

# Renewable Energy in the Outer Hebrides of Scotland Harnessing the Potential

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# The Outer Hebrides of Scotland

A 130 mile long island chain on the north west fringe of Scotland

A population of circa 26,000

Traditional industries – fishing, textiles+ tourism

Europe's best Renewable Energy resource area

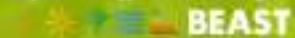
A stunning natural environment and unique culture and heritage



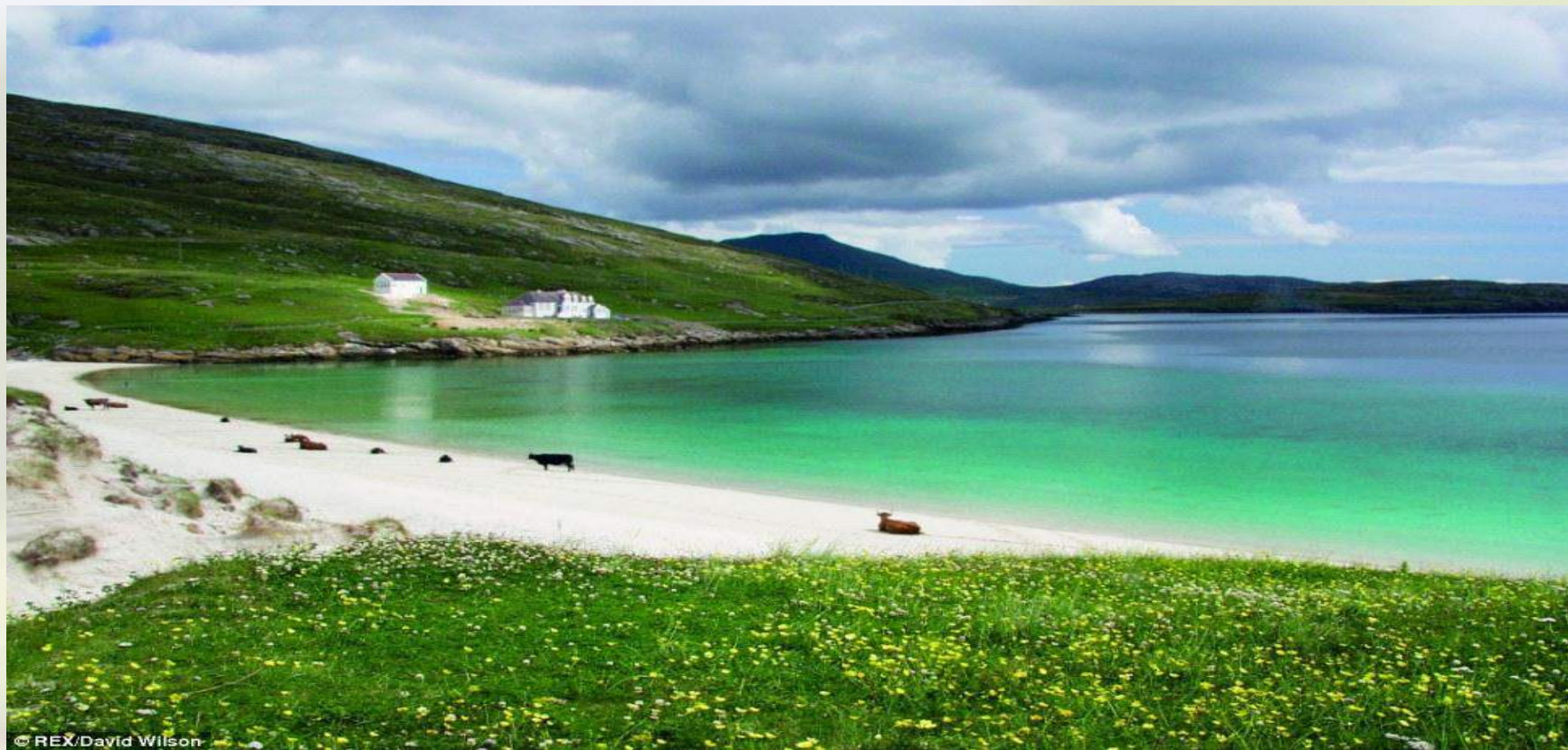


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# Our Region's Challenges

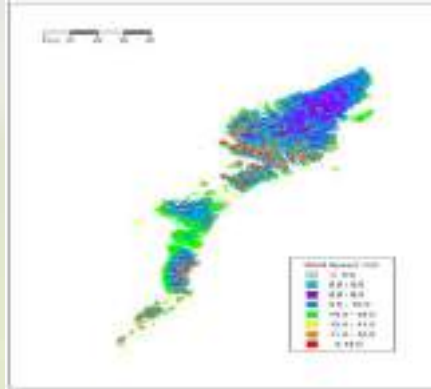
- Declining traditional industries.
- A fragile economy.
- High costs of living.
- Population decline (particularly on the periphery) and an ageing demographic.
- Rampant Fuel Poverty levels and over dependence on Fossil Fuels.
- One of the most deprived areas in rural Scotland.



# The Resource



**Wind Resource Europe**



**Wind Resource Hebrides**



**Marine Resource Hebrides**

An unrivalled resource, on and offshore, which is key to meeting Scottish, UK and European targets.



# The Opportunity

- One of the best wave energy resources in Europe.
- The strongest and most consistent wind regime on the continent (on and offshore).
- Fabrication capability at Arnish Point, Stornoway.
- Growing research capability at Lews Castle College (UHI).
- Significant supply chain benefits.





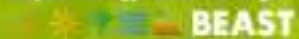


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# Grid Connectivity



450MW Radial Connector proposed between the Main Interconnected Transmission System and the Outer Hebrides – 80km subsea and 76km underground.

Name	Capacity (MW)	Status	Type
<b>Commercial</b>			
Useinis Wind Farm	150	In planning + grid contract	Onshore wind
Beinn Mhor Power (GDF Suez/International Power)	133	In construction	Onshore wind
Aquamarine Power	40	Consented + grid contract	Marine
Pentland Rd Windfarm	13.8	Operational + grid contract	Onshore wind
Monan Windfarm	1.5	Consented + grid contract	Onshore wind
Stornoway Windfarm (Amec/Stornoway Trust)	130*	Consented + grid contract	Onshore wind
Pelamis Wave Power	10	In planning	Marine
Tolsta Wind Farm (2020 Renewables)	42		Onshore wind
Arnish Road Windfarm	2.55	Operational + grid contract	
	<b>520.3</b>		
<b>Community</b>			
Horshader Community Development	0.9	Installed and Operational	Onshore wind
Storas Uibhist	6.9	Installed and Operational	Onshore wind
Tolsta Community Development	0.9	Installed and Operational	Onshore wind
Galson Energy	0.9	Installed and Operational	Onshore wind
Coimhearsnachd Bharraidh agus Bhatarsaidh	0.9	Installed and Operational	Onshore wind
Point and Sandwick Power	9	Installed and Operational	Onshore wind



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## Opportunity 1 – Hebrides Energy

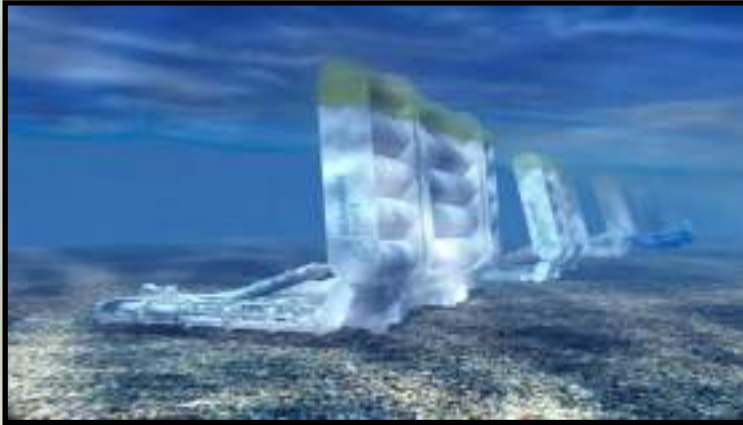
- one commercial developer has offered the community a 20% share in generation
  - Comhairle currently leading on establishment of an Energy Supply Company
    - progression from White Label Joint Venture to fully Licenced Supplier
- a wholly community owned entity, generating and retailing to island consumers
  - a real impact on Fuel Poverty



## Opportunity 2 – Marine Energy

- Largest fully consented marine energy site in the world
- Aquamarine 40 MW site.
- Challenge of moving from testing to commercial arrays
- Are there ways we can support the sector and accelerate deployment of devices off our shores?
- Business Plan developed through BEAST recognises the challenges and aims to work towards a model to maximise the benefits of the site.





Aquamarine's Oyster – a massive hinged flap driven by the waves. Water piped onshore at high pressure to drive a conventional hydro turbine. Subsections already fabricated in Lewis.



# Save Cluster

## Low Carbon Properties and Energy Efficiency

- Scottish Government funding of £2.5m Home Energy Efficiency Programme Scotland: Area Based Schemes (HEEPS:ABS), for 15/16 in the Outer Hebrides.
- HEEPS:ABS will aim to deliver around 570 measures to private sector householders, including Loft Insulation, Draught-proofing, Underfloor Insulation and Solid Wall Insulation.
- BEAST Business Plan will focus on delivery of the core programme (building on the initial funding proposal) but also make the Business Case for opportunities where additional investment could make a substantive difference to local fuel poverty levels.
- The particular focus will be to increase the number of Solid Wall insulation measures which can be achieved.
- This meets our SEAP target of addressing the issue of 'hard to treat' homes in the Outer Hebrides.







- Solid stone property
- External wall insulation fitted to end wall (Webertherm XP insulation)
- Fuel bill saving £500 per annum
- SAP increase from 41 to 58
- BUT expensive
- 5 weeks to install

# For each of our projects we have:

1. Identified the key organisations and individuals (local and regional).
2. Look at current status of project, need for project, barriers, challenges, opportunities, resources and restrictions to implementation (technical, financial, etc.)
3. Held seminars/meetings/workshops on each project and agree way forward: financial, governance, etc.
4. **Developed Business Plan for each project. (Completed)**
5. Aim to implement actions – try to get the structures and finance in place to support implementation (ideally during the BEAST project timescales).



# Conclusions

- The best wind and wave resource in Europe
- Significant level of commercial and community generation proposed
- A truly transformational opportunity for the island economy
- A unique opportunity to tackle Fuel Poverty through Hebrides Energy
- Unprecedented opportunity for the UK and Scotland to develop competitive advantage in Wave Energy



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