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**Climate Change, Environment and Rural Affairs Committee Inquiry into Low Carbon Housing**

1. This paper sets out our response to the questions set by the Committee in its email of 19 March.
2. The delivery of low carbon housing in Wales offers significant challenges and opportunities. Domestic buildings are responsible for an important proportion of Wales’ carbon emissions. However, there are also many other benefits from achieving deep emission reductions.
3. Reducing energy spend through energy saving and energy efficiency can help to retain economic value in Welsh communities and improve health outcomes as demonstrated by our Fuel Poverty Data Linking Project, which shows energy efficiency measures installed through our Warm Homes Nest scheme are having a significant positive effect on the respiratory health of recipients and a positive impact on emergency hospital admissions.
4. Energy efficiency actions can also contribute to economic objectives through jobs, skills and supply chains. The ratio of jobs to capital spending for housing repair and maintenance is 32.6 jobs per £1 million spent. Wales is in the rare and fortunate position of having an energy efficiency supply chain covering all aspects from manufacturing through to installation.
5. It is, however, important to understand that reducing emissions can be achieved in many different ways and a range of solutions will be required based upon house type, tenure, energy performance, demographics, building usage and a range of other factors.

**What role can housing play in Wales’ low carbon transition, including the potential positive impacts on greenhouse gas emissions?**

6. The table below shows the change in total housing stock levels up to 2050

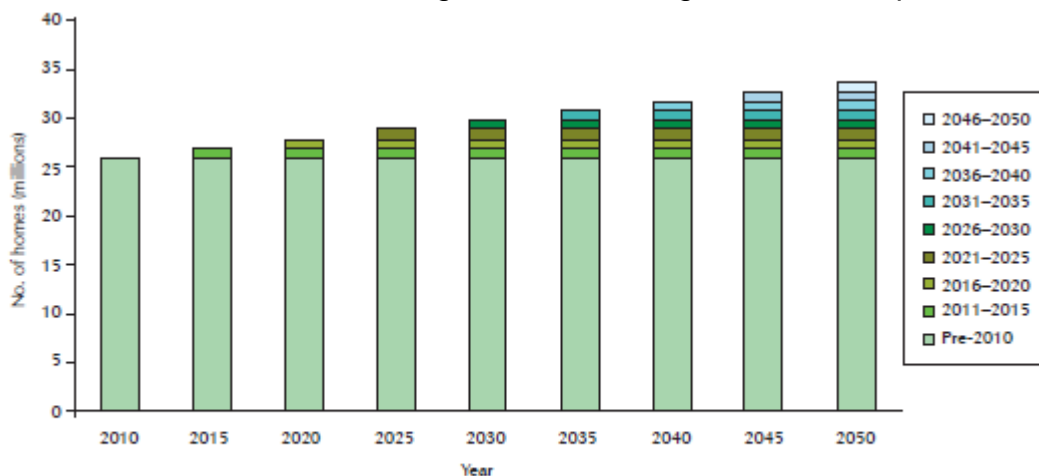


Figure 2: Projected age profile for UK domestic building stock

7. Emissions from the residential sector – 1.4 million homes - account for 8% of total Welsh emissions in 2014, and mainly come from heating and cooking. When emissions from power are attributed to the Residential Sector (such as the energy used for appliances etc) the significance of the Residential sector increases to 15%.
8. The Environment Act will set a decarbonisation pathway for sectors across Wales. The UK Committee on Climate Change (UKCCC) has developed a number of scenarios for what a Welsh 2050 pathway looks like. In their analysis they highlight that, in order to meet the carbon budgets, deployment of low carbon electricity and low carbon heating will need to accelerate through the 2020s and achieve mass roll-out well before 2050. Emissions from all buildings will need to be close to zero in order for the 80% emissions reduction target to be met.
9. There is significant opportunity to reduce carbon emissions in the residential sector both through the new homes we build and the retro fitting of existing ones. The Innovative Housing Programme (IHP) is being used to test low carbon solutions, and in 2018-19 is open to both social landlords and the private sector. This is important as it encourages the SME sector in housing in Wales to start building again but in a way that changes their existing practices, allowing them to take advantage of the opportunities new models of homes will present. What we learn through the IHP will inform the new housing schemes the Welsh Government supports in the future across all tenures.
10. Whole system, low carbon solutions for housing are emerging. For example, the aim of the SOLCER project is to implement combinations of existing and emerging low carbon technologies through a systems based approach in order to optimise the use of energy at the point of generation. Through a series of case studies SOLCER will provide information about the drivers and barriers that prevent the large scale roll out of low carbon technologies. The SOLCER concept is being demonstrated at the SOLCER house at Stormy Down (although no-one lives there). It is believed that the SOLCER solutions are most efficiently employed at design stage in new buildings. The Active Homes scheme in Neath Port Talbot, supported through the Innovative Housing Programme, is testing elements of SOLCER in real life situations. This is vital as 'liveability' is crucial to the success of getting people to accept changes in energy efficiency and provision. SOLCER is also likely to also have applications in retrofit. In many cases, older buildings require more traditional retrofit measures - such as insulation and improved heating - in order for them to be capable of making most efficient use of energy at the point of generation.
11. There is huge potential in building homes that generate power. However, this is not without its challenges, and one aspect which needs careful planning is the ability of the grid to cope with growing numbers of homes exporting energy in summer and creating increased demand in the winter.

## **The development and availability of technology needed for highly energy efficient housing**

12. In principle, much of the technology needed already exists today. However, some will need further development to become robust and scalable solutions - in particular, energy storage. This will take time, and given systems will be replaced a number of times between 2020-2050, we need to pursue the basics of demand reduction in the fabric whilst identifying ways that future retrofit of energy systems might be made easier – a ‘no regrets’ approach. An integral element of piloting advanced solutions will be providing user knowledge and confidence.
13. It will be important in the future how technologies interconnect and how they drive new business models. Technology can enable automatic switching to cheapest or lowest carbon forms of heating for example. Equally, electric cars may become a source of domestic power to homes in the evenings following charging through the day when power is lower carbon or costs are lower.
14. The limited number of national house builders in Wales represents a barrier to progress. They are concerned about the additional costs of developing here although other smaller developers challenge this, pointing out that higher standards are not necessarily a barrier to progress. The central role residual land value calculations play in house builder business models remains the reason that minimum regulatory standards are in practice actually maximums. This effectively means that any increase in regulatory standards impacts on land values and development viability and ultimately the number of homes built. The Innovative Housing Programme requires ‘open book’ as a grant condition for those receiving support and this will allow us to look at costs at a scheme level but also in comparison to those doing similar things elsewhere.
15. The availability of technologies, whilst key to progress, will not deliver the necessary changes if not combined with the activity to generate demand. An example of the sort of stimulation needed might be the Lenders Project, the pilot of which Welsh Government funded.
16. In the new house building sector the key to nurturing demand is the ability of house builders to differentiate their high performing product from the second hand market. Availability of preferential mortgage terms, lending more on high performing houses or lending less on poorer existing housing is one way interest and consequently demand might be stimulated.

## **The changes needed to ensure that existing housing stock is as energy efficient as it can be**

17. The Welsh Government has a long term track record of focusing substantial effort and budget in supporting the fuel poor to improve the efficiency of their homes and providing advice on how to save energy. This commitment will continue, but we must also help to create the conditions where a range of market initiatives support the required change.

18. Both Prosperity for All and our Economic Action Plan confirm that we will support quality housing in the right locations. Investing in building new homes and improving our housing stock has a direct and positive impact on the economy, the environment and in reducing the prospects of poor outcomes in these areas influencing economic development. As set out in the Well-being of Future Generations Act, we want to put long-term sustainability at the forefront of thinking.
19. All social homes in Wales are due to meet the Welsh Housing Quality Standard (WHQS) by 2020. At the moment the Standard requires that homes must be energy efficient by meeting SAP 65 or better. As WHQS must be met, and importantly maintained, we need to be clear going forward what the energy efficiency requirements will be. This will be informed by the work we doing to develop a programme to decarbonise homes by our 2050 target.
20. The newly established Advisory Group on the Decarbonisation of Existing Homes will significantly shape a programme to realise our decarbonisation ambitions in the existing housing stock. The Group represents a wide range of key stakeholders including owners of housing stock, technology experts, mortgage lenders, planners, the construction sector and academia.
21. The Group will use evidence about what works, from the UK and internationally, in order to identify measures that can be taken to reduce carbon emissions in our current housing stock. Members will analyse challenges and opportunities to develop a suite of advice and actions that might be taken by all stakeholders, not just by Government, to deliver a programme of activity to help us reduce our emissions through the 2020s and beyond.

**Whether it is possible and feasible to deliver low carbon, energy positive, affordable housing at scale in Wales and, if so, how this can be achieved**

22. The IHP is trialling a number of different building systems to meet both long term and short term housing requirements, address fuel poverty and create zero carbon homes. One, Off Site Manufacture (OSM) potentially offers significant opportunities to build quality, energy efficient, low carbon homes at scale and speed. Social Housing providers in Wales are enthusiastically exploring the opportunity to increase housing supply by adopting modern methods of construction and I believe this will increase further this year as the private sector is eligible to apply.
23. There are a number of Off-Site Manufacturing facilities already in Wales, providing homes for social housing providers across the UK some of whom are providing homes under the IHP. The Welsh Government is reviewing the opportunities these present for Welsh landlords. Furthermore, several groups of RSLs, LAs and their private sector partners are already collaborating to explore the establishment of new facilities in Wales to build more homes at scale, more quickly.
24. Several variations of Passivhaus, another example of very low carbon design, are also being supported through the Programme. If any or all of these models are to

influence new housing of the future, qualitative and quantitative data must be captured as to how the buildings perform and how they are used. As we increase building Regulation requirements i.e. regulated energy (heating, ventilation and hot water) the importance of unregulated energy (appliance use) will grow as will the energy consumed in the construction of housing. It will be important that we identify the mechanisms needed to address these.

25. The Innovative Housing Programme will evaluate the new approaches being tried, and will find out what works and equally importantly, what doesn't work. This information will shape the Welsh Government's approach to the type of social and affordable homes that will be funded in future. By March 2019, we expect to have a clearer vision of the type of models it wants to support through its funding regime. These approaches will not only increase housing supply, but will also create additional local jobs, apprenticeships and training opportunities.

### **The barriers to delivering transformative change in house building in Wales**

26. Whilst we recognise the important role that the national house builders play in Wales, there is a need for more competition, choice and diversity in the market. In addition to our ambitious target to deliver 20,000 affordable homes during this Assembly term, there is a need for greater supply of all tenures including market housing.
27. We are particularly keen to see more SME house builders enter or re-enter the market in Wales to increase not only housing supply, but to innovate and help shape the future of house building. There is also a place for local authorities to build more new homes, building on successful models such as the Strategic Housing and Regeneration Programme (SHARP) in Flintshire. This ambitious five year programme was launched in June 2012 to deliver 500 new affordable homes. Of these, 200 will be social rent managed by Flintshire local authority and 300 will be intermediate rent, managed by North East Wales Homes, a solely owned council subsidiary.
28. There are already a number of measures we have in place to help assist SMEs in areas such as access to finance, innovation and collaboration. Our Wales Property Development and Stalled Sites Funds administered on our behalf by the Development Bank of Wales, are assisting developers with access to development finance across Wales ensuing that sites are being brought forward and delivered.
29. Another challenge facing the industry is that of ensuing there is a future workforce with the right skills to deliver the housing we will all need. The Farmer Review 'Modernise or Die', highlights some of the challenges the sector is facing - skills being one of them. As covered earlier, Modern Methods of Construction (MMC) including Off-Site Modular (OSM) offer significant opportunities for house building. It has the potential to help provide the homes of the future at a greater pace, with greater precision and efficiencies, but it also requires a workforce with different skills.

30. To date, we have supported a number of companies which have innovated into OSM including Western Solar Ltd in Pembrokeshire which has developed the 'Ty Solar' house and constructed the 'Pentre Solar' village, and PYC Group in Powys who produce low energy high performance passive houses for both social and private sectors.
31. Whilst good work and progress has been made, there is still more that can be done, particularly in creating conditions to enable SME house builders to flourish and expand the custom and self build sectors. We have measures to assist with access to finance and support for innovation, but there is more that can be done in terms of regulatory reform and assistance with access to development land. In terms of MMC and OSM, this step change for the sector will result in house builders requiring suitable production premises, a workforce with different skills, and public and private sectors receptive to new methods of construction, including insurers and mortgage lenders.
32. We have strengthened our co-ordination of construction activity and support across Government by establishing the Construction Alignment Group to lead on proposals including support for SME house builders, increasing the use of timber in construction and increasing the use of Building Information Modelling (BIM) where appropriate.
33. Our Economic Action Plan, Economic Contract and our Calls to Action will all help assist and support the sector in our transition to a low carbon economy and society, and house building will play a key role in this journey.

### **Whether Wales has the requisite skills to facilitate and enable change in the housing sector**

#### **34. Regional Skills Partnerships**

As stated in Prosperity for All – our national strategy, Regional Skills Partnerships (RSPs) are at the centre of Welsh Skills Policy. Welsh Government plans to deliver a post-16 learning environment which is fit for purpose and sets Wales ahead of other nations of the UK and internationally.

35. The Welsh Government is working closely with the three RSPs to identify and address key employability and skills needs in North, South West and Mid, and South East Wales on the basis of robust labour market information for each region.
36. The Construction Industry Training Board (CITB) has a significant body of labour market intelligence which provides clarity to Regional Skills Partnerships on the future skills and training the industry needs.
37. Skills and knowledge gaps in the existing workforce, particularly relating to energy performance, need to be addressed. The three Regional Skills Partnerships are well placed to coordinate the response to this challenge in each region.

### 38. Apprenticeships

Having appropriately skilled, environmentally-aware practitioners in Wales' built environment workforce is crucial to ensure that Wales meets the 20,000 affordable homes target. We are taking action quickly to deliver on our pledge to create a minimum of 100,000 quality apprenticeships for all ages in this Assembly term.

39. Apprenticeships will support individuals of all ages to get the skills they need to enter the labour market and, importantly, progress through it into higher skilled work. This is part of our commitment as a Welsh Government to creating better jobs closer to home.

40. As a government we are committed to developing a culture in Wales where recruiting an apprentice becomes the norm for employers, giving individuals access to high quality job opportunities and skills.

41. The Apprenticeship programme has been designed to meet the needs of employers and Apprenticeship places are readily available in priority areas through our provider network. We have been working closely with employers and are actively encouraging businesses to come forward and recruit through our Apprenticeship programme in technical and professional areas through a series of marketing and communication events.

42. We recognise that the whole Apprenticeship system must be more flexible and responsive to the ever and more rapidly changing needs of industry. We are using the expertise of employers who sit on the Wales Employment and Skills Board as the vehicle to assist us with new Apprenticeship developments in this area.

### Qualifications Wales

43. On 8 February 2018, Qualifications Wales published their review report and recommendations on the range and quality of qualifications in the construction and built environment sector. Working with stakeholders, CITB, other stakeholder bodies and employer groups and Welsh Government, the Qualifications Wales review team have developed proposals for actions. Issues for consideration include ensuring that qualifications and underpinning national occupational standards, which describe occupational competence, reflect up-to-date technologies, tools materials and processes. A public consultation on recommendations ran until 13 April.

### 44. Careers

It is crucial that construction is recognised as an attractive career choice for young people. We want to showcase these opportunities and broker strong links between employers and their local colleges and universities. We need to do this to help young people and job seekers get the skills employers need, and to receive the information they need to make the best decisions about their futures.

45. Careers Wales is working with Regional Skills Partnerships which are identifying the range of opportunities in the construction industries arising from a number of large infrastructure projects, using this labour market intelligence to inform young

people and adults about the opportunities in the construction industry as well as in other priority sectors.

46. The construction sector has come together to develop 'Go Construct', the first industry-wide interactive careers portal showcasing the wide variety of jobs in construction and the best routes into the industry.
47. CITB is working with Careers Wales to ensure that Go Construct provides young people and job seekers with profiles of construction jobs, support on how to enter the industry, and first hand advice from those who have built a successful careers in construction.
48. Construction Wales Innovation Centre  
CITB and a consortium led by the University of Wales Trinity Saint David is establishing the Construction Wales Innovation Centre (CWIC) to offer state-of-the-art facilities and world-class training for individuals and construction companies.
49. Investment in skills must sit alongside increased demand for new and better approaches to house building and retrofit. The Construction Wales Innovation Centre (CWIC) and the Supply Chain Sustainability School will have an important role to play in supporting the delivery of this training.

### **If changes are needed to Building Regulations in Wales to accelerate progress towards 'near zero' energy standards and beyond**

50. The last time we reviewed Part L of the building regulations, the decision was taken to hold back on our initial intention to significantly improve the energy performance of new housing as the market was still in a slump following the 2008 crash. The time is right to look again at what a step change in energy performance for new housing would mean. In contrast the 20% improvement we made to new non domestic buildings puts us ahead of other nations whilst giving real encouragement to the installation of renewables.
51. In the Cabinet Secretary for Energy, Planning and Rural affairs' Energy Oral Statement in December 2016, we announced a new review of Part L. Lead consultants have been appointed and scoping work is underway. A broad programme for the review has been developed indicating the following:
  - a. Scoping study complete - summer 2018
  - b. Main review starts - autumn 2018
  - c. Consultation start – spring/summer 2019
52. On the basis of the agreed Brexit transitional arrangements, transposition of and compliance with EU Directives will continue where requirements apply within the transition period. This year the EU will consider revisions to the 2010 Recast of the Energy Performance of Buildings Directive (EPBD) which will require transposition. It is intended that this Part L review will meet the EPBD 2010 (Recast) requirement to set 'Nearly Zero Energy' (NZE) standards at a cost optimal level or better. We are currently awaiting final analysis of our current standards (Part L 2014) in achieving 'cost optimal levels'.



53. Summer overheating is seen by many as a climate change consequence, something for the future. It is notable that apartments in redeveloped areas are already suffering particularly where windows and ventilation is only on one side and there are no through-draughts.
54. The independent review following the Grenfell tragedy will lead to major changes to building regulations and the building control system which will take time to complete. The way we manage competing priorities is going to be critical to the delivery of, in this case climate change and life safety, improvements to the building regulations.

### **How communities can be planned and shaped to be more energy efficient and low carbon (including examples of good practice in Wales and further afield)**

55. The planning system plays a key role in ensuring that development is designed and constructed in a way which is energy efficient and promotes low carbon energy generation. National planning policy is set out in Planning Policy Wales (PPW) and seeks to promote the principles of sustainable development which includes energy efficiency and low carbon development. We have taken an active role in identifying areas for large scale renewable energy (TAN 8 Strategic Search Areas) and through the monitoring of Local Development Plans seek to ensure local authorities also make adequate provision for new renewable and low carbon energy generation.
56. The location of new development needs careful consideration in terms of its accessibility by modes other than motor vehicles. The integration of land use planning for housing, employment and transportation can reduce the need to travel and thus reduce the energy needs and the use of fossil fuels. PPW has a clear policy framework to integrate these land use aspects to promote active travel and thus reduce the need for car-borne journeys in particular.
57. Energy efficiency and low carbon development can be actively promoted through sustainable urban design and the integration of features such as district heating systems, and designs which optimise solar energy have been features of the planning system in Wales for many years. The Welsh Government sponsors the Design Commission for Wales which provides technical design assistance to local authorities and developers to help promote the principles of energy efficiency and low carbon development through careful design. Further guidance on these issues is also contained in TAN 12 which sets out how design can influence the sustainability credentials of new and proposed development. This is supplemented by a Toolkit for renewable and low carbon development to provide technical support to local planning authorities when developing policies and understanding the potential of their areas for low carbon and renewable energy.
58. We have recently consulted on a revised version of PPW which seeks to put place-making at the core of the planning system. This principle will help ensure that the planning system fully considers the requirements and opportunities to promote sustainable places. The promotion of low carbon, energy efficiency and renewable energy is a very important component of this approach.

59. The Planning system has an important role in promoting low carbon and renewable energy. PPW sets an ambitious framework for the deployment of low carbon and renewable technologies. By promoting the principles of place-making it is possible to integrate housing, employment and transport policies to reduce the need to travel and to promote active travel. Careful urban design promoted by PPW and supported by the Design Commission for Wales can lead to the creation of communities where low carbon and renewable energy are planned for and provided at the outset rather than being retrofitted. This year the Innovative Housing Programme asks applicants to undertake a design review through the Design Commission for Wales so that these issues can be factored in at an early stage.

**Wales must upscale and extend the Welsh Government’s existing retrofitting schemes – NEST and Arbed, adopting a ‘warm zones’ model to ensure a joined-up approach to delivery in areas where badly insulated housing, fuel poverty and poor health coincide**

60. The Welsh Government has recently appointed a new Scheme Manager to manage our Warm Homes Arbed 3 project, our area based fuel poverty and energy efficiency scheme. Arbed 3 matches Welsh Government with European Regional Development Funding and will spend approximately £55m in the next three years. Warm Homes Nest, our demand led scheme will invest a further £72m over the period from 2017 to 2021. As an area based scheme, Arbed 3 will specifically target reduction in fuel poverty in Wales, year on year, utilising a range of local and national data to target communities for action.

61. A number of characteristics, in various combinations, may indicate households and properties more likely to be living in fuel poverty. They include:

- Household is in receipt of means-tested benefits or with an income below 60 per cent of median income.
- Household occupants include someone over 75 years or under 5 years.
- Household occupant includes someone who is disabled.
- Home has an energy rating of EPC E, F or G.
- Home is off the gas network.
- Home is pre-1900, solid wall construction.
- Householder pays for energy through a pre-payment meter.
- Householder has never or rarely switched tariff or energy supplier.

62. These and other characteristics will be analysed to identify Arbed 3 schemes. The aforementioned Advisory Group on the Decarbonisation of Existing Homes will consider how these programmes may need to evolve, and be supplemented, to help us achieve our wider decarbonisation objectives.

## **Wales must explore linking the cost of stamp duty land tax to the energy performance of a house to start to increase the value of energy efficient homes**

63. The Land Transaction Tax and Anti-avoidance of Devolved Taxes (Wales) Act 2017 established a new tax on land transactions which replaced stamp duty land tax from April 2018. The Act includes a regulation making power that enables the creation of new reliefs. During the passage of the Bill, the Cabinet Secretary for Finance made a commitment to further explore whether the devolved tax system could help to incentivise energy efficient homes.
64. The tax policy framework, which sets the strategic framework for in which Welsh tax policy will be developed outlines the approach to the introduction of any new relief for the devolved taxes, in particular any relief needs to be carefully considered to ensure it achieves the desired policy objectives. It should also be affordable and not create opportunities for avoidance.
65. The policy approach to changing reliefs or introducing new reliefs in the future will therefore replicate the Welsh Government's approach to considering new taxes. This involves a clear process and evidence-gathering stage, to ensuring tax policy is aligned with the Welsh Government's policy aims; are cost-effective and reach their intended policy target.
66. The Welsh Government has begun to explore whether there is a need for tax-based intervention to complement existing levers to incentivise energy efficient homes. This work has involved contributors from across the sectors and has focused on understanding the existing evidence base and identifying whether there is a case for change. Analysis has also been undertaken of existing or historic schemes within the UK and internationally where taxation has been used as a lever to incentivise energy efficient homes.
67. The Welsh Government provides significant financial support to the residential sector to support and enable energy efficiency improvements which is largely targeted at low-income households. The initial evidence gathered has indicated that there is a case for further action to drive residential energy efficiency improvements, particularly in the able-to-pay sector. However, it was concluded that more targeted grants and improved government communication would be the priority to ensure a co-ordinated approach that creates long term change, and that more detailed analysis in this area is needed.
68. More detailed analysis of existing evidence in this complex area will continue. This will include continued analysis of the effectiveness of new and existing schemes in the UK and internationally. This evidence-gathering will need to be set in the context of supporting the transition to a low carbon society and we will continue to analyse all levers available to promote more energy efficient use of housing, including taxation.

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June 2018