

Title: Control challenges faced by the Flexiburn project incorporating CFB, supercritical once through steam cycle, flexible fuels and air or Oxy firing with CO₂ sequestration in a CCS power plant .

Authors: Ken Slaven¹, Ricardo Requena Pérez¹, Jenő Kovács², Jari Lappalainen³, Antti Tourunen³

¹ADEX S.L. ²Foster Wheeler Energia OY ³VTT TECHNICAL RESEARCH CENTRE OF FINLAND

Summary

This poster outlines the nature of the control challenges presented by the Flexiburn FP7 project which involves the full utilisation of a new circulating fluidized bed (CFB) design and process advancements combining a supercritical, once through, steam cycle with the CFB boiler and an air separation unit together with a CO₂ sequestration unit for CCS. The process is capable of utilizing a wide range of fuels including various coals, biomass and other renewable sources, merging this with a flexible operation incorporating both air-firing and oxy-firing modes. The key to success of such a varying and challenging operating environment is a control system capable of dealing with all of the changing process dynamics to ensure that stability and plant efficiency is maintained.