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Invisible Work
services made visible

Each is a 'living technology' at work in EMEC

The European Marine Energy Centre (EMEC) is far more than it appears from its modest offices in Stromness, and does far more work in the world than may appear possible. As Neil Kermode said of their many hundreds of annual visitors, from EU Commissioners to BBC Television Presenters: "They all come here. Think it is happening here. And they are a bit surprised at the old school and nine people [in 2008]".

Those who visit are, perhaps, surprised by EMEC's central role in the marine renewable energy industry given its apparent small-scale, and on-the-edge location. It is salient to remember that, in the UK, only £22 million of public funding has been spent on ocean energy in the ten year period between 2002-2012 [1], on average around £2 million a year, compared to £3 billion of public funding made available for nuclear energy decommissioning in a single year [2].

EMEC's demonstrable expertise at making more from the comparably limited resources in the industry is one example of the 'invisible work' that is highlighted in the following collection. This expertise, as will become clear, is a direct effect of its location in the Orkney islands. As with other islands, it has a self-determined approach to making the most of limited and unreliable resources.

The 'invisible work' that EMEC does is important for the development of the Marine Renewable Energy industry, as well as for Orkney, upon which it relies for expertise and goodwill, and is inseparable from. This difficult and subtle work benefits the industry, EMEC's customers, EMEC's many partners, as well as the islands. However, without emphasis, such work might go unregarded–or, worse, be lost altogether.

The cards each personify one service or 'invisible work' provided by EMEC.

Each card is a 'living technology' at work in EMEC. That is, additional services and expertise that EMEC provides, alongside the technology of its test sites.

These cards and their insights have been developed from a period of interview based research at EMEC, conducted October-December 2014, by social science researchers at IT University of Copenhagen, Rebecca Ford and Laura Watts. This is supported by long-term ethnographic research by Laura Watts on the marine energy industry in Orkney, which has been ongoing since 2003.

References

[1] Henry, J. Sedgwick, J. et al. (2012) Public Funding for Marine Energy, A Comparison of the UK and US. Institute for Energy Systems, University of Edinburgh.

[2] Department of Energy and Climate Change (2014) Statement of the Nuclear Decommissioning Funding Account, 1 April 2013 to 31 March 2014.

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Beacon
the enduring light

"It's like a magnet that draws people in - the nucleus that draws everything together."

They are the "shop window" for the industry.

"People want to be seen working with us, and testing devices with us."

As an EMEC person said, "When you look at EMEC as a test centre, what it has done, what it's achieved, and you keep zooming out, you can see the global impact… the value of EMEC as that beacon for the industry."

Visitors from all over the world come to EMEC, drawn by its role as a beacon of hope for the entire global industry. As someone said, "seeing things for themselves… they see marine renewables is real. They see devices in the water, the power of the tides and waves, and see real people working in the sector".

This is not simply EMEC's brand, it is the way it stands-in for the whole marine energy industry, living proof of its existence. EMEC's role as a beacon is crucial for convincing funders and policy-makers, throughout the value chain, to commit and invest in making the industry. Managing these many visitors is crucial work, even if the immediate benefit is not obvious–for without an industry, there is no EMEC.

It's most visibly given this responsibility by what has been playfully called 'EMEC Bingo!'– at conferences and events around the world, companies and organisations regularly evoke EMEC as an icon.

This responsibility has many effects. For example, threats to EMEC are necessarily risky for the entire industry. As someone said, 'if they don't help us solve this, we won't meet targets, and the whole industry will fail." Practically, if EMEC looses 4-5 developers, "well, that's maybe 50% of the world's projects".

EMEC must also take on essential standards-making work, without which no technology industry can exist. As part of being ahead of the rest of the industry, it has to address standards problems that few have yet faced: leading the development of international recommendations for the marking of marine energy devices at sea, for example.

Finally, this means that EMEC must endure through dark periods of negative press and disappointment, and remain a light and beacon for a marine energy future.

"Our job is to keep doing it–never give in."

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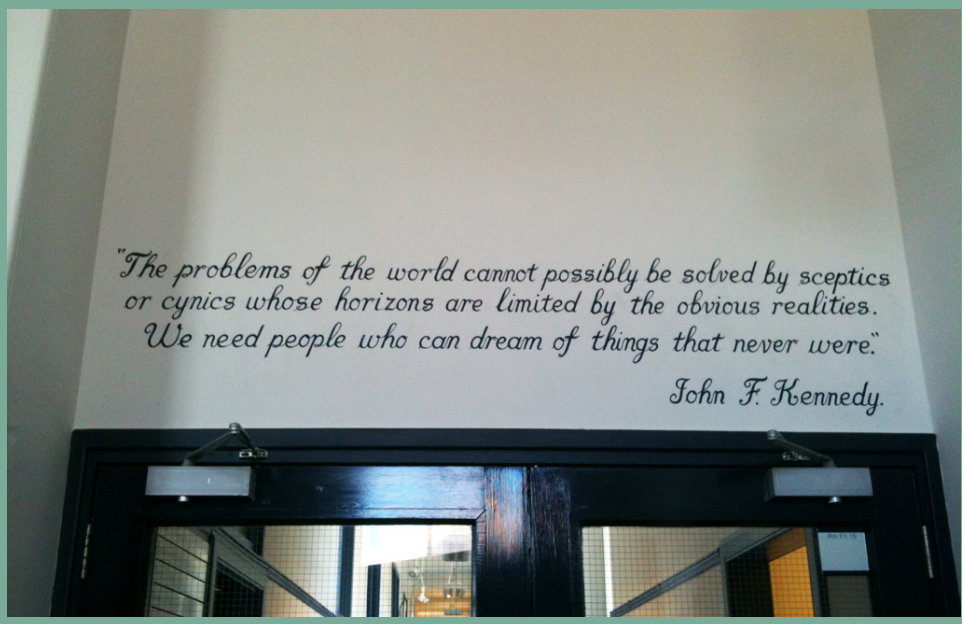
Prophet
the future-maker

Marine Renewables currently at the point where the Wright Brothers were: 'The alchemy of changing sea water into electricity has been proven'

"Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it's the only thing that ever has." - Margaret Mead



Although EMEC has developed its own 'Vision Statement' and its own, collaboratively written, version of the future, it also draws upon other, powerful and prophetic visions of the renewable energy future.

In Orkney, EMEC works alongside the Orkney Renewable Energy Forum (OREF) and Orkney-based environmental consultancies, such as Aquatera, and through the simple geography of living in a small community who all socialise in the same places, they incorporate the ideas and innovations from the wellspring of these local sources. These visions and versions of the future circulate and inspire EMEC. There are single prophets and visionaries with international reputations locally, in the consultancies and the developers, as well as in the next-door university research centre, whose expertise and and experience is often crucial to EMEC's work.

In addition, EMEC makes use of prophets who have led other, highly challenging new technology industries, other future-makers.

For example, the Wright Brothers and their first flight are often quoted as indicative of where the industry is located. Various examples of approaches used by NASA and the challenge laid down to "go to the Moon in this decade" are also often given, from political tactics to have an installation in every state to leverage local politicians, to the John F. Kennedy quote emblazoned over the entrance to EMEC offices: "The problems of the world cannot possibly be soled by sceptics or cynics whose horizons are limited by the obvious realities. We need people who can dream of things that never were".

These prophets, both local and distant, are invisible, yet powerful workers in EMEC, providing energy and inspiration to meet the constant challenges in making a marine energy future.

"Failure is not an option." - Apollo 13

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Sea smith
the practical islander

"You can only do what you can do.

You can only get at the people you can get at."

"Bill Gates' wife [Melinda Gates] came onshore from a world cruise liner, and went for a drink in the pub."

On islands "people can see the edges". The sea creates a shared boundary, and forms island communities, forced to collaborate. Living at the edge, on the periphery, is difficult: resources are limited. Orkney constitutes only 21,000 people, yet 40 local companies are involved in the marine energy sector. The sea creates a practical self-determination, which transforms limited people and resources into an advantage: a little is made to go a very long way.

Many who work at EMEC, and live in Orkney, have this invisible and intuitive islander skill: to maximise the unrelenting, resource limitations of the marine energy industry–"to make the most of what you have". The Orkney term 'bruck' captures it best: bruck is more than rubbish, it also has the potential to be re-used. Nothing is wasted. So, voluntary work is ingrained, and people are used to wearing multiple hats, and being multiple people.

Marine renewables is an industry at the very edge of the wider energy sector, even at the periphery of the 'energy mix'. Public funding made available to wave and tide energy development is a fraction of a percent of the funding that goes to nuclear, or oil and gas. EMEC lives at this precarious edge, and must work to thrive there. Drawing upon practical islander expertise to 'smith' whatever is needed, from whatever is to hand, allows EMEC to transform "a few people in an old school" into a world-leading site of energy innovation, with global impact.

Some of examples of this 'sea smith' work: banners were put up at Hatston Pier, where the cruise liners dock, and an exhibition installed in Stromness, to raise awareness of marine energy in this affluent, investor audience passing through Orkney. The Orkney Vessel Trials Project, with Aquatera, transformed the diverse maritime resources available locally into an offering tailored to meet the needs of EMEC clients.

EMEC exists in a harsh, difficult environment, both geographically and politically, yet it can call on practical islander skills to 'smith' an ocean energy industry.

"Have to inspire people [visitors] to take action"

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Selkie
the shape shifter

EMEC is part of 'Team Scotland' and 'Team Orkney' as well as UK PLC.

We should sit on the fence and be whatever people want us to be.

Starting point is to understand the scale of his audiences affinity with water and to understand what they know.

Selkie are fabled shape-shifting creatures from Orkney mythology. In the sea they appear as seals, but they can un-peel their seal skin, leave it on the shore, and then walk on land in their human skin.

EMEC must be different things to different people, changing its outward skin whilst retaining a sense of integrity and internal identity, which it does most visibly through its one-page 'vision statement'. This statement, which includes values such as 'integrity' and 'respect', as well as a clearly envisioned collective future, was produced with the input of everyone at EMEC. Although there is no rigid and agreed single approach to its business, there is a manifest sense of "we are in this together".

Selkie skin-changing is crucial for EMEC to gain the support of diverse audiences: these range from local contractors and influential local communicators (such as the Scottish Women's Rural Institute and members of the Orkney Fisheries Association), to government ministers, civil servants, European policy-makers international journalists from print and television, as well as the relationships maintained with the developers. One EMEC person might be in conversation with all these different audiences within a single day.

This 'background work' (as it was called) includes lobbying, industry-building, and promotion–all of which must constantly shift attention, depending on the audience, between EMEC and the Marine Energy industry (itself shifting between a global industry, a UK community, a Scottish community, and an Orkney community).

In this 'background work' a person must slide into different skins, sometimes literally as they put on an EMEC fleece to do a media interview at Billia Croo, or put on white collar wear for a meeting with policy-makers. Such skins have different voices, again, almost literally, with the importance of the Orcadian accent of some workers explicit, so that EMEC can choose to speak with an Orcadian voice, which does important work both within and beyond Orkney.

"It's that Selkie thing. You have to adapt to your audience."

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Storyteller
the myth maker

Stromness, "The First Town Powered by the Moon" - General Electric

EMEC images displayed in Times Square, New York.

"doing missionary work amongst the heathens"

It is not always EMEC itself that the media are interested in. They are often interested in Orkney as a place. "With international media, Orkney is a big part of the story," it was explained. So, a German film crew visited making a documentary about the 'islands of the future', and General Electric made a documentary about Stromness, as 'the first town powered by the Moon'.

The story of EMEC is inseparable from the story of Orkney–the media endlessly demonstrate this. Orkney is memorable, and that makes EMEC memorable. The islands' dramatic landscape and archaeology, its unique histories and people, are magnetic to media. EMEC travels around the world as part of Orkney, and vice versa. Managing this mythic story of EMEC/Orkney is therefore essential work to make EMEC travel around the globe, and to increase its reach and influence.

Orkney is said to "put on a good game face" for EMEC visitors, through close collaboration with the Orkney Renewable Energy Forum (OREF), which includes the supply chain. Further cross-marketing EMEC with other local sectors makes sense. For example, postcards of renewable energy sites, or electric car hire for visitors. Making a world-wide myth of Orkney as "the energy islands" makes a world-wide myth of EMEC.

Making Orkney travel is also crucial policy work. Ministers and other influential politicians visit, and are photographed in the marine energy landscape, their connection to EMEC recorded and made memorable. They carry the EMEC/Orkney story back with them into their organisations. Those who have not visited EMEC often lack an understanding of the issues, which only comes from embodied experience. Visiting Orkney, visiting EMEC, are moments of influence within a fast developing industry. As someone said they "did not want EMEC to be a boring footnote in the history of marine energy, but the exciting centre of an expanding story." And that story is also Orkney's.

Nobody will ever say - "I don't know if I've been there"

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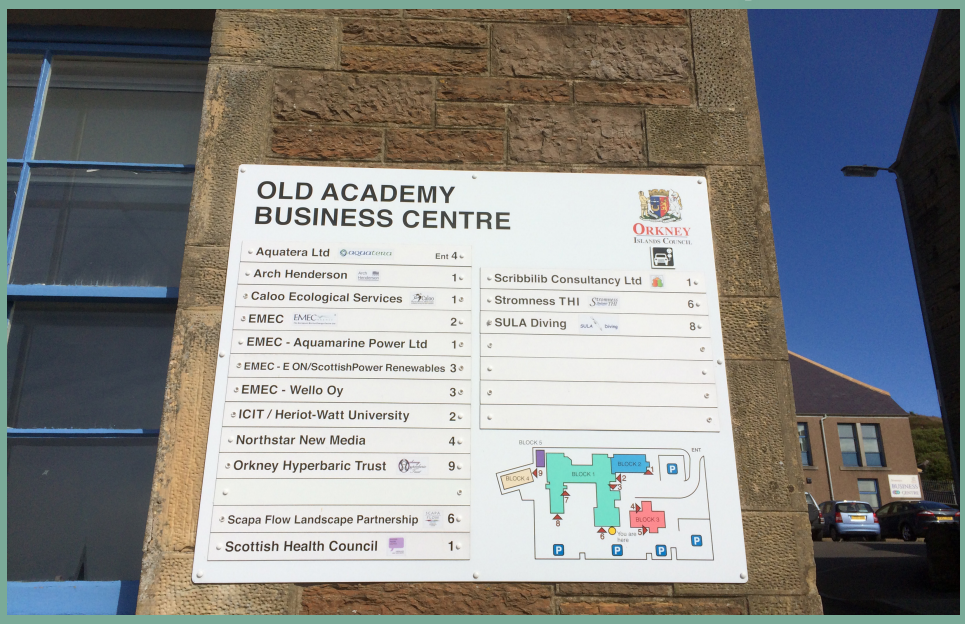
Transducer
the local adapter

'EMEC is so valuable because of Orkney, and the climate of collaboration' - Developer

"wins are so infrequent we may as well celebrate everyone's victories."

"the success of renewables in Orkney is based on community buy-in"



EMEC is the interface between the developers who plug-in to the grid, and Orkney. Benefits flow both ways through this connection. The analogy someone made was that "the 'ground' [both the place and electrical socket] at Billia Croo, the wave energy test site, is one giant adapter".

EMEC must transduce both electrical energy, and other forms of beneficial energy that flow between customers and the local community. Through invisible work at EMEC developers benefit from Orkney and vice versa.

The additional benefits that developers gain from being 'plugged in' to Orkney are not explicit. Most obvious is "the depth of real sea experience, which is a massive selling point". Developers can plug-in to existing maritime expertise from fishing and North Sea oil.

Less obvious is the "collaborative atmosphere" transmitted from Orkney to developers. The islands have "a common-sense boundary. You can see who you are in this with, and this fosters a shared outlook". Some developers arrive "full of alpha males and alpha females… and struggle to understand, this is not a race". The resources for marine energy are extremely limited, so learning how to collaborate for mutual benefit is crucial.

Developers learn through, for example, co-operation at the test site. They have to negotiate with other developers to create a working test site, and a working industry–they learn who else "they are in this with". Ultimately, developers can come to care for the future of the whole industry: so when a local supplier went out of business a developer "was genuinely upset."

In the other direction, EMEC works to transform social and economic benefits from developers into marine energy sector jobs, and the creation of a local supply chain; there are now around 300 people employed locally. They also help to mediate between developers and the many communities in Orkney, from Eday to Stromness, who are involved–e.g. the Eday community wind turbine has a relationship with the Fall of Warness test site, which developers might otherwise be unaware of.

"You can see who you are in this with"

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