

Cynulliad Cenedlaethol Cymru Pwyllgor Amgylchedd a Chynaliadwyedd	National Assembly for Wales Environment and Sustainability Committee
Dyfodol Ynni Craffach i Gymru?	Smarter energy future for Wales?
Ymateb gan Y Cymoedd Gwyrdd (Cymru) CIC (Saesneg yn unig)	Response from The Green Valleys (Wales) CIC
SEFW 17	SEFW 17



Cynulliad  
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National  
Assembly for  
Wales

## A SMARTER ENERGY FUTURE FOR WALES: Response of The Green Valleys CIC 3<sup>rd</sup> September 2015

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1. Before answering some of the questions raised by the committee I am going to make a few observations about the current position by way of *background*.
  - In 2013<sup>i</sup>, despite having abundant natural resources, Wales was producing just 10.1% of its electricity from renewable sources, less than the UK average and way behind Germany at 23.4%.
  - The vast majority of those renewable generators are owned by large corporations – the majority of them foreign owned and foreign financed.
  - Consequently, the income from renewable generation is not staying in Wales. There are very few community or socially owned renewable projects in Wales. Westminster policy has supported foreign developers to use the landscape of Wales to profit from the levy on consumers' fuel bills.
  - As you are aware the Westminster Government is rapidly closing the support under the Levy Control Framework (RO, FIT, CfD) on the basis that the budget (and cap) for 2020 will shortly be fully committed. There have been over 5 years of missed opportunity – a new commitment from Wales is needed - but at a time of great uncertainty and acknowledging that Wales currently controls neither the economic incentives nor the regulatory framework that drive renewable investment.
2. *A question of priorities* Any answer to the questions that are being asked will vary depending upon your strategic priorities. I recommend that the committee give urgent attention to its priorities and goals for renewable energy generation, as this will dictate policy choices. For example, priorities **could be**:
  - a. *Maximize energy output (MWh)* - this will lead to a focus on very large scale, high efficiency projects, typically onshore wind and PV, and experience shows that these will be delivered most quickly by commercial developers.
  - b. *Security of supply* – this will encourage a diversity of distributed resources and encourage farm and community scale developments close to the point of consumption.
  - c. *Maximize economic benefit for Wales* – here ownership will be crucial: mutual, social and community ownership will hold profits within the country and will also give scope for using electricity generated to address fuel poverty (one of the failures of the current generation programme).
3. Whatever the intention, the outcome of the last decade of (mainly Westminster) policy has been maximizing energy output (priority *a*, above) as evidenced by the large on and offshore wind farms. Value for money (kWh/£) will always be important so further development of large generators is vital to meeting energy needs and carbon targets. There has been some progress towards secure and distributed supply especially through deployment of FIT for domestic PV and farm and community scale renewables (priority *b*, above) supported by the small scale FIT. However, delivery has been slow (apart from <4kW PV) and is now hampered by FIT degeneration and grid constraint in rural areas. The goal of maximizing economic benefit for Wales has not been delivered. An insignificant fraction of Wales' renewable resources are in social ownership. Apart from land rental and relatively small community benefit funds there has been very little economic benefit to Wales from renewable generation.
4. Wales needs to deliver RE at scale as well as maintaining a variety of smaller, distributed projects. I believe Wales can deliver these priorities by focusing on two priorities for its renewable energy policy for the next 10 years:
  - a. Deliver large scale, socially owned schemes
  - b. Continue to support a variety of farm and community scale projects across Wales.The responses and evidence given below reflect these priorities.

### **The energy mix**

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

5. Renewable generation still requires some financial support (something that all other technologies receive – from tax incentives to oil exploration to nuclear decommissioning from Public spending).

This review is taking place when there is considerable doubt about the future of the financial support for the renewables sector in the UK. Future support from Westminster is unknown although it is likely that until 2020 the Government will argue that since the LCF support has been allocated earlier than expected, no additional spending is required until after 2020. Against this policy assumption there are some rational responses to inform Wales' future energy policy:

- a. *Go Large*. Focus on the larger schemes where economies of scale get closer to grid parity.
- b. *Local supply*. Actively develop models that allow direct resale of generated electricity (local supply). If generators were able to sell directly to consumers at a price above the minimum export price but below retail pricing then the impact of the declining FIT could be mitigated. Active support and piloting of direct sale initiatives is vital to the funding of future renewable generation. It also promises a potential challenge to fuel poverty – the socially owned wind farm that sells to the housing association tenants at a reduced tariff?  
[We have a bizarre situation, regulated by Ofgem, requiring all generators to sell big ESCOs at the wholesale rate (around 5p per unit) who then resell that power at 5p per unit. Imagine that Ofgem regulated the production and distribution of carrots –all growers would be forced to sell to the big 4 supermarkets at wholesale prices –making farmers markets are illegal!]
- c. Support distributed generation where electricity can be used on site (saving 15p per unit on purchase) – this would mean supporting farm and domestic schemes where electricity is used on site and encouraging on-site consumption to replace fossil fuel.

This focus on large scale, local supply, and generating at point of use is independent of any particular technology and aligns with the priorities set out in paragraph 3 above.

*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?*

6.
  - a. For electricity the answer is largely given above – larger, renewables schemes with the ability to local supply, and smaller renewables alongside local demand.
  - b. For gas, large scale AD from domestic waste is one of the technologies that have been overlooked – in part because of LA waste management contracts.
  - c. For properties that are off the gas grid there needs to be continuing support for biomass heating and electric heat pumps which can be an ideal partner for renewables that have a strong winter generating capacity (wind and hydro). TGV have installed a 30kW microhydro scheme in mid-Wales as a partner to ground source heat pump that is heating efficiently a large multi-room property. Support is needed to encourage integrated solutions.

### **The grid**

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

7. Grid capacity is a major constraint on renewable generation in many parts of the UK. Once again this is an area where community renewable generation projects are at a material disadvantage when compared to commercial projects. We have had direct experience with rural grid constraint (£5.7m reinforcement cost of an 18kW community microhydro project). Commercial developers have the experience and the balance sheets to be able to employ grid consultants to ensure that they design schemes that reserve all of the available capacity on our constrained, legacy network. There is clear evidence of market failure under the current “market” regime of regulated by Ofgem. One absurd consequence is the insistence that the existing grid is used optimally (“value of money argument”) even when to achieve this generators (supported under the LCF) are being given constrained connection offers or having generation curtailed. In other word the determination to avoid under-used assets in the distribution network are requiring under-utilisation of generation assets. Common sense requires some redundancy in the distribution network and full utilisation of generating assets – the opposite of the current situation.

8. For some DNOs (WPD in mid-Wales is an example where I have direct experience) the heralded solution is Active Network Management (ANM). From 2017 all connection offers in that region will be ANM offers – requiring the developer to pay for an inter-trip (a switch) and secure communication to the network management system maintained centrally by the DNO. Under certain network conditions generators will be remotely switched off to maintain the network within safe operating parameters. As noted above, this prioritises grid resource efficiency over generation asset resource efficiency. It also acts as a further barrier to community and smaller distributed generation since the cost (met by the developer) of ANM connections will typically be another £40k. Not a problem for a 30MW wind farm but critical for a smaller community or farm-scale project.

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

9. The DNOs have neither the remit nor the appetite for distribution grid investment. Developers are utilising the legacy grid rather than invest in large-scale reinforcement themselves and planned cooperation between developers has not materialised (research by REGENSW has highlighted the barriers to a market driven investment).
10. This can probably be achieved by any one of two options, (a) public ownership of the grid in Wales, (b) modifying existing regulation to allow a funded social enterprise to make strategic grid investments and to recoup a proportion of the investment from the existing “second comer” rules where subsequent beneficiaries of the investment pay a proportion.

### **Storage**

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

11. Wales needs to be cautious about the use of “technological fixes” to solve structural grid constraint caused by lack of investment. Westminster and the DNOs are offering magic solutions of mass storage and active network management (see para 7 above). Battery storage will become important but we need to keep some perspective on the current state of the technology. The much-heralded TESLA battery is effectively a £2,000 wallet which holds £1 worth of electricity. The experimental vanadium ion battery on the island of Gigha cost £3m and holds about £60 worth. Batteries will have a place and although unit costs are falling the technology is not economic and still at the experimental stage. This is best left to DNOs, academic and corporate research budgets for now. But we should cooperate with externally funded trials but this is not an immediate solution.  
Energy storage *does* make perfect sense when the energy is stored for direct use and not for later release into the grid. For example, electric vehicle batteries or electric heating of hot water in buffer tanks for domestic heating. These require intelligent energy management systems and should be supported.

### **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.*

12. In conversations with DECC officials they freely acknowledge that there are market failures in the energy generation and distribution markets. The system of regulation is favouring the big 6 ESCOs and neither consumers nor the Welsh economy. The case for social ownership or state supported strategic investment in the grid has been made in para 10 above. Some large scale renewable generation also needs to be in social / mutual ownership. In para 3 above I highlight that the vast majority of money paid by consumers to support renewables has gone to foreign owned developers and their overseas investors. We have collectively failed to retain the benefits within the Welsh economy.
13. The reasons for this failure inform the proposed solution. Community projects have been too slow-footed to compete with the professional, well-financed developers who have secured the

best sites. Many of the sites for RE in Wales are on publically owned land (LA, NRW, Crown Estate) but taking the risk of site development (where the big returns are made) requires both expertise and an appetite for commercial risk that the public sector does not have.

14. I believe there is urgent need to establish a municipal / social RE development body with the aim of developing large scale projects on the public estate in Wales. This needs to be done nationally – not at the local authority level with a professional assessment of the best sites. Of course it should have been done 5 years ago when LCF support was plentiful and the best sites were available. However the scope for renewable energy in Wales is still considerable and much of the public estate is still undeveloped. There will be (even if we have to wait until 2020) a new support framework for RE and work needs to start now on securing sites and gaining permissions. Through this agency the economic benefits of development can be retained within Wales. As a municipal generator it would also have scope (if effective local supply regime was established) to offer supported tariffs for those in fuel poverty – something that the market will never provide.

**Energy efficiency and demand reduction** Not answered – not an area of direct experience.

### **Communities - making the case for change**

*How can communities, businesses and industry contribute to transforming the way that Wales thinks about energy?"*

15. All we can say with certainty is that the present system is not working for consumers, the economic health of Wales, those in fuel poverty, or delivering on energy efficiency. But is working very well for the shareholders of the ESCOs and DNOs. I have argued that large scale RE is needed in Wales and that at least some of future development should be municipally owned. There is also a role for smaller community owned distributed generation. In particular the ESCOs have failed in delivering energy efficiency measures to the domestic market (lack of trust and conflict of interest the two main contributors). Communities have a key role to play in engaging with and delivering changes in behaviour and installation of energy saving measures. One option would be to link further support to community energy projects to commitments to deliver community based energy efficiency measures. Taking FIT out of the income equation would allow community generation projects to receive European grant funding for construction (something State Aid rule prohibit with FIT) and could come with requirements for substantive change at the householder level.

*Does the answer to this challenge lie in enabling communities to take greater responsibility for meeting their future energy needs?*

Experience with Ynni'r fro suggests that communities can't deliver the big energy projects consistently. But to meet our carbon reduction obligations and the follow the spirit of the Future Generations Bill, Wales needs to continue to develop large scale RE projects. I believe (at least some of) these projects should be socially owned (a partnership between municipal landowners, LAs and local communities) to harness the full economic benefit for Wales and potentially start to address fuel poverty through local supply. Communities do have a key role to play – developing small and medium scale projects and in particular to delivering the energy efficiency agenda.

In conclusion there are four main priorities: 1) establish a municipally owned development company for RE large-scale projects to harness wealth and start to tackle fuel poverty through direct supply; 2) continue to support distributed farm and community scale projects where electricity is used on site (and support integrated projects such as heat pumps with wind or hydro schemes); 3) Use financial support for community projects to drive community-led action on energy efficiency; 4) Ensure there is strategic investment in the distribution grid.

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<sup>i</sup> *Energiewende Wales?*, Karen Whitfield, National Assembly for Wales Research Service