



CLASP.

Heat Supply Technologies & District Energy Networks

Thursday 7th April 2011

Delivered by:



CLASP. **Envirolink** **Quantum** **AECOM**[®]

Welcome

- Housekeeping
- Participation
- Calculations
- Networking

Climate Change Skills Fund

- Funded by North West Improvement and Efficiency Programme (NWIEP)
- Extension of existing CLASP programme – runs until June 2011
- Available to all North West local authorities
- Range of regional and sub-regional activities
- Low Carbon Technical Support Programme being delivered by Envirolink, in association with Quantum and AECOM
- Full programme can be found at www.clasp-nw.info

Technical Support Programme

- Envirolink are a Member of the Construction CPD Certification Service
- Programme Includes:
 - **Technical Workshops** (March – May)
 - **Low Carbon Briefings and Site Visits** (April – June)
 - **Independent Coaching Service** - advice and support on specific low carbon issues (March – June)
 - **Supporting Resources** – presentations and supporting resources uploaded onto CLASP website
 - **Knowledge Exchange** – networking planners and officers & enabling local authorities to act on climate change



Technical Workshops

- **Workshop 1: Sustainable Design and Low Carbon Buildings**
Thursday 3 March 2011, Manchester
- **Workshop 2: Sustainable Design and Low Carbon Buildings**
Tuesday 8 March 2011, Preston
- **Workshop 3: Stand Alone Renewable Electricity Technologies**
Wednesday 16 March 2011, Liverpool
- **Workshop 4: Stand Alone Renewable Electricity Technologies**
Tuesday 22 March 2011, Manchester
- **Workshop 5: Understanding Energy: Electricity Grids and Renewable Energy Connections**
Tuesday 29 March 2011, Warrington
- **Workshop 6: Heat Supply Technologies and Heat Networks**
Thursday 7 April 2011, Preston
- **Workshop 7: Understanding Energy Statements and Carbon Calculations**
Tuesday 12 April 2011, Manchester
- **Workshop 8: Planning for Climate Change Adaptation**
Tuesday 10 May 2011, Preston
- **Workshop 9: Planning for Climate Change Adaptation**
Thursday 12 May 2011, Manchester

Agenda

- Biomass and Low Carbon Fuels
 - Nigel's Box of Fuels
- Gas Combined Heat & Power
 - Calculating carbon
- Combustion of Biomass and Wastes
- Planning Considerations
- District Energy
 - Exercise
- Questions & Discussion



CLASP.

Overview of Sustainable Heat Technologies

Nigel Blandford

Timber and Bioenergy

The Mersey Forest

Delivered by:





**THE MERSEY
FOREST**
more from trees

Community Forest

Est. 1991

1 of 12

Partnership



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“The Mersey Forest is a mosaic of trees, woodlands and other habitats being created with communities for the benefit of people, wildlife and a thriving economy.”

- Long term vision – 30 year period
- A partnership – create 8000ha new community woodlands
- A forest team – to deliver the The Mersey Forest plan
- Projects and programmes

- Facilitate and co-ordinate the wider Mersey Forest partnership
- Liaison with private landowners, local authorities and businesses
- Fundraising and resource distribution
- Analysis/mapping of forest area
- Planning and policy
- Community engagement – e.g. school grounds, street trees, Friends of... groups
- Innovation and research e.g. green infrastructure, climate change adaptation





Processes and Technology

Biomass

BBC

LATER

with **JOOLS HOLLAND**

0290 2 41100

Biogas

Anaerobic Digestion

The digestion of biomass by microorganisms in the absence of oxygen. It produces:

- >50% methane
- <50% CO₂
- Small amounts of other gases.

Synthetic Gas “Syngas”

The combustion of biomass in an oxygen derived environment to produce a Syngas rich in carbon monoxide and hydrogen.

Uses standard or adapted
combustion technology but
the gas will need to be
“clean”





Bioliquids

Bioethanol

The digestion of carbohydrate rich biomass by microbes in the presence of oxygen.

Produces pure ethanol after a further separation process.

Biodiesel

Transesterification of organic fats to produce a natural diesel.

Fischer–Tropsch Process

A set of chemical reactions that convert a mixture of carbon monoxide and hydrogen (Syngas) into liquid hydrocarbons.

Uses standard or adapted
combustion technology.







Solar Thermal

A solar thermal collector is a designed to collect heat by absorbing sunlight. A liquid other than water is often used in the collector and a heat exchange system is then needed.







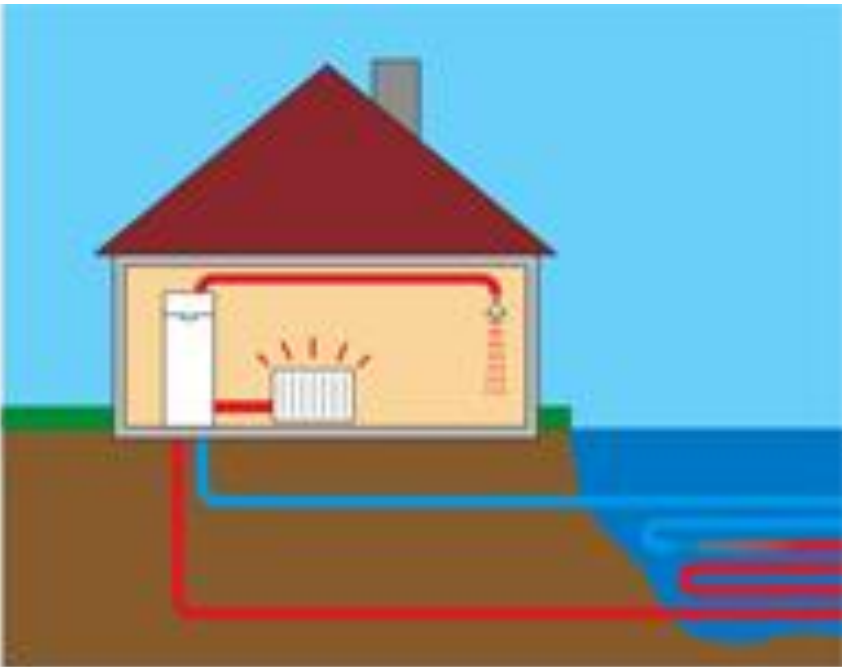


Heat Pumps

A heat pump is a device that moves heat from one location (the 'source') at a lower temperature to another location (the 'heat sink') at a higher temperature. It does this by using an intermediate fluid called a refrigerant which absorbs heat as it vaporizes and releases the heat when it condenses.



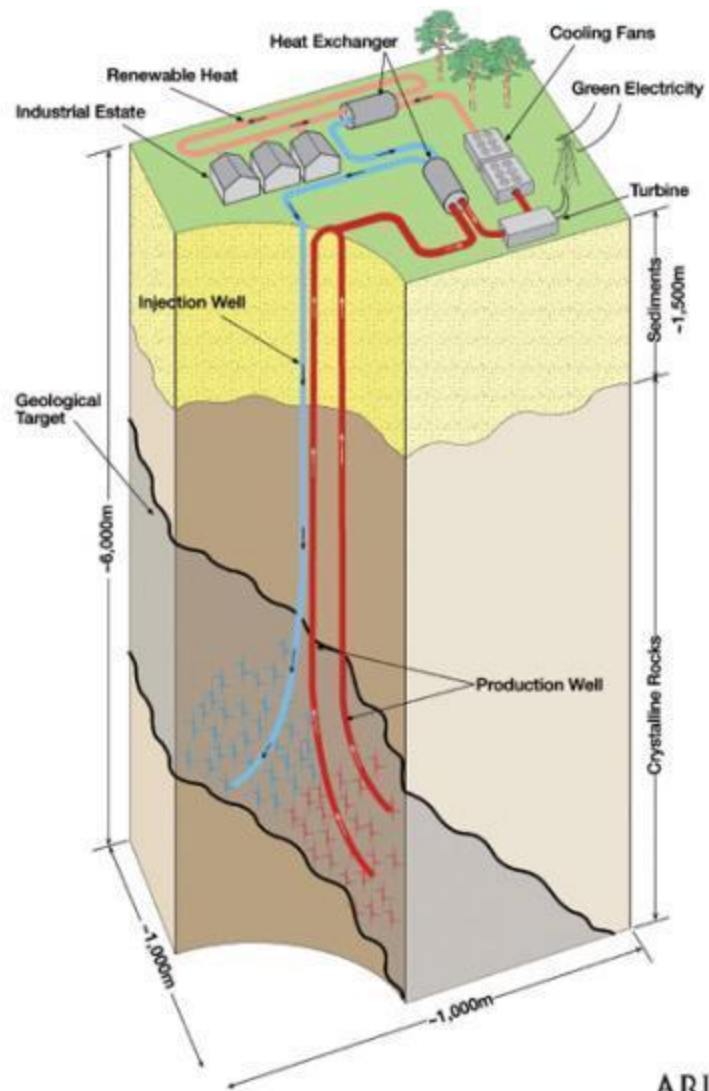






Deep Geothermal

Utilises “hot rocks” kilometres underground. Water is usually injected down one shaft and comes out as hot water or steam in another close by.



ARUP



Uses standard or adapted
heat transfer and heating
technology.

Thank you