MATERIALS UK (MATUK) ENERGY MATERIALS WORKING GROUP

TERMS OF REFERENCE

1. Objective

Reporting into MatUK, the remit of the Energy Materials Working Group is to develop a Strategic Research Agenda and Deployment Plan for the UK Materials supply chain which will **improve profitability** in the sector whilst meeting the key energy-related challenges of sustainability, environment and security of supply facing the UK. This should encompass the following scope:-

- Power generation (conventional, nuclear & alternative energy sources)
- Heat Sources
- Transmission & distribution
- Storage
- Efficiency (conservation & useage)
- Regulatory and socio-economic aspects

This should be achieved by:-

a). Accounting for the 2006 Energy Review and looking ahead over a 5, 10 & 20 year horizon, defining the **key materials research and development requirements** for the Energy Sector.

b). Identifying key strengths, gaps and opportunities for the UK materials supply chain to generate significant **new business** over the aforementioned timescales

c). Accounting for likely **policy, legislative**, **training and skills** impact on the sector to feed into other existing MatUK working Groups

d). Accounting for, consulting with and **influencing** existing National (and European) materials groups involved in the sector; including industrial, governmental, academic, NGO's, research councils and funding agencies.

e) Promoting the formation of a **UK Innovation Platform** on Materials

2. Scope

Whilst recognising that the transport sector has a major impact on both energy usage and CO_2 emissions, the scope of this Group will initially exclude this sector from its scope as, in particular, the aerospace and automotive sectors are being, or have been covered within other Groups. However, it is intended to recognise the output of these Groups and liaise with them where necessary.

With the above exception, the scope of the Energy Working Group will cover major sectors involved in energy production, transmission, distribution, storage and usage.

3. Structure

The overall structure and responsibilities are shown in figure 1.

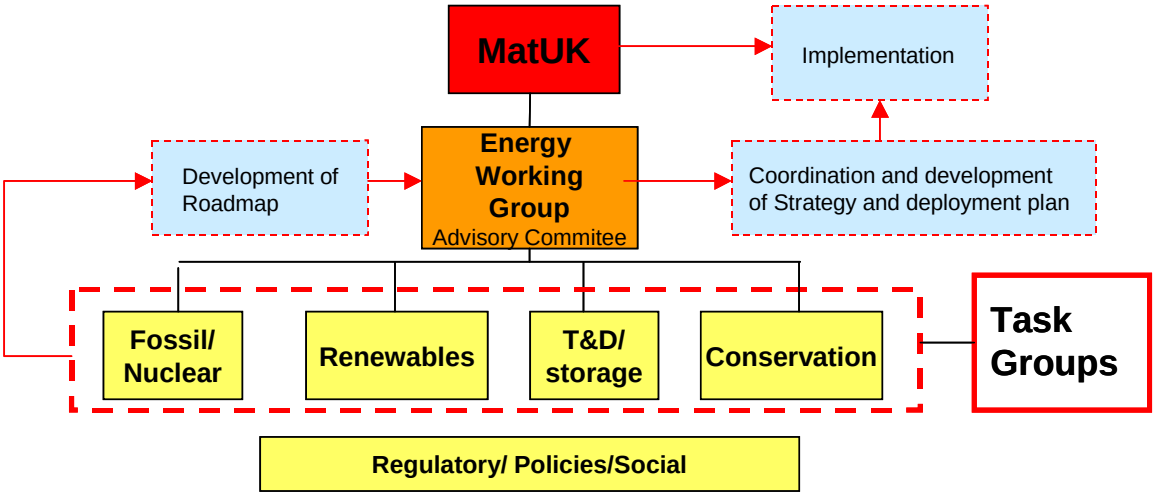

Figure 1. Proposed Structure of the Energy Materials Working Group

a). The Group will comprise an **Advisory Committee** consisting of industrial representatives of the **full materials supply chain** from producers to end-users. Inaugural members include, Alstom, EON UK, Johnson Matthey, UKAEA, Siemens, Pilkington, Mitsui Babcock, British Energy, BP, Rolls Royce, BNFL and Alcan.

Other representative organisations include; Qinetiq, NPL, Manchester University, TWI, Oxford University, DTI, Imperial College, Cranfield University, EPSRC and EMDA.

Additional organisations will be invited to join as deemed necessary by the Committee to form a balanced sector view.

b) **Task Groups** will be set up to tackle specific issues or technology areas as required. Task-group membership will be open to any stakeholder or individual experts who can make a useful contribution. The initial proposed Task Groups are shown in Fig 1. These will comprise a chairman or co-chairmen (who ideally will be a member of the Advisory Group) and typically up to six additional experts in the relevant field. Their remit and scope will be set by the Advisory Committee. (For the remit/scope of the initial Task Groups see Annex 1)

4. Organisation

d) The Energy Materials Working Group Advisory Committee will be **co-chaired** by Derek Allen (Alstom Power) and Steve Garwood (Rolls-Royce plc).

e) The secretariat will be supplied by **the DTI**

f) The Group will report into the **Executive Committee of Materials UK** through the co-chairs, but will also have the freedom to act upon its own initiatives where and when appropriate, particularly in the implementation phase.

g) It is anticipated that the Group will have an initial lifespan of **2 years**

5. Deliverables

1. A Strategic Research Agenda (SRA) for energy materials which defines the drivers, barriers and roadmap for R&D over the next 20 years
2. A Deployment Plan which indicates how the SRA will be implemented and impact on the UK materials industry.

This will be formally presented through MatUK to key stakeholders of Government officials, Research Councils, RDA's and the Technology Strategy Board to develop an agreed, long term, sustainable Energy Materials Research Programme for the UK.

6. Dissemination

1. Dissemination to the wider community will be through communication routes including:-

    a. MatUK and the materials KTN's and their associated websites
    b. The newly announced Energy Technology Institute
    c. The Institute IoM^3 Journal and the recently launched 'Energy Materials' Journal
    d. Town meetings
    e. Appropriate conferences and meetings

D.H.Allen 16.10.06

ANNEX 1. REMIT AND SCOPE OF TASK GROUPS

1. Task Groups (TG)

Task Groups will be set up by the Advisory Committee to take up specific 'time-limited' activities with clear deliverables related to the work of the Group. Task-group membership will be open to any stakeholder or individual experts who can make a useful contribution. The Task Groups will comprise a chairman or co-chairmen (who ideally will be a member of the Advisory Group) and a core team of experts in the relevant field.

Initially, four TGs will be established to develop an R&D roadmap for Energy Materials in the UK covering :-

- Current status/value to the UK
- SWOT analysis
- Drivers
- R&D needs
- Barriers
- Recommendations

The initial four TG's are:-

TG 1. Power Generation(Fossil & Nuclear):- *Co-chairs D.Allen, ALSTOM Power, G.Smith, Oxford University*

This will include materials issues related to the following:-

- Gas, oil and coal fired power plant
- Nuclear (fission and fusion)power plant
- CO_2 capture technologies

TG 2. Power Generation (Alternative Energy Supplies):- *Co-Chairs J.Oakey, Cranfield University, Brian Cane, TWI*

This will include materials issues related to the following:-

- Biomass, waste and co-firing
- Solar
- Wind
- Wave & tidal
- Hydro
- Fuel cells
- Hydrogen
- Bio-fuels

TG 3. Energy Transmission, Distribution and Storage *Co-chairs TBA*

This will include materials issues related to the following:-

- The transmission and distribution of energy and fuels including electricity, gas and oil including networking issues.
- Storage issues associated with oil, gas, CO2, hydrogen and electricity
- Issues associated with transportation of fuels
- Specific issues associated with distributed power

TG 4. Energy Conservation *Co-chairs TBA*

This will include materials issues related to the following:-

- General manufacturing issues, electricity useage and materials consumption
- The built environment
- Technologies for demand management and reduction

It is envisaged that generic topics such as

- Regulatory, legislative and policy considerations which may affect the energy materials supply chain including environmental legislation and raw materials supply
- Socio-economic aspects relating to the usage of energy and how these impact on the Sector and materials in particular.
- Regional strengths, opportunities and issues.
- Training & Skills (specific to Energy Materials only)

Such issues will be captured and shared with the Impact & Policy Working Group of MatUK through a common representation on both Groups.

D.H.Allen 16.10.06