

# Breaking the mold to make power plant greener

THE LARGEST BIOMASS POWER PLANT IN THE NETHERLANDS HAS NOW ADDED STEAM TO ITS PRODUCT LINE. TO REALIZE THIS, DUTCH ENERGY COMPANY ENECO CHOSE TO FINANCE THE PROJECT SOLO, WITH A RELIABLE ENGINEERING PARTNER FOR QUALITY, SPEED AND A MINIMUM IN RISK. TOGETHER THEY BROKE THE MOLD OF CLIENT/SUPPLIER RELATIONSHIPS AND TRADITIONAL ENGINEERING SEQUENCES.

At its Bio Golden Raand power plant in Delfzijl, the Netherlands, Eneco has been producing green electricity since 2013. Refuse derived biomass and wood waste are burned to produce steam, which is then used to generate close to 25.5 MWe and 64 MWth - and save some 250,000 tons of CO<sub>2</sub> emissions. Mr. René Buwalda, Senior Project Manager at Eneco: 'We've made the plant even more sustainable by creating the possibility to also deliver steam to AkzoNobel in the nearby chemical industry park.'

For the first phase an integrated design and build team has been established. Project Manager at Tebodin, Mr. Hushang Ulfati: 'The unique thing about this kind of partnership is that all parties are completely transparent about their operations.'

Hushang continues: 'We adopted a fit-for-purpose engineering approach for the second phase, moving away from traditional engineering sequences. This called for great flexibility on the part of our engineers, and also, at times, a fair amount of leadership and initiative.'

## Completely transparent

'During the tender process we learned that the market was unwilling to share the financial risk of the whole project, so we decided to split the project in parts and manage it by ourselves, with Tebodin as our engineering partner', continues René Buwalda.

## Partners in full control

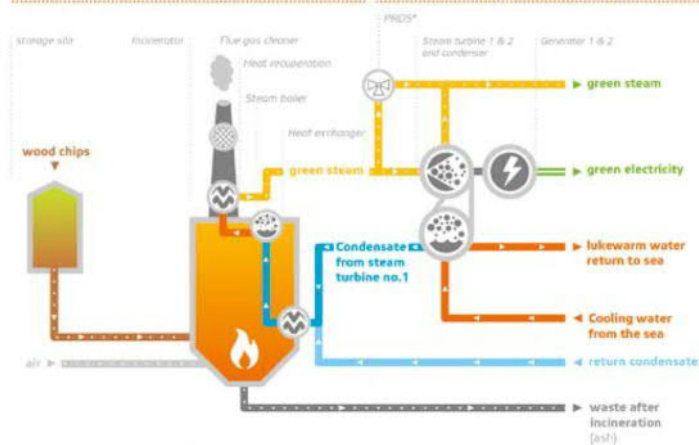
For the sake of progress, the engineers had to make assumptions about future stages, mainly because not all final specifications of the turbine were available at the time of commencing construction of the turbine building. Hushang: 'Similarly, construction of the piping system depended on an engineering package based on some vital technical assumptions. We have worked very closely with Eneco to assess the risks of this approach and take the necessary mitigation measures.'

Transparency and reliability were crucial requirements on this project. As time restraints forced the partners to start the execution phase before they could have a complete design. The project was divided into two phases: the first phase involved connecting the plant to the existing steam transport pipe, the second was to integrate a new steam turbine.

## Biomass energy plant

### 1. Combusting recycled biomass (wood)

### 2. Generation and export green steam & green electricity



\* Pressure Reducing and Desuperheating Station