SRA-Summary & recommendations

SRA SUMMARY & RECOMMENDATIONS

Summarising the R&D issues

The recommendations of the Task Groups have been distilled down into 3 key common themes where UK materials R&D should focus and have impact:-

- Reducing time to market and life cycle costs (eg. solar, fuel cells, marine)
- Higher performance in harsher environments (eg. Carbon capture, co-firing, nuclear)
- Improved life management and reliability (eg offshore wind, nuclear)

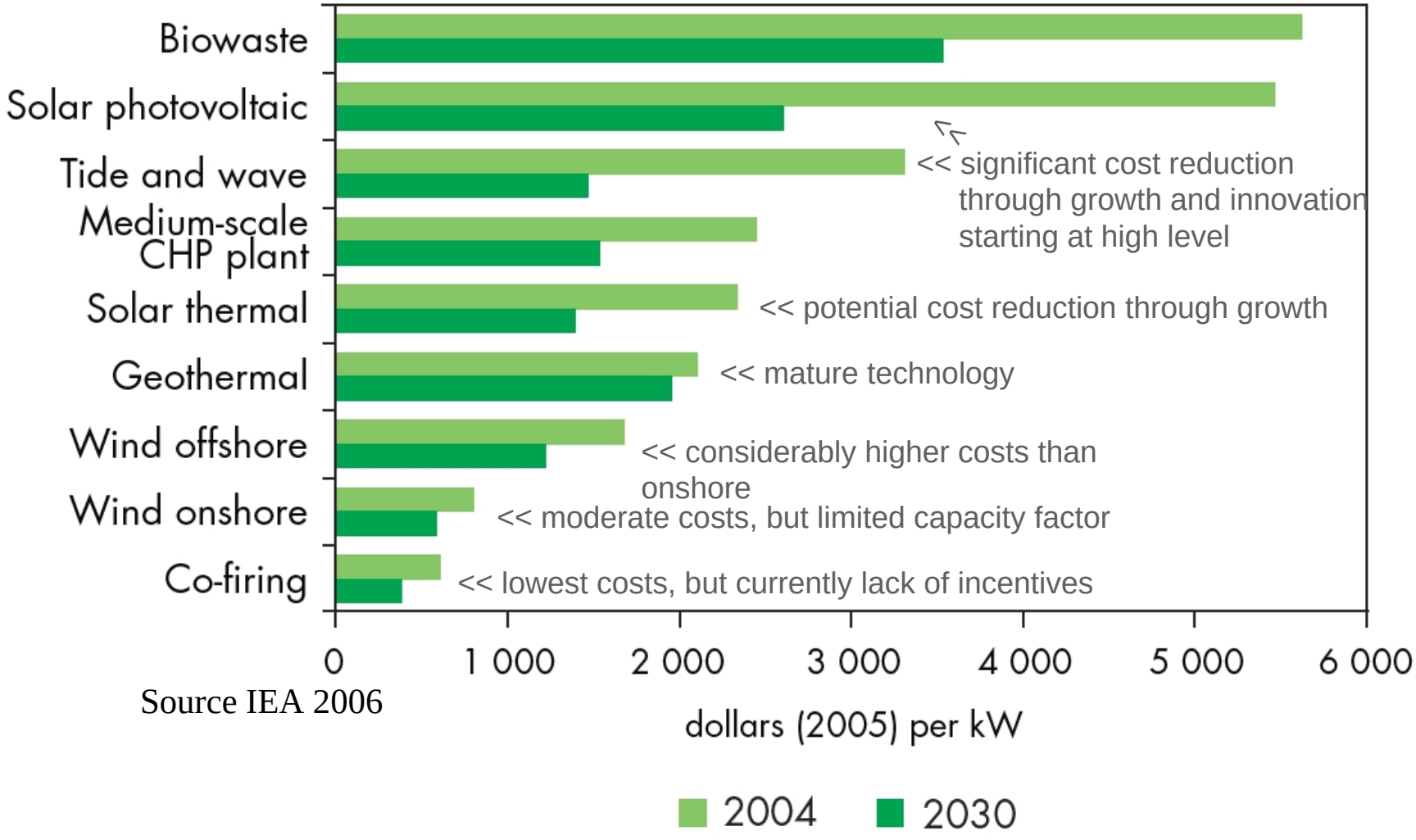
The individual reports give more detail of the required R&D

Underpinning technologies-UK strengths

Common underpinning themes have emerged;

- Design/materials integration
- Modelling (materials and process)
- Life time prediction methodologies
- Condition monitoring, sensors, NDE
- Repair, joining

Cost - prioritising areas for R&D



Source IEA 2006

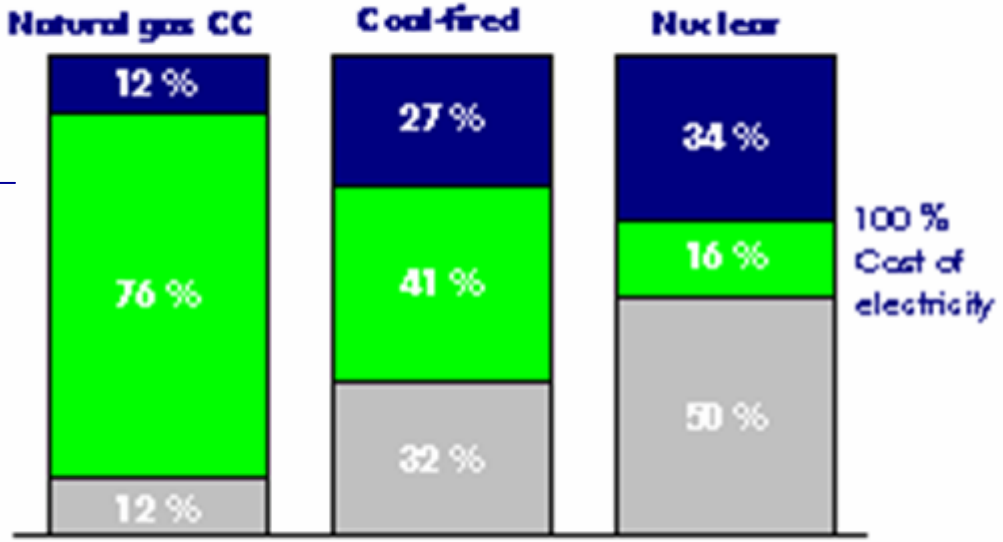
Prioritising R&D based on cost alone

Mapping the SRA priority themes against cost

Improved Life Management and Reliability

Higher performance in harsher environments

Reducing Time to Market and Life cycle costs



Mapping the priority areas against policy

Energy Materials

Energy Policy	Reduced electricity costs	Reduced environmental impact	Security of Supply		
Materials Challenge	Reduced Time to market and Life Cycle Costs	Higher Performnace in Harsher Environments	Improved Life Management and Reliability	Comments	Materials Technologies required
Conventional Fossil				Extending life of existing plant	NDE, lifing, modelling
Fossil with Carbon capture				New aggressive environments	high T materials & coatings
Nuclear				Reliability and safety	NDE, lifing, modelling, remote condition monitoring
Offshore wind				Reliability, remote monitoring	NDE, lifing, modelling, remote condition monitoring
Marine				Reliability, remote monitoring	NDE, lifing, modelling, remote condition monitoring
Fuel Cells				Reduce Cost as barrier to market	New materials or processes
Hydrogen				Reduce Cost as barrier to market	New materials or processes
Solar pv				Reduce Cost as barrier to market	New materials or processes
Biomass				Aggressive environments	high T materials & coatings

Key areas for R&D

Time	
Now	➢ Ongoing incremental R&D (support existing fossil/nuclear life extension & grid infrastructure/networks)
0-5	➢ Near term-applied R&D to assist rapid, cost effective deployment (clean fossil, offshore wind, marine, networks)
5-10	➢ Medium term applied R&D (remove barriers to large scale deployment-**costs & reliability** for, fuel cells, solar pv)
5-10+	➢ Longer term- fundamental R&D (hydrogen, superconductors)

Key findings

- The UK Materials community has a number of world class strengths (particularly R&D) and is well positioned to take advantage of the growing national and global opportunities in the Energy sector.
- UK must maintain a portfolio approach to its energy materials R&D to support policy-there is no one single winning technology
- The SRA summarises the key areas in each part of the sector where UK Energy materials R&D should concentrate to maximise impact
- The SRA prioritises short, medium and long term materials R&D

Underpinning the SRA

7 key recommendations to support delivery

- Communication
- Establish Coordination & Delivery Body
- Stable/Sustainable funding
- Energy Materials Knowledge Management
- Innovative Technology Transfer and consortia building
- International Engagement
- Development of Skills and Resources

Progress to Date

- Worked with the Technology Strategy Board to help develop the Autumn Call on Energy Materials (£12m)

Technology Strategy Board

Materials for Energy
Autumn 2007 Competition for Funding

The Technology Strategy Board and the Engineering and Physical Sciences Research Council have allocated an indicative amount of £12M to fund highly innovative collaborative research proposals in Materials for Energy. Funding is available for industry-led collaborative projects across a range of Technology Readiness Levels, from basic research to applied research and development in materials technologies that will enable the UK to rapidly meet the urgent and difficult challenges posed within the global Energy Sector.

The focus will be on the development of materials technologies for:

- Energy generation
- Energy transmission and distribution
- Energy storage
- Energy conservation

It is also anticipated that materials developments in these areas will have spillover energy-related benefits for other industrial sectors; e.g. transport, including aerospace.

- Through chairmanship of EuMat have worked within FP 7 to deliver a call on Energy Materials in December 2007

European Commission funding for projects on
Novel materials for energy applications

Joint Call between two areas of the European Commission's Framework Programme 7 (FP7) - Energy and Nanosciences, nanotechnologies, materials & new production technologies (NMP)

Key aspects of FP7

- Research and demonstration programme
- Collaborative (min. of 3 different member states or associated countries in proposal consortium)
- Cost sharing:
  - Research - 50% (75% for SMEs, public bodies, universities)
  - Demonstration – 50%
- Innovative
- European impact

Call for Proposals

- Call to be published on 30th November '07
- Stage 1 deadline likely to be in February '08
- Budget 25M€
- 2 stage submission process:
  - Evaluation Stage 1 proposals: February/March 2008
  - Evaluation stage 2 proposals: May/June 2008

The Call is currently only in draft format however early indications are that the priority fields of application for energy technology are likely to be energy conversion and storage, photon capture and CO_2 capture and storage.

To receive more information please contact energie@enviros.com (UK National Contact Point for Energy in FP7).

Conclusions

- Developed an industry led Strategic Research Agenda for energy materials
- Key R&D areas defined to support UK policy
- Agenda for action proposed
- Series of recommendations made for implementation
- Worked with Technology Strategy Board and EPSRC to produce £12m call on Energy Materials
- Worked with the EC through UK chairmanship of EuMat to produce a joint call between the Directorates of Energy and Materials to introduce an Energy materials call

Thank you to all those who were:-

- involved in developing this SRA
- contributed to the consultation
- task group members
- advisory board
- MatUK

PANEL DISCUSSION

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