

CHC response to the National Assembly for Wales' Environment and Sustainability Committee inquiry into a "smarter energy future for Wales"

The energy mix

How can we decarbonise our energy system at a sufficient pace to achieve the necessary reductions in emissions?

1. Welsh Government in 2010 committed to two greenhouse gas reduction targets- To reduce emissions within all areas of devolved competence by 3% each year from 2011 to 2020 and to reduce all Welsh emissions by 40% by 2020. CHC understands that progress towards the 40% residential target requires a reduction in non-electricity based emissions from households, so achieving this target requires further energy efficiency measures to reduce heating demand, plus significant uptake of renewable heating technologies to reduce the carbon-intensity of heating. Given what is required, achieving a 40% emission reduction in the residential sector by 2020 will be extremely challenging. Our analysis indicates that around 2.2 million additional energy efficiency measure installations will be required between now and 2020 for the target to be met; this is almost 3 times the number of installations made from 2007 to 2014. Significantly greater investment will therefore be required for a reduction in source emissions to be achieved. Estimates in a Bevan report on poverty states that it will take 78 years for Nest to reach each and every home suffering from fuel poverty in Wales.¹
2. We also need to reduce carbon emissions by shifting to renewable energy generation. Schemes such as the Feed-in Tariff scheme have big potential for reducing carbon emissions and cuts to the tariff have had big impacts on community's ability to install renewable energies. The key objective in the first instance should be to increase the uptake and public acceptance of renewable technologies in the early days and social landlords have an important part to play in achieving this objective. Social landlords can and should play a vital role in the roll out and eventual mainstreaming of renewable technologies.
3. Appropriate incentives and subsidies would enable RSLs to install renewable technologies into their properties and in communities at a faster rate available in order to help reduce fuel poverty. We strongly suggest that attractive incentives exist for social housing providers in order to support the social housing business model and stop schemes becoming regressive in their application. Incentives should form an important part of the process and this could include financial incentives as well as other incentives. Regulatory drivers should include the need for financial incentives and disincentives introduced by Government (including forms of subsidy), stronger enforcement, council tax reductions, etc.

¹ <http://www.bevanfoundation.org/publications/rethinking-poverty/>

4. We must also focus on the reduction of energy use at the point of use through behaviour change (whilst Welsh Government does not have control over electricity generation, their actions can have significant influence on electricity consumption by end-users).

What mixture of distributed generation resources best meets Wales' renewable energy needs in respect to the supply of a) electricity, b) gas, and c) heat?

5. There is potential for making more use of certain technologies such as biomass, combined heat and power, district heating and cooling. We need to consider good practice from other countries including Denmark's experience of district heating, with Denmark being one of the most successful nations in spreading low carbon heat networks. One of CHCs members, for example, is installing a new Biomass energy centre to complement existing gas fired gas boilers. One of our members is also exploring the potential for a district heating energy service company, although this is not an area that the RSL sector have a lot of experience in installing.
6. CHC's members have been mostly active in installing solar photovoltaics and renewable heat technologies (mostly solar thermal, heat pumps which do have further potential). Experience of installing solar PV has generally been positive and solar PV is increasingly becoming economically competitive. Although there has been positive feedback following the installation of renewable heat technologies, it can be accepted that renewable heat technologies are generally less well known and there are more hassle factors associated with their installation, which increases the barriers to installation. There are barriers to design, installation, operation and maintenance of renewable heating systems in particular. RSLs are still assessing the effectiveness, running costs and tenant satisfaction from installations. What is evident from projects is that householder education is an important factor to improve both the acceptance and operation of renewable heating systems.
7. The sector hasn't got much experience in installing hydro, although some RSLs have been involved in working with other partners to install Hydro. Although it has been stated that natural flow hydro and thence for small hydro will not itself likely lead to regionally significant employment or carbon-mitigation impacts, a report shows that small hydro developments can have significant local socio-economic impacts, often in challenged communities and places.² Wales should harvest its abundant rainfall and prioritise this as there are thousands of untapped streams

² http://regenwales.org/resource_85_The-Economic-and-Social-Impact-of-Small-and-Community-Hydro-inWales

pouring off hillsides across Wales and the potential for micro hydro is almost limitless.

The grid

How does the grid distribution network in Wales enable or restrict the development of a new smarter energy system?

8. The grid and distribution network in Wales has significantly affected the ability of projects (particularly small and medium sized) to connect to the grid. The lack of availability of the grid and the cost of new connections is a barrier to development. CHCs members have found the capacity of the national grid to be a barrier in the past with regards to installing renewable energy systems. How we address this needs to be considered further by OFGEM, the Distribution Network Operators, Government and other partners.
9. The privatised grid in much of rural Wales is owned by Western Power Distribution (WPD) and as the grid is full for the foreseeable future in many parts of Wales, it can be very expensive to upgrade the grid and connect even small scale schemes. Due to the high levels of embedded generation currently connected, or seeking connection to the distribution networks, there are areas in south Wales where significant reinforcement work is required.
10. Following the UK Government's decision to launch a consultation on electricity distribution costs in the north of Scotland, CHC feels that the same could be considered for North Wales which has the second highest regional energy costs. However, CHC would go a step further and argue that we need a major overhaul in this area and big investments in infrastructure are needed to create a flat national rate.
11. Smarter strategies appear most cost-effective, with modelling showing that a smart grid strategy of using innovative smart solutions in conjunction with conventional reinforcement options appears to be more cost effective than using conventional solutions alone.

What changes might be needed in terms of ownership, regulation, operation and investment

12. CHC recently welcomed OFGEM's consultation into Non-traditional Business Models³, which acknowledged an increase in enquiries about new ways to interact with the energy market with many proposals seeking new and non-traditional business models.

³ <https://www.ofgem.gov.uk/publications-and-updates/non-traditional-business-models-supportingtransformative-change-energy-market>

13. The consultation notes a range of issues, including that Wales has experienced an increase in the development of localised generation as technology, systems and processes are developed. This has resulted in an upward pressure on the networks. The shift to “local” has also promoted the question of how to capture the ownership of such interests to help retain benefits in Wales. These discussions form part of a longer-term engagement in this area to help understand drivers, consumer benefits and risks. As part of developing Smart Living, there should be proactive discussions on types of models that could be beneficial for organisations and communities in Wales to consider. Planning needs to account for more recognition of benefits and social ownership and we need active promotion of social ownership in communities.
14. CHC is currently active in helping our members secure energy supply for RSL tenants via local energy production through renewable energy systems. CHC wants to address the market failure impacting on low income households and impact fuel poverty directly through price. The feed-in tariff schemes work very well where they have been installed, but there is a lot more to be done now around enabling communities to generate their own power and thereby have a greater control over future fuel usage and costs. CHC would like to see the ability for more direct local supply and, for example, a generator (e.g. ESCO) being able to sell directly to a customer at a good price.
15. There is a significant and growing appetite amongst our members to intervene directly in the market and therefore CHC is looking to set up a partnership to weigh up options for setting up an energy supply company. A good example is the “Our Power” model in Scotland⁴, which is a new independent energy supply company and the first in the UK to operate on a non-profit distributing basis. In the future, Our Power hopes to develop renewable energy projects as part of its business for the benefit of local communities.

Storage

How can energy storage mechanisms be used to overcome barriers to increasing the use of renewable energy?

16. Energy storage not only has the potential to provide back-up power in case of power cuts, but storage can also help electricity grids run at average rather than peak load, therefore reducing the chances of power cuts in the first place. Energy storage can also be used to obviate the need to upgrade or install new grid capacity. Puerto Rico, for example, has set a 30% storage requirement for any new renewable capacity. Storage is also proving invaluable for isolated communities that have no access to the national grid, with “islanders in particular enjoying continuous power without the need for additional diesel generation”.

⁴ <http://news.scotland.gov.uk/News/Power-to-the-people-1b3b.aspx>

17. Renewables, together with energy storage, open the possibility of communities and individuals becoming energy self-sufficient. CHCs members do not have a lot of experience in assessing energy storage mechanisms, but CHC understands that the costs today are prohibitively high for mass adoption, but there are already residential energy storage solutions on the market and costs will come down. Support from Government and others would be essential in driving the use of energy storage mechanisms into the market due to initial costs and significant commercial risk.
18. It could also lead to a point where demand from the grid is much reduced. This raises important questions about who will pay for grid maintenance - initially at least only the wealthy may be able to afford renewables and storage, leaving those who can't afford them to pick up the bill. Therefore, if Wales did decide to pursue energy storage options, this must be taken into account in helping to enable low income households to get access to new technologies so that they aren't disproportionately affected.
19. There are an increasing number of energy services companies able to provide everything their customers need to generate and store their own energy. The ultimate beneficiaries could be consumers. Large-scale generation and national grids are not going to disappear overnight, if ever, but CHC would like to see individuals and communities having the power to choose their own energy futures.
20. The huge problems in grid capacity across large areas of Wales (most notably mid and west Wales but also across all of Wales) could be considered as a great opportunity to incentivise innovation in the smart grid and storage sectors, particularly if Government funding and structural funds are used to financially support projects which demonstrate a diminishing need for upgraded or new infrastructure. We need to consider the potential for energy storage, smart grids and other technological advances. CHC understands that locally installed energy storage could, in principle, be able to connect islands of generators and users without the need for "wider" grid connection.

Ownership

To investigate the desirability and feasibility of greater public and community ownership of generation, transmission and distribution infrastructure and the implications of such a change.

21. Please see our answer above to the question "What changes might be needed in terms of ownership, regulation, operation and investment?" We have insufficient knowledge of this area to make a full response.

Energy efficiency and demand reduction

How can the planning system and building regulations be used to improve the energy efficiency of houses (both new build and existing stock)?

22. Improving the energy efficiency of homes is one of the key levers to tackling fuel poverty. Energy efficiency lies at the heart of discussions about energy. A home which is highly energy efficient can provide the occupants of those buildings with a more comfortable experience, lower fuel bills, enable reductions in carbon emissions and help ensure increases in energy security for individuals, businesses and communities. Wales has responsibility for setting energy efficiency requirements for new buildings. The integration of renewable energy technologies when feasible into the built environment offers clear benefits and an additional improvement in the skills and expertise of the workforce operating in the sector in Wales. The Welsh Government needs to increase its support for the smart energy sector and commission an assessment of potential impact of the smart grid and storage sectors.

What would the environmental, social and economic impacts be if Wales set higher energy efficiency standards for new build housing? (e.g. Passivhaus or Energy Plus)

23. CHC is committed to its members delivering economic, social and environmental benefits through the building of new homes. In assessing the environmental, social and economic impacts of Wales setting higher energy efficiency standards for new build housing, there are several to take into account. In making the argument for increasing standards, increases in the energy efficiency requirements for new-build could support the skill base of our construction sector ready for the forthcoming requirement for all new buildings to be “close to zero carbon” by 2020. Zero carbon buildings can also mean reduced energy bills for tenants, lifetime energy use would be drastically reduced (reducing greenhouse gas emissions, fuel bills, fuel poverty), improvements in people’s health and this would result in economic cost savings to the NHS and whole-life savings for tenants. A project that is of particular interest to our members and the health service at the moment is the Boiler Prescription service which is being delivered by Gentoo.⁵

24. In making the argument against, or in making the argument in regards to how much and how quickly standards are increased, our members report that development costs have increased in recent times with ever improving standards as there are many different tiers of design criteria that our members are required to meet for new build properties. As well as the mandatory Building Regulations and Code Level 3 applicable to all new build dwellings, affordable homes also have to be compliant with DQR (Development Quality Requirements), WHQS

⁵ <http://www.gentoo-group.com/news/gentoo-group-launch-boiler-on-prescription-pilot/>

(Welsh Housing Quality Standards) and Lifetime Homes. Although this additional level of design results in consistency in design and standards across the affordable homes sector, it should also be noted that this comes at an extra over development cost. The review of Part L under the building regulations and the intention for the requirement to install automatic fire suppression systems in all new residential dwellings from spring 2014, as outlined in the domestic fire safety measure, will add to that cost and they are coming at a time when there are a lot of difficulties in the sector including viability challenges and technical challenges to be looked at.

25. It is important that these changes are balanced against the backdrop of the current financial situation, cuts in social housing grant and increasing housing demand. The viability of development schemes is challenged with increasing standards and less rental income/grant. Furthermore, there is considerable financial pressure on the sector at a time when there are significant cuts to the welfare system which are considerably impacting the income of RSLs. With the cuts to welfare reform, there will be a greater need for more efficient properties in terms of accommodation which could have a larger footprint and associated build cost but may be necessary in order to meet housing need. Our members have commented that rising standards will drive developers including RSLs away from build.

Communities- making the case for change

How can communities, businesses and industry contribute to transforming the way that Wales thinks about energy? Does the answer to this challenge lie in enabling communities to take greater responsibility for meeting their future energy needs?

26. Taking into account the energy hierarchy, energy reduction should be considered firstly before considering energy efficiency. Undoubtedly the first and best option is to use less energy, to be less profligate. With less waste, the adoption of modern technologies, better insulation, regulation and planning, we can save over 35% of our total energy bill and Wales could reduce its internal consumption from ~100 TWh to below 65TWh.⁶ Useful figures can be seen within this article in the footnote⁷. Therefore a priority should be to increase energy efficiency and reduce our total national energy use without increasing imported embedded energy.
27. In England, 100% of business rates from new energy projects are retained by local authorities and we believe Wales should emulate this approach as the retention of local business rates from renewable energy projects would help link projects with the communities in which they are based, and support the “fairness”

⁶ <http://www.clickonwales.org/2015/07/the-energy-conundrum/>

⁷ <http://www.clickonwales.org/2015/07/re-energising-wales-2/>

principle of supporting the local authorities which play host to more developments.

28. Wales must reconfigure and re-engineer its energy supplies to a “zero carbon”, minimal greenhouse gas (GHG) emission format. Energy is essential to the Welsh economy and though we are traditionally an exporter of electricity, we are likely to become a net importer from 2016. We face many unique challenges, as well as opportunities, in terms of developing our energy resources in a way that is compatible with our obligations to future generations and greenhouse gas emission targets

If you require any further information on the content of this submission, please contact Shea Jones at shea-jones@chcymru.org.uk We are willing to provide oral evidence to the Committee if required.