



1. Executive summary

The core mission of Net Zero North West (NZNW) is to become the UK's first low carbon industrial cluster by 2030 and the world's first net zero industrial cluster by 2040. NZNW aims to save 38.5 megatonnes (Mt) of carbon dioxide emissions, deliver £206.9bn of investment, provide a social uplift of over £285 billion Gross Value Added (GVA) and develop a total workforce of 660,000 new and existing jobs.

Substantially decarbonising regional industry by 2030, and getting to net zero emissions by 2040, is an opportunity that presents significant economic benefits, both regionally and nationally. It will create and protect high value-added jobs and position the UK at the forefront of reducing global industrial emissions. The North West possesses the largest concentration of advanced manufacturing and chemical production in the UK and is home to a concentration of energy intensive users. Traditionally strong in textiles, shipping and engineering it is now home to leading information and communication technology, biotechnology, pharmaceuticals, aerospace, and telecommunications businesses.

This report aims to evaluate the characteristics of Industrial consumers by sector in the North West. In doing so, it considers current practical decarbonisation delivery and provides an assessment of future technologies when developing sectoral decarbonisation roadmaps. It creates a deliverable investment, technology, and infrastructure blueprint for the North West's transition to net zero carbon by 2040 and low carbon recovery post-COVID-19. This decarbonisation and clean growth vision will unlock huge opportunities across the supply chain for regional businesses to tap into, including engineering support; construction; parts provision; logistics and distribution; third party maintenance contracts and many other supporting work streams.

The analysis included in this report is based upon EQUANS' sector assumptions derived from Energy Savings Opportunity Scheme (ESOS) audits, European Union Emissions Trading System (EU ETS) emitters, UK National Atmospheric Emissions Inventory (NAEI) within the North West, across 27 industrial sectors with 181 manufacturing sites. It incorporates four common technology themes across the sectors; Energy Efficiency, Low Carbon Technologies, Renewable Generation and Hydrogen. Analysis has revealed that the application of these measures across the industrial sector is achievable and highlights the barriers to implementation:

Analysis 1 - It is estimated that the implementation of **Energy Efficiency technologies** could save up to 27% of emissions. These measures are usually easy to install, have low capital expenditure, and have respectable paybacks allowing the industry sectors to take advantage of the financial savings attributed to the measures, which can be instantaneous in some circumstances.

Analysis 2 - Low Carbon Technologies can achieve great financial savings through the implementation of Combined Heat and Power (CHP) technology which can be future proofed through the integration with hydrogen. Whilst Heat Pump technologies support the electrification of heat and provide the greatest decarbonisation potential.

Analysis 3 - The North West contains large land assets to enable **Renewable Energy Generation**. This report also highlights that through the deployment of Anaerobic Digestion plants, sectors such as the food and drink industry can take advantage of a circular economy producing biomethane from waste.

Analysis 4 - Converting fuels to **Hydrogen** is one of the most innovative technologies described in this report, most manufacturers are now aligning their technology for the potential change in fuel to meet the demands of industrial users. Manufacturers of equipment such as boilers and gas fired CHP systems have published figures around 25-30% blend of hydrogen with no change to existing equipment.

Based on analysis within this report, it is recommended that the industrial companies within the North West produce individual net zero carbon reports and action plans that align with the Net Zero North West 2040 ambitions to become the world's first net zero industrial cluster.

This can be achieved by taking a holistic approach to decarbonisation, focussing not just on individual technologies but integrated energy systems that tackle efficiency first, prior to the more complex infrastructure requirements.