

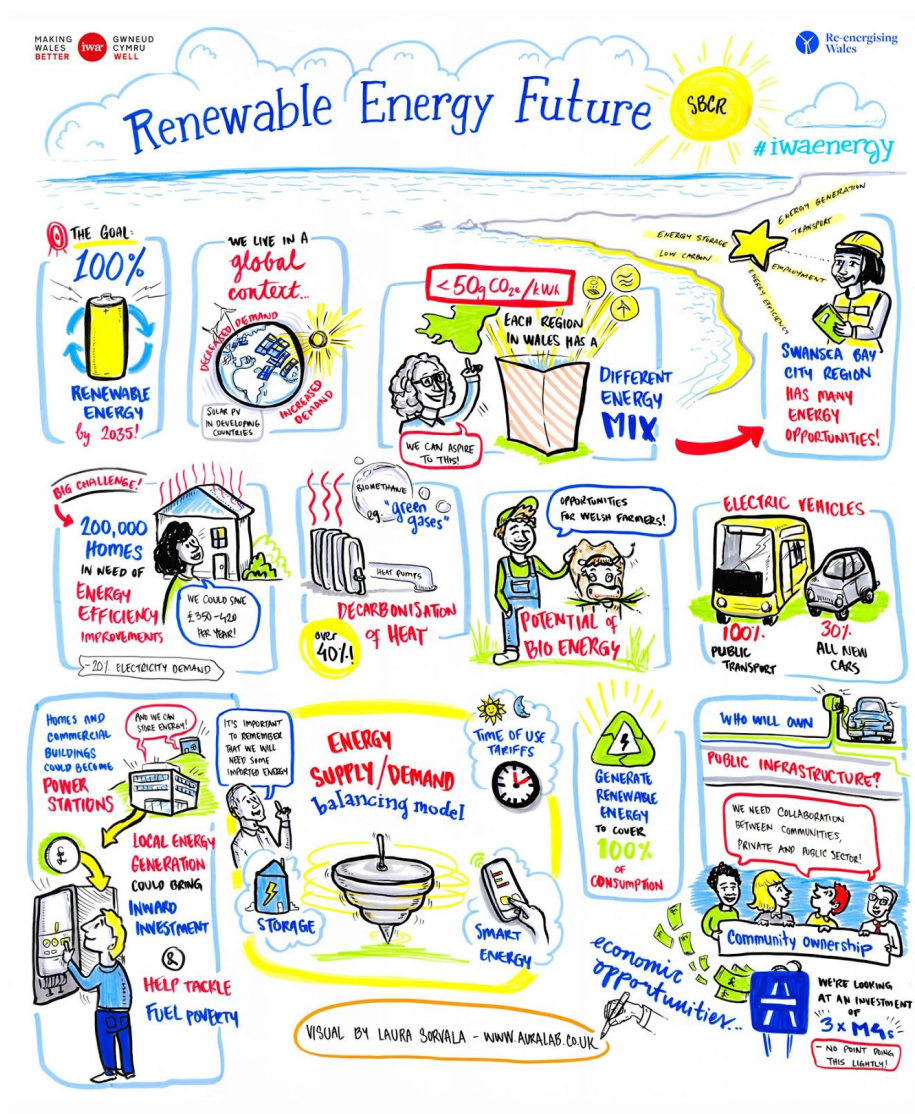
Re-energising Wales

"Harnessing the potential: renewable energy in the Swansea Bay City Region"

30th April 2018 | The National Waterfront Museum | Swansea

#IWAenergy

Event note



Welcome

Auriol Miller, Director of the IWA, welcomed speakers and delegates to the event, and explained the work of the IWA, highlighting that the purpose of this event was to launch a number of work streams from the IWA [‘Re-energising Wales’](#) project. Ms Miller noted that the IWA were delighted to host the event in such an iconic building which showcases the history of the region, whilst today we will be discussing its future.

Setting the Context

Shea Buckland-Jones gave an introduction to Re-energising Wales. The project is divided into six work streams and today would launch findings from the first two work streams:

- [‘Building a Picture of Energy Demand in Wales’](#)
- [‘Swansea Bay City Region : A Renewable Energy Future’](#)

Mr Buckland-Jones explained how interim findings from the third workstream (economic impact) were also to be launched. Mr Buckland-Jones noted that it was a great time to be launching this project with 2017 breaking a number of green energy records and Wales’ natural resources meaning that Wales has a massive renewable energy potential. The Re-energising Wales project is gathering the evidence base to help Wales work towards achieving its potential. Mr Buckland-Jones thanked the project’s steering group, those organisations commissioned to deliver work and IWA staff.

An Introduction to the Swansea Bay City Region Case Study – Professor Stuart Irvine, Swansea University

Professor Stuart Irvine outlined that the project has taken two years to get to this stage and to ascertain what the problem is. Professor Irvine began by outlining the global context in that we are all global partners in global reduction of CO₂ and the period 2010-2016 has seen renewables as the dominant/significant source of newly installed energy generation.

Re-energising Wales’ Swansea Bay City Region (SBCR) case study has led the way by taking a bottom up approach. A regional approach, as opposed to a national approach, is more suitable as each region has a very different energy mix. The model developed within this case study, however, is certainly applicable across all of Wales’ regions and beyond. Transferring it is both achievable and practical. It will help the SBCR and Welsh Government achieve their renewable energy goals.

Findings from the SBCR case study - Johnny Gowdy, Regen

Johnny Gowdy set out how Regen had enjoyed delivering the work in partnership with the IWA and the Re-energising Wales steering group.

The report provides a whole energy system vision and strategy for the Swansea Bay City Region looking forward to 2035. Today's launch of the "*Swansea Bay City Region: A renewable energy future*" case study report was not intended to be prescriptive.

Mr Gowdy noted the challenge of meeting the objectives set out in the SBCR Future Energy Vision for 2035, and ran through the 6 main vision objectives which included, for example, achieving a target of renewable electricity generation equivalent to 100% of electricity consumption on an annual basis in the SBCR. Looking at all these objectives separately would be a significant challenge, but looking at them holistically allows for contributions from a number of solutions which could come together in a central model. Using the model, Mr Gowdy reflected how each region of Wales should aim for less than 50g CO₂/KWh through different energy mixes.

Highlights from the case study

Mr Gowdy indicated a number of highlights and key opportunities:

- A large amount of time was spent looking at the domestic energy usage profile – over 70% of homes in the SBCR are C-E in energy efficiency banding. Over 200,000 domestic properties (60% of households in the SBCR) would need to be improved by at least one Energy Performance Certificate (EPC) band rating to achieve the 20% energy demand reduction objective. The energy savings would be in the region of £350-£420 per home annually, a significant sum. Achieving large scale home improvements would be the greatest challenge and requires lots of people working together.
- SBCR has seen significant new installations of energy production in recent years. An offshore wind farm would be a big opportunity, along with doubling the existing onshore production – which would require a helping hand from planning reform. The tidal lagoon is an important and strategic scheme which would be a pathfinder and, without it, SBCR would require significantly more offshore wind. Wales' natural offshore resources and infrastructure (such as ports and manufacturing) would allow Wales to take a major advantage of UK western seaboard investments. The UK needs at least another 20 GW of offshore renewables by 2035 which is a great opportunity for the SBCR.
- Heat is a much more difficult challenge, as the technologies are not available to rapidly change the heat energy mix. There has been a slow uptake of heat pumps as they are difficult to deploy and require widespread consumer awareness. Heat pumps need to be made available to off grid homes; then the back up system needs to be something other than the existing system – which is oil tanks. Gas

decarbonisation is one of the key opportunities and could be achieved through hydrogen and bio-methane. Waste feedstocks offer significant opportunities for bio energy sources.

- In considering how to decarbonise transport, electric vehicles will play a major role. Locating charge points intelligently will be key. 100% of public transport should be ultra low emission vehicles by 2035. The diesel/petrol ban in 2040 is not overly ambitious and may well be brought forward to promote greater (more explosive) growth. Explosive growth may be driven by low or no emission zones in cities. This will require planning for infrastructure to handle changes in the transport energy system. Electrification of transport should be joined up and encourage public transport and active travel.
- In balancing energy supply and demand in the future, the system needs to be smart and flexible. There is a chance for Wales to be a world leader in these approaches.

Mr Gowdy concluded by stating that the SBCR can be a useful pathfinder for Wales and regions elsewhere.

Economic Impact - Professor Calvin Jones, Cardiff Business School

Professor Jones outlined some of the financial challenges in up-front investment costs to achieve the goals set out in the case study. Professor Jones had assessed the indicative costs and economic impacts of the SBCR case study. The study looked at the GVA for Wales from these investments.

He underlined that these are emerging findings. To date, investment in renewable electricity generation and domestic energy efficiency interventions had been the focus of Professor Jones' work. Other necessary elements, such as the decarbonization of heat, and in grid upgrades, had been more difficult to cost.

Professor Jones stated that the labour demand from multiple schemes e.g. M4, lagoons, will add to the costs of infrastructure works. There are falling costs in offshore investments for wind vs rising costs for the Swansea tidal lagoon. However, local construction firms will benefit from investment, especially the supply chain. Also, in looking at the cost per megawatt comparisons for different methods of generation, this does not include a benefit ratio for reliability – the lagoon is very reliable, wind is less so. There are cost savings into the future.

Employment and GVA to date is mostly lost to other places as Wales does not have the manufacturing base to capture GVA. Professional services, logistics and construction GVA is more likely to be captured. Professor Jones considered that the SBCR could capture two thirds of GVA. However,

Professor Jones expressed concern that there have been decades of discussion on the potential in Wales, but most of this has been lost. Wales does not capture more than 50% of GVA on energy construction due to the lack of Welsh tier 1 contractors. We need to consider the competent training of youngsters to implement, build and maintain these new energy systems.

Sitting as it does within a highly regulated UK market for electricity and a UK national supply grid, Professor Jones believed that there is the risk that Wales will see few price or energy security benefits flowing from local generation that might then have positive impacts on fuel poverty, competitiveness or inward investment. It would seem, for the UK regions at least, that a preponderance of natural resource, which is increasing in value, is no guarantee of increased prosperity.

Professor Jones finished by noting that there is the potential for significant employment/GVA gains at Wales & City region level if the case study ambitions were realised: for example, from electricity and refurbishment, which alone could be the source of 33,000 jobs. Other elements – storage, grid, vehicles, etc– could be more expensive but have lower economic impact. Wales has only managed to capture a small proportion of economic benefits from previous energy booms. Nothing has changed. The scale of investment needed is daunting (it would cost the equivalent of three times the M4 just for these electricity and refurbishment elements), but we must find ways to enable such investment.

Panel Discussion

The chair, Emma Pinchbeck, CEO of Renewable UK, congratulated the diversity of sectors present in the room. Ms Pinchbeck asked how unique Swansea was in terms of replicating the study elsewhere? Professor Irvine stated that the aim was for the methodology of the case study to be applicable elsewhere. A challenge exists due to different energy opportunities being available in different parts of the UK. Balancing the energy system in each region could be achieved through the different opportunities outlined in the case study.

In addressing the next steps, Mr Buckland-Jones noted that the IWA were using this afternoon to gain clarity on next steps by bringing together a wide range of organisations. In addressing a question on the tension between national and local GVA, Professor Jones stated that as local community involvement engages people in why the schemes are necessary and important, the knock on effect can be the impact of changing habits in communities. People are not changing their consumption and behaviours and although this is politically sensitive, we need to talk about this. People need to feel that there is a benefit from local schemes. Johnny Gowdy thought that it needs to be

seen as a moral imperative more widely and more urgently, using the example of how raising awareness of a public health issue can lead to a broad level of acceptance for change e.g the smoking ban.

In addressing several questions on what the SBCR case study model included, Mr Gowdy noted that the demand for electric cars (including time and location) had been factored in. Hydrogen vehicles were considered within the scope, but they were limited and nominally included under the low emission category. Hydrogen was included in terms of production using excess electricity. Mr Gowdy noted that extent of activity already happening in the SBCR.

An audience member questioned whether the Paris climate agreement was enough? We need to be driven by the need to protect our habitat. Emma Pinchbeck took the opportunity to highlight how we are under-delivering at a UK level on the Paris agreement.

An audience member made the point that there are pinch points in innovation investment (e.g electric vehicle charging points) but charging infrastructure is affected by issues of ownership of charging points and accessibility across manufacturers. Professor Irvine noted that what this study does is say this is what we can achieve; it then means this is what we need in terms of infrastructure. If we can all get behind a single scenario we can focus collectively and invest in the infrastructure.

Mr Gowdy's view was that collaboration between private sector and communities will be key for any scheme over a few hundred kilowatts. Shea Buckland-Jones noted that we need to raise capital from within Wales. The IWA had been pushing for Welsh Local Government pension funds to divest from fossil fuels and the IWA are awaiting a response following a letter to these pension funds from the Future Generations Commissioner for Wales, asking them how they took climate risk into account with investments.

An audience member questioned what difference would community ownership make to GVA? Professor Jones stated that GVA doubles with community ownership, depending on how that community spends the money. The audience member made the point that community groups now own more energy generation than local authorities.

Professor Jones considered that strike prices and contracts for difference make things complex. Either the energy market needs to be devolved or the UK Government needs to reward wide value schemes in the process. Mr Gowdy was of the opinion that the wind sector had made progress due to a

pipeline of projects providing certainty for investors. A firm strategy would allow for retention of GVA in Wales, linked to community businesses.

Afternoon discussions: What are the short or medium term opportunities to make progress towards 100% renewable energy in SBCR? (breakout groups)

A summary note from the breakout groups will be sent out separately. The following image is a summary of the afternoon's discussions.



Panel Discussion: A response from Swansea Bay City Region representatives

Dr Jane Davidson (Pro Vice-Chancellor for External Engagement and Sustainability, University of Wales Trinity Saint David), chair of the afternoon discussion, began by outlining how the IWA Re-energising Wales project research has provided detailed propositions for the region. Opportunities for a low carbon revolution have increased since the publication of Welsh Government energy strategy documents in 2008, due to increased powers and better legislation in Wales in particular. We need the ambition and action to match this. We need a step change as soon as possible as things take time to deliver. We need to be clear on what we can expect to deliver by when.

Councillor Rob Stewart, Leader of Swansea Council, stated that half of the projects associated with the £1.3 billion Swansea Bay City Deal have an energy focus and that the SBCR deal matches the ambitions of today's IWA work. Homes as power stations is a key part of that ambition, lifting families out of fuel poverty. The City Deal will shortly be going onto phase 2, 3 and 4 of the energy projects.

Dr Davidson questioned Councillor Stewart on the potential of public transport in Swansea being 100% renewable well before 2035. Councillor Stewart stated that despite there not being a specific transport project in the City Deal agreement, it does not mean they are not addressing it. Transport planning and strategy is now aligned to the City Deal structures. The SBCR needs an overarching strategy for renewable transport delivery across the region. This should include doing something with the ports. Swansea have signed a deal to support Riversimple to drive the uptake of hydrogen vehicles and are talking about how to create hydrogen refuelling network.

Gill Kelleher (Policy and Engagement Manager, SPECIFIC) began by noting the challenges around old housing stock. The work of SPECIFIC could help reach the 200,000 domestic properties energy efficiency target noted in the IWA research. Ms Kelleher noted that what is unique now is that you can model and design buildings in terms of the impacts of technology before even physically installing the measures, stating that there are different technologies for different applications for different buildings.

David Jones (Project Director, Marine Energy Wales) began by stating that the Welsh Government have been very supportive of marine energy, backed up by the development of a Welsh National Marine Plan. The marine sector has been largely reliant on EU structural funding to date. The sector could have a massive effect on supply chains. David Jones noted the floating offshore wind potential. While there is positive policy support at Welsh Government level,

the sector needs meaningful revenue support for marine energy from the UK Government.

Dr Davidson noted that she is a shareholder in the Aman Awal Tawe community energy scheme which took around 17 years to turn a wind farm idea into a point where it was delivered. If we are thinking about the step change needed, we have to change the time frame on this. So what are the big game changers? David Jones noted how the marine sector was a new industry and marine resource is sensitive. There is a lot of uncertainty around project consenting and we need to get the kit in the water to prove it first. Consenting is key. We need big projects like in Scotland.

Ioan Jenkins (Development Director, Tidal Lagoon Power) noted how the Swansea Bay Tidal Lagoon project achieved planning consent in June 2015. Mr Jenkins' view was that the tidal lagoon team understood the local issues and perceptions very well as they had undertaken considerable meaningful community engagement. There is a massive appetite for the project in Wales and the lagoon team want to develop something for the community. There is significant frustration that a formal decision is still awaited.

Following a question from the audience on how Brexit had been impacting decision making, David Jones thought that, in considering the positives, Brexit had driven collaboration through MOUs being agreed with companies in Sweden and Canada for example. Irrespective of Brexit, the SBCR needs to look at best practice across the world and ensure there are innovators and investors in the economy of Wales.

Following another audience question on the use of 'Can do' toolkits in the energy sector, there was acknowledgement that these could usefully be development as there was a big appetite for apprenticeships in the sector.

Councillor Stewart was asked by an audience member whether SBCR would endorse the IWA targets and delivery plan. Councillor Stewart noted that the IWA work seemed to be aligned with the SBCR City Deal plans, but adoption of it would have to follow consultation with leaders and partners. Councillor Stewart responded that SBCR would be reviewing the report in detail and would be willing to consider the possibility of supporting/endorsing the vision it outlines.

Dr Davidson finished the session by encouraging everyone to feed in issues to the IWA in terms of the next steps to take this work forward. Dr Davidson noted the appetite in Wales to do things that were not always decided in Wales. We now have the devolution of further energy powers in Wales which is a major opportunity (notably development consent for generating stations

with 350 MW capacity or less) and therefore the opportunity is now seven times greater than two years ago. Dr Davidson concluded by exhorting us to have at least seven times more ambition.

Auriol Miller then summed up the day stating that we need much stronger collaboration in Wales and to be singing from the same hymn sheet. We all have a part to play in making the next steps a reality. The SBCR has the opportunity to lead the way for Wales and the world. The IWA looks forward to the SBCR picking up the findings from our report.

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