

Biomass: An affordable energy solution

While the UK must undoubtedly strive to meet its tough carbon reduction and renewable energy targets, it must be also a key priority for Government to deliver decarbonisation affordably at best value for the British taxpayer. As a mature technology, proven at scale, biomass has a number of significant cost efficiencies and advantages in comparison to other renewable and low carbon options.

There are relatively long lead times for biomass projects and supply chain investments. In order to provide stability to the market and incentivise conversion, rather than just shut down, it is essential that policy and regulatory certainty, including levels of support, be set now for the long-term. Once this framework is secured, the biomass industry can mobilise to deliver low carbon energy quickly and affordably in the timescales required to meet our binding targets and mitigate gaps in supply.

Competitive, stable and proven

- Generating electricity and heat (Combined Heat and Power or ‘CHP’) from biomass in a single super-efficient process is one of the most cost-effective forms of renewable power.
- The technology behind biomass is proven and safe, although potential still exists for further learning, innovation and cost reduction. This means that in comparison to higher risk ‘first of a kind’ technologies where higher risk levels often mean incurring higher costs, biomass a very competitive low carbon to roll out.
- The **Mott McDonald report on levelised costs for DECC**¹ found that although biomass was already highly cost competitive, there was a further prospect that new biotechnology will lead to lower cost routes to convert biomass energy to electricity.
- Biomass, as recognised in the recent **Arup report for DECC**², has a very low capital expenditure requirement owing in large part to the ability to engage in **co-firing** of biomass with coal and, ultimately potential full conversion of existing plants to biomass.
- Due to European regulations (the **LCPD and IED**) requiring the retirement of c. 12GW of existing coal and oil fired³ plant, from 2016, there is an urgent need to bridge a gap in the energy mix. New build and co-firing of biomass with coal, and ultimately full conversion of existing plants to biomass, can play an important and cost-effective part in achieving this.

¹Mott McDonald: UK Electricity Generation Costs Update

<http://www.decc.gov.uk/assets/decc/statistics/projections/71-uk-electricity-generation-costs-update-.pdf>

² DECC: Review of the generation costs and deployment potential of renewable electricity technologies in the UK Study Report

http://www.decc.gov.uk/assets/decc/What%20we%20do/UK%20energy%20supply/Energy%20mix/Renewable%20energy/policy/renew_obs/1834-review-costs-potential-renewable-tech.pdf

³ National Grid GB Seven Year Statement 2009

http://www.nationalgrid.com/uk/sys_09/default.asp?action=mnch3_7.htm&Node=SYS&Snode=3_7&E=Y

- Biomass has predictable, stable sources of supply. It is also a diverse commodity, both by geography and type. As a result of these features, a mature biomass industry could be less prone to price volatility and could also provide stability against price shocks in other fuel sources.

A contributor to green growth and jobs

- The biomass industry has the potential to help contribute to green growth in the UK by enhancing the value of biomass sources. This would develop the UK biomass energy supply chain, incentivising better managed woodland, short rotation forestry, and the integration of biomass crops into farming crop cycles.
- If the biomass industry is given the support it needs to develop its potential, the Forestry Commission estimates that the woodfuel industry could generate £1 billion and support more than 15,000 jobs in the UK.⁴

Key Terms:

Arup Report: Arup is an independent engineering and design consultancy tasked by the Department of Energy and Climate Change (DECC) to review the cost and deployment potential of renewable electricity technologies in the UK up to 2030. [Arup's review](#), published in June 2011, looked at the deployment potential and generation costs

Combined Heat and Power (CHP): CHP is a method of power generation that combines the production of usable heat and power (electricity) into a single super-efficient process. As a result, CHP produces substantial savings on primary energy usage, resulting in considerable cost and environmental advantages compared to conventional electricity generation in which significant amounts of heat are wasted.

Industrial Emissions Directive (IED): The IED combined a number of earlier European Union directives governing industrial emissions within a single directive which came into force in January 2011.

Large Combustion Plant Directive (LCPD): The LCPD is a European Union Directive that aims to reduce acidification, ground level ozone and particulates by controlling the emissions of sulphur dioxide, oxides of nitrogen and dust from large combustion plants.

⁴ Forestry Commission: Woodfuel Implementation Plan 2011-2014
[http://www.forestry.gov.uk/pdf/FCE_WIP_Web.pdf/\\$FILE/FCE_WIP_Web.pdf](http://www.forestry.gov.uk/pdf/FCE_WIP_Web.pdf/$FILE/FCE_WIP_Web.pdf)



Biomass power and CHP

a sustainable part of the UK energy mix

[Mott McDonald report on levelised costs](#): The report provides an assessment of current and forward power generation costs for the main large-scale technologies applicable in the UK. The report was commissioned by the Department of Energy and Climate Change and undertaken between October 2009 and March 2010.