# Planning for Climate Change
# Case Study

**climatechangeskills** for planners

## Biomass Boiler Review

- **Local authority area:** Kirklees Council
- **Stakeholders:** Council officers, consultants, the Carbon Trust

## Summary

This project reviewed the effectiveness of, and potential solutions to, operational issues experienced with eight biomass (wood pellet) boilers installed by Kirklees Council.

## Key learning points

- Ensure biomass boilers systems are designed to suit heat requirements.
- Ensure there is a mechanism in place to measure biomass boiler efficiency.
- The system should be designed to minimise boiler cycling and ensure heat produced from biomass boilers is fully utilised.
- Implementing such measures will be much more straightforward if incorporated in a scheme from the outset and should not delay a boiler installation.

## Background

To help ensure minimal operational problems, user safety and maximum boiler efficiency the following should be considered when designing a biomass system:

- Design fuel feed pipes and storage to minimise pellet degradation.

- Carry out a Dangerous Substances and Explosives Atmospheres Regulations (DSEAR) Risk Assessment as part of the design and installation process.

- Incorporate a system to measure the heat output from the biomass boilers thereby validating projected carbon savings.

- Design the system so that the biomass boilers can act as the lead boiler, ideally with a thermal store installed to help integration with any back up gas boilers.

- If the system is installed as part of a design and build contract, ensure that the installers have the relevant expertise or have sought additional advice.

- Ensure that any installation is eligible for Renewable Heat Incentive payments.
- Given the high thermal efficiency of modern buildings, ensure the biomass boiler is correctly sized.

## Method

- Internal discussions were held on the effectiveness of the biomass systems installed.
- Consultants were commissioned to review the biomass systems installed.
- A team was established to implement the findings of the report.
- **Barriers**
- Lack of awareness in the biomass industry of applying DSEAR to Biomass systems. To overcome this staff read up DSEAR application and employed and an external consultant was employed to complete risk assessments.
- Lack of knowledge and expertise in the construction industry on renewable energy technology. In the future the track record of subcontractors employed to installs renewables will be more rigorously checked.
- **Resources**
- Biomass remediation work has been part funded from existing internal budgets and by contributions from Design and Build contractors.
- Considerable staff time was required to research DSEAR and other issues the report highlighted.
- The biomass review at Kirklees is still ongoing.

## Result - Key outcomes and impact

- Key outputs / deliverables
  - Review of existing and ongoing biomass installations including system design and efficiency monitoring
- Key outcomes / impacts
  - Once remediation work has been implemented the biomass systems will operate more efficiently and deliver improved carbon savings.
  - Biomass systems installed will comply with all Health & safety guidance.
  - The issue of monitoring new buildings in terms of compliance with carbon savings set out in the contract specification is being assessed.
- Good practice
  - To include a DSEAR assessment in design of wood pellet systems.
  - Include a method of measuring heat output from biomass.
  - Consider how biomass and gas boilers will interface.
  - Ensure someone is trained in maintaining biomass boilers.

# Key contact

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# References / Links

Carbon Trust Biomass Accelerator
http://www.carbontrust.co.uk/emerging-technologies/current-focus-areas/biomass/Pages/biomass-heat-accelerator.aspx

CO2 Sense Website and biomass guide
http://www.co2sense.org.uk

Biomass energy centre
http://www.biomassenergycentre.org.uk/portal/page?_pageid=73,1&_dad=portal&_schema=PORTAL