



Accelerating deployment of responses to the challenge of Climate Change

Background to ETI

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Energy Technologies Institute (ETI)

- *Ambition*

● Vision

- *Secure, sustainable and affordable energy for present and future generations*

● Mission

- *Accelerating development, demonstration and eventual commercial deployment of a focused portfolio of energy technologies and services, which will increase energy efficiency, reduce greenhouse gas emissions and help achieve energy and climate change goals*

Energy Technologies Institute (ETI)

- overview

- Operational as a Limited Liability Partnership from 12th December 2007
- 7 core members
 - *BP, Caterpillar, EDF Energy, E.ON UK, Rolls-Royce, Shell, UK Government (DIUS and DfT)*
 - *Opportunity for a further 5 private sector members*
- £50m investment by each member secures access to £1.1bn R+D programme over 10 years
 - *Strategy and projects determined by partners against agreed target outcomes*
- ETI invests in technology and service development projects in areas that address Climate Change, Energy Security and Energy Poverty
 - *Focused portfolio of large scale projects – each typically £5m - £25m*
 - *Each project aims to accelerate development, demonstration and then commercial deployment of low carbon technologies and services*
 - *‘Supply-side’ and ‘Demand-side’ will be addressed*
 - *Projects delivered through multi-partner consortia – national and international*
 - *Outputs to be made available as widely as possible following delivery in line with partner needs and agreed ETI outcomes*

Core members



Department for
Transport

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Outcome Focused

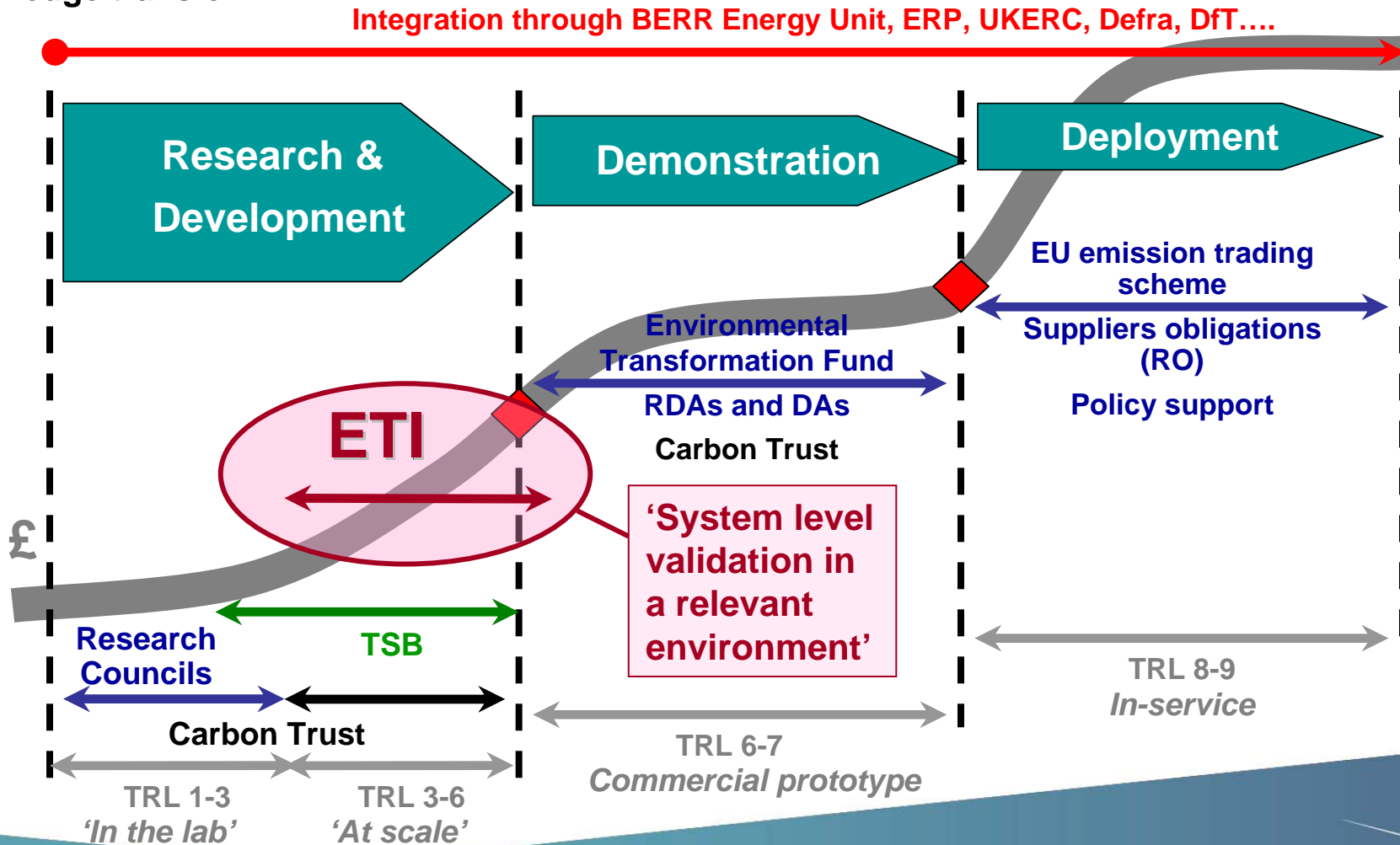
- *ETI's programmes over the next 10 years will support*

- Reducing greenhouse gas emissions
 - *UK targets - 15% renewable energy by 2020 and 60% CO₂ reduction by 2050*
 - *'Supply-side' generation and 'demand-side' efficiency and operational improvements*
- Accelerating development and deployment of affordable low carbon technology and service solutions
- Increasing security of energy supply in conjunction with greenhouse gas mitigation
- Increasing the level and capacity of the low carbon skills pool
 - *In the UK and internationally*

ETI is central in UK Energy Innovation Chain

Technology push & knowledge transfer...

... market pull & public policy



A typical ETI project will

- Provide :

- *Demonstration of system level capabilities – technologies and / or services*
- *Demonstration of supply chain capacity and capability*
- *Demonstrable de-risking of the system and supply-chain to potential investors or operators at commercial scale*
- *Opportunities to identify critical areas requiring ‘next generation’ science and technology support through university based activity*

A typical ETI project might be

● Marine

- Design, manufacture, test and decommissioning of a 500KW (full-scale) tidal current turbine at the EMEC test site off Orkney, Scotland
- Goals – demonstrate reduced cost generation, improved system reliability and maintainability
- Cost / Time - £12m over 2 years
- Delivery risk – Medium
- Partners – 2 ETI members, EMEC, 3 UK SMEs



Hammerfest strom / Rolls-Royce



Science Friday

Making ETI work – Values

- Collaboration
 - *Creation of a community with common purpose and mutual trust*
- Ambition
 - *Setting new benchmarks in energy science and technology*
- Innovation
 - *Discovering and demonstrating new and more efficient technologies, processes, operations and services*
- Focus
 - *Concentrating on delivering those solutions – at full system level - that will make a real difference*
- Accountability
 - *Delivering on our commitments to all our stakeholders*

Making ETI work – project consortia benefits

- Scale of funding
 - *typical projects expected to be £5-25m*
- Potential for ETI to fund 100% of project costs
- Access to capabilities of ETI Members
 - *Skills, Technology, Services, Market access*



e-on | UK



Rolls-Royce



CATERPILLAR[®]



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Transport

Making ETI work – some potential programme areas

- Wind (primarily offshore)
- Marine
- Distributed energy
- Energy Networks – grids and management
- Efficiency in Domestic and Commercial Buildings
- Transport (inc non-hydrocarbon fuels and small-scale energy conversion systems)
- Carbon capture, handling and sequestration (CCS)
- Waste Heat Recovery and Conversion
- Storage Technologies - Small scale & Large scale
- PV Solar
- Industrial Processes (Process effectiveness and Demand Reduction)
- Large Scale Energy Conversion (inc efficiency improvement on fossil fuel systems)
- Bioenergy - Liquid Fuels, Bioenergy - Heat and Electricity
- Fuel Cells
- Advanced Conversion technologies
- And

Making ETI work - First Technology Programmes

- Invitation to participate in developing projects issued on 17 December
 - *Marine – wave and tidal*
 - *Offshore Wind, jointly with the Carbon Trust*
- 100+ Expressions of Interests received for each programme; Project Building workshops held to refine proposals
- 4 Marine and 6 Offshore Wind proposals selected for development; workshops held in April to enable further selection and progress to contract.
- Distributed Energy (DE) programme launched in April; Stakeholder workshop in May to recommend focus and contribute to project selection.



Role of Materials

- Materials have underpinned many of the advances made in the energy sector from generation through to conservation.
- They will continue to do so as the emerging energy technologies evolve
- ETI sees materials as one of a number of key generic technologies which will help the ETI achieve its objectives as we move forward

- Accelerating the pace of energy R+D
- Catalysing deployment of low carbon solutions



Creating

- *Collaboration*
- *Focus through effective decision making*
- *Effective pull-through from the technology base*
- *Growth in engineering and technology skills and capacity across industry and academia*
- *An increased “appetite” for risk at all levels*