

# Creating new paths?: Renewables, policy activism and peripheral region development

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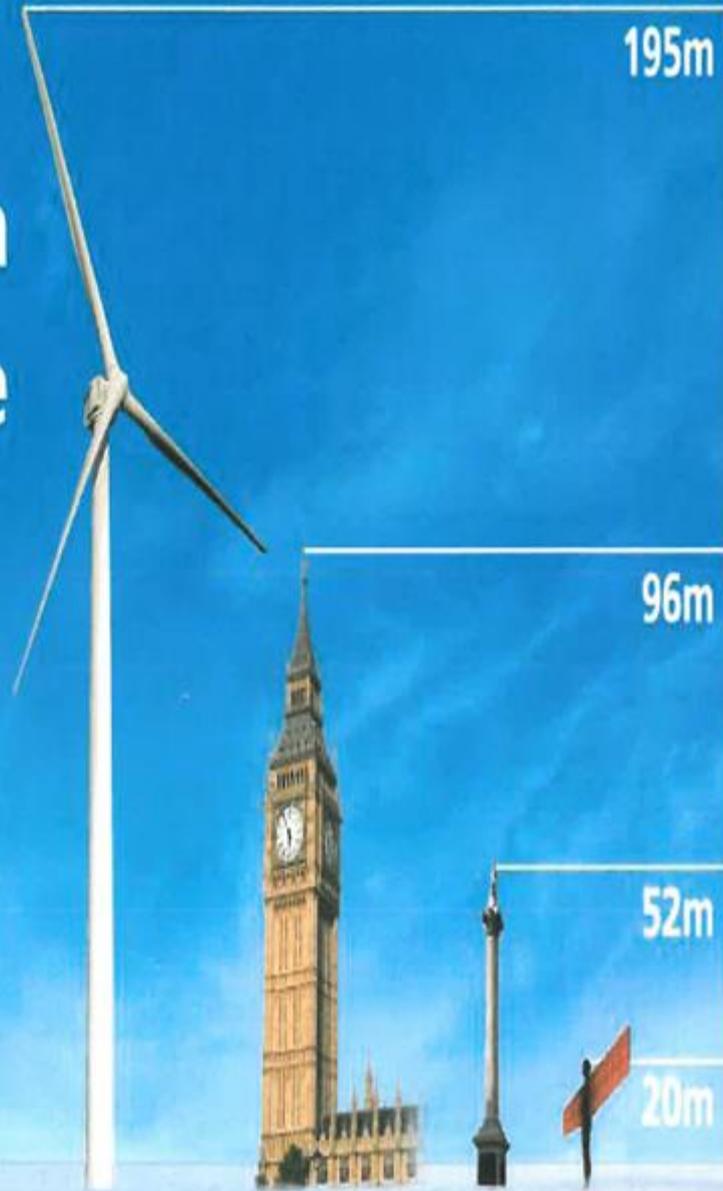


**“Today, we are launching what could be the North-East leading the world as the number one power for offshore wind. It’s a huge opportunity for us to move from the shipbuilding industry to the offshore wind industry and I think the North-East can lead the way .....**

This is a new industry where Britain can be number one in the world and where the technologies constructed here can be built, developed and constructed and then sent out to the world from the Tyne.....the North East is at the forefront in providing the skills, expertise, and enterprise to capitalise on this rapidly expanding market, which has the potential to create thousands of green jobs."

Source: PM Gordon Brown cited in Pearson 2010

# Britannia - Powering a sustainable future



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“we are sick of being the poor relation of Britain sitting at the raggy end of the couch.....It would be the biggest economic development hereabouts since the 1970s, when the North Sea oil and gas boom came.....

**History is on our side**, with the scale of shipbuilding and quays that have been here and the people and the skills and the infrastructure in place.

And **geography is on our side**. With thousands of turbines to sit in the North Sea, off our coast, we are the ideal site – the most perfect site for this industry in Europe.”

(Bruce Shepherd, Shepherd Offshore, MD of Renewable Energy Park, Newcastle cited in Lea 2010)

# Creating New Paths?: Renewables, policy activism and peripheral region development

I. Path creation and peripheral regions

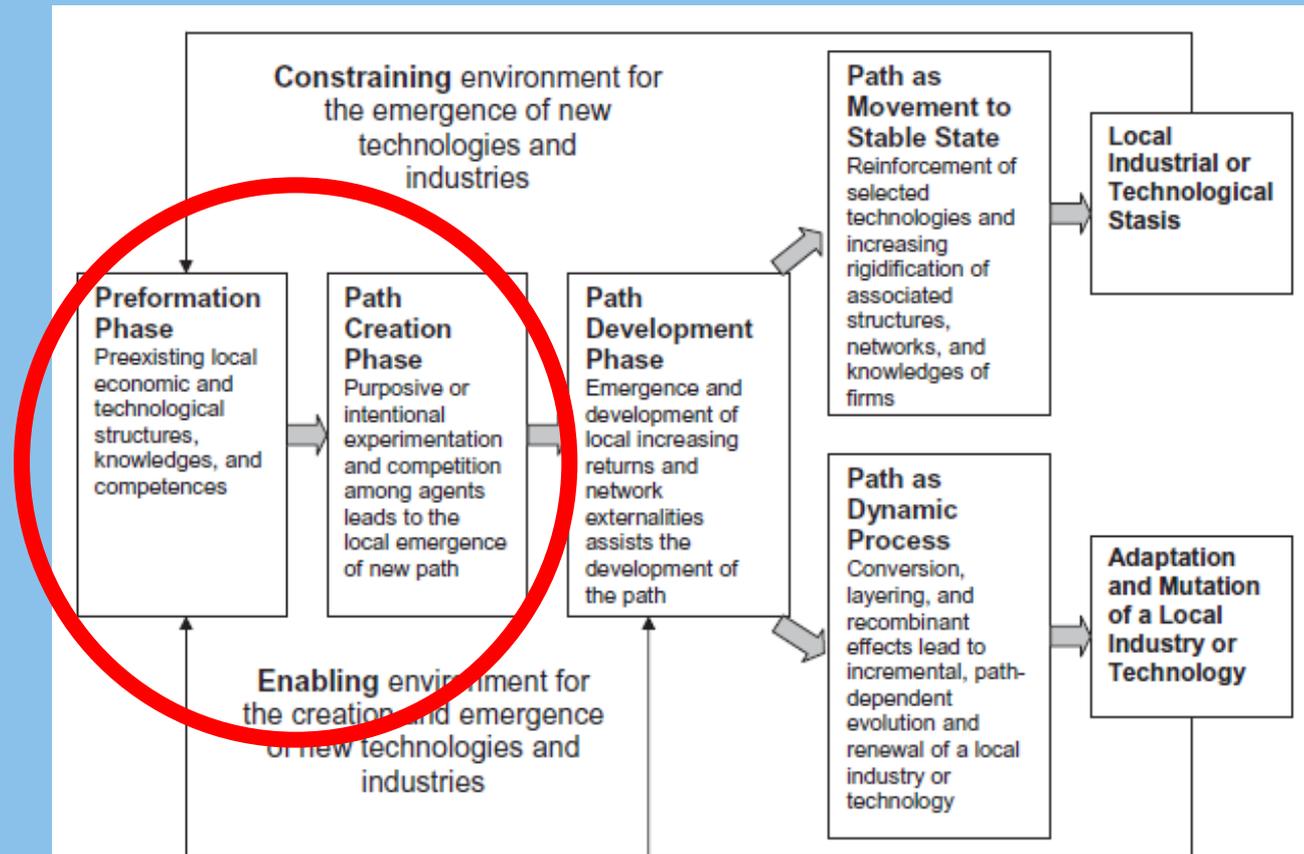
II. The rise of the offshore wind sector in North East England

III. Regional development implications

IV. Summary and Conclusions

# I: Path creation and peripheral regions

- ‘Evolutionary turn’, path dependency and adaptive regions (Martin 2010; Martin and Sunley 2008; 2006)



Source: Martin (2010)

Figure 5. Toward an alternative path dependence model of local industrial evolution.

# I: Path creation and peripheral regions

“The key research question is why some regions are capable of renewal and transformation while others are not” (Martin and Sunley 2006 p.419)

“.....there are examples of areas and regions that were once the crucibles of fervent innovative activity, but which – for some reason or another – later lost that leadership and became innovative backwaters” (Martin and Sunley 2006 p.427)

“..... arising from the specifics of their past economic development – the local environment may be less conducive to, perhaps even a ‘constraining’ force on, the emergence of new technologies and industries...” (Martin 2010 p.20)

# I: Path creation and peripheral regions

- **What is the role of strategic policy interventions in stimulating path creation in peripheral regions?**
  - “we also have to examine the strategic decisions made by ***policy-makers***, including the nation-state, if we are to properly understand regional path creation” and development of ‘new windows of opportunity’ for regions (Martin and Sunley 2006 p.427)
  - Asheim et al (2007 p.2) “little understanding of how region’s diversify into growth paths, and to what extent public policy may effect this process”
  - *Mechanisms of path branching and creation: inter alia* indigenous creation; heterogeneity and diversity; transplantation; diversification and upgrading; firm diversification, spin-offs, labour mobility, social networking; local innovation systems; ‘platform policies’ etc.

# I: Path creation and peripheral regions

- How can we understand the role of social agency in the path creation and branching process?
  - Key actors & institutions
  - National and Regional state actors
  - Purposive action, strategic agency: ‘mindful deviation’ from established paths by entrepreneurs? (Garud and Karnoe 2001)
  - Firm size; indigenous; transplantation etc.
  - Universities, Technology Centres etc.
  - Addressing ‘system failures’ (Boschma 2009) and ‘absorptive capacity’ (Simmie *et al* 2008)

# I: Path creation and peripheral regions

- **What are the regional development implications for path creation and branching in clean technologies?**
  - Reconfiguration of latent, dormant assets from previous rounds of investment
  - New roles for physical and natural assets
  - Technology-led or market-driven opportunities
  - Quantitative and qualitative nature of regional development opportunities
  - Repositioning of peripheral regions in production networks and value chains? New roles for geographical proximity?

## II. The rise of the offshore wind sector in North East England

- Path Emergence (early 1980s to mid-1990s)
- Early Development and Policy Activism (early 2000s)
- Path Development (2009-)

# Path Emergence (early 1980s to mid 1990s)

- **Northumbria Energy Workshop (1979-89)**
  - Workers cooperative of 10 engineers/scientists, mostly ex- Newcastle University
  - Project management of wind turbine power systems: BP; Plessey; UNDP. Wales; Shetlands; Ronda (Spain)
  - Hexham, Northumberland – amenities, natural resources, rail and air
  - 1989: ceased operations. Weak domestic market; large firms dominated govt contracts; Denmark captured small turbine market
  - 2 members formed Econnect ; 4 members formed Border Wind in 1989

# Path Emergence (early 1980s to mid 1990s)

- **Border Wind**

- 2 major pilot and demonstration projects

- **1992: Blyth Harbour Wind Farm**

- 1<sup>st</sup> demonstration project in the UK created by UK National Non Fossil Fuel Obligation



# Path Emergence (early 1980s to mid 1990s)

## – 1994-2000 Blyth Offshore Wind Farm

- Talks with Crown Estates on feasibility of Offshore Wind
- Consortium of skills, resources and sub-sea expertise: Shell Renewables; Powergen Renewables and NUON UK
- DTI and ERDF Funds
- UK's first offshore wind turbines

# Blyth Offshore Wind Farm

Opened 2000

First offshore wind project in UK

2 x 2 MW turbines

1 mile offshore, the first in Europe to be located in such exposed waters



## Path Emergence (early 1980s to mid 1990s)

- Pioneering experimentation by small scale, hobbyist, 'lifestyle companies' operating in limited market
- Elements of failure, but spin-off and recombination of labour and expertise
- National level regulatory changes stimulate market opportunities
- SME driven, connecting to consortia with resources and expertise in sub-sea and power expertise
- 'Demonstrative impact' for the region

## II. The rise of the Offshore Wind sector in the North East of England

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- Path Development (2008-)

# Early Development and Policy Activism (early 2000s+)

- Post-1997+ One NorthEast, RDA
- 1980-90's failed diversification by FDI-led 'transplantation' (Martin and Sunley 2006)
- **2000s 'Strategy for Success'**
  - Largest innovation programme in English regions (circa £200million 2006-9)
  - “to develop, based on existing strengths, leading expertise..in emerging technologies for growing markets, and their exploitation” (Technopolis 2008)
  - 2001: ADL report to indentify sectoral/ R&D strengths

# Strategy for Success: NaREC

- Technology-push programme based on large scale R&D and test facilities for renewables
- Acquired and reconfigured several disinvested regional technology facilities
- Special purpose vehicle and legal entity, adapted from Fraunhofer model
- “closer to the market” than previous University dependent policies (SfS Director, Author’s Interview 2010)

**“....very large capital intensive industries like energy require firms to manage a lot of risk and to develop new technologies you do need those large scale demonstration testing facilities...these were gaps in the market and also unique...the *North East was ahead of the game* and UK government have since picked up on... the role of technology centres.... (Innovation Manager, ONE, Author’s Interview 2010)**

**“...in order to develop technologies of a certain type you need big scale facilities, you need big demonstration prototypes...you need these type of institutions, not to act as intermediaries between universities and businesses, but to develop the technology to the next level.” (SfS Director, Author’s Interview 2010)**

# Strategy for Success: NaREC

- 2007: US firm Clipper announce 7MW, then 10MW – 100m ‘Project Britannia’ at NaREC. Becomes the world’s largest blades test facility
  - Prototypes tested for Siemens and Mitsubishi
  - Feb 2010: £18.5m from BIS for Offshore Wind Test site
  - August 2010: Crown Estate lease 20 large-scale pre commercial wind turbines, allowing first UK grid connections by 2013
- “final piece in the Narec jigsaw...the UK’s first offshore wind testing and demonstration hub” (Narec CEO, 2010)
- Becomes ‘National Centre’ with funding secured under Coalition Govt.

**The Current and Future Role  
of Technology and Innovation  
Centres in the UK**

A Report by Dr. Hermann Hauser

**For Lord Mandelson**

Secretary of State  
Department for Business Innovation & Skills



This does not however mean that there have been no successes. The New and Renewable Energy Centre (Narec) which has received £30m of investment over the past five years from One North East is recognised in the renewable energy industry as one of the lead centres of excellence worldwide for offshore wind technology development and provides employment for 115 people, many whom have graduated from the region's leading universities. It has major clients in Europe, Asia Pacific and the US and international R&D collaborations in 10 countries. It was also appointed technology advisor to The Crown Estate in relation to the Offshore Wind Round 3 programme in 2010 and by the end of 2011 will have the largest onshore physical test asset base in the world constructed at a cost of £100. It has played a part in attracting inward investment including Clipper Wind's \$65m offshore wind turbine development project.

Hauser Review (2010 p.21)

# Early Development and Policy Activism (early 2000s)

- High profile ‘regional level’ policy intervention, R&D-led with emphasis on large-capital intensive, world-leading infrastructures
- Recombination of existing hard infrastructures
- Key role of extra-regional relations, FDI-based model of R&D
- ‘Leading region’ profile created and supported by central government funds and political support

## II. The rise of the Offshore Wind sector in the North East of England

- Path Emergence (early 1980s to mid-1990s)
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## Path Development (2009-)

- 2009/2010: Clipper invest in 100m blade fabrication on former Tyneside shipyards
  - £4.5m grant from DECC; Crown Estate purchase prototype; ONE £2.1m for site/assistance
  - 500-1000 direct jobs
- Private sector-led 'Renewable Energy Park', with aim of developing integrated R&D and supply base
- FDI battles for new rounds of investment
- Coordination and support for firms to diversify and supply

# Clipper in the North East....

“...you will be told that the only reason Clipper is here is because UKTI persuaded us to be here - but it wasn't. I was the internal champion of finding a location...we could have been here, Scotland or Ireland and we made a decision to be here because a prime location to the market.”

- “strong labour force with heritage of engineering”
- Site, infrastructure developed by Shepherds with a long-term lease and room for expansion

(Source: CEO of Clipper Wind UK, Author's Interview 2010)

# NaREC and path development?

“Its not just because NaREC are here. **The test facilities are great to have but we don't have to be located next to them but it's convenient...**NaREC is useful but its part of the overall political will in the area.. We worked well with the central government, but ONE were very proactive in working with us to make the market happen. We also had the people and skills who knew the area. ” (CEO of Clipper Wind UK, 2010)

“...obvious benefit of NaREC in the region is the knowledge and networks developed by world's leading players in technology using the test facilities....**they have also anchored Clipper here..they were the dot on the global map that brought them here in the first place**” (Innovation Manager, One North East, Author's Interview 2010)

# Path Development (2009-)

- Broader base of path development, shifting from R&D to manufacture
- Key role of FDI-led investment, with NE now the only region in UK building blades/turbines
- Recombination of former industrial site/infrastructure
- Powerful role of central government in creating scale & geography of the market and FDI support
- NaREC as 'anchor' but questions over its integration with developing regional path

# III. Regional Development Implications

- **‘History’ and ‘Place’ matter (Boschma 2009 p.19):**
  - “Degree and nature of policy intervention should be...based on the institutional history of a region and which type of intervention fits better a region’s situation their histories differ”
- **Picking winners ‘v’ platform policies?**
  - Sectoral focus to platform policy
  - Redundancy and flexibility of policy development
  - Connecting regional assets and market opportunities
  - NINJ - Ten years before its time?

- **A qualitatively different role for the North East in the geographical production network of Offshore Wind?:**
  - Technology-led higher value-added position?
  - R&D, supply-chains, KIBS, manufacture and servicing
    - Diversification of steel production on Teesside
  - NaREC's role: 'development in the region' or 'development of the region'? (Morgan and Sayer 1985)
  - Emerging port/land constraints?

“ yeah I am sure recent investments would have perhaps occurred without NaREC, but it would but we wouldn't have got the breadth of activity and that deep rootedness and that stick ability which has come through the technology link and links to different parts of the value chain... this will help us build the sector sustainability in the way that Aberdeen have outlasted the North east in oil and gas...” (SfS Director, Author's Interview 2010)

# IV. Summary and Conclusions

- **Evolutionary perspective:**
  - Reconfiguration and combination of physical and soft infrastructures, from shipbuilding to subsea to offshore
  - Around 30 years of path related activity and still developing
  - Avoid the ‘redundant regressive search for the ‘ultimate cause’ (Martin and Sunley 2006)
  
- **Political economy of path creation:**
  - Govt. market allocations: volume , geography, protected market for ‘technological niches’ to develop (Martin and Sunley 2008)
  - RDA policy crucial, devolved funding (cf. post-RDAs)
  - Central government funding for now ‘national’ NaREC

- **Mechanisms:** elements of diversification, labour mobility, transplantation and branching
- **Key roles of individuals and entrepreneurs**
  - Private sector: NEW-BorderWind-AMEC-Clipper
  - Policy: SfS Director
  - Place dependence and extra-regional knowledge
- **Technology-push or market-led?**
  - Technological and political profile: ‘first mover’ advantages?
  - How integral is NaREC to the future development of the ‘regional’ pathway?
  - Is there now a more adaptive innovation system?
  - Why not Life Sciences?