

# Teesside / Port Clarence, England

WASTE WOOD-FIRED POWER PLANT, 40 MWe

PROJECT CASE HISTORY



Project developers Eco2 and Temporis Capital secured the site and planning consent to develop the Teesside biomass facility in Port Clarence, England. Following engagement on Eco2's Margam biomass project in South Wales, Babcock & Wilcox Vølund (B&W Vølund) and Lagan Construction Group were awarded the engineer-procure-construct (EPC)/turnkey contract for the facility without going to tender. Glenmont Partners secured financing and purchased the project at financial close, and B&W Vølund entered a 15-year contract to provide full operation and maintenance services.

The biomass plant is capable of processing waste wood, including contaminated wood and fuel containing metals, with no pre-treatment required. It is designed to generate 40 MW of green electricity, which is enough to supply 78,000 homes, and provides local employment opportunities through the construction and operational phases.

## *The solution*

B&W Vølund was selected based on our experience, innovation and solution-based approach. The key features are:

- EPC solution
- UK construction partner
- Technology
- Funding support
- Construction programme
- Operations and maintenance (O&M)

All the above significantly de-risk the project for the project developers and the plant owner.

## *The technology*

B&W Vølund's technology concept is based on in-house knowledge and many years of experience. It is designed for high efficiency, availability and performance to give an extended design life.

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B&W Vølund's solution is based on the patented DynaGrate® combustion grate technology, providing excellent fuel flexibility. The key benefits for the plant owner are:

- **References** – The DynaGrate is operating in a number of plants accepting a wide range of fuels, which is important to plant owners and lenders.
- **Few fuel constraints** – No pre-treatment of the waste wood is required whether contaminated and/or has metals within the same. It also potentially allows a wide range of alternative fuels to be processed in the future, such as commercial and industrial residual waste, SRF/RDF or other waste streams, mitigating the risk if:
  - the cost of fuel sourcing fuel increases.
  - the fuel supply changes over the life of the project.
  - a contracted fuel supplier exits the market.
- **Improved and simplified fuel handling** –
  - No requirement for pre-treatment – space and OPEX optimisation.
  - 100% fuel utilisation – no reject fuel from any pre-treatment .
  - On-site layout and logistics simplified – single point handling.
- **Fly ash disposal costs significantly reduced** – Compared to other grate technologies, the DynaGrate combustion technology produces significantly less fly ash reducing the generation of secondary waste to landfill.
- **Full recovery of ferrous metal from bottom ash** – It is possible to recover all ferrous metals from the bottom ash by applying simple back-end magnetic separation.

## Operation and maintenance

The Teesside plant is one of three recently signed 15-year O&M contracts by B&W Vølund in the UK. These and future UK plants will benefit from the UK-focused structure in place, with the added benefits of prompt servicing and provision of spares.

Plant design data		
Process parameters	Values*	Units
Waste capacity	35	t/h
Heat value	13.1	MJ/kg
Steam output	159.9	t/h
Steam temperature	500	°C
Steam pressure	80	bar
Boiler outlet flue gas temp.	227	°C
Feed water temperature	194	°C

\* All values refer to 11% O<sub>2</sub> dry gas

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