://www.nottinghamcityhomes.org.uk/about-us/news-and-newsletters/latest-news/gold-award-for-nottingham-city-homes-approach-to-sustainability/>
8. Guardian. 28 October 2019. *Meet the councils quietly building a housing revolution* <https://www.theguardian.com/cities/2019/oct/28/meet-the-councils-quietly-building-a-housing-revolution>
9. BBC. 3 September 2019. Climate change: Greenland's ice faces melting 'death sentence'. <https://www.bbc.co.uk/news/science-environment-49483580>

10. D Blackman. October 2019. *Future Homes Standard: Up to the job?* Housing Today <https://www.housingtoday.co.uk/in-focus/future-homes-standard-up-to-the-job/5102157.article>

Reference	Source information
1a.	<p>Committee on Climate Change. <i>UK Housing: Fit for the Future</i>. February 2019. P.12</p> <p><i>Local authorities do not have sufficient resources to address these concerns and there is not enough use of local and urban planning to make progress on climate change mitigation or adaptation.</i> There have been some positive clarifications to the National Planning Policy Framework in England to address overheating and flooding, but the revisions have removed the requirement for local authorities to give active support to energy efficiency improvements to existing buildings, and have failed to clarify how far local and regional authorities are permitted to go in setting their own tighter standards for new-build homes.</p>
1b	<p>Committee on Climate Change. <i>UK Housing: Fit for the Future</i>. February 2019. P.11.</p> <p><i>Policies to support low-carbon measures have been weakened or withdrawn, including Zero Carbon Homes and the Code for Sustainable Homes.</i> This has led to many new homes being built only to minimum</p>

	standards for water and energy efficiency; for example, just 1% of new homes in 2018 were Energy Performance Certificate band A..... Only around 1 million homes have low-carbon heat, and the majority of this is wood stoves or biomass boilers rather than heat pumps..
1c	<p>Committee on Climate Change. <i>UK Housing: Fit for the Future</i>. February 2019. P.8.</p> <p>The way new homes are built and existing homes retrofitted often falls short of design standards. This is unacceptable. In the long run, consumers pay a heavy price for poor-quality build and retrofit</p>
1d	<p>Committee on Climate Change. <i>UK Housing: Fit for the Future</i>. February 2019. P.57</p> <p>Recommendation: The Standard Assessment Procedure should be reviewed and revised to drive high real-world performance and value properly the benefits of low-carbon technologies. It should formally integrate a forward trajectory for declining grid carbon intensity, in line with Government projections.</p>
1e	<p>Committee on Climate Change. <i>UK Housing: Fit for the Future</i>. February 2019. P.8</p> <p>Performance and compliance. The way new homes are built and existing homes retrofitted often falls short of design standards. This is unacceptable. In the long run, consumers pay a heavy price for poor-quality build and retrofit. Greater levels of inspection and stricter enforcement of building standards are required, alongside stiffer penalties for non-compliance. The 'as-built' performance of homes, for example how thermally efficient they are, must also be better monitored.</p> <p>Committee on Climate Change. <i>UK Housing: Fit for the Future</i>. February 2019. P.12</p> <p>An immediate improvement would be to enforce current standards, and to revise monitoring metrics and certification to focus on 'as-built' performance. Further tightening of building standards will have little impact if these issues are left unresolved.</p>
1f	Committee on Climate Change. <i>UK Housing: Fit for the Future</i> . February 2019. P.8

	A statutory requirement for reducing overheating risks in new builds is needed,
2.	<p>https://wedocs.unep.org/bitstream/handle/20.500.11822/30798/EGR19ES-EN.pdf?sequence=13</p> <p>Had serious climate action begun in 2010, the cuts required per year to meet the projected emissions levels for 2°C and 1.5°C would only have been 0.7 per cent and 3.3 per cent per year on average. However, since this did not happen, the required cuts in emissions are now 2.7 per cent per year from 2020 for the 2°C goal and 7.6 per cent per year on average for the 1.5°C goal. Evidently, greater cuts will be required the longer that action is delayed.</p>
3.	<p>Hopes that global CO2 emissions might be nearing a peak have been dashed by preliminary data showing that output from fossil fuels and industry will grow by around 2.7% in 2018, the largest increase in seven years.</p> <p>The new data, from researchers at the Global Carbon Project (GCP), is being published in Earth System Science Data Discussions and Environmental Research Letters to coincide with the UN's COP24 climate summit in Poland. The rapid increase in 2018 CO2 output from fossil fuel use and industry follows a smaller 1.6% rise in 2017. Before that, three years of flat emissions output to 2016 had raised hopes that emissions had peaked.</p>
4.	<p>CCC. Net Zero: The UK's contribution to stopping global warming.</p> <p>P.19</p> <p>Equity. The UK has a significant carbon footprint attached to imported products, for which the emissions are counted in other countries. The UK also has large cumulative historical emissions of CO2: despite only making up 1% of global population, 2-3% of human-induced global warming to date has resulted from GHG emissions in the UK. It is a high-income economy. These characteristics are often cited as reasons for countries to adopt tighter targets as their equitable contribution.</p>
5.	<p>CCC. Reducing UK emissions 2019 Progress Report to Parliament P.25</p> <p>Buildings. Actual emissions from buildings increased by 3% to 88 MtCO2e in 2018. When emissions are adjusted for lower winter temperatures, in particular the extreme cold weather in February 2018, the underlying change was a 1% fall in emissions. On a temperature- adjusted basis,</p>

	<p>residential emissions fell by 2% whilst non-residential emissions increased by 1%. This small overall fall follows two consecutive increases in temperature-adjusted emissions in 2016 and 2017. Buildings emissions in 2018 remained higher than 2015 levels on both an actual and temperature-adjusted basis.</p>
6.	<p><i>Environmental good practice guide for ground source heating and cooling.</i> 1.3 Environmental risks of GSHC schemes and your role The main environmental risks associated with GSHC schemes are listed below. •All GSHC systems can result in undesirable temperature changes in the ground and the water environment with impacts on water quality or aquatic ecology. •Both open loop systems and closed systems installed at depth can result in the interconnection of different aquifers units during drilling - affecting water quality or flow. •Closed loop systems may contain thermal transfer fluids which are toxic and can pollute groundwater if they leak.</p>
8.	<p>Guardian. https://www.theguardian.com/cities/2019/oct/28/meet-the-councils-quietly-building-a-housing-revolution</p> <p>these are council houses, some of the first built here for a generation. It is just one example of what many local authorities are now managing to achieve up and down the country, against the odds, after decades of central government inaction. Last week, the award for the best new building in the UK went to Goldsmith Street in Norwich, another exemplary development of council homes, marking the first time the hallowed RIBA Stirling prize has been given to social housing. The award sends a powerful message: despite government cuts, a number of bold councils are getting on and doing it for themselves.</p>
9.	<p>BBC. https://www.bbc.co.uk/news/science-environment-49483580 Greenland's massive ice sheet may have melted by a record amount this year, scientists have warned.</p> <p>During this year alone, it lost enough ice to raise the average global sea level by more than a millimetre.</p> <p>Researchers say they're "astounded" by the acceleration in melting and fear for the future of cities on coasts around the world.</p> <p>One glacier in southern Greenland has thinned by as much as 100 metres since I last filmed on it back in 2004.</p>
10	<p>https://www.housingtoday.co.uk/in-focus/future-homes-standard-up-to-the-job/5102157.article</p>

	<p>But while a good step, this more stringent regime won't be worth the paper it is written on if the acute shortage of building control inspectors is not rectified, argues the Good Homes Alliance's Brooks. "At the moment you have a lack of resources and all sorts of projects slipping through the system due to lack of inspectors. If they don't do a recruitment drive around building control, there is going to be a market in dodgy photos," he says, recalling the industry's record of "sharp practice" in this area. And the temptation to cut corners will be all the greater given the additional costs, which the government admits the new higher standards will entail</p>
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