

## Background

1. The NAO report examines the delivery and performance of direct support using public funds for the development, demonstration and deployment of renewable energy technologies, focussing on electricity and heat generating technologies. The audited funding includes spend by the Department of Energy and Climate Change (DECC), the Carbon Trust, the Energy Technologies Institute (ETI), and the Technology Strategy Board (TSB). It excludes spend by devolved administrations and research councils.
2. Support has been provided to 20 schemes established since 2000. For schemes set up to reduce emissions, deliver technology innovation, or achieve economic growth, rather than focus specifically on renewables energy goals, only the spending and impacts on renewable energy were examined.

## Key Findings

### Strategic objectives

3. The latest data for 2008 show that only 2.3% of UK energy was generated from renewable sources, so to meet the 2020 target of 15% DECC will have to drive a seven-fold increase. The target provides a clear basis for assessing progress overall. The report notes that DECC's Renewable Energy Strategy (RES) of July 2009 sets out illustrative scenarios for how individual technologies might deliver the target but considers the market is better placed to determine the mix that offers best value for money for energy consumers. The RES suggested that investment totalling around £100 billion would be required to achieve the 2020 target.

### Identifying funding needs and setting priorities

4. DECC has specific accountability for achieving the UK renewable energy (RE) targets. It does not have direct control over all public funding for RE, with other bodies such as the Department for Business, Innovation and Skills (BIS), the Technology Strategy Board (TSB), the Carbon Trust and the Energy Technologies Institute (ETI) also providing support. They do so to support wider objectives to reduce emissions, to stimulate technology innovation, and to deliver economic benefits.
5. Since the creation of DECC in October 2008 there has been an improvement in the degree of coordination between funding bodies. For example, a cross-Whitehall Climate Change Board oversees the delivery of PSA 27 to lead the global effort to avoid climate change, and since February 2010 DECC has also been a member of the Low Carbon Innovation Group, established by the Carbon Trust, ETI and TSB in 2008, and which now includes Research Councils.

### Funding

6. Data on the overall level and distribution of public funds to support renewable technologies is not routinely collected and published. Since 2000, the 20 schemes examined provided funding of £265m up to March 2009, which has reduced to £192m following repayments by some recipients.
7. Alignment between forecast and actual spending is a key measure of the quality of financial planning. As at March 2009, gross spending through schemes established by DECC and its predecessors since 2000 (excluding other delivery bodies) was £186m (£241m including legal commitments to future spend). Net spend was lower at £113m (£168m including future legal commitments) due to repayments. In 2009/10 a number of

recipients of DECC schemes repaid grants to enable them to benefit from the introduction in 2009 of enhanced benefits for certain technologies under the RO. For these DECC schemes, gross spending was just two-thirds of planned expenditure over the period, due in part to expected projects not requiring funding.

8. Grants accounted for 96% of support through the 20 schemes examined up to the end of March 2009. Other forms of support, such as creating commercial enterprises and providing venture capital accounted for 4% of direct funding. Securing project finance is a key challenge for more developed technologies such as offshore wind. Research for DECC by Frontier Economics in 2009 demonstrated a lack of empirical evidence on the relative cost effectiveness of grants, equity funding, loans and other forms of financial support for RE technologies.
9. Direct support for renewable energy development, demonstration and deployment has mostly been short term, while the RO provides long-term support. For example, funding of £178m made available to renewable projects from the £405m low carbon investment funds announced in Budget 2009 must be spent by March 2011. However, developers typically need funding over several years to develop new technology and some projects have relied on obtaining support from different schemes and sponsors at different stages in their development. The short-term nature of support has limited accessibility to potential applicants.

#### Evaluation and Outcomes

10. It was not possible to establish aggregate performance across the 20 schemes due to different metrics being used to monitor and evaluate performance across sponsoring organisations. There was also very little published information on the individual performance of the 20 schemes to allow an assessment of cost effectiveness in terms of meeting renewable energy targets. A limited number of schemes had been evaluated and two newer schemes did not yet have evaluation frameworks in place. The audit found a need to strengthen evaluation, including setting clear and measurable objectives and baselines.
11. The schemes demonstrated additionality i.e. they supported projects that would broadly not otherwise have proceeded. Of the 15 case study projects examined, most would not have gone ahead without direct support, which was found to have leveraged in private sector investment of between 20% to 80% of total project costs and supported employment creation. The Offshore Wind Capital Grants Scheme had the largest identifiable impact on short-term targets, having increased capacity by 1 GW, equivalent to 14% of installed renewables capacity in 2008.
12. Support for innovation was found to have contributed to advances in renewable energy technologies e.g. by creating new patents. Yet the impact of innovation can take many years to materialise and can be difficult to measure directly. This increases the importance of having clear intermediate measures for schemes against which progress towards objectives can be measured.

#### Value for Money

13. The scale of the challenge needed to meet the UK RE target requires that direct support is well targeted. Individually supported projects have achieved outputs, but in the absence of a coherent framework for delivering plans for RE or a consistent approach to evaluating and reporting performance across all the main organisations, the overall value for money of direct support cannot be demonstrated.

14. To protect value for money, DECC needs as a matter of urgency to demonstrate in its 2020 delivery plan and interrelated innovation plans for all key technologies, how it is prioritising public funding; establishing a more coordinated approach to support; and measuring and reporting the contribution of direct support to delivering the 2020 target and longer term goals.

## Recommendations

The key findings were compared with a NAO model of approaches used in R&D planning, technology roadmapping and portfolio management to identify the following recommendations [see Figure 1].

- a. **Renewable delivery planning:** as a matter of urgency, clarify in its delivery plan for 2020 the extent to which direct support will be used to achieve deployment targets, based on an assessment of needs and type of support required for specific technologies and projects. The delivery plan should be updated annually. Plans should also prepare for delivering innovation in key sectors to achieve longer term carbon reduction commitments.
- b. **Long term financial support:** DECC should work with Treasury and delivery partners to establish how they can devise schemes that provide sufficient certainty to recipients and private sector co-investors over the long-term lifecycle for technologies, rather than the typical three year spending review period.
- c. **Data and appraisal:** DECC should base its RE delivery plan and associated technology plans on, good quality information on the amount and type of current and planned support; appraisals of the level of funding needed and lessons from previous evaluations; close cooperation with organisations in delivery to draw on their experience.
- d. **Coordinating support from delivery bodies:** gaps in the coordination of support that have resulted from autonomous delivery bodies having different remits should be addressed by the 2020 delivery plan. DECC should agree with each of the bodies how they will contribute to implementing the plan and associated long term innovation plans and include them in reporting arrangements.
- e. **Linking support to the delivery plan:** arrangements are not currently in place to link schemes and their support for individual RE projects to the overarching delivery plan. In delivering the plan DECC and delivery bodies should, establish the fit between the relevant objectives of projects and the plan; identify risks to achieving targets and interim milestones for development and deployment and approaches for mitigating them; and develop performance reporting to include common metrics across organisations to allow consistent evaluation and reappraisal of funding priorities.
- f. **Evaluation and reporting:** DECC should gather and publish annually information from delivery bodies on their spending on RE and impacts achieved in order to address the current failure to report in a transparent way the aggregate impacts or in relation to individual technologies.

Figure 1.

