



National Audit Office

# Government funding for developing renewable energy technologies

## Methodology

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**1** *Government funding for developing renewable energy technologies* examined the management and impact of direct support for the development, demonstration and deployment of renewable electricity and heat generating technologies. The report covered financial support schemes delivered by the Department of Energy and Climate Change (and its predecessors); the Department of Business, Innovation and Skills; the Carbon Trust; the Technology Strategy Board; and the Energy Technologies Institute.

**2** The main issues examined in the report were:

- the evidence underpinning the level and type of direct support for renewable energy technologies;
- how specific priorities had been determined and co-ordinated;
- the adequacy of monitoring and evaluation procedures;
- financial and administrative performance; and
- outcomes achieved.

**3** The methods used in the course of this study included file and document review, interviews with officials in the Departments and delivery bodies, analysis of financial data, case studies of grant recipients, an in-depth review of the economic rationale of six schemes and a survey of funding provided by Regional Development Agencies. These are described in more detail below.

## File and document review

- 4 We reviewed a range of external documentary evidence, including:
- delivery bodies' documentation relating to establishing, operating and evaluating their schemes including board papers, investment papers, business plans, project monitoring reports, business reviews, annual reports, and external scheme management contracts;
  - financial documentation including scheme budgets, scheme awards, scheme expenditure, staff costs and overheads; and
  - strategy documents setting out the government's approach to renewable energy technologies, including Pre-Budget and Budget Reports, Energy White Papers, the Renewable Energy Strategy and the Low Carbon Industrial Strategy.

## Interviews with key staff

5 We conducted semi-structured interviews with key staff within the Department of Energy and Climate Change, the Department for Business Innovation and Skills, the Carbon Trust, the Technology Strategy Board and the Energy Technologies Institute to gather information on:

- scheme set-up;
- the application and appraisal processes;
- the approach adopted to monitoring and evaluating both schemes and individual projects; and
- the extent and effectiveness of data sharing across the delivery chain.

We also interviewed industry groups such as the British Wind Energy Association (now Renewables UK) to obtain external perspectives on the management and effectiveness of direct support provided by central government.

## Analysis of financial data

**6** In order to gather evidence on scheme budgets, expenditure and awards made, we analysed and assessed financial data on support schemes set up since 2000 to fund renewable energy technologies across the delivery organisations covered in our report. The schemes we examined were as follows:

Organisation	Scheme
Department of Energy and Climate Change (and its predecessors)	Bioenergy Capital Grants scheme Bioenergy Infrastructure scheme Clear Skies Low Carbon Buildings Programme Major Photovoltaic Demonstration Programme Marine Renewables Deployment Fund Offshore Wind Capital Grant Scheme
Carbon Trust	Low Carbon Innovation Programme: <ul style="list-style-type: none"> <li>● Applied research scheme (Renewable energy projects only)</li> <li>● Biomass heat accelerator</li> <li>● Incubator (Renewable energy projects only)</li> <li>● Investments (Renewable energy projects only)</li> <li>● Marine Energy Accelerator</li> <li>● Marine Energy Challenge</li> <li>● Partnerships for Renewables Limited</li> <li>● PhotoVoltaic Research Accelerator</li> </ul>
Technology Strategy Board	Collaborative Research Scheme: <ul style="list-style-type: none"> <li>● Energy Generation and Supply (Renewable energy projects only)</li> <li>● Materials for Energy call (Renewable energy projects only)</li> <li>● Low Carbon Energy Technologies call (Renewable energy projects only)</li> </ul>
Energy Technologies Institute	Offshore wind call Marine call

## Case studies

**7** We commissioned the environmental consultancy firm Entec to carry out case study interviews with 15 organisations that have received capital grant funding and venture capital investment. We focussed on three key sectors (offshore wind, marine energy, and biomass) and selected case studies to obtain a mix of projects across sectors, funding organisations, and age of scheme.

**8** Entec obtained relevant documentation relating to the 15 case studies from funding bodies and from the grant or investment recipients themselves. Entec also asked recipients to complete a short questionnaire and then interviewed each organisation using a semi-structured interview schedule that covered:

- background information on the project (project cost, funding provided, business case, timelines);
- the application process;
- processes for monitoring, reporting and evaluation;
- the extent of other public funding which projects had received; and
- impacts and risks to project delivery.

## Review of economic analysis of six schemes

**9** We commissioned the consultancy firm Frontier Economics to examine the quality of appraisal and evaluation of financial support schemes for renewable energy technologies. In discussions with the National Audit Office, Frontier Economics selected six schemes that provided a mix of new and old schemes, sectors, and technologies. The six schemes they examined, together with the organisations responsible for them, were as follows:

Organisation	Scheme
Department of Energy and Climate Change	Bioenergy Capital Grants Scheme
	Low Carbon Buildings Programme
	Offshore Wind Capital Grants Scheme
Carbon Trust	Offshore Wind Accelerator
Technology Strategy Board	Energy Generation and Supply portfolio
Energy Technologies Institute	Marine energy call

**10** For each scheme, where available, Frontier Economics obtained and analysed relevant documentation and carried out interviews with scheme managers. The overall aim was to determine whether funding organisations had:

- clearly defined the economic case for each intervention and based the decision on adequate evidence and appropriate assumptions; and
- ensured that there was a robust approach to reporting and evaluating the impact and cost-effectiveness of each scheme over time.

### **Survey of Regional Development Authorities**

**11** We contacted the nine Regional Development Authorities in England to obtain information on their expenditure on renewable energy technologies. We collected information on renewable energy targets and expenditure on renewable energy.

**12** To understand the nature of the support Regional Development Authorities provided, we asked them to record expenditure provided directly to recipients through grants and expenditure provided indirectly through other not-for-profit organisation (such as Envirowise), some of which had been set up specifically to promote low carbon technologies. Where funding had been provided in support of wider low carbon objectives, we asked Regional Development Authorities to provide estimates of the amounts specifically focused on renewable energy technologies.