



# **ENERGY MATERIALS WORKING GROUP.**

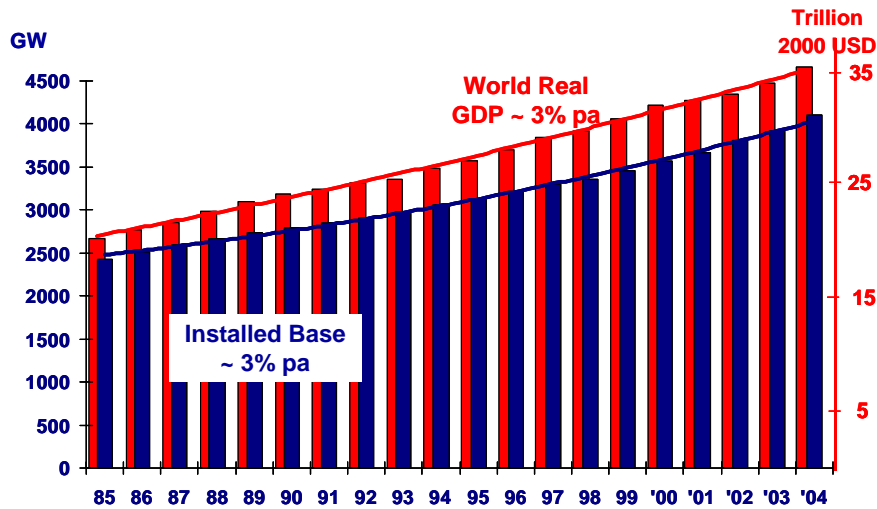
## ***BACKGROUND AND TERMS OF REFERENCE***

***Derek Allen , Co-chairman***



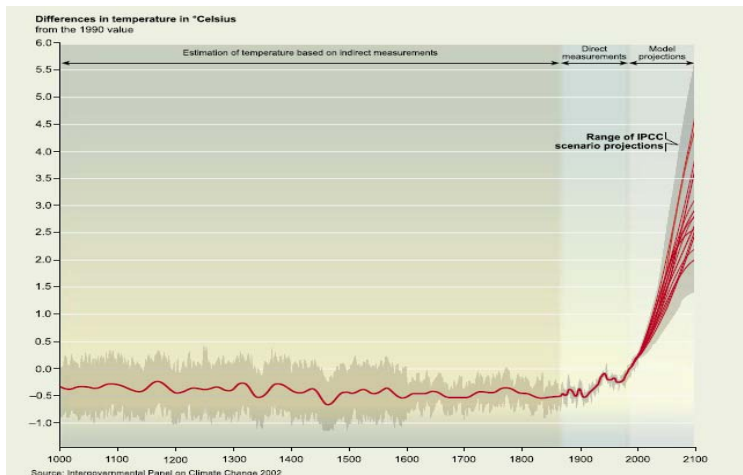
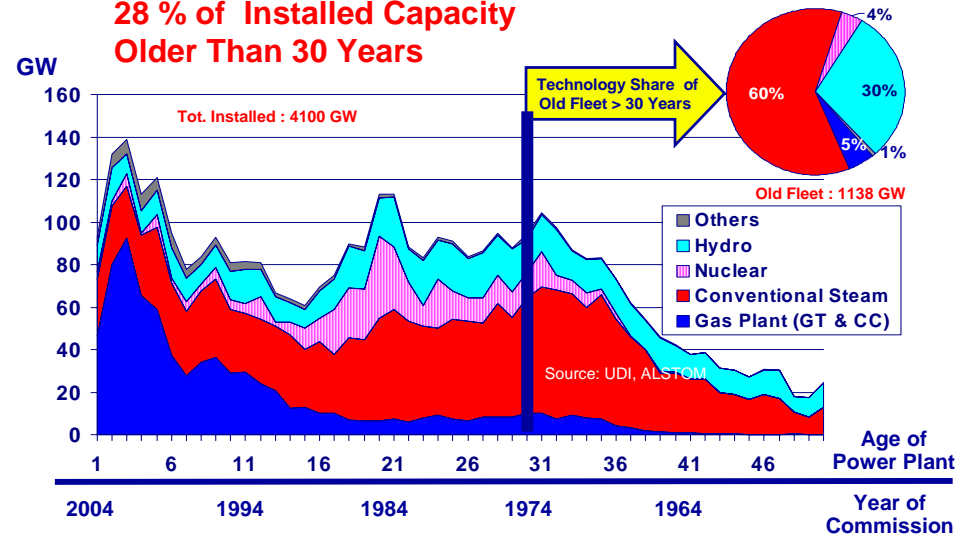
**GDP Growth**

Installed Base Growth ~ linked to GDP

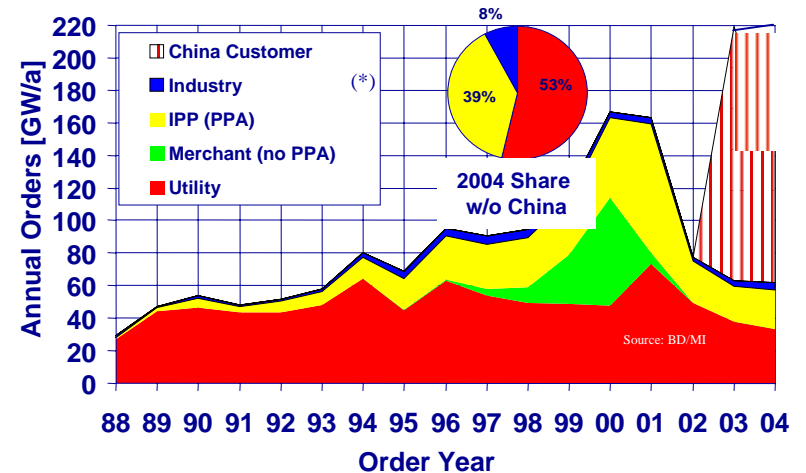


**Ageing Fleet**

28 % of Installed Capacity Older Than 30 Years



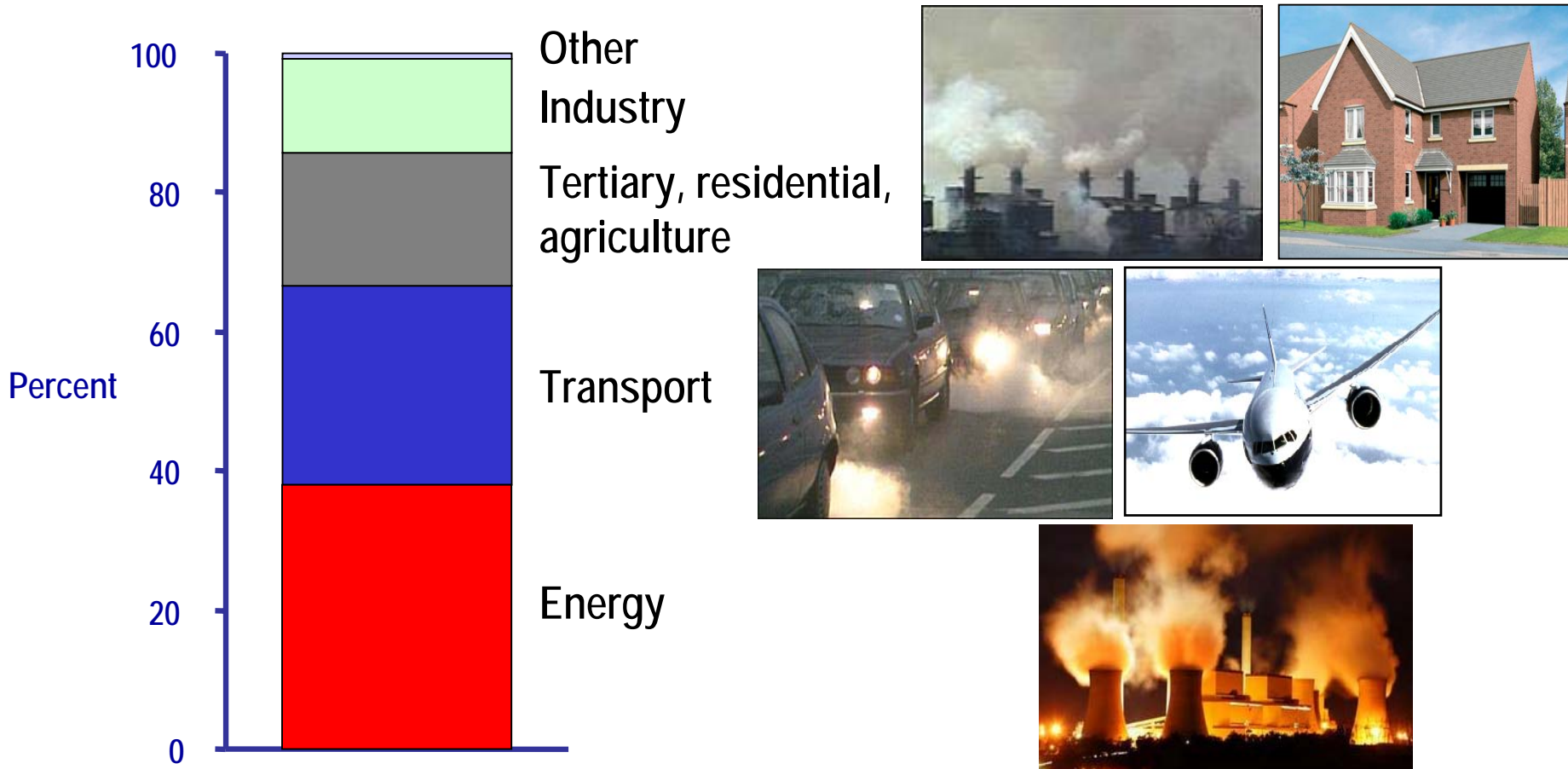
**Environment**



**Deregulation**

# Global Warming - who is responsible?

Worldwide GHG emissions  
by sector



## WHY?

***Against a background where energy & environment have been identified as the key Global issue, materials is a key underpinning technology.***

- A key recommendation of the Materials IGT

In addition, Energy Materials R&D in the UK:-

- is not coordinated
- It is inadequately funded
- It lacks a unified 'voice' with any influence
- It has no 'hooks' into Europe

## BENEFITS

### What it should be:-

- A coordinated user led group that can:-
  - influence Technology Strategy Board, government agencies and funding bodies both UK & EU (through MatUK, if/where appropriate)
  - Advise on RD&D priorities to bodies such as the UKERC, ERP and ETI
  - Actively network and bid for programmes in UK & EU

### What it wont be:-

- A roadmapping exercise and talking shop

# Energy Materials Working Group

## Terms of Reference

### 1. Objectives

- 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.

### 2. Scope

- Power generation (conventional, nuclear & alternative energy sources)
- Transmission, distribution & storage
- Efficiency (conservation & usage)



## Specific Exclusions

Whilst recognising that the transport sector has a major impact on both energy usage and CO<sub>2</sub> 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.

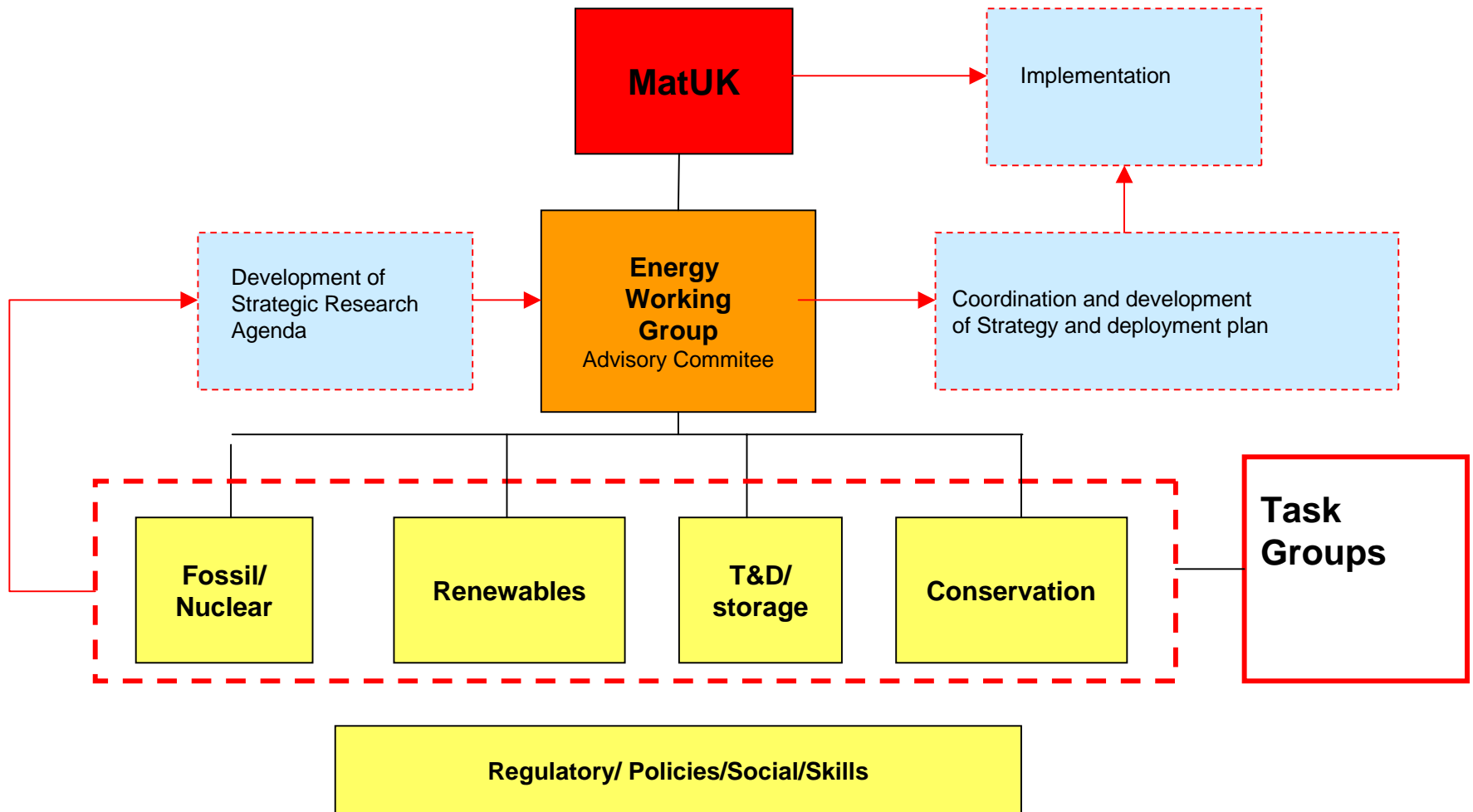


## HOW?

- 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.



# ORGANISATION



- **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.**
- **Secretariat supplied by DTI**
- **Currently self-funded**

## Deliverables

1. A Strategic Research Agenda (SRA) for energy materials which defines the drivers, barriers and direction 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.

## DISSEMINATION

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

## TASK GROUPS REMIT

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.

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

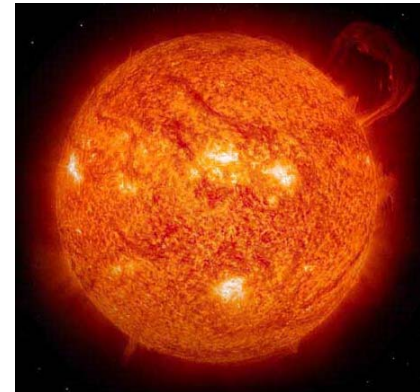
- Current status/value to the UK
- SWOT analysis
- Drivers
- R&D needs
- Barriers
- Recommendations

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<sub>2</sub> 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, CO<sub>2</sub>, 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



## OTHER TOPICS

**Other topics will be picked up as they arise , but passed onto other WG's 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)