NP11

Net Zero North:
Collaboration Powering Global Britain

Executive Summary

October 2022

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1. Foreword

The NP11 group of Northern Local Enterprise Partnerships has identified those areas where the North's world-leading clean growth assets can benefit the UK economy as a whole by £6bn, through increased collaboration.

This report outlines our ambition to deliver economic growth, enhance energy security, establish the North as a global net-zero leader, and decarbonise faster. It builds on our earlier Net Zero North Prospectus, which showcases where the North is leading the UK and the world – and uses the priority areas identified in that document to pinpoint key opportunities for collaboration and ways to make these happen.

With its proud industrial heritage, the North has the world-class clean growth assets to lead the UK's transition to Net Zero, whilst also delivering on other Government priorities, such as enhancing energy security, levelling-up the economy and boosting productivity, growth, and investment. Clean growth is a vital component in securing the future of the UK, as well as the North's most valuable industries.

The scale of the opportunity is huge, and the need has never been greater, with the conflict in Ukraine and rising energy costs adding to the already vital issue of addressing the climate emergency. The UK needs to develop secure, resilient, affordable energy sources at pace and, with the right coordinated and collaborative action, the North is ideally placed to realise this potential. Indeed, we are already leading the way, lowering emissions at a rate 13% faster than the UK as a whole.

In addition to driving significant growth for UK plc, pan-Northern collaboration on clean growth could deliver wider benefits, including: improving energy security and resilience, reducing the cost of energy for households and businesses, creating jobs and improving productivity; driving cost reductions; boosting international demand and investment, unlocking domestic investment (both public and private sector); and reducing carbon emissions.

Collaboration on infrastructure provision, skills and supply chains, and trade and investment can ensure the region's low carbon offer is greater than sum of its parts. Many collaborative projects are already underway right across the North which demonstrate these benefits. Those projects include the East Coast Cluster, Net Zero North West, the Pan-Regional Hydrogen Network, Energi Coast, and Bio-Yorkshire, as well as maximising the North's outstanding natural assets.

1. Foreword

Our analysis has estimated that effective collaboration can deliver over £6bn of additional value to the Northern economy, through a modest investment of £10m over five years for regional leadership and coordination capacity. Actions to develop this collaboration further include sharing information between projects, strengthening supply chains, looking at opportunities for co-location and infrastructure-sharing, identifying future skills needs and developing careers programmes to help people transition into future green jobs, as well as establishing a strategic plan to maximise the North's natural assets.

Just as the North led the way in the first Industrial Revolution both in the UK and worldwide, we have an opportunity to do so again in this Green Industrial Revolution.

This work is the next step on a journey to establish a collaborative strategy and interventions to unlock future prosperity through clean growth. As the UK's Clean Growth Powerhouse, the North stands ready to lead the transition to Net Zero. Collaboration across the regions is vital to achieving this.

The North is the solution to many of the opportunities and challenges the UK currently faces. Working together and with Government we can power a prosperous, sustainable future for generations to come.

Sir Roger Marsh OBE DL

Chair of the NP11

Clare Hayward MBE DL

Chair of Cheshire and Warrington LEP & Clean Growth Co-Lead for the NP11

James Newman OBE

Chair of Hull and East Yorkshire LEP & Clean Growth Co-Lead for the NP11

2. Executive Summary

In April 2022, the NP11 group of Northern Local Enterprise partnerships published the 'Net Zero North Prospectus', showcasing Northern industry and setting out the opportunities and priority sectors to deliver clean growth in the North of England through collaboration. This was the first step on a journey to establish a collaborative strategy for delivering clean growth and prosperity to the North.

'Net Zero North: Collaboration Powering Global Britain' is the next step in that journey. This report outlines the economic benefits of collaboration, as well as the practical steps that are needed to realise these benefits. Through effective and coordinated programmes of collaborative action, we can:

- **Deliver economic growth**: Our analysis has estimated that effective collaboration can deliver **over £6bn** of additional value to the Northern economy, through increasing the UK content of our supply chains, driving cost-reductions, boosting productivity, and attracting inward investment.
- **Decarbonise faster and enhance energy security:** Cement our position as a world-leader in low carbon power generation, while promoting opportunities for co-location of storage and hydrogen production, and supporting businesses to switch to low-carbon heat alternatives through shared infrastructure and resources, in order to help us achieve net-zero faster and at a lower cost.
- **Establish the North as a global net-zero innovation hub:** Promote research and development into new, low-carbon technologies, and connect entrepreneurs with local investors and businesses to trial new technologies.

How can we deliver this?

- Effective collaboration is required to deliver action, leadership, and commitment from a range of public and private sector players. To deliver the estimated potential benefits of **over £6bn**, central coordination will be required.
- To lead on delivering this programme for the North through an initial 5-year programme of work, we estimate that around £10m initial investment is required. This will fund an uplift of 22 full-time staff members (& other associated costs), invested into local partners such as Combined Authorities, Local Enterprise Partnerships and Net Zero Hubs. This investment will be supplemented by private investment, and contributions from partner organisations and industry.

Just as the North led the way in the first industrial revolution both in the UK and worldwide, we have an opportunity to do so again in the Green Industrial Revolution. Collaboration between the regions will be a vital part of this journey.

3. Background: The Net Zero Prospectus

- The Net Zero North Prospectus, published in March, showcases the ways in which the North is bringing its distinctive strengths to facilitate the transition to net zero and ensure the UK can ‘build back better’ after COVID-19. The Prospectus identifies areas where collaboration between the private sector, local partners, and local and national government can deliver economic growth, while supporting the government’s priorities of enhancing the UK’s energy security, leveling up, delivering net-zero, and delivering improvements in productivity, investment, and jobs.
- In the Prospectus, we identified the following priority sectors for driving clean growth in the North: offshore technologies, new nuclear, hydrogen & CCUS, and maximising the region’s natural assets. These sectors represent significant economic and environmental opportunities for the region, and the collaboration approaches outlined below will help ensure that the North cements its world leading position in these sectors.
- This Prospectus is the first step on a journey to establish collaborative strategy and interventions around future prosperity through clean growth, starting with the North, playing its part nationally, and competing globally.

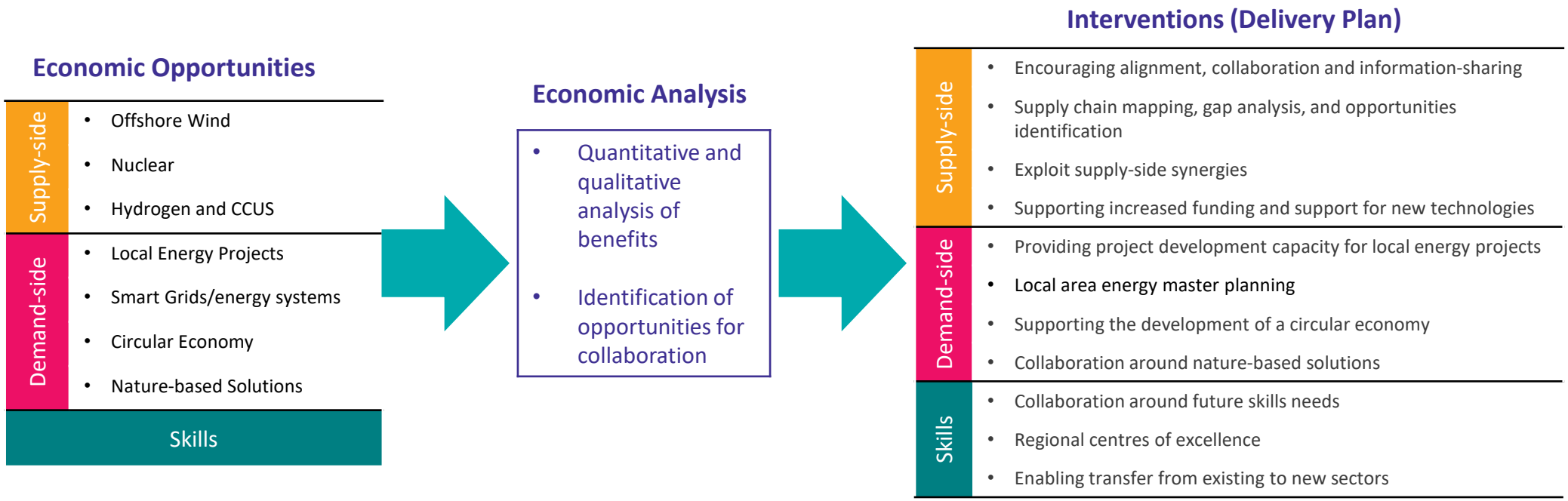
3. Background: Our approach

Process

- This report builds on the Net Zero North prospectus, using the priority areas as a starting point for identifying collaboration opportunities and how to make these happen. For each priority area we identify what collaboration looks like; set out the benefits from collaboration; and develop a high-level delivery plan for the practical steps that can be taken to realise these benefits.
- Our findings are a result of engagement with the Northern Powerhouse group of 11 Local Enterprise Partnerships in the North of England ('NP11 LEPs'). In creating this report, we engaged LEP representatives and local partners through a combination of in-person workshops and bilateral engagement to score and rank collaboration opportunities based on their strategic fit and deliverability in the North.

Output

- Through our engagement with NP11 LEPs, we identified several key areas, broadly categorised under 'supply-side', 'demand-side' and 'skills', where collaboration between the private sector, local partners, and government across the North has the greatest potential to create additional economic benefits. Where possible, some of the economic benefits arising from collaboration were quantified to illustrate the economic benefits that can he achieved through collaboration.



4. Economic Analysis

The benefits of collaboration

Our analysis identified the following opportunities for growth arising from greater collaboration between industry, local partners, and government across the North:

- **Creating jobs and improving productivity:** 'Green jobs' created by investment in the region, improved targeting of education and skills initiatives to suit the requirements of local industry, and driving increased investment in innovation and R&D.
- **Improving energy security and economic resilience:** Increased domestic energy production, onshoring of supply chains/investment and higher rates of local procurement, and the creation and growth of new, domestic, low-carbon markets.
- **Driving costs reductions:** Reduction of supply-chain inefficiencies, higher productivity, and long-term lower costs of energy.
- **Boosting international demand and investment:** Increased international competitiveness and attractiveness of the region through higher productivity and standards, boosting exports and driving inward investment.
- **Unlocking domestic investment:** Improved business cases and access to government grants through sharing of best-practice and reducing projects' risk through increased scale and diversification.
- **Carbon abatement:** Accelerated industrial decarbonisation and uptake of low-carbon energy solutions and deployment of nature-based solutions at scale.

Examples of collaboration in action

The Net Zero Hubs and NP11 LEPS are already working collaboratively to deliver economic, environmental and social benefits across the North. Some examples of these initiatives include:

- **Humber and Tees Valley:** the recently selected Track-1 East Coast Cluster is developing the infrastructure needed to decarbonise industry in Tees Valley and the Humber; the Humber is also home to the Humber Zero and Viking CCS decarbonisation projects.
- **Net Zero North West**: a public and private sector investment accelerator for industrial decarbonisation and clean growth projects in the North West, including the recently selected track-1 HyNet.
- **Transport for the North:** a public and private sector collaboration making the case for strategic transport improvements across the North, including Northern Powerhouse Rail, and Strategic Development Corridors.
- **Nature North:** partnership bringing together organisations in the North of England to enable delivery of nature recovery and facilitate investment in the North's natural assets.
- **Energi Coast:** North East England's Offshore Wind Cluster, promoting the region as a world leader in offshore wind deployment and technologies.
- **BioYorkshire:** Academia-led partnership researching and promoting sustainable solutions to develop bio-based supplies of fuels, chemicals, and materials.

4.1. Summary of Economic Analysis: Supply side

SUPPLY SIDE

Our supply-side analysis assessed the quantitative and qualitative benefits for Northern industry production that can be achieved through encouraging greater collaboration between industry. This includes supply chain optimisation and onshoring, delivering jobs, investment, and improvements in productivity for the North.

Quantitative Benefits

To give a sense of the scale of the opportunity from collaboration, we estimated the **additional value added** in the North of increasing UK content across the energy sector. This represents just one component of the potential benefits from collaboration, and further economic, environmental and social benefits have been identified so this is only part of the overall prize.

1	**Offshore Wind** Target to reach 60% UK Content by 2030 (10% increase).	**£1.2bn**
2	**Hydrogen & CCUS** Onshore: Target to reach 65% UK Content by 2030 (10% increase). Offshore: Target to reach 40% UK Content by 2030 (10% increase).	**£2.07bn**
3	**Nuclear** Target to reach 65% UK Content by 2030 (5% increase).	**£1.9bn**

Other qualitative benefits assessed:

1. Job creation and improved productivity, achieved through greater investment in innovation, R&D, skills.
2. Cost-reductions through lower transportation costs, improved learning rates and innovation.
3. ‘First mover advantage’ through greater innovation and risk-taking, supporting the North to become a net energy exporter.
4. Environmental benefits (carbon-reduction) from accelerated decarbonisation of supply chains and reductions in transport emissions

4.2. Summary of Economic Analysis: Demand side

DEMAND SIDE

Our demand-side analysis assessed the benefits that could be achieved through the growth and creation of low-carbon markets in the North, through improving access to low-carbon energy, and other carbon-reduction solutions for large public and private sector users.

Quantitative Benefits

To quantify the benefits of demand-side collaboration we estimated some of the **potential cost-savings and benefits** that can be achieved through collaboration on procurement and planning. Like on the supply side, these benefits are just a sample of the overall benefits that can be achieved through collaboration.

1	**Local energy projects** Reduction in pre-development and procurement costs of 65% for an average project, by 2035.	**£668.8m**
2	**Smart Grids/energy systems** Improvements in investment efficiency, and feasibility of projects, through a 'whole-system' optimisation approach.	**£600m (p/a)**
3	**Circular economy** Improved rates of recycling/commercialization of waste flows (from 43% to 65% by 2035) reducing cost of landfill (incl. business expenditure on landfill taxes).	**£560m**
4	**Nature-based solutions** Investment in Northern, NBS projects creating carbon-reductions, improvements in air quality, and jobs.	**Great North Bog: £920m** **Northern Forest: £1.4bn**

Other qualitative benefits assessed

1. Job creation and improvements in productivity through greater investment and innovation.
2. Improved energy security through increased domestic capacity and flexibility.
3. Reductions in consumer bills through installation of low-carbon energy and improved energy efficiency.
4. Carbon-savings from improving efficiency of resource-flows, and higher uptake of low-carbon fuels and solutions.
5. Improvements in water quality, and flood-water management through NBS.

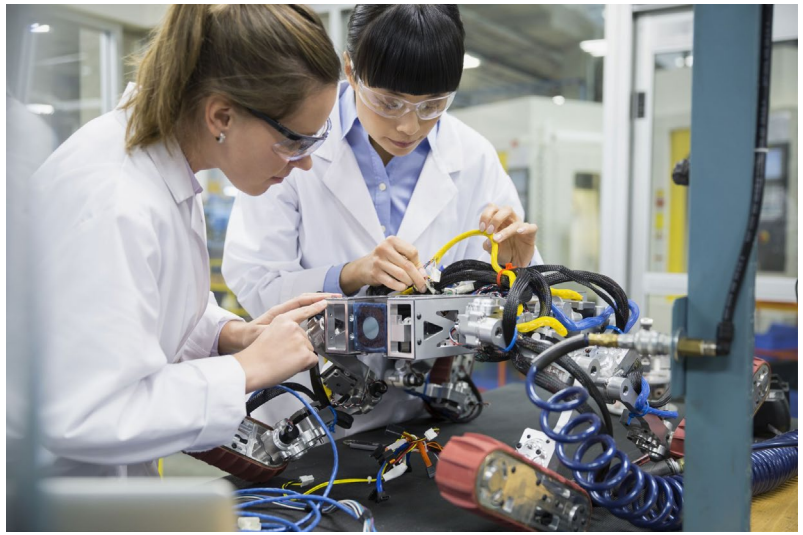
4.3. Summary of Economic Analysis: Skills

SKILLS

Our skills analysis assessed the qualitative benefits of improving the quality of skills training and provision in the region (the quantifiable benefits were captured within the demand-side and supply-side analyses), including higher productivity, wages, and employment.

Key Benefits

1	**Wages** Higher-skilled workers can attract higher wages, made affordable by higher productivity driving increased competitiveness and cost-savings.
2	**Employment** A more skilled workforce will improve the quality and rate of local employment, as firms are more willing and able to create jobs.
3	**Investment** A dynamic, well-skilled regional labour market drives inward investment as potential investors are attracted to the higher productivity and knowledge-sharing opportunities within the region.



5. Delivery Plan

The Delivery Plan outlines how we intend to realise the potential economic benefits from collaboration, through delivery of 11 priority interventions, identified in collaboration with local stakeholders. These have been categorised into 'supply side', 'demand side' and 'skills', which are defined in pages 9-11. Across each of the interventions outlined, there are three broad categories of activity where NP11 can add value:

Research:

Desk-based research and stakeholder engagement, identifying common issues and opportunities, and bringing industry perspectives together to provide a holistic view.

Facilitating Collaboration:

Providing forums and spaces for collaboration, and driving forward initiatives (e.g. project management) to coordinate industry activities.

Communication and engagement:

Providing a platform and strategic oversight to enable the region to communicate with one voice, including when engaging with central government.

Through these activities, NP11 will provide a platform for Northern industry to collaborate and maximise its potential. The ultimate success of our plan will rely on active participation and buy-in from local partners (e.g. LAs/LEPs), external partners (e.g. local educational institutions, utilities networks), and local industry.

Ensuring Delivery

Accountable ownership of specific workstreams and activities will be crucial for delivery.

Following the publication of this plan, a delivery working group will be established with assigned leads for each sub-intervention who will be responsible for coordinating ensuring delivery of the plan.

5. Summary of Delivery Plan

The table below summarises all priority interventions and sub-interventions identified through our economic analysis and stakeholder engagement. In our separate 'economic analysis and delivery plan', published in parallel to this document, we outline detailed delivery plans for each intervention, including indicative timelines, roles of participants, and risks/barriers to delivery.

	Intervention	Activities
Supply side	1 Encouraging alignment, collaboration and information-sharing	Development of shared business cases
		Regional information-sharing forums
		Increasing cluster alignment
	2 Supply chain mapping, gap analysis, and opportunities identification	Supply chain mapping and gap identification
		Identify supply chain opportunities
	3 Exploit supply-side synergies	Encouraging co-location of hydrogen production with renewables and nuclear
		Shared Hydrogen Transport and Storage Infrastructure, and other low-carbon heat solutions
	4 Supporting increased funding and support for new technologies	Creating a shared 'Northern Voice' to represent common interests and innovation funding priorities
		Supporting innovation and funding for new technologies such as tidal and floating wind, with a focus on integration with Hydrogen
Demand side	1 Collaboration around nature based solutions	Develop a strategic plan for nature
		Develop a common benefits valuation framework
	2 Supporting the development of a circular economy	Optimising waste resource flow; greater reuse of waste streams across border
		Create a list of market mechanisms
	3 Providing project development capacity for local energy projects and decarbonised heat/transport	Building capacity into business case development
	4 Local area energy master planning	Northern Energy master planning
		Feeding into networks' work on developing smart grids and flexibility
Skills	1 1. Collaboration around future skills needs	Analysis of shared skills requirements and gaps across the North
	2 2. Regional centres of excellence	Establishment of regional hubs for development and provision of skills training
	3 3. Enabling transfer from existing to new sectors	Develop offer to support people looking to move into the industries of the future

5.2. Summary of Delivery Plan: Supply side

SUPPLY SIDE

The supply-side interventions outlined can boost the output and competitiveness of Northern industry, by giving businesses opportunities to reduce costs, improve productivity, and attract more funding and investment, from both the public and private sectors.

Key Interventions

1	**Encouraging alignment, collaboration and information-sharing** Promoting greater coordination between key industry players through identification of collaboration opportunities (e.g. shared business cases); industry forums, and alignment between clusters.
2	**Supply chain mapping, gap analysis, and opportunities identification** Identifying supply chain gaps and opportunities across the North (e.g. for components of CCUS & hydrogen production), and producing recommendations for greater coordination.
3	**Exploit supply-side synergies** Analysis of opportunities for co-location of hydrogen with nuclear/offshore, and hydrogen transport and storage infrastructure: improving evidence-base, and developing common approach/position.
4	**Supporting increased funding and support for new technologies** Creating a shared 'northern voice' to influence government funding, attract investment, and promote new and emerging technologies (e.g. floating offshore).

Risks and Barriers

1. Competition with other UK regions and clusters for government funding.
2. Areas without access to industrial clusters excluded from opportunities.
3. Lack of Central government clarity on regulatory frameworks and funding opportunities for new technologies.
4. Skills gaps to support the industries of the future.
5. Long build-times for larger projects (e.g. new Nuclear) limiting investor confidence.

5.2. Summary of Delivery Plan: Demand side

DEMAND SIDE

The demand-side interventions outlined can boost demand for Northern Industry by increasing uptake of low-carbon solutions in both the private and public sectors, and supporting the growth of markets and investment in commercial waste and circular economy initiatives.

Key Interventions

1 Collaboration around nature-based solutions
Promoting the adoption and use of nature-based solutions (e.g. in large infrastructure projects); developing a common benefits valuation framework.

2 Supporting the development of a circular economy
Optimising waste resource flows by linking private sector and public sector with waste service providers, and identifying commercial waste stream opportunities, as well as researching for wider use of market-based solutions to managing waste.

3 Providing project development capacity for local energy projects
Developing best practice guidelines, providing project development support, and setting up shared/common structures for accessing project support.

4 Local area energy master planning
Working with local networks (transmission and distribution) to map future demand requirements, and identify opportunities for public and private sector to provide demand-side flexibility.

Risks and Barriers

1. Uncertainty in development of commercial waste initiatives due to lack of central government direction.
2. Uncertainty around the future use of hydrogen in heating (incl. blending into the grid).
3. Geographic areas without access to industrial clusters excluded from decarbonisation opportunities.
4. Absence of shared, consistent methodologies for valuing carbon reduction.
5. Short to medium term volatility of energy prices and inflation limiting investor confidence.
6. Lack of time and resource to access government grants for low-carbon solutions.

5.3. Summary of Delivery Plan: Skills

SKILLS

The skills interventions outlined will provide the platform for employers and educational institutions to modernise and expand their training offering, and improve career pathways. This will ensure that the Northern workforce is equipped for the challenges of the future, and all workers have the opportunity to benefit from the net-zero transition.

Key Interventions

1	**Collaboration around future skills needs** Identify future skills requirement and gaps, and develop action plan for meeting future needs.
2	**Regional centres of excellence** Scope out potential locations, demand, and funding options for new regional centres of excellence to lead on designing and delivering skills training.
3	**Enabling transfer from existing to new sectors** Understand existing pathways and training offer for transfer from old to new sectors, and develop action plan to improve career transfer support.

Risks and Barriers

1. Lack of clear picture of industry skills requirements and current gaps.
2. Limited opportunities for newly qualified candidates in the labour market.
3. Funding gap for skills provision (both public sector offering and private sector training opportunities, including apprenticeships).

Contact us

Email	info@NP11.org.uk
Website	www.NP11.org.uk
Postal	Wellington House, 40-50 Wellington St, Leeds, LS1 2DE