

## **Powering the Future - sector pages**

### **Domestic**

**The residential sector consumes about 16% of UK fossil fuel and emits around 15% of CO<sub>2</sub>**

***Consumption is dominated by gas (70%) and electricity (22%). Reducing energy consumption and CO<sub>2</sub> emissions in existing dwellings is a major challenge for this sector - housing stock is expected to increase from around 25 million to over 31 million by 2050.***

#### **Significant report findings - domestic:**

Significant reduction in the energy consumption and CO<sub>2</sub> emissions from existing residential buildings demands radical reduction in heat losses through greatly improved insulation and better control of ventilation with heat recovery.

Substantial reduction in CO<sub>2</sub> emissions is possible through renewable heat applications using biomass and solar energy.

The provision of biomass-fuelled community heating and CHP schemes for existing and new higher density-housing offers significant reductions in CO<sub>2</sub> emissions.

The adoption of more-efficient lighting and appliances provides a significant reduction in consumption of electricity in the domestic sector.

Community biomass-fuelled CHP plant and domestic PV electricity production offer a substantial reduction in net electricity demand.

The application of air source heat pumps to existing homes offers worthwhile CO<sub>2</sub> emission reductions, particularly after 2025 when electricity will be largely decarbonised. Ground source heat pumps are largely limited to new homes and therefore offer much smaller benefits.

Domestic-scale CHP does not offer a significant or sustained contribution to carbon emission reduction, particularly as the carbon content of electricity falls after 2025.

#### **Further research - domestic:**

Establish a programme to qualify best-practice external or internal wall insulation and ventilation heat recovery technologies, and the appropriate methods of applying them to the diversity of the existing housing stock.

Prepare a strategy to promote the wide application of radical energy reduction improvements. These could include providing financial incentives to owners (eg stamp duty adjustment according to property energy performance) and placing additional obligations on mortgage lenders.

Prepare a strategy to promote the application of domestic renewable heat aimed particularly at displacing coal and oil by biomass and the wider adoption of solar water heating technology.

Work with other EU countries to define an escalator of appliance energy efficiency requirements to progressively drive down the energy consumption of domestic appliances.