**PROJECT HIGHLIGHTS**

- Providing 40 MW of baseload renewable energy
- Enough energy to power 65,000 homes
- Creating 50 new jobs in fuel supply and 30 jobs in operation
- Generating 40 MW from 240,000t/y of straw

The Brigg Renewable Energy Plant is located near the town of Brigg in North Lincolnshire, UK. The development, owned by Eco2, is based at a brownfield site once owned by the British Sugar works. Eco2 will sell power from the project to Statkraft under a 12-year power purchase agreement. The plant will burn straw from the local agricultural community to generate enough clean energy to supply 65,000 households.

Under an equipment supply contract awarded by Burmeister & Wain Scandinavian Contractor (BWSC) A/S in February 2014, Alstom provided a 45 MW GRT steam turbine turbo-set which includes a single casing axial exhaust turbine and generator. The contract scope also includes auxiliaries and a control system. The GRT’s performance and efficiency were the main criteria in the contract award. With its knowledge of turbine and power plant design, Alstom was able to work with BWSC to optimise and improve overall plant efficiency.

In order to support the customer’s desire for a short installation time, Alstom supplied the turbine as a pre-configured frame-mounted packages. The ability to install the unit in 3-4 months saves several months compared with traditional methods of shipping main equipment as individual components and reassembling at the construction site, thus allowing the customer to begin generating revenue sooner. Alstom was also able to demonstrate a proven track record - this is the second contract signed with the Danish power plant specialist following the supply of a GRT turbine to the Evermore plant in Lisahally, Northern Ireland.

**CUSTOMER PROFILE**

BWSC is a global turnkey developer, contractor and operator of tailored medium to large-scale power plants – both conventional fossil-fuelled power plants as well as selected renewable and waste-to-energy technologies. It is building the plant for Eco2, a company that specialises in initiating, developing, financing and operating renewable energy projects throughout the UK and Europe.
ENVIRONMENTAL BENEFITS
The Brigg Renewable Energy plant will use over 240,000 tonnes of locally sourced wheat straw feedstock annually but will also burn wood chips as auxiliary fuel. The feedstock will be burned in a boiler primarily to create steam to drive the GRT turbine. The ash generated from the operation of the plant can also be recycled to make fertiliser.

ALSTOM’S SOLUTION
The GRT steam turbine is very attractive for biomass plants in the 40-50 MW size range. Alstom worked with the customer to optimise the number and location of feed-heating extraction points for optimum efficiency. Alstom were also able to implement a steam inlet valve configuration to improve overall plant efficiency.

TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Power Output</td>
<td>1 x 45 MW</td>
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<tr>
<td>Fuel</td>
<td>Biomass</td>
</tr>
<tr>
<td>Steam Turbine</td>
<td>GRT</td>
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<tr>
<td>Configuration</td>
<td>Condensing</td>
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<tr>
<td>Live-steam Pressure</td>
<td>111 bar / 539°C</td>
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<tr>
<td>Exhaust Pressure</td>
<td>0.065 bar</td>
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</tbody>
</table>

WHY CHOOSE ALSTOM?
• Supplier of over 20% of the world’s installed steam turbine capacity
• More than 100 years of rich and diverse experience
• Presence in more than 100 countries
• Solutions adapted to any type of fuel or industry
• Over 1,000 small steam turbines delivered (< 100 MW) totaling 17 GW

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