



European Union Teach-In

Fuel Cells & Finance

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Policy versus Regulation

- Governments provide both the
 - Policy Framework &
 - Legal & Regulatory Framework
 - Which may hinder an emerging technology
 - UK New Trading Arrangements are a case in point
 - Financial markets take account of the legal & regulatory framework within which policy is executed
 - The Europeans could build on CO2 and renewables policy by extending their vision to fuel cells
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The Wider Financial Community is Alert to:

- *Rise in environmental legislation shifting the price structure in favour of clean technologies*
 - Global warming: Kyoto Protocol
 - Regulated emissions: California ARB's ZEV mandate
 - And is waiting to see what Lombardy rules
 - *Rising Energy security Concerns*
 - US imports 50%+ of oil requirement
 - Europe imports 50% of total energy requirement
 - By 2020 Europe will import 70% of energy requirement
 - But sees no integration of fuel cells with intermittent energy sources
 - *The potential market size of renewable technologies*
 - Given global demand for electricity
 - Fuel cells' vast applications potential and versatility
 - Their ability to enhance wind and solar plant
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And is Aware of:

Governments' annual fuel cell R&D spend:		Per Capita
- Japan	\$220 million	\$1.75
- US	\$210 million	\$0.78
- European	<u>\$ 60 million</u>	\$0.16
- Total	\$490 million	

Industries embracing fuel cells:

- Major auto manufacturers have fuel cell engine programmes
- Oil majors devoting resources to hydrogen infrastructure
- Utilities pursuing fuel cell demonstration programmes

Existence of a Quoted Sector in North America

- A \$4bn pure fuel cell quoted sector exists in North America
- North American fuel cell companies have raised >\$1.5bn via both primary & secondary offerings
- US fuel cell start-up companies have exposure to US venture capital community

Absence of a European quoted sector

- Forces European fund managers to invest overseas
 - Severely limits European start-up companies' access to private capital
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Conclusions I

- Investors react to the legal & regulatory framework policy operates within, NOT the policy in isolation
 - No sign Europe specifically promoting fuel cells
 - No sign Europe will build on significant advantage gained in renewables by integrating fuel cells
 - No sign of Europeans support and demonstration projects¹ comparable with either US or Japan

- The financial community recognises:
 - The financial & fiscal support for fuel cells available in the US at both the federal and state levels
 - The power of California's ZERO EMISSIONS Mandate
 - The extent of US fuel cell demonstration programmes with some 7MW of plant on order

¹ See: Survey for the Fuel Cell Industry Summit for Europe: October 2001



Conclusions II

- Money knows no borders and flows to the best return
 - Significant amounts have already been invested in North American fuel cell industry, which has raised more than \$1.5bn on the US stock market
 - The financial markets will ultimately provide the massive investments required by the fuel cell industry
 - On present trends the US will build on its fiscal, regulatory and financial market advantage and suck ever greater quantities of capital out of Europe
 - Manufacturing capacity and human capital (jobs) will follow financial capital
 - If Europe made a policy commitment backed by regulatory support and significant field trials, investors would back the technology in Europe
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