Transition Regions Towards Industrial Symbiosis – Building Foundations for a Circular Economy

Jackie Homan (Head of Sustainability, Birmingham City Council)
David Horsfall (Weber Horsfall)
Chris Bouch (University of Birmingham)
Chris Rogers (University of Birmingham)

Transition Regions Towards Industrial Symbiosis

Introduction and Overview

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Baltic Sea
Estonia
Latvia
North Sea
Lithuania
Denmark
United Kingdom
Belarus
Ireland
Poland
Netherlands
Berlin
London
Germany
Belgium
Prague
Czech Rep
Paris
Ukraine
Vienna
Slovakia
Austria
Moldova
Hungary
France
Romania
Croatia
Serbia
Italy
Barcelona
Rome
Bulgaria
Portugal
Madrid
Istanbul
Tyrrhenian Sea
Spain
Greece

Timescale

- Phase 1 (36 months)
  - Start: 1st April 2016
  - End: 31st March 2019

- Phase 2 (24 months)
  - Start: 1st April 2019
  - End: 31st March 2021

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What we said we would do

- Raising awareness on the concepts of IS and its economic and environmental benefits
- Changing mindsets and building a cooperation culture in the stakeholder groups (including SMEs and policy actors)
- Standardize IS practices into regional policy instruments
- Launching tangible initiatives in the regions:
  - reaching out to more SMEs
  - supporting their business with new IS cases/projects
  - preventing industrial waste production
  - testing new governance models
- Bringing IS to a higher position in the European political agenda

TRIS objectives

The objectives will be pursued through the improvement of the regional policies addressing:

- Production and management of industrial waste
- Efficient production processes
- Access to innovative technologies and production techniques
- Launch of new business strands and penetration of new markets

… many of which require new / alternative business models

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An Example from Sweden

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Waste as a resource in Växjö

Each household in Växjö has a waste contract with the Local Authority

- It pays for two-weekly waste collection with no sorting, or
- It pays less for monthly waste collection with no sorting, or
- It pays less still if food waste is separated into ventilated bins

Waste as a resource in Växjö

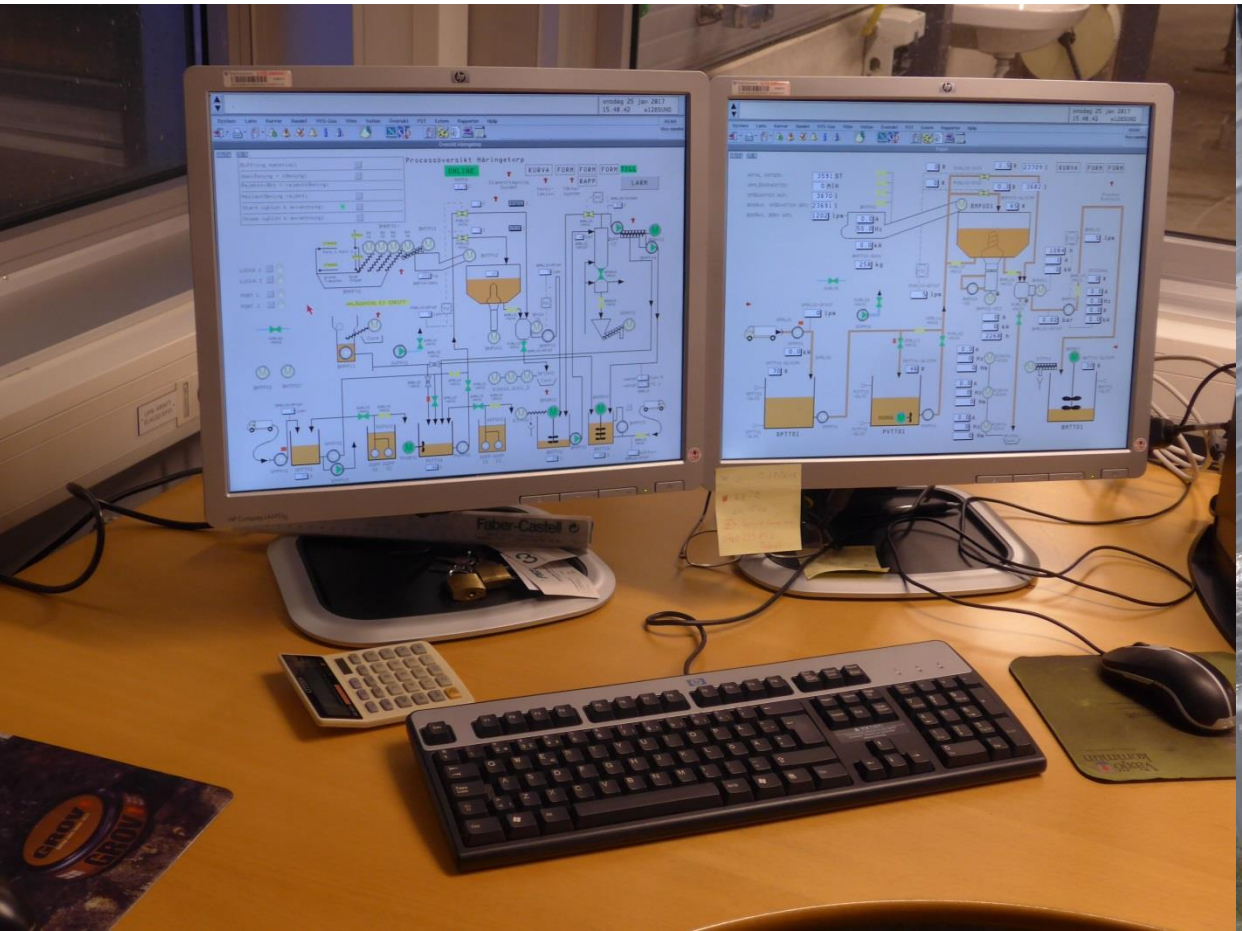
Food waste is collected separately from each household

- It is tipped into a hopper (a few plastic bags are tolerated!)
- It is pulverised and water is added to create a slurry
  - … and it is pumped into a large centrifuge
  - … bones are sieved out and separated

Waste as a resource in Växjö

- The slurry is dewatered and the residue compressed as a biofuel

  … and the water is reused for slurry formation



Waste as a resource in Växjö

- They also have impressive waste collection centres

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Opportunities for Birmingham

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Objectives of the waste strategy

1. We aim to reduce the amount of waste generated per person by 10% by 2020
2. By 2030 we will recycle 70% of all our household and municipal waste
3. Sending waste to landfill is the least desirable option environmentally ... we therefore aim to eliminate waste sent to landfill by 2035.

Innovation and efficiency have an important part to play in ensuring that we improve our services, reduce costs and use the most appropriate technologies, now and in the future, to manage our waste

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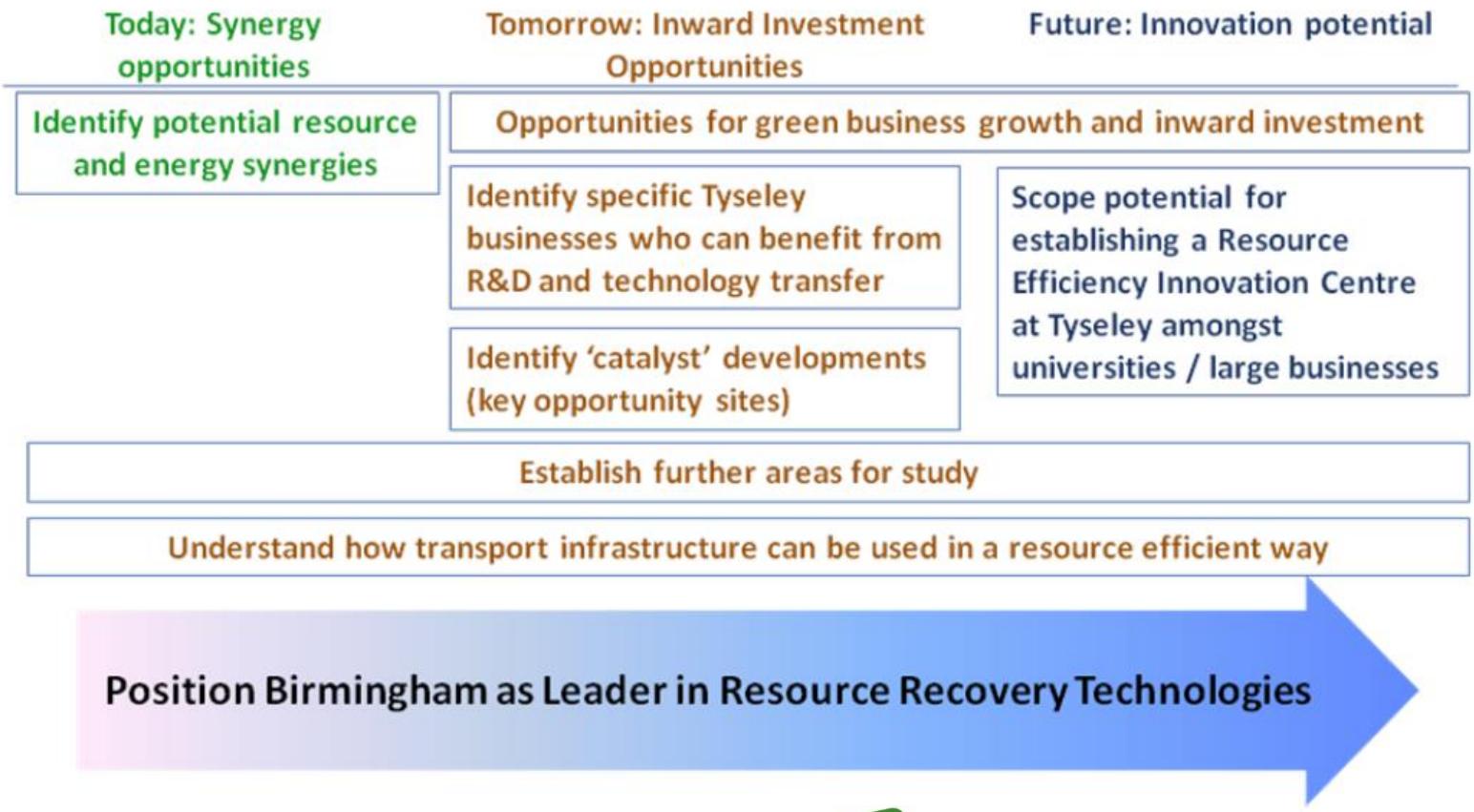
Tyseley Environmental Enterprise Zone



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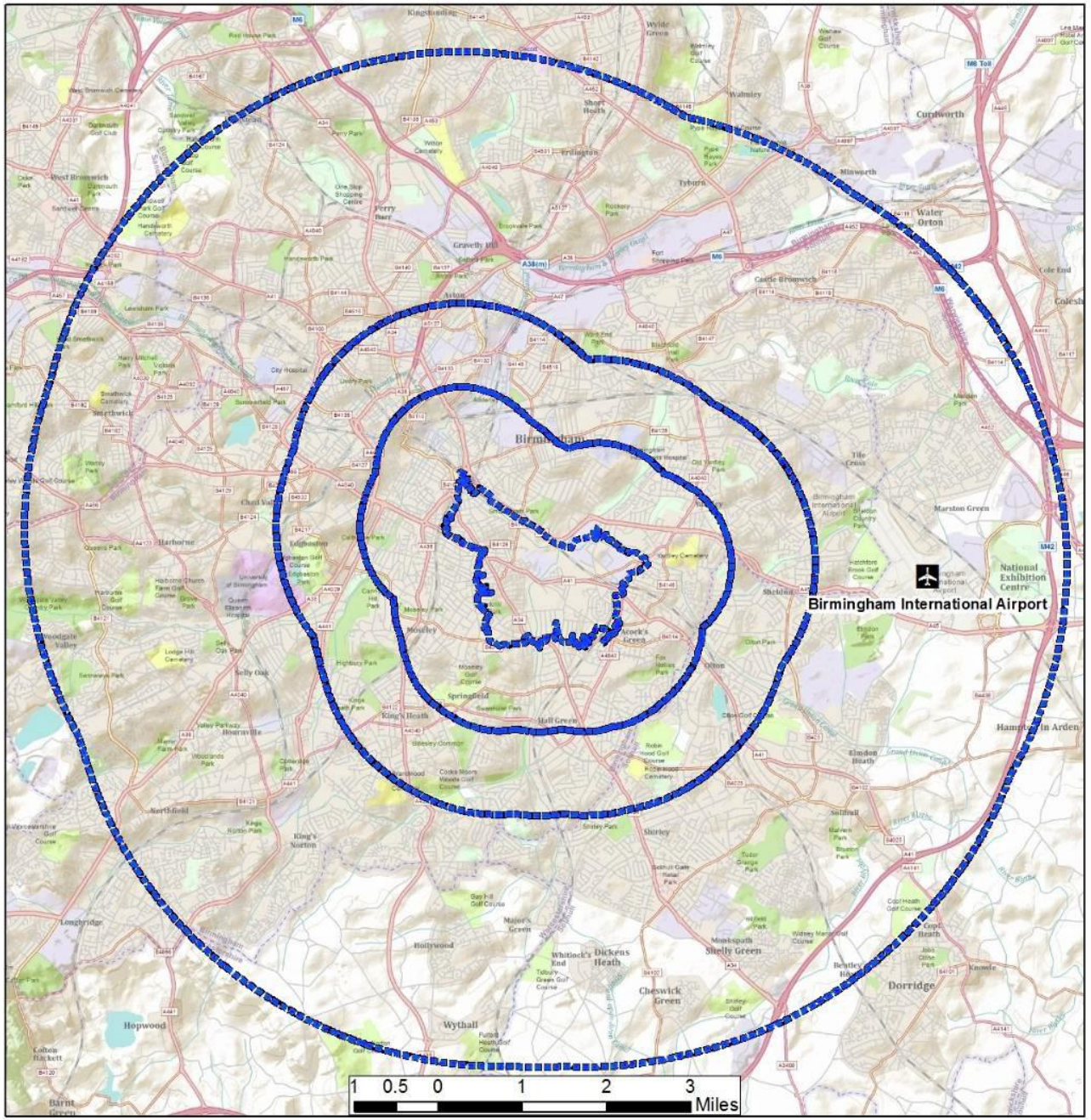
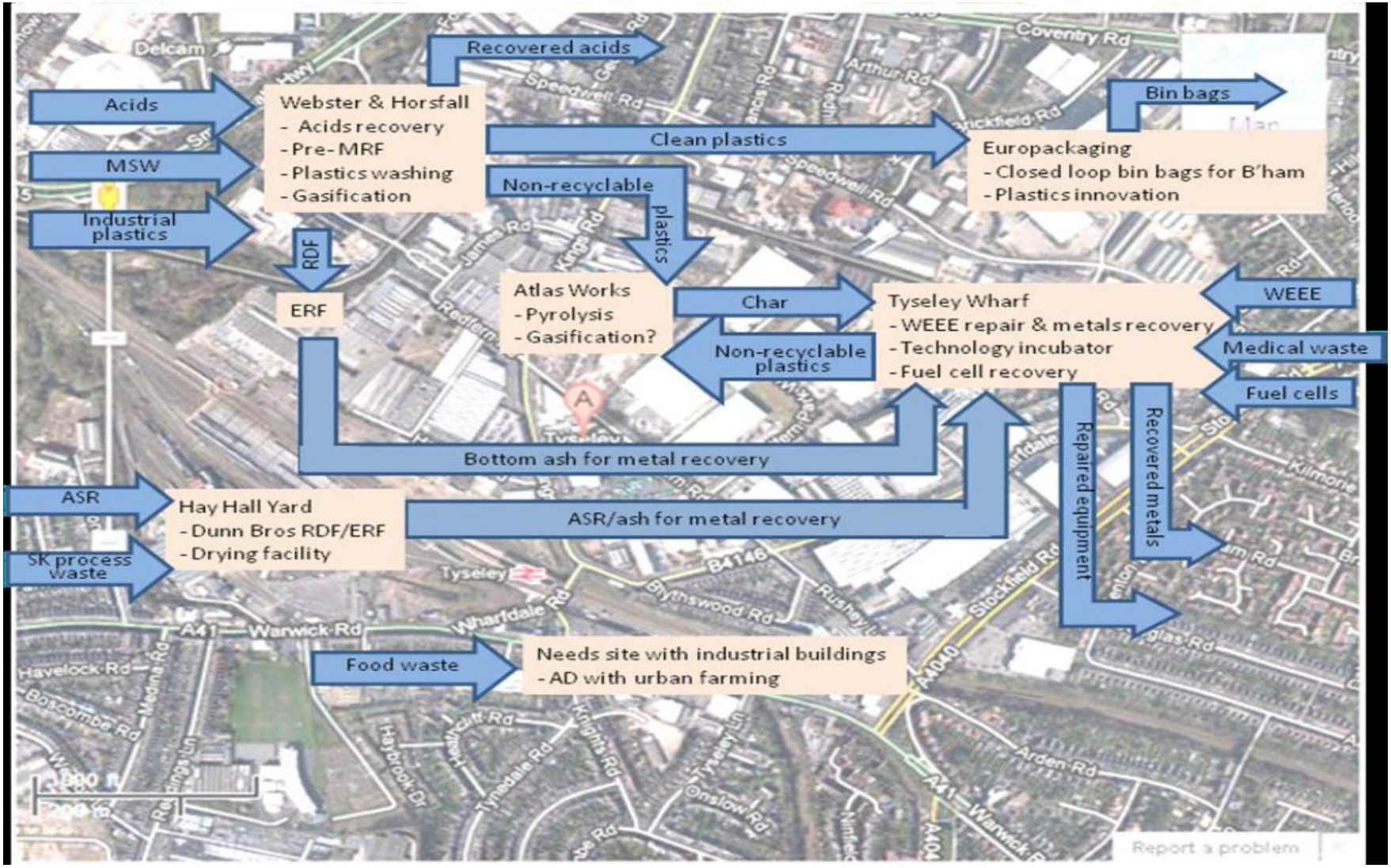

Birmingham International Airport
National Exhibition Centre
1 0.5 0 1 2 3
Miles

Examples now and into the future

Today	Tomorrow	Future Innovation
Precious metals in road sweepings (c. £57,000 in value)	Low grade heat could be used in urban farming	Use of platinum and palladium from road sweepings in fuel cell industry
Silver from medical waste (more than £130,000 in value from amalgam alone)	Plastics washing facility could improve recycling	WEEE reprocessor would enable recovery of plastics as well as precious metals
Small scale CHP opportunities	Non-recyclable plastics → pyrolysis	Innovation to recover clean wood from contaminated wood
Wood recovery for energy	Inward investment targeted to process high value WEEE components	

TEEZ as an innovation centre

- Alternative energy research
- Hydrogen and electric vehicle research
- Precious metals and rare earth element recovery
- Low carbon living


Acids
MSW
Industrial plastics
Webster & Horsfall
- Acids recovery
- Pre- MRF
- Plastics washing
- Gasification
Recovered acids
Clean plastics
Bin bags
Europackaging
- Closed loop bin bags for B'ham
- Plastics innovation
Non-recyclable plastics
RDF
ERF
Atlas Works
- Pyrolysis
- Gasification?
Char
Non-recyclable plastics
Tyseley Wharf
- WEEE repair & metals recovery
- Technology incubator
- Fuel cell recovery
WEEE
Medical waste
Fuel cells
Repaired equipment
Recovered metals
Bottom ash for metal recovery
ASR
SK process waste
Hay Hall Yard
- Dunn Bros RDF/ERF
- Drying facility
ASR/ash for metal recovery
Food waste
Needs site with industrial buildings
- AD with urban farming
Coventry Rd
Speedwell Rd
Stockfield Rd
Tyseley
Wharfdale Rd
Warwick Rd
A41
B4146
Blythswood Rd
A4040
Arden Rd
Report a problem

The potential

There are multiple potential benefits:

- 400-500 direct jobs (and further jobs related to investment)
- 55,000 tonnes per annum of carbon reduction
- Cost savings for existing companies in excess of £1.9m per annum
- Additional revenue for Birmingham-based businesses of £8-10m per annum
- Total GVA impact of circa £12-15m* per annum

… how can these all be captured in a viable business model?

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An opportunity for Birmingham ...

Similarly, can the multiple opportunities be combined in an alternative business model:

- Energy Capital
- Waste strategy
- Municipal energy company
- A move towards decentralised energy
- Clean Air Zone
- Design Guide / Birmingham Development Plan
- WMCA? Devolution?
- Sustainable Energy and Climate Action Plan (Covenant of Mayors / UK100)

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