

Renewables Innovation Review

February 2004

Summary of Key Findings

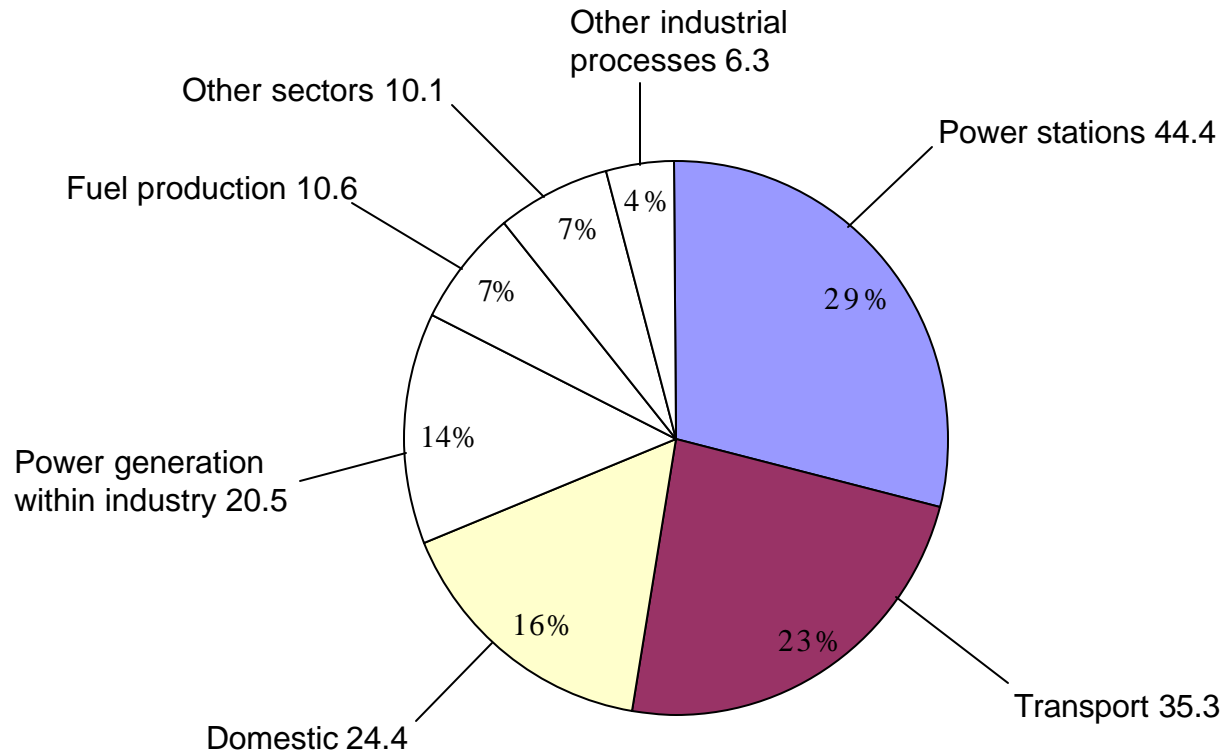
Context for the Renewables Innovation Review

- The Review, which was conducted in the latter half of 2003, assessed what the UK Government needs to do to achieve its target and aspirations in a cost-effective manner that generates UK benefit:
 - 2010 – target: 10.4% of electricity supply from renewable sources
 - 2020 – aspiration: 20% of electricity supply from renewable sources and real progress on carbon reduction
 - 2050 – aspiration: 60% reduction in carbon dioxide emissions from current levels
- The Review will feed into DTI and the Government's future funding decisions
- Jointly conducted by the DTI and the Carbon Trust in consultation with the renewables industry

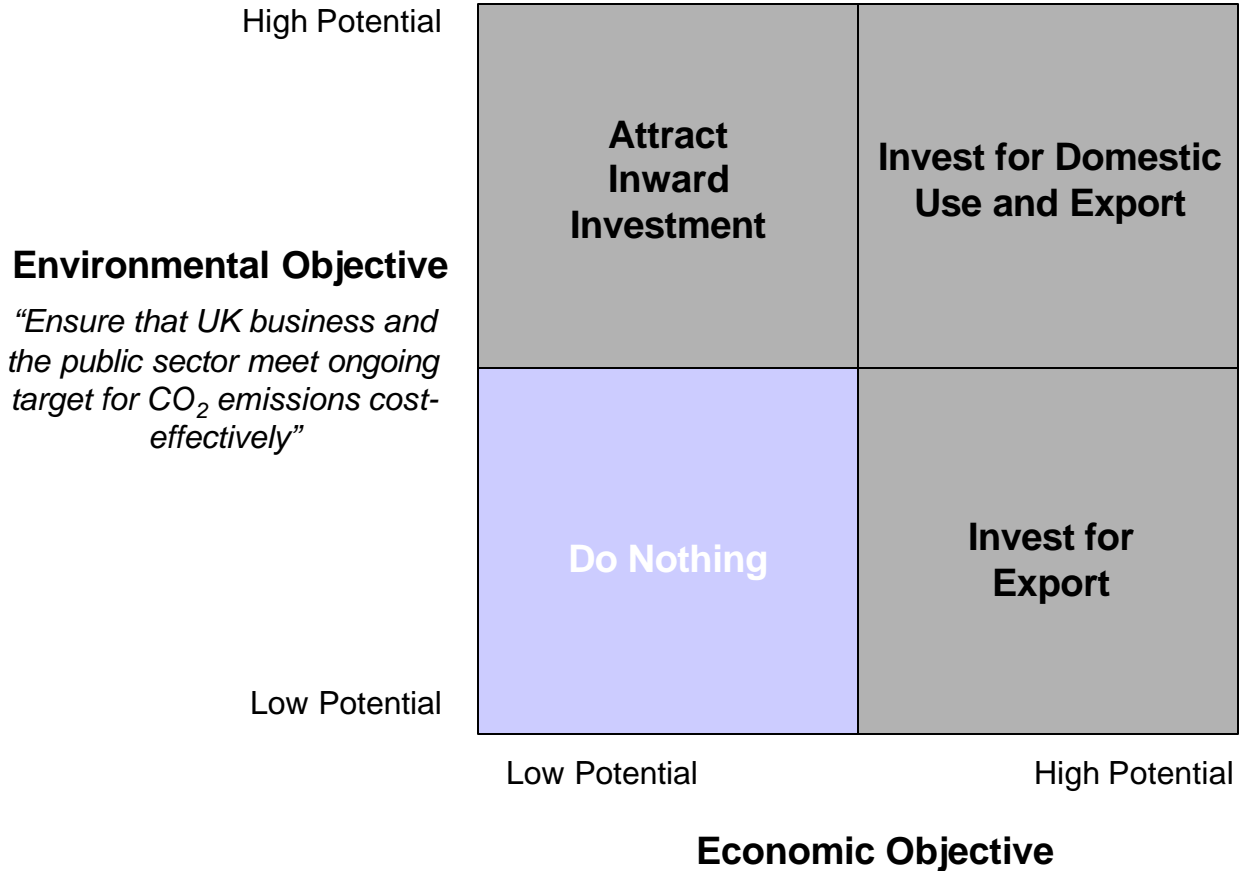
Short-term targets focus on large scale electricity markets, longer-term the building and transport markets will be important, although transport markets were not formally addressed in this study

UK carbon dioxide emissions 2001 (MtC) by source category

Total emissions = 151.6 MtC



The UK should aim to meet targets and aspirations in a cost effective manner and generate economic benefit for the UK



“To support the development of a UK industry sector that capitalises on the innovation and commercial value of low carbon technologies”



- New investment in generation will be required over next 20 years due to increasing demand and closure of old coal and nuclear capacity
- Renewables are higher cost than conventional fossil fuels but, given stated carbon targets, maximising UK content (or revenues) will maximise value for UK in domestic and export markets

The UK should eliminate barriers to wind deployment and develop longer term options

The 2010 renewable electricity target can still be met if barriers to winds deployment can be eliminated

- Currently the UK is slightly behind target, renewable electricity supply is forecast to reach about ~10% by 2010 given the current RO framework and institutional barriers; 8% from renewables within the RO and a further 2% from other renewables
- Wind power, both on- and off-shore, is presently the only economic scaleable technology and will deliver the majority of the required growth in renewable energy to meet the 2010 target and continue to be the dominant technology out to 2020
- The Government's announcement in December that it intended to raise the level of the RO beyond the 10.4% already set for 2010/11 to increase year on year to 15.4% in 2015/16 has improved the investment case for wind, however removal of institutional barriers and timely incentives for grid upgrades will increase the likelihood that targets will be met

Longer term, the UK should develop technology and market options to achieve 2020 and 2050 aspirations and generate UK benefit

- Technologies other than wind are required to meet 2050 aspiration and a range of options will be needed to address multiple markets and the inherent high risk of early stage technologies
- Creation of UK benefit is a driver for technologies in the UK, as opposed to importing solutions. Other than wind, fuel cells and wave/tidal provide the best balance of UK and environmental benefits and biomass provides advantages of non-intermittency, but may be resource constrained
- The UK should consider developing a wider buildings approach including solar PV

**Meeting 2010
target**

**Future
options**

Government action is required

Best practice policy

Consistent policy and strategic spending are needed to deliver maximum environmental and economic benefit from renewables

- **Long term incentive** - Countries that have successfully implemented renewables have a clear coherent set of long term policy measures
- **Funding gap** – UK demonstration and pre-commercial trial funding is less in level and longevity than in countries that have successfully brought new renewable energy technologies to market
- **Complexity and role** - The current UK renewables funding landscape is complex and requires clearer demarcation of roles across the innovation chain



Recommended action

Action is required to meet the 2010 target, in addition to a focused government investment on key technologies and market enablement

- **RO extension and grid incentives** – In addition to the recent RO extension, timely incentivisation of necessary grid upgrades, addressing other institutional barriers and an appropriate framework for round 2 offshore wind will be important to delivering targets
- **Option value** - Development plans tailored by technology and market will maximise the UK's option value in global renewables long term and the chances of meeting the 2050 aspiration.
 - Wave/tidal pre-commercial trial programme
 - Biomass market enablement
 - Fuel cell R&D and niche market development – tightly focussed on UK strengths
 - Collaborative next generation solar research
 - Technology blind programme to support building integrated renewables (including solar) and energy efficiency technologies
- **Implementation** – Clarify policies and roles and actively manage renewables programmes to anticipate issues and respond to results