

A case for smart community ownership

Welsh Assembly briefing 24 September 2019

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Due diligence



Onshore wind



Offshore wind



Wave and tidal



Energy Systems

The political demand

- Government's generally want from wind energy:
 1. Security of supply
 2. Low cost to consumers
 3. Contribution to climate change policy
 4. Economic benefits
- The first two are reserved matters; the second two are of significant interest to the Welsh Government:
 - It wishes to reach 70% of supplied electricity from renewable energy sources by 2030
 - It aims to reach a total of 1GW of 'locally owned' renewable energy generating capacity by 2030
- We did an analysis for Innogy Cymru to explore whether these two aims are compatible

The electricity supply challenge

- At the end of 2017, renewables generated about 48% of the Welsh consumption.
- With no change in demand, the 70% WG target would be achieved with about an extra 1GW of renewables
- Innogy is exploring an extension to Gwynt y Môr. It could be up to 576MW but a more realistic assumption would be 400MW.
- We estimated that Wales needs a further 600MW from renewable sources. Onshore wind would need to provide almost all of this capacity. We therefore assumed that there will be a political demand for onshore wind of 60MW annually from 2021 to 2030
- To build 60MW in Wales annually, Welsh projects need to compete with those in the rest of the UK for finance.
- In practice, Welsh wind is competing with Scottish wind.

What determines competitiveness?

- The cost of energy from a wind farm depends on some inherent factors and some variable factors:
- Inherent factors are:
 - Wind speed
 - Distance to grid, and
 - Land rent
- Variable factors are:
 - Turbine size (and therefore tip height)
 - Weighted annual cost of capital (WACC)
 - Community funds
 - Wind farm yields, and
 - Business rates.

Competitiveness of Welsh wind

- Scotland is generally windier and has lower land costs
- Welsh projects need to be cheaper in other ways, and community ownership can have an impact.
 - Community investors will have to borrow at a significantly higher interest rate than large utility developers if the project is 100% community owned. ↑
 - Community ownership can create a local revenue stream and developers could dispense with community funds (normally £5k/MW/year) ↓
 - Wind farm yields are constrained at sites if the blade tip heights are kept below 150m to avoid the need for aviation lighting. Community owners would have a financial incentive to tolerate aviation lighting ↓
 - Community owned projects could be offered lower business rates ↓

How could this play out in practice?

0. Baseline	1. Prioritised community ownership	2. Smart community ownership
<ul style="list-style-type: none">• The ownership mix for onshore wind farms built between 2021 and 2030 is unchanged• The WACC is representative of the cost of finance to a utility• Community benefit funds are supported a rate of £5,000/MW/year• Tip heights are capped at 150m.	<ul style="list-style-type: none">• All onshore wind farms built between 2021 and 2030 are 100% community owned• The WACC reflects the borrowing rates for small businesses• Community benefit funds are not set up, and• Tip heights are not limited for half of the wind farms (the financial benefits may not be enough in half of the cases).	<ul style="list-style-type: none">• All wind farms built between 2021 and 2030 are 33% community owned with a utility having the majority stake• The WACC more closely reflects the borrowing rates for utility developers• Community funds are not set up, and• Tip heights are not limited for half of the wind farms

Results - volume

Scenario 0

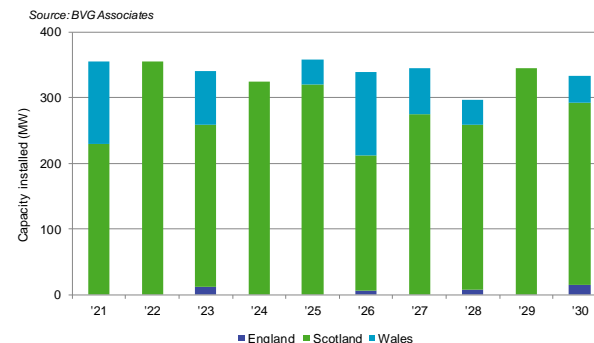
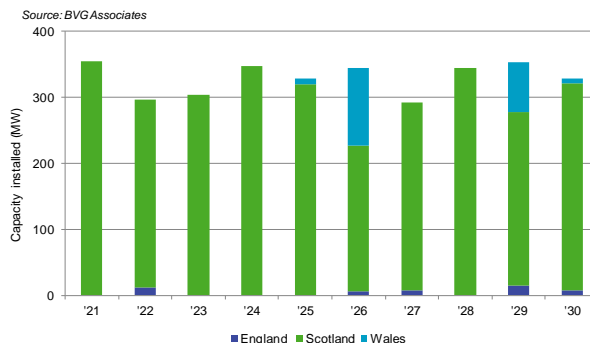
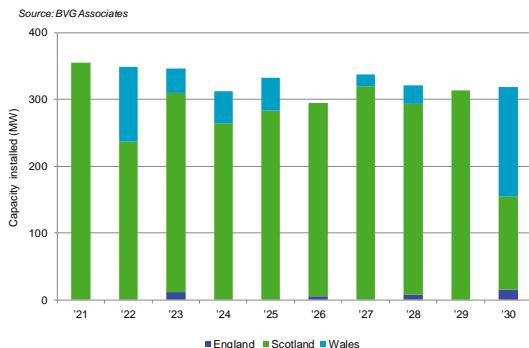
3,280MW built in the UK,
of which 14% (460MW is
built in Wales)

Scenario 1

3,295MW built in the
UK, of which 6%
(200MW is built in
Wales)

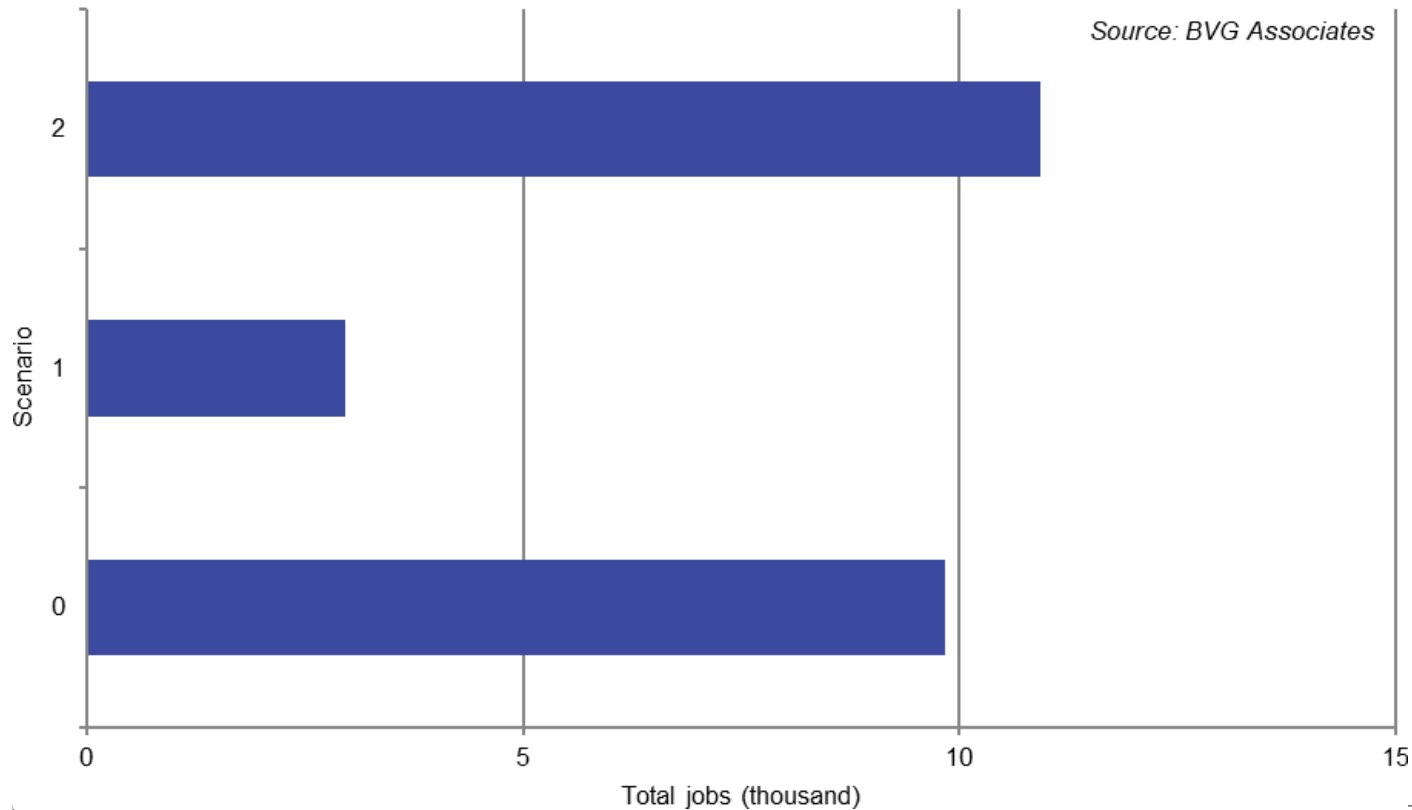
Scenario 2

3,290MW built in the
UK, of which 16%
(525MW is built in
Wales)



- Conducted a sensitivity test - the optimum level of community ownership is 5%. The amount of Welsh capacity falls by 30% once the community ownership stake is more than 50%

Results - jobs



- Analysis used model developed for the *Power of Onshore Wind* produced for ScottishPower Renewables, Innogy, Vattenfall and Statkraft. See www.bvgassociates.com

Conclusions

- The Welsh Government's ambition for renewable energy and community ownership are potentially incompatible
- Welsh wind farms will compete for finance with others, mainly in Scotland and anything that increases cost will have a detrimental effect on the construction of Welsh wind farms.
- Big utilities such as Innogy can borrow at significantly lower rates than community investors.
- Community wind has the benefit that it might overcome the obstacles to higher tip heights, increasing yields and lowering the cost of energy.
- Onshore wind brings with it significant employment, not only in building and operating the wind farm but also in revenues from land rent and business rates.
- A smart approach to community ownership can balance local benefit and renewable energy targets.

Thank you

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