Wood from construction and demolition waste turned into biomass energy with Alstom’s GRT solution

PROJECT HIGHLIGHTS

- Clean, renewable energy for nearly 40,000 households
- Generating 44 MW from 1,000t/day of waste wood

The Plainfield Renewable Energy (PRE) biomass generation facility began commercial operation in December 2013. The plant, owned by Enova Energy, has a net power output of 37.5 MW, which is sold to Connecticut Light & Power under a 15-year power purchase agreement.

Under an equipment supply contract, Alstom provided a 44 MW GRT steam turbine generator set which included a single casing axial exhaust steam turbine, reduction gear, generator, auxiliaries and a control system.

Alstom’s GRT steam turbine features high performance, high efficiency and a modularised concept. In addition, supplying the turbine as a frame-mounted unit also helped ensure a reduced delivery and installation time.

CUSTOMER PROFILE

Leidos serves commercial and industrial, government, lender and developer, oil and gas, and utility clients. Its engineering and design solutions cover the full spectrum of energy, infrastructure, and environmental projects. Leidos is building the plant for Enova Energy, a clean energy development company specialising in developing and operating renewable energy assets.
ENVIRONMENTAL BENEFITS

The PRE project generates electricity from wood mainly derived from construction and demolition waste. Some 60-70 trucks each deliver 20t/day of wood that would otherwise be placed in landfills. The plant burns about 1,000t/day of this waste wood in a boiler to generate enough clean electricity for about 40,000 households. Notably, it provides about 15% of the amount of renewable energy that the State of Connecticut is required to produce under current legislation.

ALSTOM’S SOLUTION

The GRT steam turbine offers bespoke steam extraction options thanks to its modular architecture. It 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.

TECHNICAL SPECIFICATIONS

| Rated Power Output | 44 MW |
| Fuel | Biomass (wood chips) |
| Steam Turbine | GRT |
| Configuration | Condensing Extraction |
| Live-Steam | 102 bar / 510°C |
| Exhaust Pressure | 0.079 bar |

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

For more information, please contact Alstom Power Headquarters

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