

**RENEWABLE ENERGY GENERATION  
TOWN MEETING – 24 November 2006  
BREAKOUT SESSION WIND,WAVE/TIDAL & SOLAR**

**Chair:- Brian Cane**

**1. WIND**

**DRIVERS**

- O&M costs
- Captial Costs
- Energy Security
- Environment
- Govt & EU policy (legislation)
- Visual impact
- energy production efficiency
- public perception
- UK asset
- Scale up designs

**R&D PRIORITIES**

- Life management
- Drive train
- Determine life limiting factors
- Maintenance optimisation
- Life extension
- Lightweighting (design/materials)
- Lightning protection
- Structural health monitoring
- reliability
- Anti-fouling coatings
- New blade design
- Joining technologies
- CFD
- Noise reduction

**BARRIERS**

- Good sites are not where you have manpower
- Public perception
- Sites remote from population
- Cost
- Lack of materials (carbon fibre)
- Lack of suitable sites
- Knowledge sharing – how do you share IP?
- Transmission infrastructure - getting power to grid
- Intermittency of power and back up
- Capital cost
- Lack of high cycle fatigue design data (availability of materials data)
- Lack of manufacturing capacity in UK

**RECOMMENDATIONS**

- improve current knowledge CFD, coating, small turbines, to draw manufacturers to UK
- R&D into low cost manufacture particularly of blades
- R&D into life management methods (UK focus)
- Make microgeneration key UK strength
- Link into activities of Wind Supply (UK supply chain network) & BWEA

*People to take forward*

NPL (Alan Turnbull recommend person – Michael Gower)

MERL (Rod Martin)

## 2. WAVE/TIDAL

### DRIVERS

Same drivers as wind  
UK LEAD

### R&D PRIORITIES (tidal stream & wave)

- Corrosion
- Lightweight materials
- Biofouling
- New materials for rotors (replace bronze)
- Tech transfer from O&G
- Sealing materials
- Power take off
- Durability/survivability
- Structural monitoring

### BARRIERS

- Lack of radar signature (ships hit them!)
- Cost
- SMES (who are developing systems) are isolated from industry, no major OEMS involved  
commercialisation issues

### RECOMMENDATIONS

- make sure we retain lead
- stimulate demand by reducing risk – show survivability

*People to lead*

MERL (Rod Martin)

Carbon Trust (Richard Guy)

### **3. SOLAR**

#### **DRIVERS**

- Local Govt planning
- Large potential capacity (20% of UK need)
- Market potential (Global)
- Generation at point of use

#### **R&D Priorities**

- Reduce materials & processing cost
- Lifetime
- Coatings
- Solar thermal systems
- Scale-up of innovative ideas
- Production of large area of thin film
- Need for UK pilot facility

#### **BARRIERS**

- High Cost – because of lack of production capability for thin film
- Lack of legislation on building regs
- Lack of Govt incentive
- Public perception – lack of sun!
- Materials supply (Silicon)

#### **RECOMMENDATIONS**

- Need Tech Transfer from other industries e.g. photonics
- Look into alternative materials (Transparent conductive oxide photoactive layer)
- Look for novel integration opportunities with applications
- Target niche market applications

*People to take forward*

Bangor Univ Stuart Irvine

Imperial (James Durrant)

Sharp (Rakesh Roshan) – (Details on Valerie Bousquet's card)