

AFRY is recognised as one of the leading technical consultants for Biomass to Energy projects

# Biomass to Energy Consulting Services

# World leading Expertise in Biomass to Energy

**Our in depth knowledge across a wide spectrum of competencies coupled with 50 years of experience enable us to provide our clients with support across the entire life cycle of any energy investment- from the “development” phase to the completion of the plant.**

**We have completed some of the most complex biomass-to-energy projects across the world, having had a substantial role in the design and construction of more than 60,000 MW<sub>e</sub> of thermal electrical capacity.**

We have been involved in industrial scale Biomass – to – Energy projects since the 1970's. Plants and projects are located in Finland, Sweden, Estonia, Latvia, Lithuania, Germany, U.K., France, Russia, Poland, South Korea, Turkey, Thailand, Indonesia, Vietnam, Philippines, Papua New Guinea, P.R of China and Chile.

## EXTENSIVE TECHNICAL EXPERIENCE IN

- Biomass sourcing
- Fuel handling
- Boiler technologies
- Flue gas treatment and Flue Gas Condensers
- Steam turbines
- Balance of Plant (BOP)
- Heat storage
- Life cycle costs
- Refurbishment of existing facilities
- Performance optimization
- Combined Heat & Power (CHP)
- Due Diligence
- White and torrefied pellets production
- Sludge treatment systems
- Co-incineration of waste and biofuels
- Boiler conversions for Biomass firing
- Plant layout design
- Automation and electrical systems
- Biogas, anaerobic digestion

## WE OFFER THE FOLLOWING SERVICES IN THE FIELD OF BIOMASS-TO-ENERGY

- Pre-feasibility and feasibility studies
- EIA procedure / Environmental licensing
- Pre-engineering (incl. Procurement)
- Engineering Procurement Construction Management services (EPCM)
- Owner's engineer services (OE)
- Lender's Engineer services
- Contractor's engineer services
- Detailed engineering, delivery supervision, suppliers workshop QA/QC
- Project, site and commissioning management
- Supervision of guarantee and performance test procedures
- Training of technical personnel
- Troubleshooting
- Risk management
- Optimizations of combustion and plant
- Measurement and testing services
- Operation and maintenance advisory services
- Institutional and regulatory development in the energy sector
- Studies of alternative fuel policies and of fuel supply and handling
- Advice regarding project financing and associated Lenders Technical Advisory service
- Technical and Commercial due diligence services for sellers, buyers and lenders of power plants and power projects



For the last 50 years, AFRY has had a substantial role in the design and construction of several hundred biomass to energy Projects; delivering a total combined capacity of over 60,000 MW<sub>e</sub> and always implementing with state of the art boiler technologies. These Projects have utilised a wide range of fuel types, supplying power to national grid infrastructure and delivering steam to the local district heating networks of many cities.

## RECENT PROJECTS

### MGT Teesside, U.K.

- World largest biomass fired power plant
- Combusting wood chips and pellets
- 299 MW<sub>e</sub>

### North Negros Biomass, Phillipines

- Water cooled vibrating grate boiler
- Combusting sugar cane residues
- 25 MW<sub>e</sub>

### Oulun Energia Oy, Finland

- New Combined heat and power CHP plant
- CFB Boiler
- Fuel heat 194 MW<sub>th</sub> / 75 MW<sub>e</sub>

### Iggesund Paperboard Ltd, UK

- Fuel supply: fresh wood, bark, sawdust
- Steam generating capacity of the BFB boiler: 50 MW<sub>e</sub> / 30 MW<sub>th</sub>

### Fortum Jelgava SIA, Latvia

- CHP Plant with a biomass and peat -fired BFB boiler
- 23 MW<sub>e</sub> / 44 MW<sub>th</sub>

## Why are we different?

### Market understanding

Experience in more than 80 countries gives us deep insight into different international Biomass to Energy challenges.

### Whole Life Cycle Experience with Utility Background

AFRY has strong roots in utility companies, thus “equipping us with a” full understanding of the whole life cycle of power plants, including operation and maintenance.

AFRY is one of very few engineering consultants with a proven track record of delivering full Engineering Procurement and Construction Management (EPCM) services on complex projects. Our EPCM approach can unlock significant additional value for our Clients. We continue to receive valuable feedback from our ongoing Owner’s Engineer and EPCM projects.

### Best Tools

We utilize both in-house and commercially available software to assist the development and implementation of our clients’ projects. Examples of AFRY’s unique in-house software includes:

- Safety Stepwise process for management of health & safety related matters through the project phases.
- Co-Pilot for project risk management.
- Smart Site from project engineering to construction and commercial operation.

AFRY is a European leader in engineering, design, and advisory services, with a global reach. We accelerate the transition towards a sustainable society.

We are 16,000 devoted experts in infrastructure, industry, energy and digitalisation, creating sustainable solutions for generations to come.

Making Future

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