



Highlights of the IA on Advanced Fuel Cells

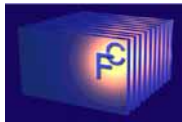
IEA Advanced Fuel Cells IA

Lars Sjunnesson

1st April 2004

Vienna 1 April 2004

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Aims, scope & participation

- Aims to advance knowledge in the field of advanced fuel cells.
- Task shared R&D + info exchange.
- Covers PEFC, SOFC & MCFC fuel cell technologies + applications.
- 16 participating countries

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Participating countries

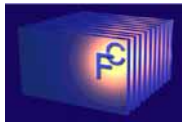
Countries involved

Australia
Austria
Belgium
Canada
Finland
France
Germany
Italy

Japan
Korea
the Netherlands
Norway
Sweden
Switzerland
United Kingdom
United States

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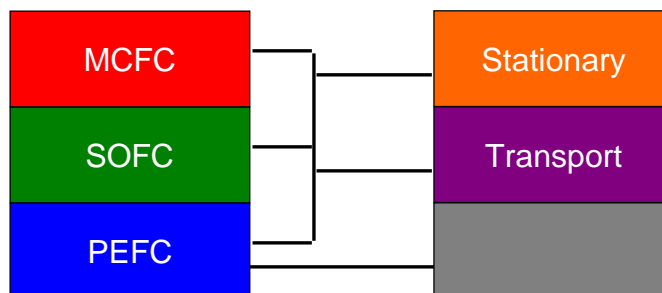
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Annexes 1999-2003

Technology annexes

Application annexes



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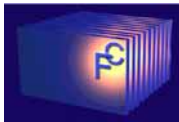


Technical Achievements 1999-2003

- Technology annexes:
 - Materials & process development
 - Stack development & testing
 - System modelling
- Applications annexes:
 - Learning from demonstration projects
 - Market studies
 - Well to wheel studies

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Benefits 1999-2003

Open discussion of
technical issues

"The IEA programme encourages open discussion of technical issues which may not happen at other conferences."

Information exchange

"The only official forum for fuel cell cooperation between EU and USA (and Japan etc). This makes the IEA programme very important for information exchange."

National programmes

*"..better definition of a national programme.."
"..helped national authorities and industry to direct their work"*

Further collaboration

"Collaboration in the IEA programme has led directly to a proposed EC project on MCFC involving Korean, Italian and German participants"

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Proposed programme 2004-2008

- Continuation of programme with a similar content and structure.
- At least one new annex.
- Additional cross-annex activities.
- Greater co-ordination with other IAs.
- All current participants will continue, and Mexico and Denmark hope to join.

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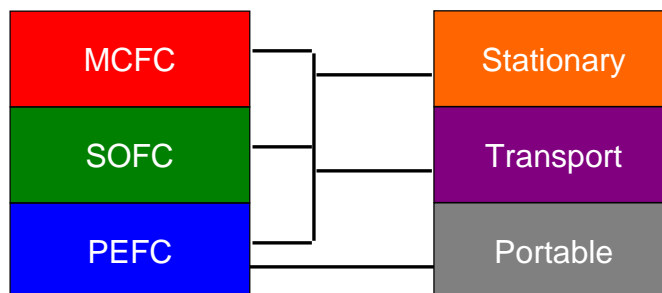
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Annexes 2004-2008

Technology annexes

Application annexes



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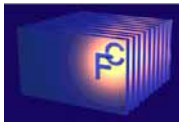


Highlights of activities

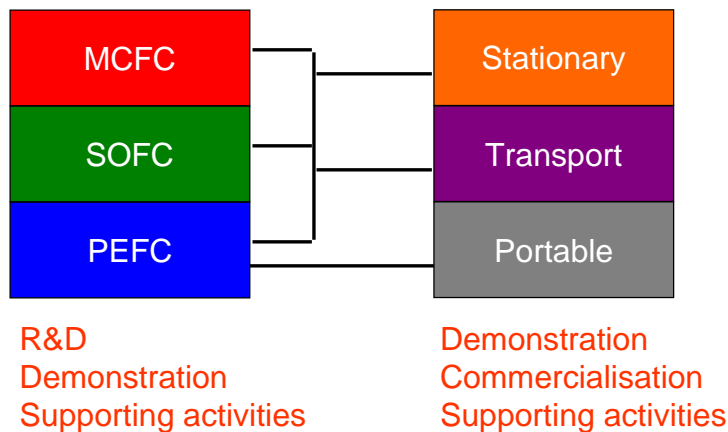
- **R&D** on FC stack and system technology to improve performance and reduce costs.
- **Demonstration** of integrated FC systems, including hydrogen fuelling infrastructure.
- **Commercialisation** of FCs in niche applications.
- **Supporting activities** such as education of technicians and the agreement of common codes and standards.

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IEA AFC programme 2004-2008

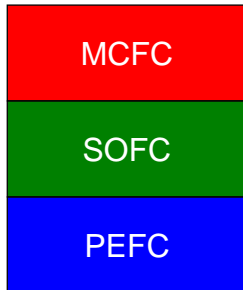


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Technology Annexes 2004-2008



R&D activities

- Materials development
- Component development
- Stack & reformer testing

Demonstration activities

- Exchange of experience

Supporting activities

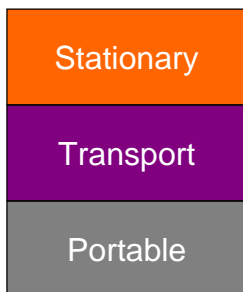
- Raising industry awareness

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IEA AFC programme 2004-2008



Demonstration activities

- Exchange of demonstration experience
- System studies

Commercialisation activities

- Market studies
- Well-to-wheel studies

Supporting activities

- Support to codes & standards authorities

+ ad-hoc workshops on materials modelling, fuels for fuel cells and materials costs and availability.

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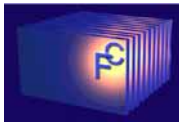


Other proposed activities

- Cross-annex workshops:
 - Codes and standards
 - Basic research
 - Fuels for fuel cells
 - Cost & availability of materials
- Co-ordination with other IAs:
 - H2, H&EV, CCC, Bioenergy

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Summary

- **R&D:** AFC IA work programme 2004-2008 covers most technical R&D needs for FC.
- **Demonstration:** Priority is to demonstrate integrated systems in all applications. Needs further co-ordination & financial support. IEA can help to direct work and share experiences.
- **Commercialisation:** Niche applications can facilitate market entry. Large investment is required. No obvious role for IEA except for market studies.
- **Supporting activities:** Ongoing needs for development of codes & standards (international committees), training & education.

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