

## **Environmental Externalities**

### **Background**

- Electricity generation has important environmental burdens including greenhouse gas emissions and other air pollutants, waste and water emissions, and noise.
- These environmental impacts lead to economic costs such as extra spend to treat air pollution related illness, costs of building damage from air pollution and so on. They are commonly known as external costs or externalities, because they are external to the price of electricity i.e. electricity providers or users do not pay for such costs.
- Economic theory dictates that these costs should be passed back to the polluter to establish a level playing field in the market price (of electricity).
- Ofgem has acknowledged that difficulties can arise when external costs are not reflected in the prices paid for energy and that where appropriate the Government should endeavour to correct this situation via environmental taxes or other suitable economic instruments.

### **What is it? How does it work?**

- A number of large research projects have quantified the environmental costs of electricity over the past decade. The EC's ExternE project is recognised as being authoritative in this area.
- While there remains some uncertainty in the size of externalities calculated, the studies are increasingly being used for policy analysis.
- Different technologies have different external costs depending on for example, emissions of carbon dioxide and other polluting gases, and solid and liquid waste discharged to the environment.
- Conventional coal and oil plants (without FGD) have external costs of around £35/MWh while CCGT plants have external costs of around £7/MWh. By contrast, nuclear generation has external environmental costs of only around £2/MWh, and renewables external costs of £1/MWh.
- The average external cost for the UK generation mix is about £16/MWh made up almost entirely from fossil generation. The total external costs from the UK generation mix are estimated at several billion pounds each year.
- External costs in the electricity sector in the future will be mainly driven by increases in gas generation.

### **British Energy's position**

- British Energy believes that all technologies should account for their external costs since this provides a 'level playing field' in which they can compete fairly and transparently.