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# Summary of region's academic expertise and capability

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*Dr Mike Ahearne*

11<sup>th</sup> December 2009

THE UNIVERSITY OF  
WARWICK

HEALTH EDUCATION  
FUNDING COUNCIL  
FOR ENGLAND  
*hefce*

UNIVERSITY OF  
BIRMINGHAM

# Why do this?

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To better understand, exploit and build on region's strengths:

- Enables better promotion of the region e.g. status awards such as Science City, Low Carbon Economic Area
- Attract major or regional-focussed funding e.g RIC/KIC
- Better quality research
- Facilitates collaboration and knowledge transfer, which considering the scale of the energy challenge needs to be:
  - Quicker
  - Higher impact

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# West Midlands Region

## Academic Expertise and Capability

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- ❑ Sector analysis of academic attendees
- ❑ Summary of expertise and interests of academic attendees
- ❑ Examples of significant complementary projects in the region

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Birmingham Science City  
**ideasforlife** 

The logo for Birmingham Science City 'ideasforlife' features the text 'Birmingham Science City' above 'ideasforlife' in a blue and black font, with a stylized atom icon to the right.

# Higher Education Institutes Represented by Attendees

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## West Midlands Universities

- ❑ Aston University
- ❑ Birmingham City University
- ❑ Coventry University
- ❑ Harper Adams University  
College
- ❑ Keele University
- ❑ Staffordshire University
- ❑ University of Birmingham
- ❑ University of Warwick

## Other Universities

- ❑ Loughborough University
- ❑ University of Manchester
- ❑ University of Nottingham
- ❑ University of Oxford

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# Universities Not Represented

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- ❑ University of Worcester
- ❑ University of Wolverhampton
- ❑ Newman University College
- ❑ University College Birmingham
- ❑ Open University

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# Disclaimer!

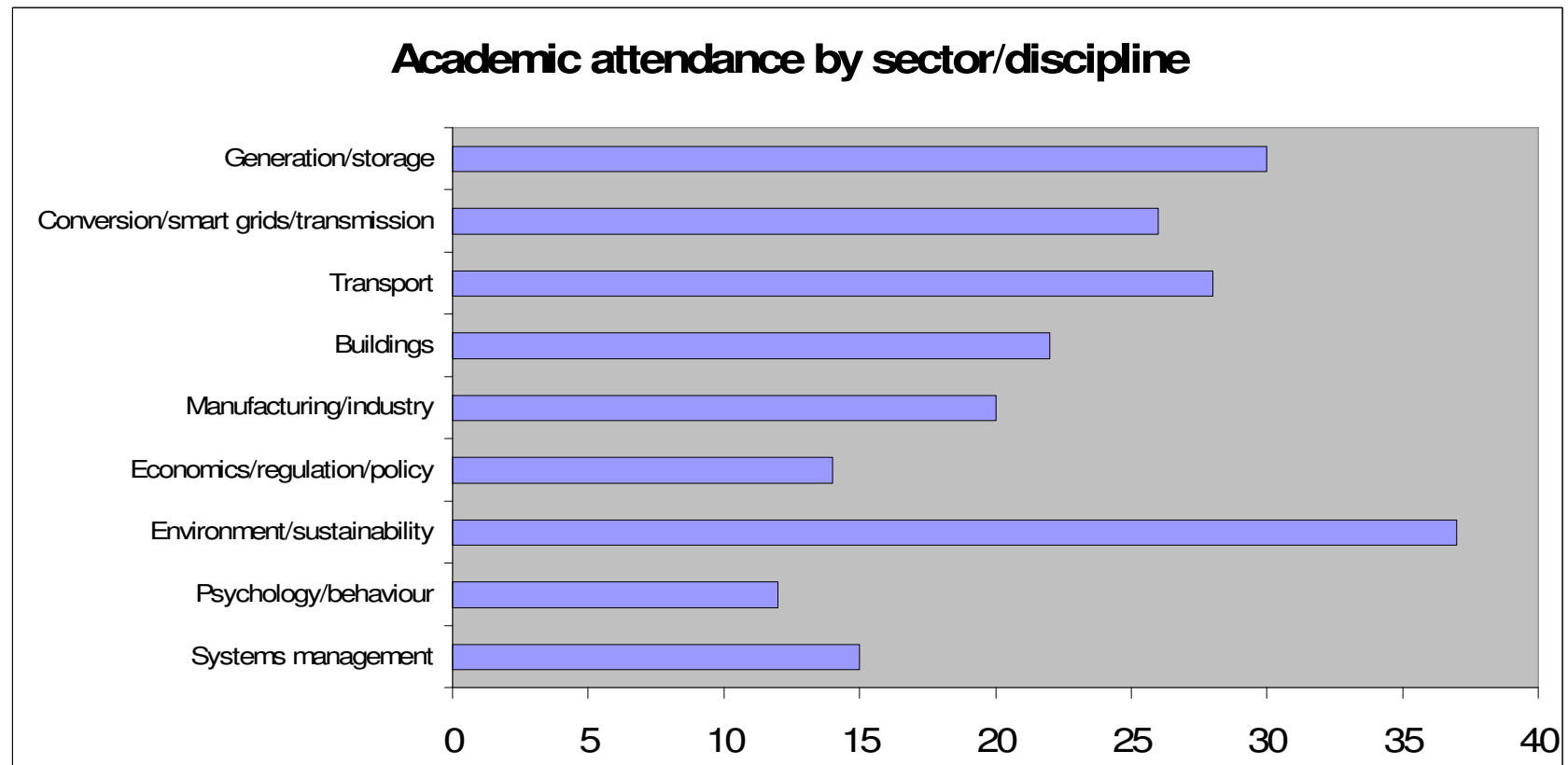
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- ❑ Sector/expertise analysis not complete as many key players/groups not in attendance
- ❑ For many, energy an interest but not core interest
- ❑ Those registering may not have mentioned all relevant activities



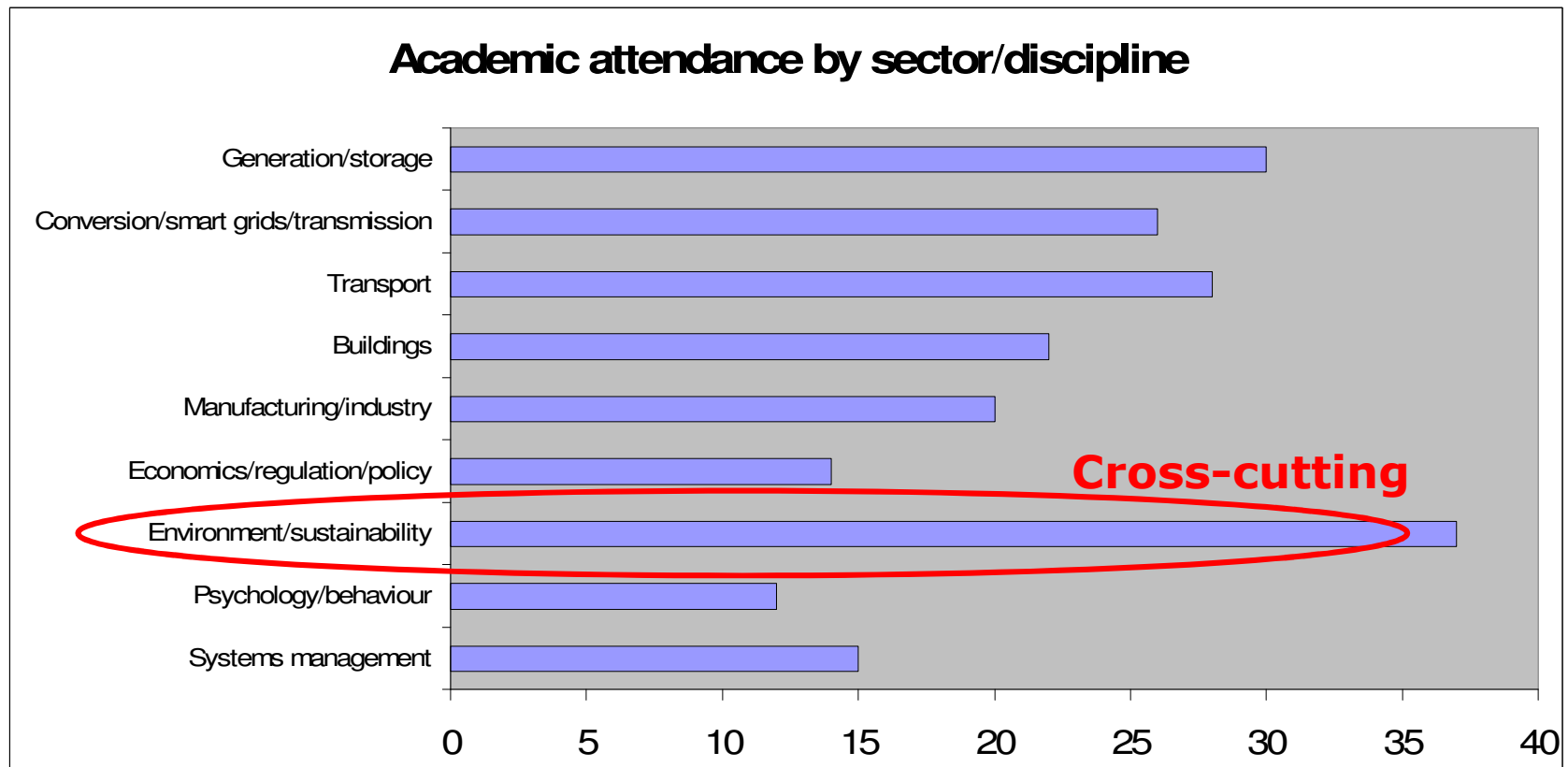
# Sector analysis

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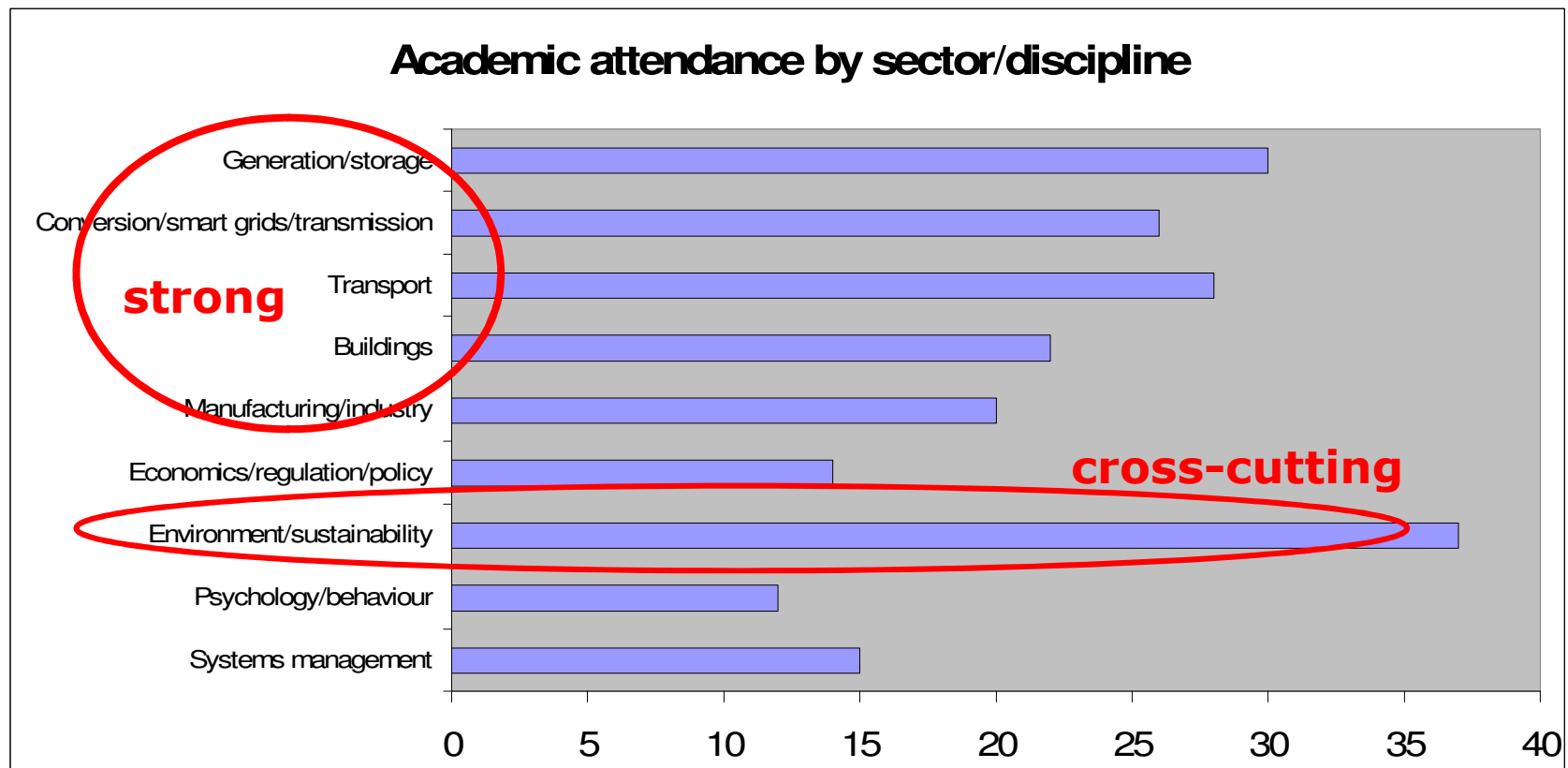
# Sector analysis

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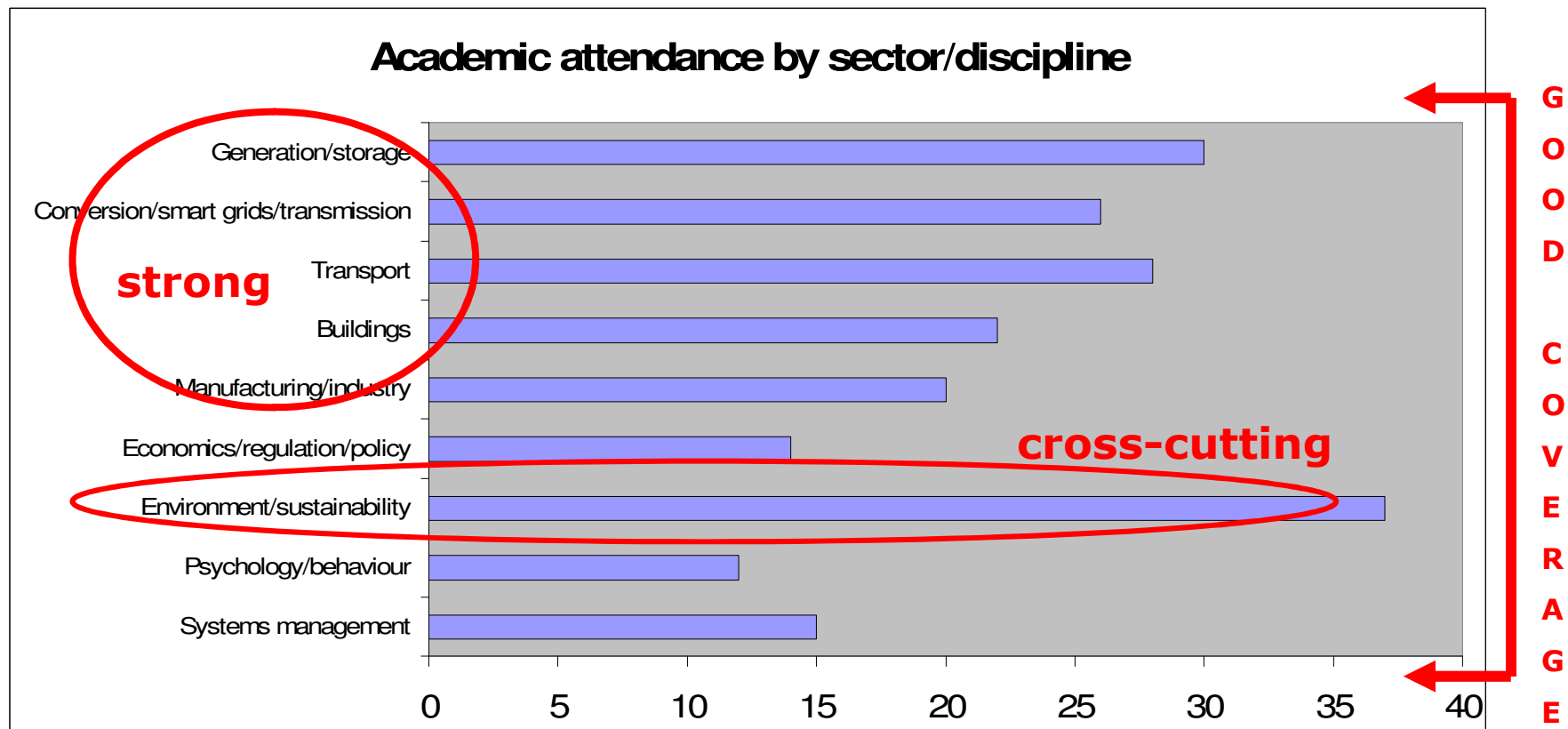




# Sector analysis



# Sector analysis



# Research Programmes in WM Region Highlighted by Attendees

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## □ **Aston University**

- Modelling efficiency of electricity distribution grids in USA and Germany
- Key player in the AWM KIC bid
- EPSRC Science Bridge Bio-energy technology and business solutions for UK and India
- Development and demonstration of advanced power distribution systems
- European Bioenergy Research Institute (EBRI)

## □ **Birmingham City University**

- People, Energy and Buildings, EPSRC
- Biofuels from Algae, EPSRC, Varicon Acqua, Enpure, ORA
- Hybrid Electric Vehicle Project, TSB, University of Oxford, Cranfield and Morgan Cars

# Research Programmes in WM Region Highlighted by Attendees

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## □ Coventry University

- Niche Vehicle Project, electric race vehicle, electric minibus
- High Temperature Heat Treatment Furnace R&D in collaboration with British Gas, Corus Group, British Glass and Eurotherm Controls
- Desiccant Cooling System R&D
- Carbon Neutral Model for New Build and Retrofit Housing. KTP with Orbit Group

## □ Harper Adams University College

- Carbon Footprinting of University Campus
- Carbon Footprinting of the UK Rendering Industry with Paul Foxford Scholarship Funding



# Research Programmes in WM Region Highlighted by Attendees

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## □ Keele University

- Projects in Clean Coal, Wind, Geothermal and Carbon Sequestration
- Various Funding Bodies including, Nexex Oil, HEFCE and Carbon Trust

## □ Staffordshire University

- Development of Biomass CHP in Collaboration with Talbotts Biomass Energy
- R&D on Biomass Tri-generation Utilising Stirling Engine and Absorption Cooling Technologies

# Research Programmes in WM Region Highlighted by Attendees

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- **University of Birmingham**
- Smart Grid Technologies, Funded by Science City and FP7, Industrial Partners Include: ABB, CESI, TERNA
- Hydrogen Energy, Fuel Cell Technology and Microcab Vehicle, Science City, DECC, TSB, EPSRC
- Adsorbents for Carbon Dioxide, EPSRC in Collaboration with Nottingham, Liverpool and UCL
- Supercritical Coal Fired Power Plant, EPSRC in Collaboration with EON, Scottish Power, Merson and Tsinghua University in China
- Multifuel Engine Combustion Systems Testing and Emissions Studies of Alternative Fuels, Science City, EPSRC, DTI,

# Research Programmes in WM Region Highlighted by Attendees

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- ❑ University of Warwick
- ❑ Photovoltaic technology including organic solar cells, EPSRC, BP Solar, Imperial College
- ❑ Bioconversion, Wealth out of Waste, EPSRC
- ❑ Semiconductor Devices, Microelectronics and Power Electronics, DTI, EPSRC, Science City
- ❑ Hybrid and Electric Vehicles, EPSRC, TSB, Science City
- ❑ Heat Pumps and Solar Heating Technology, ATMI, EPSRC, DEFRA, Science City

# Some Significant Complementary Projects in the Region

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- ❑ Renewable Energy Supply Chain Opportunities (RESCO)
- ❑ European Bioenergy Research Institute (EBRI)
- ❑ AWM Knowledge and Innovation Community (KIC) Consortium Bid
- ❑ Birmingham Science City Energy Efficiency & Demand Reduction Project (& Hydrogen)



# Renewable Energy Supply Chain Opportunities (RESCO)

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- £1.4 million project
- Launched in October 2009
- Funded by AWM
- Managed by University of Staffordshire
- In Partnership with:
  - University of Warwick
  - Harper Adams University College
- Aims to help businesses access commercial opportunities in the supply chain of the renewable energy marketplace
- Provides a range of support activities with innovation as a core element



# RESCO Focus Areas

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- ❑ Power Generation and Transmission
- ❑ Wind and Marine Power Generation
- ❑ Bio-Energy Opportunities
- ❑ Small Scale Renewable Energy
- ❑ Hydrogen Fuel Cell Supply Chain

# RESCO

## How Will Businesses Benefit?

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- Focus Special Interest Groups
  - Workshops and seminars
  - Opportunity mapping
  - Tendering and regional collaborations
  - Technical development support
  - Funding opportunities
- Overseas Trade Missions
  - Supported trade visits and introductions (with UKTI)
- Academic support
- Information and news feeds

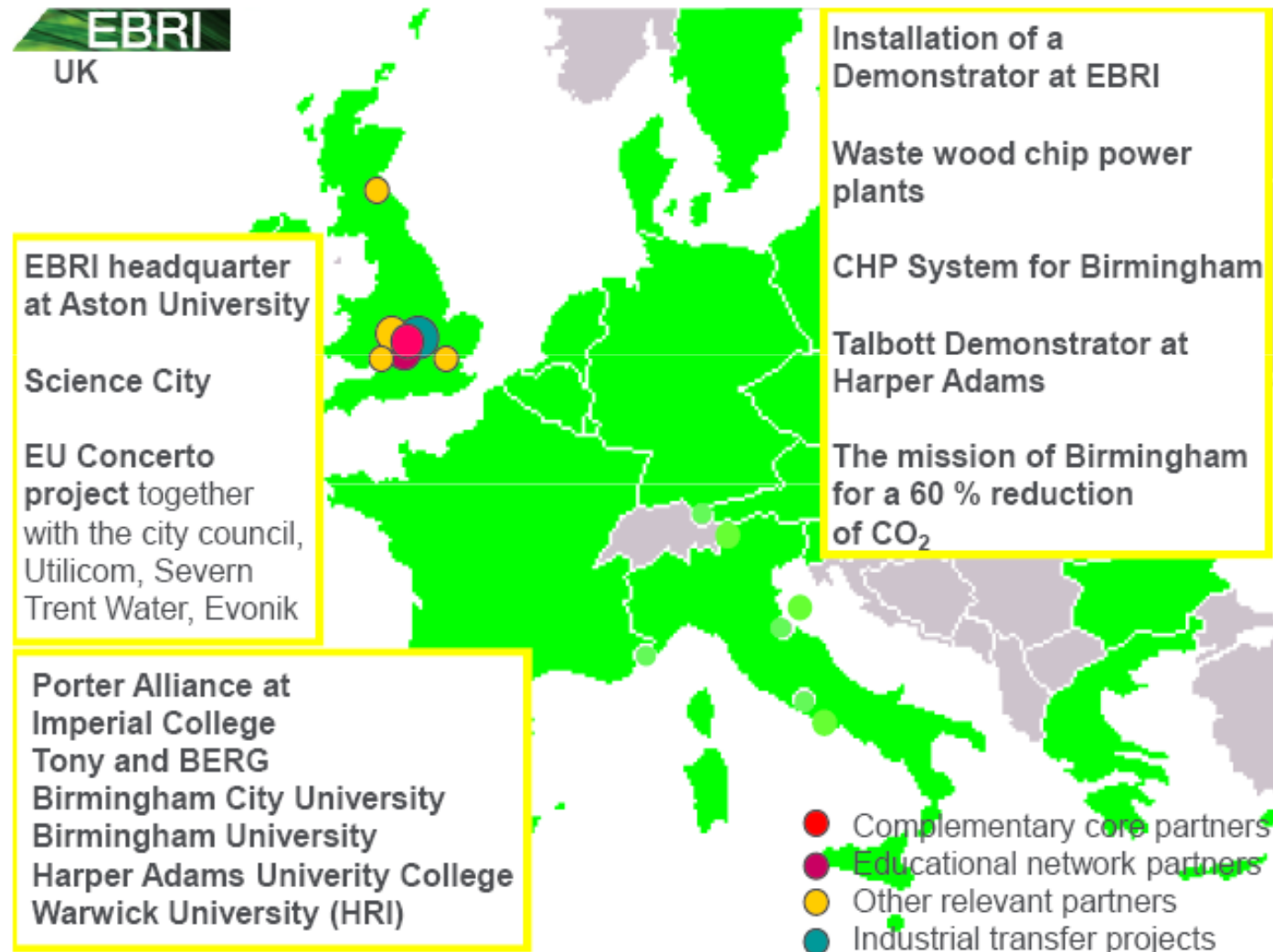
# Aston University - European Bioenergy Research Institute (EBRI)

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- ❑ Launched at Aston University at a Conference on in June 2008
- ❑ Establishes a network of potential partners covering all aspects of bioenergy
- ❑ Relationships can be short or long term depending on specific projects
- ❑ Network is open to all willing to participate in funded research or seeking cooperation

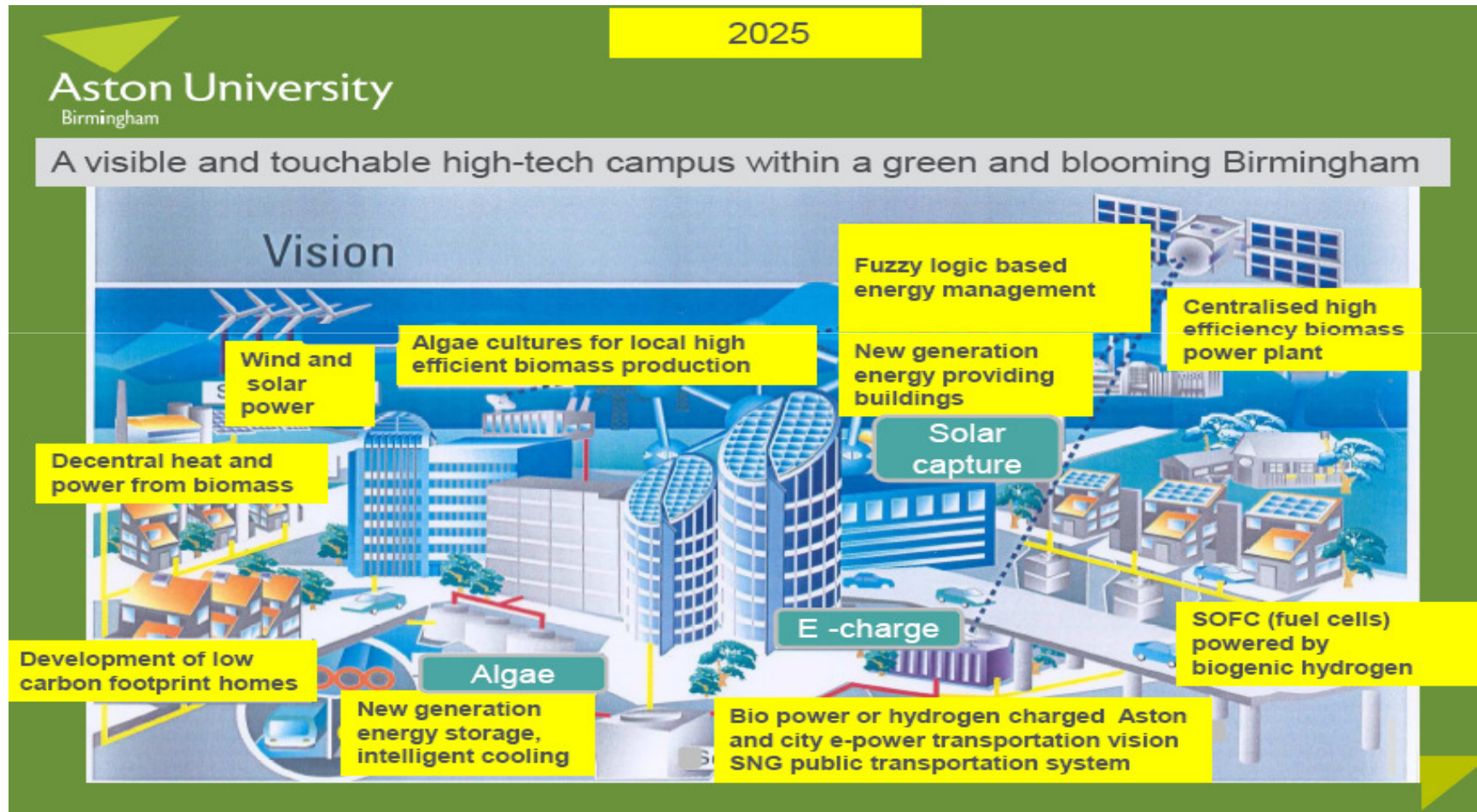


# EBRI Potential for UK Collaboration

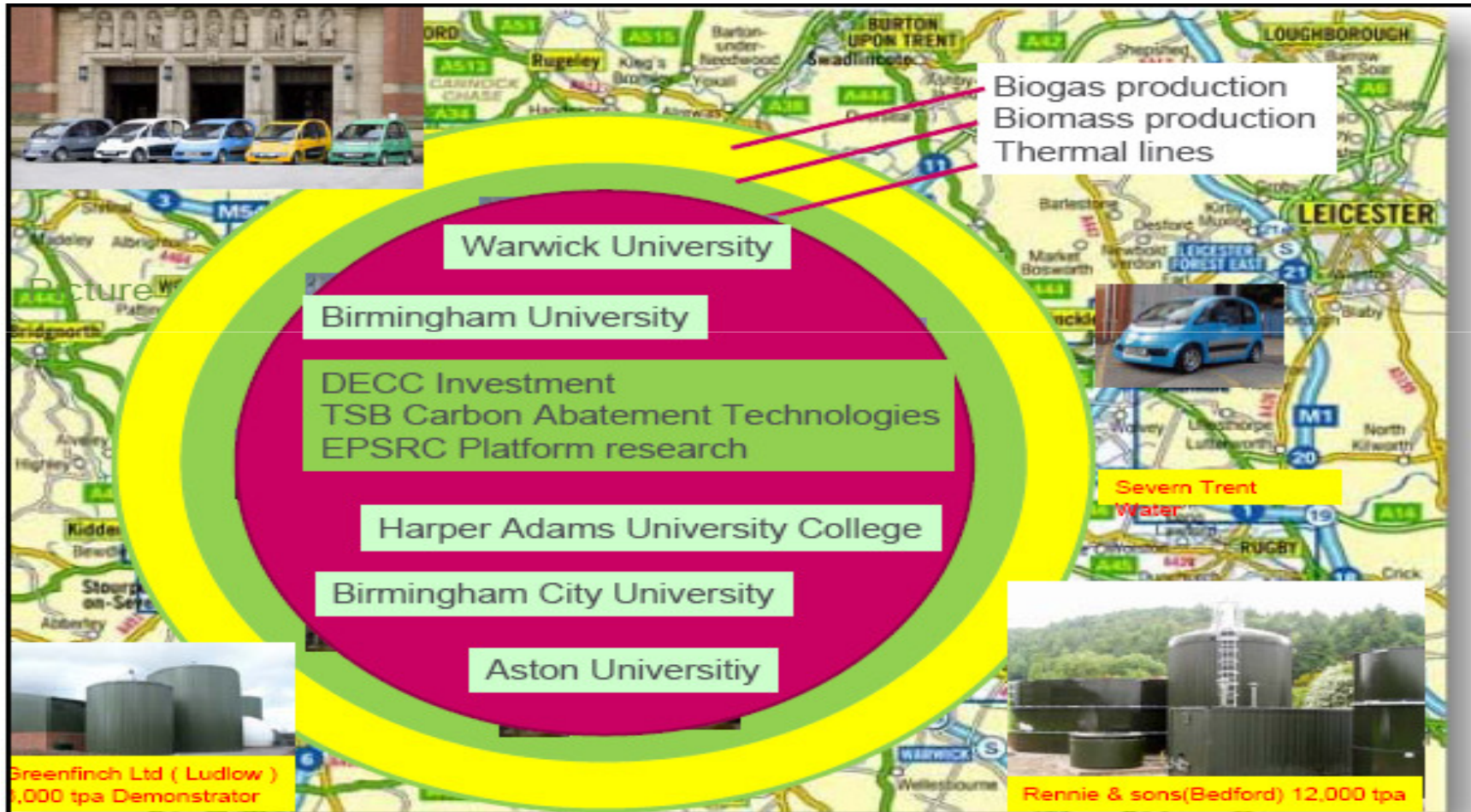


# EBRI - Vision for Birmingham (courtesy of

Prof Andreas Hornung, Aston University)



# EBRI Vision for Region (courtesy of Prof Andreas Hornung, Aston University)



# EIT Climate-KIC

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# European Institute of Innovation and Technology (EIT) and Knowledge and Innovation Communities (KICs)

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## EIT

- A new independent body set up to address Europe's innovation gap
- Mission – “to be the catalyst for a step change in the European Community's innovation capacity and impact”
- How? – first action is to develop:  
**“Knowledge and Innovation Communities (KICs)”**

## KIC

- Bringing together the key players in the innovation web
  - businesses, entrepreneurs, research and technology organisations, education, local, regional and national governments
- Creating new businesses from existing/new industries
- Educate and develop entrepreneurial people
- Societal impact – job creation

# Climate KIC Bid Submitted

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## Partnership:

- ❑ Regional Innovation Implementation Community (RIC)
  - 6 European regions – **West Midlands**, Central Hungary, Emilia Romagna, Hessen, Lower Silesia, Valencia.
- ❑ 5 academic partners - **Imperial College**, ParisTech, Potsdam Institute, Delft/Utrecht and ETH Zurich
- ❑ A number of big corporate partners – Schell, CISCO, Bayer, Thales, EDF, DSM, SAP

# 4 Research and Innovation Programmes Plus Pioneers into Practice

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1. Climate science
2. Low carbon cities
3. Zero Carbon Production Systems
4. Integrated water management

## **Pioneers into Practice Programme**

- 3 x 1 month placements and intensive workshops for selected individuals from RIC Regions
- By 2013 €4.9 million per year
- Annual Innovation Festival – awards; workshops; high profile speakers; exhibitions
  - To be held in RIC regions: 2011 Central Hungary; 2012 – Bologna; 2013 Wroclaw

# The Benefits for West Midlands

Business, Academia, People, Jobs, Quality of life

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- ❑ In Champions League on the great issue of the age
- ❑ Gives us connections and contacts in leading academic and corporate circles
- ❑ Profile for the region
- ❑ Additional resources and potential to access more through other programs
  
- ❑ Interviews of representatives of the final two successful consortium bids will be held in Budapest on 16<sup>th</sup> December 2009

# Science City Providing Regional Expertise for Energy Efficiency and Demand Reduction

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- ❑ The universities of the region offer a wide range of expertise and facilities
- ❑ Science City's world class facilities and academic expertise are available for the benefit of the wider business and academic community
- ❑ The Science City Research Alliance welcomes opportunities to form new partnerships and collaborative projects with other universities, research organisations and with businesses

# Contacts

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