

Company reflection on BECCU co-innovation

BECCU Final Workshop

24.8.2022

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Combustibility & Thermochemical conversion

Valmet Technologies Oy



From renewable resources to sustainable results

Unique offering combining process technology, services and automation

- Valmet has a long history of providing solutions that convert biomass into renewable energy and recyclable products such as pulp, paper, board and tissue
- Climate change is forcing the world to find resource-efficient, clean and intelligent solutions to produce CO2-neutral energy
- Technology plays a key role in the transition to the carbon neutral economy



Sustainable energy production

- Fuels have been driving FB development; new and lower costs fuels
- Megatrends have a strong influence on the development
- The main trends today are related to new low carbon fuel sources, resource efficiency and circular economy
- Increased awareness of sustainability issues
- Increase the use of renewable fuels and interest in bio-based residues and waste utilisation
 - Interesting fuels, e.g., agricultural fuels
- Towards a carbon neutral energy production in a resource-efficient way boosting the circular economy



Goal for Valmet's BECCU co-innovation:
Develop and improve agro-based biomass and utilization in a way toward carbon neutral energy production

Highlights from Valmet BECCU co-innovation project

Develop and improve agro-based biomass and utilization in a way toward carbon neutral energy production

Process demonstration combustion tests

- Combustion of selected fuel in 50 kW and 4 MW experimental CFB research units
- Demonstration of conceptual design of challenging feedstock combustion

Feedstock integration

- Chemical characterization of non-food agricultural fuels
- Validation and parameter optimization of different feedstock pre-treatment methods

Fouling and corrosion research with selected materials

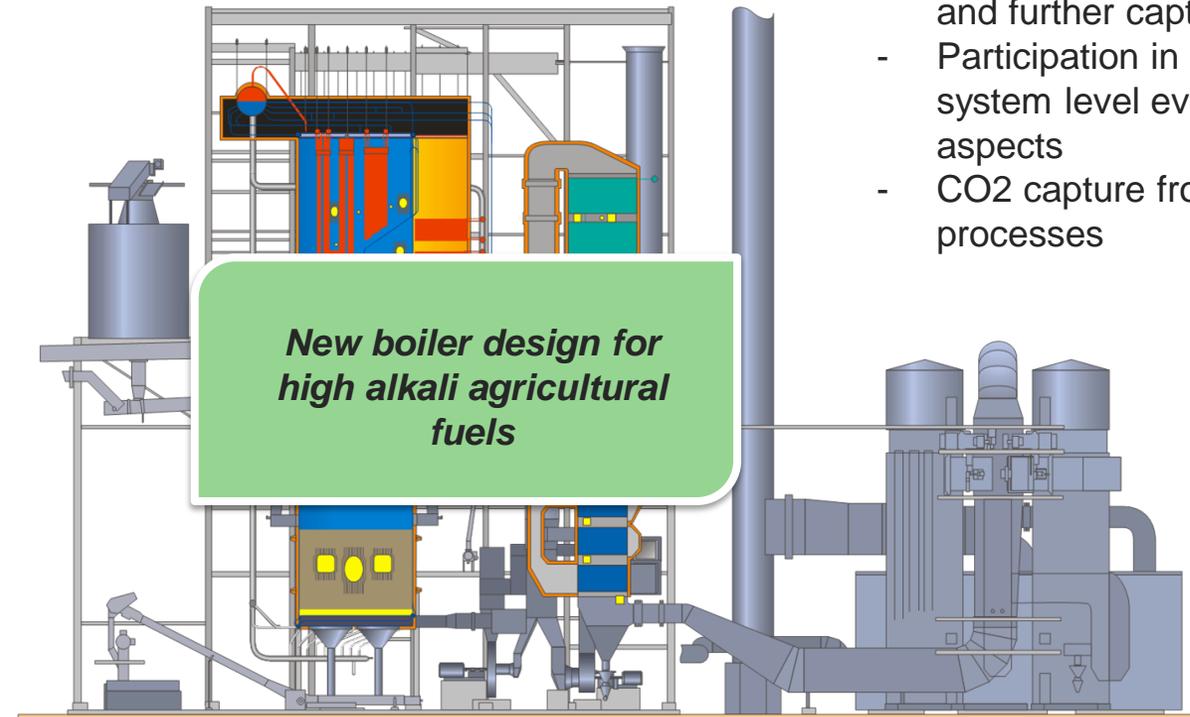
- High and lower temperature corrosion
- Slagging and fouling studies

Flue gas readiness for CCU/CCS

- Stricter emission limits and greenhouse gas reductions set more focus to CO₂ emissions reductions and further capture and utilization
- Participation in VTT driven project system level evaluation including TEA aspects
- CO₂ capture from biobased processes

Ash treatment and valorisation

- Research



Towards a carbon neutral future

- In Valmet, the aim is to enable 100% carbon neutral production for our customers and to improve the energy efficiency of our current offering by 20% by 2030
- Environmental awareness and resource efficiency are driving the development
- New-generation innovations consume less raw materials, chemicals and water
- By developing new technologies, the aim is to enable entirely carbon neutral pulp and paper production, using carbon neutral electricity
- Second generation biofuels and biomaterials production
- Enabling carbon neutral heat and power production with biomass-based energy solutions



100%

Biomass as fuel

10%

Energy efficiency increase with reheater

10%

Energy efficiency increase with flue gas heat recovery

50%

CO2 emission reduction with Advanced Process Controls



Let's move forward to
a carbon neutral future