



EUROPEAN UNION
European Regional Development Fund
Operational Programme Enterprise
and Innovations for Competitiveness

Annex 1 - Specification of the subject of contract „CFD simulation of flue gas flow in the Vyncke boiler“

Specification of the subject of contract:

CFD simulation of flue gas flow in the Vyncke boiler, burning the RDF fuel

Project description:

The project aims at investigating the effect of different operating and geometrical parameters, like the fuel moisture content, the air distribution between the secondary/tertiary nozzles, as well as the air distribution between the nozzles on the front and back walls of the boiler, will be investigated. The variations in the geometrical parameters will be the distance between the secondary and tertiary nozzle rows, and the number of nozzles and diameter in each row. In the course of this parametric CFD analysis relevant processes affecting the plant performance like the effective air/flue gas mixing, the dead zones in the plant, the air nozzles performance, the flue gas residence time in each section of the plant, the peak flue gas temperature and velocity as well as their distribution in each section, the potential emission reduction, and the potential ash deposition (fouling) and erosion locations will be evaluated.

Work package	Package description	Scenarios
WP 1	Disintegration of the convective heat exchanger model (CHE) and incorporation of it into overall CFD combustion routine	N/A
WP 2	Sensitivity analysis regarding fuel moisture content with the current geometry and operating data of the plant	S1: $MC_{min}-AD_{base}$ S2: $MC_{max}-AD_{base}$
WP 3	Sensitivity analysis regarding air distribution and geometry variations	S1: $MC_{min}-AD_d$ S2: $MC_{max}-AD_w$ S3: MC-AD-GV S4: MC-AD-GV MC&AD: To be defined
WP 4	Coordination, administration and management of project activities	N/A

MC - fuel with moisture content (min – minimal, max – maximal, avg – average)

AD – air distribution

GV – geometry variations

Way of reporting the results: After the completion of the work under one package, the contractor shall prepare a written report with which he will inform the contractor by means of a personal meeting at the headquarters of the contractor or, if necessary, by videoconference.

BIOENERGY 2020+ GmbH
A-8010 Graz, Inffeldgasse 21 b

Dr. Walter Haslinger
CEO

