

Convention Policy Paper: Clean Energy and Net Zero

This paper sets out a series of policy propositions in the field of Clean Energy and Net Zero, for discussion at the 2023 Convention of the North.

It has been drafted by a group of policy officers from across the North of England, drawing on the expertise of local authorities, combined authorities and partner organisations.

Clean Energy and Net Zero: Why the North should act

The North is the UK's Powerhouse: it generates over 40% of the UK's electricity, and almost a fifth of the electricity produced is exported to the rest of the UK. However, the North also generates over 90m tonnes of CO2 per annum - a quarter of the UK total. This reflects the significance of manufacturing and energy to the Northern economy. These two elements make the North a crucial delivery vehicle for achieving Net Zero and delivering affordable, clean energy for the UK.

The North has the aspiration to lead the UK's Green Industrial Revolution – the North's phenomenal Net Zero assets, including generating 50% of England's renewable energy and providing 36% of jobs in low carbon goods and services, mean we can lead the UK's Net Zero transition. In Research and Development, the North has world class capabilities across our universities and in wider institutions, such as the Materials Processing Institute in Tees Valley, and in the catapult network like the Advanced Manufacturing Research Centre in South Yorkshire.

Exploiting this opportunity will cement and extend the North's nationally and internationally competitive position in the field. It will fuel industries of the future where the North is already a leader, such as digital and advanced manufacturing, unlock economic regeneration by facilitating a just industrial transition, and harness the region's innovation capabilities to generate huge export opportunities for clean energy generation and efficiency technology.

Three of the six largest industrial clusters by emissions are in the North and supporting these clusters to transition to a net zero position whilst maintaining competitiveness is a significant challenge. Coordinated, systematic action across the North, between public and private sectors and with Government, will be needed to take advantage of the opportunities it offers.

In addition, there are many other clean growth opportunities outside of the clusters:

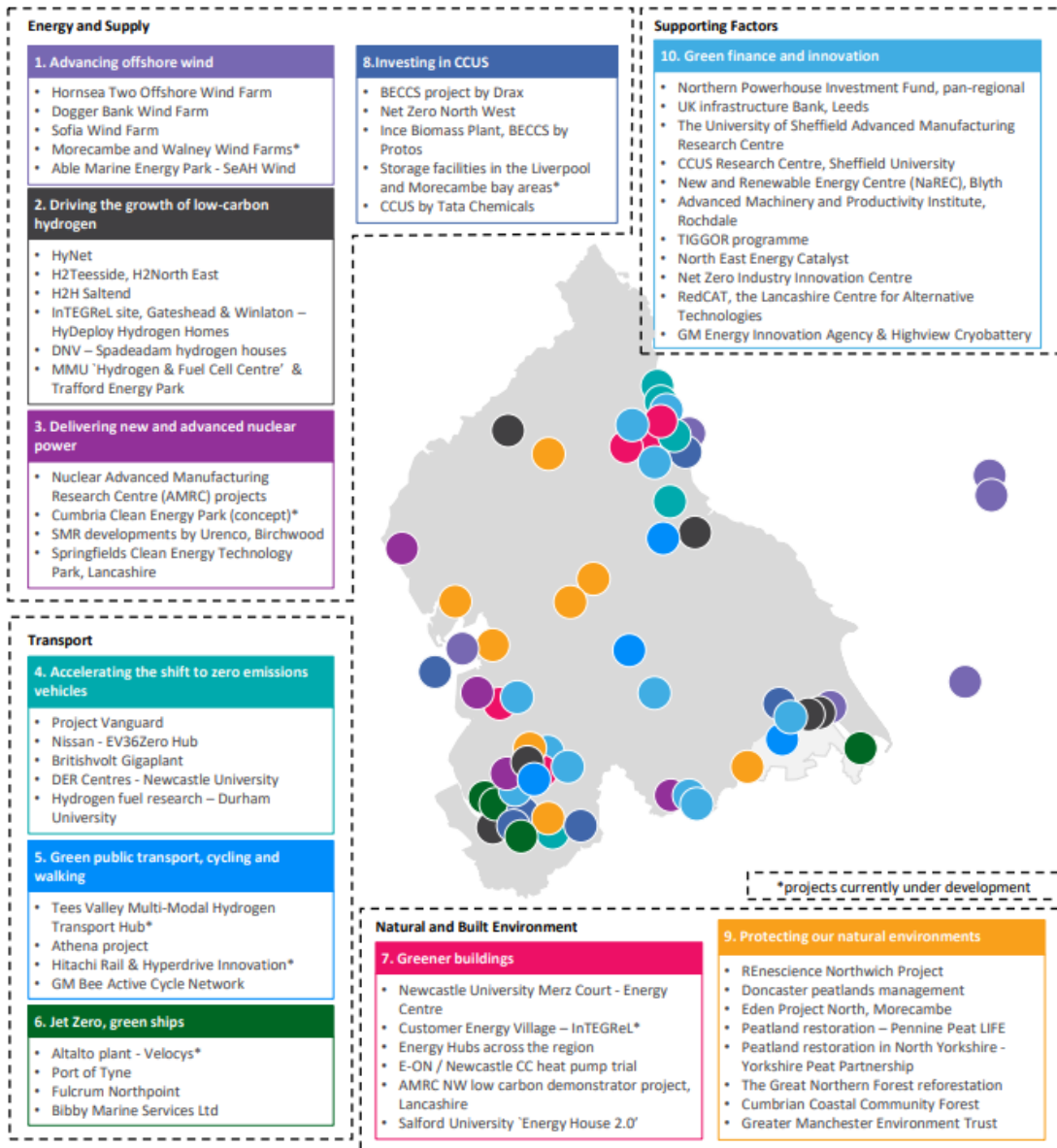
- Advancing on and offshore wind generation.
- Driving the growth of tidal power across the North.
- Support the development and implementation of low carbon hydrogen.
- Manufacturing in factories here to deploy a fleet of new Small Modular Reactors domestically and internationally.
- Investing in Carbon Capture and Storage and forefront of hydrogen economy.
- Investing in battery storage solutions.
- Construction of greener buildings and heat networks.
- Retrofitting domestic and non-domestic buildings, including onsite energy generation and storage.
- Smart Grid and whole Energy System optimisation.

- Green Business and Innovation.
- Protecting and enhancing natural environments and nature-based solutions to remove carbon from the atmosphere.

By taking a collaborative, joined up approach, and viewing these major projects as complementary elements contributing to a larger ambition across boundaries, the North can maximise impact and ensure that the region delivers more than the sum of its parts. This will in turn have wider economic impacts that will help address the current cost of living crisis and the Government’s levelling-up agenda as well as mitigating against climate change.

Northern Assets

The North boasts a multitude of capital, research and development assets. These include, but are not limited to, the examples highlighted in the figure below



Meanwhile, the North is already collectively acting to capitalise on our assets and address barriers through the development of the NP11 delivery plan to:

- Identify the principal at-scale development and investment opportunities in the region where a collaborative approach could maximise benefits.
- Developing the economic case for promoting collaboration at scale e.g., synergies from shared procurement, supply chain coordination to identify the benefit from acting in a joined up manner across the North.
- Assessing funding requirements and identifying potentially suitable structures where there is no current identifiable funding mechanism.
- Assessment of the opportunities created by Freeports for cost base reduction, and synergies created with local clusters and supply chains.
- Identifying blockers to enhanced collaboration, and plan to overcome these.

Other work underway includes on green skills, where the [N8 Universities](#) have come together with FE colleges, Net Zero North and the wider skills ecosystem in a Skills Alliance across the North to develop a proposal for joined up HE – FE approach to addressing the green skills challenge.

Barriers

The UK, and particularly the North, face multiple barriers if we are to achieve our collective net zero ambitions. These include:

- **Capital investment** - The Committee on Climate Change [estimated](#) that meeting net zero would require around £50bn per year of low carbon investment. Given the scale of the decarbonisation challenge in the North, it is vital that the region finds a way to unlock these unprecedented volumes of capital to support demand. No single actor will be able to meet this challenge effectively, and co-operation with local government pension funds, institutional investors and the private capital sector will be required.
- **Skills gaps** - Research has shown that every major sector in the UK needs to close a significant skills supply gap to enable the transition to net zero. The sectors with the most pressing emissions reductions by 2030 face the most immediate skills and labour shortages, including housing and transport. Ensuring a Just Transition for workers in carbon intensive sectors will require action to address the skills challenge of moving workers to low-carbon sectors. 80% of the current workforce will still be active in 2030 meaning that as well as attracting new green entrants there should be a focus on transferring existing skills and retraining for the green economy.
- **Supply chains and industrial decarbonisation** - Industrial clusters will be a critical player in accelerating the path to net zero. It is therefore reasonable to expect that many net zero opportunities will be focused on areas with access to industrial clusters, many of which are in the North. However, it is also critical to take a more holistic approach to industrial decarbonisation, and identify supply chain opportunities and gaps, to improve local procurement and generate regional demand across the entire value chain. This will increase the resilience of UK low carbon industries, increase the local demand for skilled workers and potentially lower the cost base for such industries and, ultimately, consumers.



Key to addressing all of these is better co-ordination between key decision makers at all levels, with a greater role for local actors to co-ordinate and drive activity. By collaborating in areas such as infrastructure, skills provision and supply chains, and with a joined-up approach to promoting investment, the North can drive down costs, stimulate innovation and exploit synergies.

Collaboration can also ensure that some of the pressing challenges in delivering the low-carbon agenda can be met, in particular to ensure that skills and training shortages do not create labour bottlenecks. This means the region will enjoy more of the benefits and opportunities from the low-carbon transition and help it deliver Government's priorities.

Policy Propositions

Proposition 1: Transforming the supply side in globally significant emerging technologies

We propose:

Supporting the development of the supply side in globally significant emerging green technologies, including small modular reactors, offshore and onshore wind, hydrogen and tidal energy, and the embedding of related economic activity within the Northern economy.

- 1) Support increased funding and support for new technologies, and deploying existing technologies at scale, drawing on the successful model of private-Government partnership for offshore wind.
- 2) Identify ways of increasing the flow of innovation funding to Northern businesses and institutions e.g. through decentralised delivery models.
- 3) Encourage alignment, collaboration and information sharing, conduct supply chain mapping, gap analysis and opportunities identification and exploit supply side synergies.

This will be delivered by cross-border collaboration and sharing best practice across the North, including the development of shared business cases, the establishment of regional information-sharing forums, pan-Northern collaboration to stimulate entrepreneurship in the sector, and creating a shared "Northern Voice" to represent common innovation funding priorities.

To maximise the impact of these supply side opportunities, local supply chains must have the capacity, capability and financial resilience to meet the demand. This will create and sustain more local jobs, drive the demand for an uptake of skills and innovation, so reducing overall costs, while delivering more environmental gain.



Proposition 2: Demand side engagement supporting shared capacity

We propose:

- 1) Considering the strong links to improved housing standards and health outcomes.
- 2) Collaborating on defining best practices for Local Area Energy Masterplanning, smart grids, flexibility and market mechanisms.
- 3) Providing shared project development/business case capacity for local energy projects.
- 4) Attract Investment from both Government and private sector, building on the work of 3Ci.
- 5) Supporting the development of a circular economy and the corresponding shifts in consumer demand and business models.
- 6) Collaboration on nature-based solutions, including Carbon Capture Storage (CCS) sequestration, Sustainable Urban Drainage, and air quality improvement.

This will be delivered by cross-border collaboration and sharing best practice across the North, including the development of a strategic plan for nature, a common benefits valuation framework and collaboration with network operators on the development of flexible smart grids.

Demand side responses provide the opportunity to reduce the costs of the transition to net zero, generate new and innovative short- and long-term revenue streams, reduce ongoing risks and increase economic and societal resilience. More projects will meet investors requirements, accelerating the deployment of low carbon assets including nature-based solutions. In addition, such investments will reduce peak demand on the electricity network avoiding expensive, and potentially protracted reinforcement work.

Proposition 3: Promoting Green Skills

We propose:

- 1) Collaboration around mapping skills needs at a regional/Northern level, particularly for areas like housing retrofit.
- 2) Local organisations collaborating to utilise existing and develop new regional centres of excellence where necessary.
- 3) Vision for how careers will need to be developed to support transfer from existing to new sectors including net zero adapting industries.

This proposition will build on the work of the Skills Alliance formed by the N8 and regional FE partners.



Skills in Prime Sectors

Pan-Northern co-ordination on skills policy will be essential to developing the North's Prime Capabilities. These are the four sectors identified by the 2016 Northern Powerhouse Independent Economic Review; Advanced Manufacturing, Life Sciences, Digital and Net Zero. These sectors are distinctive and significant across the North, and crucial to delivering the productivity growth required to close regional inequalities within the UK. Aligning and co-ordinating workforce supply across skill and local labour market geographies in these four sectors should be a priority across all relevant pan-Northern policy themes.

For projects to be delivered on time, to budget in ways which maximise their inherent economic, social and environmental value, sub sectors will need to be large enough to create a local competitive marketplace. This will require firms to both attract, retain and retrain a suitably sized workforce, with failure to do so having both cost and time implications which would stymie progress. This will necessitate a more blended approach to learning, with more training being delivered to employees, than full-time students.

Outcomes

Building off current activities, [research suggests](#) that scaling up and collaborating can unlock significant benefits in the coming decades:

- Create around 100,000 new green jobs by 2050.
- £2.3 billion increase in GVA growth in the North by 2050.
- Add more than £2 billion per year to the energy economy in the region by 2050.
- Reduce the carbon emissions by 50% by 2032 against 2005 levels.

These include:

- £24.4bn investment opportunities in nuclear.
- £9.6bn of investment in Offshore Wind.
- £1.4bn of benefit from The Northern Forest and a further £920m from The Great North Bog.
- £669m through collaboration on Heat Networks, Solar PV and Onshore Wind.
- £560m savings by 2035 from the more sustainable use of commercial and industrial waste streams.

