

West Cumbrian Institution of Mechanical Engineers Members Cross the Border

Members of the West Cumbrian branch of the Institution of Mechanical Engineers ventured into the Scottish Borders yesterday on a “2 for the price of 1” trip to Dumfriesshire.

In what is being described as one of the best visits organised by IMechE West Cumbria, members were privileged in the morning to get a chance to see the newly opened 44MW Biomass Power Station operated by E.ON Climate & Renewables, close to Lockerbie in South West Scotland.

Built on time and on budget, Steven's Croft is one of the largest biomass plants in Scotland and will generate enough 'carbon neutral' electricity to power the equivalent of 70,000 homes every year. Burning biomass is regarded as 'carbon neutral', because the carbon released into the atmosphere when the material is burned is equivalent to the amount absorbed by the plant during its growth cycle.

Construction, undertaken by a consortium of Siemens and Kvaerner began in January 2006 with the plant handed over to E.ON only 18 months later and officially opened in March 2008.

The £90m scheme is making an important contribution to the UK effort to tackle climate change by displacing up to 140,000 tonnes of greenhouse gases every year, while at the same time generating 44MW of electricity for the National Grid.

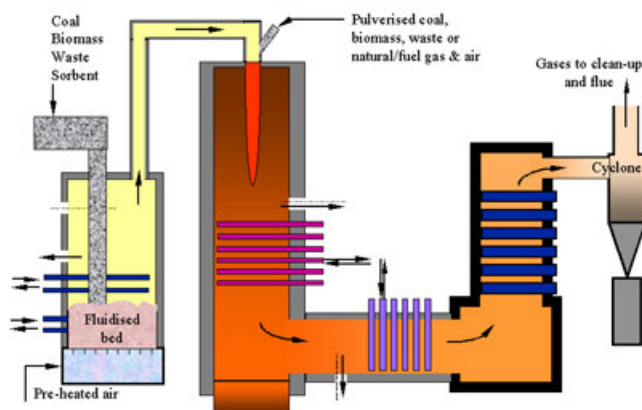


Figure 1 – The Steven's Croft Biomass Bubbling Fluidised Bed Combustion Process.



Figure 2 – Chairman, David Williamson thanks Ian Collison, Production Manager and his team for the visit

Steven's Croft will also see a further significant investment in the local and regional economy. Steven's Croft has been built at Lockerbie to be within 50 miles of three major Forestry Commission sites, thereby reducing transportation costs. It has created 40 direct jobs and will help to maintain up to 300 indirect jobs in the local forestry industry. Local farming will also benefit from the long term, low risk energy crop initiative being developed by E.ON Climate & Renewables.

The plant will require over 480,000 tonnes of fuel every year. The fuel is a blend of:

- 60% sawmill co-products and small round wood
- 20% short rotation coppice (willow)
- 20% recycled fibre (from wood product manufacture)

Currently, the power station is using a mixture of biomass fuels derived from forestry co-products such as sawdust from local saw mills and recycled fibre, but it is hoped to commence the use of coppice this autumn with an expectation that around 90,000 tonnes a year will come from willow harvested by local farmers.

[For further information visit: www.eon-uk.com/generation/stevenscroft.aspx]

In the afternoon the party made the short trip across to Dumfries through the beautiful Lochmaben countryside, for the afternoon visit to Gates Power Transmissions.

From its historical beginning in 1911 by Charles C. Gates, the Gates has been recognized as one of the leading manufacturers of automotive power transmission products. Gates Power Transmissions at Dumfries the world's highest volume manufacturer of synchronous belts employs approximately 370 associates producing 500,000 belts per week.

Half the factories production goes into the automotive aftermarket under Gates' own names and those of private labels. Another quarter goes to over 34 automotive original equipment (OE) market, with names such as Peugeot, Renault, Ford, BMW, Volvo and Mercedes to name but a few.



Figure 3 – An example of Gates Synchronous Belts at work.



Figure 4 – The IMechE visiting party outside Gates with Kevin Proudfoot, Production Manager & team

Today Gates at Dumfries is as clean as well as lean facility, and was recently recognised as the winner of the prestigious Best Factory Awards 2008 - Best Engineering Plant as well as receiving a Highly Commended Supply Chain Award.

The factories takes in 22,000 metres of raw fabric per week and uses two coating lines to supply its own belt manufacturing process as well as its sister plants in Europe and North America.

The belt manufacturing process involves cutting the prepared sheets into 'jackets' which are applied to a mould to form the belt teeth, wrapped in tensile glass fibre cord, covered in extruded rubber sheet and then cured under high temperature/pressure to form a fibre-reinforced cylinder which is then ground, screen printed and cut to form individual belts to customer specifications.

The plant is a shining example of Lean Manufacturing at work, with the company's Gates Production System (GPS), an adaptation of the Toyota Production System at the heart of its success. GPS is utilised across the plant to continually monitor the parameters and performance of the various production 'Cells', as well as driving other 'lean' disciplines such as 5S, TPM and Kanban.

GPS at Gates has contributed to an amazing downturn in scrap. In 2006, the Dumfries plant was running with scrap and defect levels at 3.5% (or £1m). This year that has been reduced to 1.8%.

[For further information visit: www.gates.com]

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