



Can Scottish Green Growth Lead the World?

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Thank you to the Carbon Trust and The Times for asking me here today to participate in the debate. Aquamarine Power would not exist today if it were not for the support of the Carbon Trust. Indeed we have received almost £5m from the Carbon Trust. So far we have not received any money from The Times but we are open to reasonable offers.

Can Scottish green growth lead the world? I think the very fact that we are having this debate means that indeed it can. Scotland is already a major success story in the green energy sector.

To explore this let me look at this in three ways:

The renewable energy initiatives and installations in Scotland

The green jobs being brought by international large multi-nationals to Scotland and

The indigenous companies developing green technologies

Renewable energy initiatives in Scotland

Looking at the renewable energy landscape in Scotland we see that with a population of just 9% of the whole of the UK, Scotland has over 45% of the renewable energy installations: In total the UK has just over 10,000MW of renewable capacity installed. Scotland has 4,600MW installed. Of that installed base of renewables in Scotland 1300MW is hydro electricity, Wind is 2,700MW and the balance made up of Energy from Waste, Biomass and Biomass Heat. Wave and tidal are insignificant at this time.

So what is the value of this to the Scottish economy?

The UK Gov't has **not** set renewable electricity targets in the same way that we have – they have a 15% renewable energy target. The total electricity consumption in the UK is just under 400TWh. (if we need to be precise it is closer to 390TWh). From the Department of Energy and Climate change roadmap – they have estimated that to meet the 15% renewable energy target, 35% of the electricity consumed must come from renewable energy. Using our 400TWh number that means that about 140TWh needs to come from renewable energy.

Scotland has set a goal of delivering the equivalent of 100% of our electricity from renewable energy. Scotland's electricity consumption has been at or around 40 TWh in recent years so by meeting the 100% target by 2020, we would be contributing one third of the renewable energy targets required for the whole of the UK. The value of that production in terms of renewable energy exports is close to £2b per year. The opportunity to deliver even more renewable energy for all of the UK to benefit

represents an even greater opportunity for Scotland and while we are doing a lot – we could do a lot more.

The second part of my argument is around investment – or Foreign Direct Investment in particular. Why would a company in the renewable energy space invest in Scotland. Well we need clear and stable government policies. We need a vision for the industry and we need a thriving “ecosystem”.

My best analogy for this opportunity is Aberdeen. As you travel in Texas – everyone knows of Aberdeen. Aberdeen is recognised as a world centre of excellence in offshore oil and gas expertise. Indeed it is a toss up as to whether Houston or Aberdeen has the crown of King of Offshore Exploration. The ecosystem in Aberdeen is visible – you have multi-national companies, you have a highly integrated set of equipment suppliers, innovators, entrepreneurs, venture capital and the necessary academic involvement. An ecosystem like this leads to further innovation and expansion – Aberdeen companies now export technology and expertise around the world – What started as a local facility to service a domestic market is now a global success.

If we look at investments in the past number of months we see the scale of investment and potential investment. Scotland has clearly given out a message that we are open and ready for the renewable energy business:

31 January 2012 - **Samsung Heavy Industries** announced it will base its first European offshore wind project in Methil. More than 500 jobs could be created in Fife through this £100m project to develop a new generation wind turbine. Samsung plans to test its new, 7MW turbine offshore at Methil.

12 December 2011 - A **£20 million investment programme at Scrabster Harbour** is securing jobs and helping to position the north of Scotland at the forefront of the renewables revolution.

1 November 2011 – Scottish Renewables estimate that some **£750m of renewable electricity projects have been delivered in the last twelve months** in Scotland – an estimate that does not include investment in projects still in scoping, planning or construction.

20 October 2011 – **Global Energy Group** finalises purchase of 238 acre Nigg site. **Global Energy expects the facility to employ 2000 people by 2015.**

1 August 2011 - **Technip** opened its new, Aberdeen based ‘centre of engineering excellence’ for offshore wind in Scotland and announced a new partnership between Technip, Iberdrola and ScottishPower Renewables.

21 June 2011 - French-headquartered **Alstom** announced it had acquired a 40% stake in Inverness-based **AWS Ocean Energy Ltd**, developer of the AWS-III wave power device.

20 January 2011 - **Gamesa Corporación Tecnológica** announced an Offshore Wind Technology Centre in Glasgow with plans to create **130 engineering jobs.**

3 December 2010 - **Mitsubishi Power Systems Europe Ltd (MPSE)** announced **plans to invest up to £100 million in Edinburgh creating up to 200 jobs.**

The list goes on. In addition the recently announced **Offshore Renewable Energy Catapult** will be headquartered at the University of Strathclyde in Glasgow with a second base at the National Renewable Energy Centre (Narec) in the North East of England. The national centre will focus on technologies for offshore wind, wave and tidal power and is designed to bridge the gap between university research and full commercialisation.

Like Aberdeen we are building a skilled pool of talent that will move from company to company. This talent pool will tire of working for the big multi-national and will branch out and create new enterprises. The universities are deeply embedded in this process and have a major role to play in creating entrepreneurial engineers.

Will every enterprise that partakes in this green revolution be a roaring success? No. But what Scotland is doing is creating an eco system that is providing the opportunity for massive success.

The **third part of my argument refers to the indigenous companies** developing green technologies. To remind us all Scotland has a comparative advantage in:

- resource – best wind, wave and tidal resource.
- technology – leading firms in the wave, tidal and offshore wind arena.
- skills – Aberdeen is a global hub of expertise.
- policy – our energy policy, particularly around offshore wind and marine have helped put Scotland in the lead. We have unique advantages with organisations like Marine Scotland – no other country (to my knowledge) has yet switched on to the providing a one stop shop for marine permitting, this gives Scotland a huge advantage. We have other industry and government initiatives – FREDS now morphed into Renewables Industry Advisory Group (RIAG), banded ROCs to support emerging technologies, EMEC, and funding initiatives like WATES and WATERS

To date every single largescale wind turbine deployed in the UK has been imported – a lot of them from Denmark and Northern Germany. Denmark is a great example – it had resources – it has a strong domestic market and now directly or indirectly has a huge export business based around the export of wind turbines. Denmark is the undisputed leader of the modern wind energy industry. It has leveraged its long history of windmill use in agriculture to create and sustain a comparative technological advantage in the sector. This advantage built the foundation for a technological revolution that has resulted in a global export market worth over £4.8 billion in 2008. With a 20% share of the global wind turbine market the Danish wind industry employs 28 000 workers.

We have a bunch of companies like my company Aquamarine Power, like Pelamis, like AWS, like Atlantis Resources – all striving to get a renewable energy product commercialised and to the market. This demonstrates that we have the entrepreneurs.

The recent EU Member State position paper on marine energy, co-signed by nine Member States, underlines the potential for marine energy alone to provide 26,000 direct EU jobs from ocean energy by 2020 and 314,000 direct EU jobs from ocean energy in 2050.

RenewableUK estimates the UK marine energy industry could employ 19,500 individuals by 2035, bringing £6.1bn investment and generating a GVA of £800m per annum.

I think that the Scottish government has done a great job in providing grant and equity funding for businesses to get started. What we have not seen yet is sufficient private investments into the space. But like most entrepreneurs I am an optimist.

The EU published numbers yesterday showing that Europe passed the 1 million jobs mark for green jobs. The data was referring to 2010 – unfortunately that stats are a couple of years old. The leaders are:

- Germany—360,000
- France—175,000
- Italy—100,000
- Spain—90,000
- Sweden—55,000

Furthermore in the past weeks it was announced that 71 per cent of all the new power generating capacity installed in the Europe Union last year (2011) came from renewable energy sources, new figures show.

Scotland is not yet on the leader board. I believe it will be. Lets get the private investments into this nascent industry.

Thank you.