UK policies for low carbon innovation and SME growth. A place-blind policy mix?

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Objectives

- This paper examines institutional, governance and policy mix issues arising in the UK's support for innovation in green –environmental or low carbon- industries.
- Defined as (OECD, 2009): "activities which produce goods and services to measure, prevent, limit, minimise or correct environmental damage to water, air and soil, as well as problems related to waste, noise and eco-systems. This includes cleaner production technologies, products and services that reduce environmental risk and minimise pollution and resource use"
- Around 8% of the UK's GDP (BIS, 2011). Promoted in the context of rebalancing 'away from government and consumer spending toward net trade and investment'.
- This paper draws from document analysis and more than 36 interviews with: (22)managers of manufacturing SMEs in renewables and other low-carbon industries, (14) policy practitioners and industry experts
- It examines firms' perception of the policies to stimulate innovation in low-carbon industries and critically assesses the governance and institutional setting of UK support to the sector

Rationale for policy support for env. sector

- Policy intervention on emerging clean technologies is generally justified on the basis of a double externality problem (Rennings, 2000), e.g. the negative externalities associated with unpriced carbon emissions on the one hand, and the externalities associated with innovative activity (given its characteristics of non-rivalry and non-excludability) on the other.
- Besides market failures, these technologies often face multiple systemic and institutional failures (Bleda and del Río, 2013; Foxon et al., 2005; Rip and Kemp, 1998; Unruh, 2000), including barriers to adoption, switching costs, and insufficient network effects
- Most literature on environmental policy non-spatial. When we consider industrial policy→ mechanisms supporting regional branching (e.g. diversification across technologically related industries (Boschma and Frenken, 2011) and regional/local policy action to influence selection environment favouring certain environmental industries (Dawley, 2014; Simmie, 2012; Fornahl et al, 2011, Uyarra and Gee, 2013).

Policy mix

- Need to pay attention not just on the policies/instruments per se but also other factors influencing the effectiveness of intervention, such as the specific design, modes of implementation, policy styles (del Río, 2009)
- In addition, policy instruments generally come in mixes, with the consequent need to pay attention to potential interactions between goals, rationales and implementation approaches. (Flanagan et al., 2011; Rogge and Reichard, 2013)

Policy mix interactions

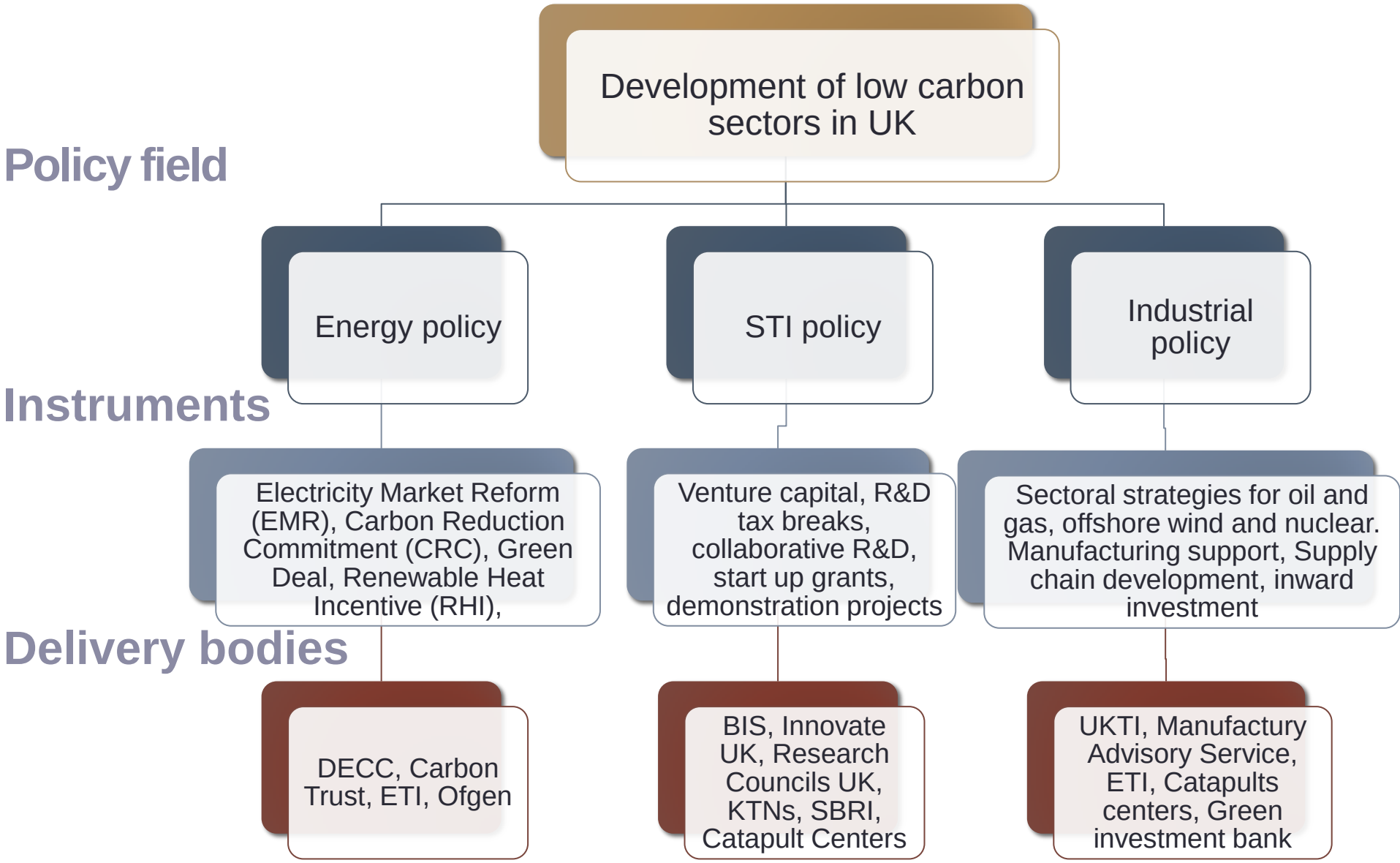
Dimensions of policy interactions	Forms of interaction
Policy 'space' Governance 'levels' Geographical space Time	Between different instruments targeting the same actor or actors (within/across policy dimensions) Between different instruments targeting different actors involved in the same social or economic process (within/across policy dimensions) Between different instruments targeting different processes in a broader 'system' (within/across policy dimensions)
	Between (nominally) identical instruments across different policy dimensions
Possible sources of tension between instruments in a policy mix	
Conflicting rationales Conflicting goals Conflicting implementation approaches	

Source: Flanagan et al (2011)

Policy mix characterisation

- Several attempts to assess or characterize policy mixes (Flanagan et al., 2011; Quitzow, 2014; Rogge and Reichardt, 2013), e.g. considering that policy mixes should be:
  - Integrated/comprehensive; e.g. encourage sufficient variety in the system, balance of supply and demand-side measures and support for different stages of technological development/ system functions
  - Coherent: if consider instrument interaction it exploits complementarities and enables synergies /avoids tensions and contradictions.
  - Consistent: Considering the policy process, in terms of alignment between the policy making stage and implementation
  - Stability and predictability of policy mixes

The UK 2008 Climate Change Act: legally binding target to reduce the UK's greenhouse gas emissions by 80%



Actors landscape & innovation phases

				<---------Deployment------->		
	Research	**Development**	Demonstration	Pre-commercial	Niche market	Fully commercial
National level	Research councils					
		Innovate UK (TSB) & Catapult centers			Public procurement	
		Energy Technologies institute				MAS
		Carbon Trust				UKTI
		Central Government direct support				Energy saving trust
European Level	European Commission H2020					EU ETS
Regional level		Devolved administrations				
		RDAs/ LEPs				

Source: Adapted from EEF (2013)

Comprehensiveness of innovation support

- Evidence of a strong financing gap (the 'valley of death') during the intermediate innovation stages. SMEs encounter significant difficulties to access growth finance. → Energy catalyst fund.
- *"It is difficult to secure funding from private institutions/venture capital for this type of product/ market"*
- Limited VC (e.g. UKIIF) particularly in sectors with greater technological risk and high capital intensity, or with uncertain exit mechanisms. They are *"commodity sectors dominated by big players who want to maintain the status quo, [and] are not keen to invest".*
- Level of support of financial incentives perceived as insufficient to secure R&D investment decisions by firms and guarantee the financial sustainability of these ventures.→ Energy entrepreneurial fund
- Despite increasing funding mechanisms visibility of funding opportunities is poor. -→ Low-Carbon Funding Landscape Navigator but still low awareness among SMEs.
- Lack of departmental resources for communication and engagement.

Stability and predictability

- Support landscape is perceived as fragmented, overlapping and lacking critical mass
- *"I think we are still muddling through and the government is continuing to invest in TSB, the catapult centres but I cant still see that leading to critical mass levels, it feels like when the previous government set up its own institutions, and this government has set its route through catapult centres. […] There does not seem to me to be a settled view of what innovation institutions we want."*
- As a result these changes many firms find the funding support landscape confusing and difficult and time consuming to navigate through.
- *"it is very hard for a reasonably well-informed outsider to understand how this fits together, let alone the small businesses not familiar with public policies or public institutions."*
- Doubts about Long term stability of funding and support structures
- *"My concern is making sure they are geared up for the long term. The catapults are attracting some of the best talent within those sectors. [they] run the risk of falling into a similar trap of other public organisations. When the money runs out they disappear or they start to encroach on the private sector"*
- Poor signaling of government investment priorities. Despite the development of Technology Innovation Needs Assessments (TINAs), there is a lack of awareness by firms of the type of technologies that the government is championing.

Coherence

- Perceived lack of coordination across departments.
- *"a big hindrance in the UK is that there are so many government departments that are not aligned, they just do their own thing."*
- Efforts to include coordination has included the set up of the innovation coordination group (LCICG), bringing together the major public-sector backed funders of low carbon innovation in the UK. However these coordination efforts seem to be mainly 'internally focused' and not visible to SMEs.
- Across delivery bodies: their different objectives and missions (promote growth, develop supply chain, reduce carbon content of technologies) can be in conflict
- Geography: Lack of cross-country coherence. More attractive regulatory regimes in other countries have driven a number of companies to explore overseas markets and diversify
- *"for our particular type of application, we haven't had much continuity or stability in terms of those regimes, hence the reason we have no customers in the UK."*

Local implementation gap

- Until 2010 RDAs were tasked with promoting sustainable development and support national climate change targets in the regions through market building, supply chain and skills development.
- All RDAs had a sustainable energy strategy. Some created arms length bodies (such as Envirolink in the NW) to map environmental clusters, build supply chains and promote firm diversification. Loss of sectoral intelligence.
- LEPs lack the scale, the funding or the statutory obligation to contribute to sustainable development.
- Missing middle in industrial strategy (Peck et al, 2013)

Local implementation gap

- Many of the innovation funding bodies (BIS local, the network of catapults) have presence in the regions, however their local engagement is patchy. Their resource endowment is limited, and they have limited marketing/communication capacity.
- LEPs are *"desperately trying to develop innovation but not really joining up the dots with either TSB, BIS or the catapult centres"*
- Bodies such as the catapults equally recognise the difficulties of engaging with all the LEPs and the need to prioritise certain areas that are more advanced and proactive. Fragmentation.
- RDAs disappearance have left a policy vacuum, in terms of regional intelligence and supply chain support. "*In the past we had RDAs working quite hard, sometimes quite successfully to make small businesses aware of big supply chain opportunities."*
- Top down industrial initiatives (such as GROW) are encountering implementation problems due to lack of local connection.
- The government is trying to overcome this 'policy vacuum' with initiatives such as the Centres for Offshore Renewable Engineering (COREs) to support manufacturing potential and inward investment in six designated locations, but no funding is assigned locally, and their ability to act upon these issues is conditional to decisions at the higher level.

Conclusions

- As a result of multiple goals, and an increasingly crowded policy landscape, concerns emerge in relation to the coherence and consistency of the policy mix to support low carbon and renewable industries .
- Tensions in terms of the policy ambition and and the short term nature of funding and institutional support
- Lack continuity in funding streams and institutional support, as well as frequent landscape changes and policy reversals are failing to provide a consistent and stable environment for investment.
- Coherence with foreign policy, need for greater influence in shaping international regulation
- Mismatch between the government's efforts to provide more comprehensive innovation support, coordination and focus, and the lack of communication and engagement with target firms.
- Policy misfit in terms of industrial support for diversification and the policy vacuum that exists at the regional level.

In order to truly pursue an agenda of economic rebalancing, there is a need for greater place sensitivity in policy.