Plans for the Bioeconomy of the North of England and for BioPilotsUK - regional and national perspectives

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Science and Innovation Audit
Bioeconomy of the North of England

- Dec 2016 – May 2017
- Knowledge base assets
- Industrial landscape
- Skills audit
- Gaps and opportunities
- Vision for 2030
- Recommendations
Some kind of Northern bioeconomy cluster organisation

Northern England Knowledge Base

Northern Bioeconomy Demonstration centres

Northern Bio-Clusters

Technology Readiness Level

1 2 3 4 5 6 7 8 9

Fundamental Research

Fully Commercial Application
MASSIVE SUGAR PROCESSING PLANT PLANS EMERGE

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Northern Sugar Bio-Cluster

• Sugar regime ends September 2017
• Opportunity to build new sugar beet processing plant in the North
• Largest beet plant in the world with a capacity of 5mmt of sugar beet/yr
• £400M+ investment
• 50 hectare site for plant
• Further 50 hectares for bio-cluster
IAR Bio-business cluster Exemplar

This Biorefinery is one of Most Integrated Existing Biorefineries

- Chamtor
  Wheat processing

- BioDémo (ARD)
  Industrial demonstration plant

- Cristal Union
  Sugar beet refinery

- Procéthol 2G
  FUTUROL Project
  2nd generation ethanol

- ARD
  Mutualised research center

- Soliance
  Actives and ingredients for cosmetics

- Cristanol
  1st generation ethanol production
BioPilots UK- What is it?

• An alliance of five established UK open-access biorefining centres which recognise the importance of industrial collaboration to develop UK bio-based value chains

• We will de-risk the commercialisation of bio-based products and processes by trialling new technologies to ensure our partners are investing in the right technologies for their business

• By working as an alliance, we can provide easy access to the capabilities of all five centres to speed up the process of developing new biobased products
BioPilots UK - Founding Members

Development of the alliance is being supported by: The Bioeconomy Consultants NNFCC
BioPilots UK

Our Vision

• The UK as a global leader in biorefining technology development and bio-based product manufacture within a sustainable high-value bioeconomy

Our Mission

• Provide a stable, integrated, cost-effective pilot and process development service
• Increase UK knowledge and capabilities in biorefining and industrial biotechnology
• Nurture the development of SMEs to support the growth of UK bio-based value chains
BioPilots UK- Capabilities

- Novel distillation
- Analytical chromatography
- 10m³ fermentation
- Cross-flow membrane filtration
- Spinning cone distillation
- Strain development
- Enzymatic transformations
- Spray drying
- Microwave reactors
- Genetic analysis
- Liquid-liquid extraction
- Plant growth studies
- Mass spectrometry
- Mechanical pre-treatments
- Pyrolysis
- Photo bioreactors
- Steam explosion
- Milling, shredding and cutting
- Anaerobic digestion
- Multi-scale fermentation
- Microscopy
- Applied analysis
- Supercritical CO₂ extraction
- Freeze drying
- Dead end filtration
- Fast track plant breeding
- Chemical transformations
- Cl₂ hydrogen feedstocks fermentation
- Multi-scale centrifugation
BioPilots UK- What next?

• We are working with BEIS and NNFCC on a BioPilotsUK business plan – Sept 2017

• Align with developments in the definition of the challenge areas that will be supported under the ISCF

• Establish a national business support programme

• Create opportunities for equipment sharing across the centres and joint projects with industry

• Grow the UK skills base in the bioeconomy - a programme of placements within the 5 centres will be offered to undergraduates, post-graduates and apprentices seeking to develop a career in biorefining / industrial biotechnology

• Support the UK Government to grow the bioeconomy – eg mapping of UK biomass feedstocks / user markets / process capabilities in collaboration with the NNFCC