

Electrolysis Roadmap Summary:

REFERENCE	UK Hydrogen (Electrolysis)
Title:	Low-Cost Polymer Electrolysers And Electrolyser Implementation Scenarios For Carbon Abatement
Date:	2004
Author:	Smith, A.F.G. and Newborough, M. of Heriot-Watt University
Funded by:	The Carbon Trust And ITM-Power Plc
Hard copy reference:	
URL:	http://www.h2fc.com/Newsletter/Companies/PRs/ITM%20carbon%20trust%20sept%2005.pdf
Date accessed:	July 2006
Web Format:	pdf
Topics covered	<ol style="list-style-type: none"> 1. Electrolyser Technology And Industry 2. Polymer Electrolysers And The Itm-Power Approach 3. Electrolyser Implementations For Carbon Abatement 4. The Model And Cost/Performance Assumptions 5. Transport, Industry And Other Applications 6 Electrolyser Implementation Scenarios For Carbon Abatement
Geographical focus:	UK
Brief Abstract:	This report (for Carbon Trust contract 2002-6-139-1-6) is structured in seven chapters to provide assessments of: electrolyser technology; the opportunities for enhancing electrolyser performance and reducing unit-costs; the potential for low-cost polymer electrolysers produced via the novel approach developed recently by ITM Power PLC for PEM fuel cells; and prospective electrolyser implementation scenarios for facilitating decarbonisation of the UK energy system.

OUTPUTS	
Short Report?	N
Major report?	Y
Visualisations?	Y
Information held on dedicated software?	N
- which package?	

ARCHITECTURE	
Timescales used:	
Trends and drivers?	Cost reduction for PEM and Alkaline electrolysers
- list	
Enablers?	
- list	
Performance measures/targets?	Y
- list areas	Acceptable costs Durability/performance Hydrogen infrastructure
Mapping of RD&D activities?	Y
Critical assessment of	Y

capabilities?	
---------------	--

PROCESS	
Methods used:	
- Desk study?	Manufacturers of water electrolysers were identified from the literature and product information requested
- Consultation	
- Interviews?	Face to face interviews where feasible: Teledyne Energy Systems, Proton Energy Systems, Infinity Fuel and Stuart Energy Systems
- Facilitated workshop(s)	None
- Working groups/task force	None
- Integrated Process	N
Stakeholders engaged:	
- University based researchers	
- Other public sector researchers	
- Business – technology	ITM Power PLC
- Business – other	
- Government – energy	Carbon trust
- Government – SET	
- Government – other	
- NGOs	
No of people engaged:	ITM Power, Stuart Energy, Proton Energy Systems, Infinity Fuel and Teledyne Energy Systems, Cranfield University
Budget (if known):	Unknown
Commitment to re-visit?	N

ACTIONS IDENTIFIED	
List of actions?	N
Actions listed according to timescale?	
Actions prioritised?	
Sequencing/dependencies identified?	
Responsibility for actions identified?	
Types of actions identified:	
- Basic research?	
- list areas	
- Applied research?	
- list areas	
- Development & demonstration	
- list areas?	
- Other types of action?	
- list other types	<ul style="list-style-type: none"> • Questions requiring further research in relation ITM's materials • Questions regarding optimisation of PEM electrolysers