



# UK ENERGY RESEARCH CENTRE ACTION

UK Advanced Power Generation  
Technology Forum  
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# UKERC: THE CONTEXT

- Funded by the research councils
- Sits within the Towards a Sustainable Energy Economy (TSEC Programme)
- Sits alongside:
  - SUPERGEN Initiative (Sustainable Power Generation and Supply), EPSRC
  - Carbon Vision Partnership (Carbon Trust/research councils)
  - Tyndall Centre



# WHERE IS UKERC?

- A distributed Centre but...
- HQ based at Imperial College
- The “Meeting Place” (aka “research hotel” or networking hub) at Oxford



# TIMELINE

- April 2004: Research Director appointed
- June 2004: Research Programme proposal accepted; Letter of intent issued
- October 2004: formal award issued; activities commence;
- November 2004: Executive Director appointed
- by March 2005: ramp up activities
- First phase to March 2009, but review in 2006



# CENTRE STRUCTURE

- Research and Co-ordination Programme
  - thematically organised
  - themes intended to be “obvious” to research community and stakeholders
  - Co-Directors responsible for research and co-ordination of National Energy Research Network
- Supporting Activities
  - Connecting UK researchers to global community and to stakeholders
  - Central to realising vision for the Centre



# TOWARDS A SUSTAINABLE ENERGY ECONOMY

- Managing Uncertainties
- Keeping the Nuclear Option Open
- Renewables
- Carbon Management (moving towards carbon capture & storage)



# SUPERGEN CONSORTIA

- Established:
  - Networks
  - Biomass and biofuels
  - Marine
  - Hydrogen technology
  - PV
  - Lifetime extension
- In development:
  - Fuel cell technologies
  - Energy storage and recovery
  - Distributed power systems
  - Next generation PV
  - Wind
  - Network infrastructure
  - Biofuel cells



# CARBON VISION

- energy use in buildings
- industrial energy efficiency





# UKERC RESEARCH THEMES

- “Vertical” themes
  - Demand Reduction
  - Future Sources of Energy
  - Infrastructure and Supply
- “Cross-cutting” themes
  - Energy Systems and Modelling
  - Environmental Sustainability
  - Materials for advanced energy systems



# SUPPORTING ACTIVITIES

- Research Portal\*
- Research Roadmaps\*
- “The Meeting Place” (aka “research hotel”)
- Technology and Policy Assessment
- Communications
- Knowledge Transfer\*
- Training Programme



# RESEARCH PORTAL

- linked to the main website
- Energy R&D project database
  - searchable by institution, investigator, sector name, and keyword,
  - links to project websites and PDFs of final reports.
- Energy Data Centre
  - will form the first point of contact for access energy data and metadata
  - supply/demand data, scenarios, forecasts, meteorological/hydrological and oceanographic data



# RESEARCH ROADMAPS

- identifying the sequence of research problems to be overcome before new technologies can be commercially viable.
- work with the research community and stakeholders to identify existing maps, fill in gaps and bring these together into a single “atlas”
- consensus-based, interdisciplinary and dynamic



# KNOWLEDGE TRANSFER

- partnerships - regional/country KT organisations:  
e.g. ITI-Energy; NaREC; Joule Centre; Welsh Energy Research Centre
- business advice to the Centre
  - Main advisory board
  - Specific business advisory group?
- business participation in road-mapping activity
- moving towards joint public/private research support?



# UKERC: THE CHALLENGES

- fighting research fragmentation
- gaining credibility with government, business
- providing authoritative advice to funding agencies
- establishing the UK as a key player in global energy research
- increasing the priority attached to energy research



# UKERC AND ADVANCED POWER GENERATION

- improving power generation efficiency: research under the “materials theme”
- networking carbon capture and storage research with TSEC consortia
- collaborating in the development of roadmaps for future research activity
- influencing future funding priorities
- engaging power generation community through advisory functions etc.