

Evidence

Renewable energy potential for the water industry

Project summary SC070010/S5

Consultation with water companies revealed great differences in renewable energy generation between companies. Water-only companies are limited to hydro and wind power, with little success due to funding problems and planning uncertainty. Water and waste companies can demonstrate examples of wind and hydro power with an additional track record of using sewage to provide heat and power, according to a report by the Environment Agency.

The water industry is an energy intensive and closely regulated business that provides an essential service to the UK population. It is driven by increasingly stringent standards in water quality and service reliability. The industry is also required to become more sustainable, which is challenging when considering the energy intensive processes needed to ensure water supply and quality standards are met.

The UK Government has set targets to provide 15 per cent of our total energy from renewable sources by 2020. This should help reduce our greenhouse gas emissions and boost our security of supply as fossil fuels diminish. Major drivers are the renewable obligation order and climate change levy, along with increasingly stringent waste-processing legislation. Currently, the water industry uses around three per cent of the UK's energy and generates 8.5 per cent of this from renewable sources. Water companies have agreed to a voluntary target of 20 per cent renewable energy generation by 2020, and have the potential to generate up to a quarter of their energy renewably by then.

This report outlines the results of questionnaire survey of water companies, which reveals great differences in current and planned renewable energy generation between companies. Water-only companies are limited to hydropower and wind power, and have struggled to set up these energy sources due to funding problems, planning uncertainty and lack of incentives.

Water and waste companies, on other hand, have good examples of wind and hydropower with an additional track record of using sewage sludge for direct combustion and anaerobic digestion to meet waste disposal standards and provide heat and power. In fact, over 90 per cent of current renewable energy generation is through sludge combustion and digestion. This is where innovation and potential lies, through better treatment and emerging technologies such as fuel cells and co-digestion.

Limited competition within the water industry has hindered innovations in energy use, but other constraints include lack of funding and incentives for solar, wind and river hydropower, as well as Ofgem reducing the support for sewage gas. Planning and operational difficulties have also been encountered through waste legislation that prevents digestion of non-sewage waste (such as food waste), as well as stringent requirements for biofuels and problems with accessing the national grid to export excess energy created on site.

Hydropower and wind power have been shown to work at the megawatt scale by water and waste companies, but require suitable local conditions and are not supported by the regulator Ofwat unless directly related to the business.

In response to these constraints the water companies, Government and regulatory bodies must work together to unite research, development and testing of innovative technologies whilst developing a flexible approach to legislation, funding and planning to boost renewable energy. The report looks at the main barriers in legislation, funding and incentives and makes recommendations to overcome these.

Through collaboration on technology development, water company targets of 20 per cent energy generated from renewables could be exceeded and aspirational targets of 50 per cent on some wastewater treatment sites could become practical by 2020. Many water and waste companies expect to exceed their target of 20 per cent generation as early as 2010; this will be achieved through wider use of emerging technology.

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