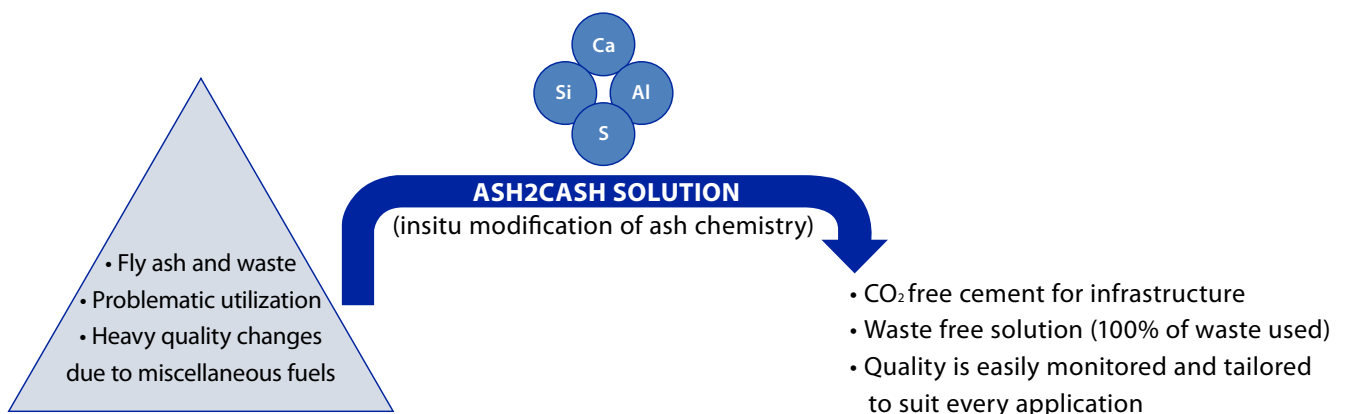


## ASH2CASH

Renotech has been actively developing Ash&Slag utilization applications in many fields since 1994.

Between 2012–2015 we participated in a Finnish nationwide R&D project during which we developed:

- Characterization and quality assessment tool for potential biomass derived pozzolanas+
- Ash2Cash combustion additive system for controlling ash quality



## TECHNOLOGY

The technology is based on deep understanding of ash formation chemistry.

The chemistry of biomass ash is related to that in traditional cement clinker manufacture. By optimizing the raw material feed by innovative combustion additives, we can transform the waste material to high-performance cement.

Additives are also shown to reduce typical problems in bio and co-combustion boilers such as slagging, fouling, and bed agglomeration

Treatment of Ash2Cash stream is followed by mechanochemical activation by a proprietary grinding system where the particle surfaces are activated by mechanical force. During grinding process various **locally sourced** waste materials can be used.

The whole system has been shown to reduce the use of traditional OPC based material by 30–100%. Thus enabling end-users to move toward Circular Economy in typically CO<sub>2</sub> heavy applications. Among the fields of application are:

- Soil Construction
- Treatment of contaminated soils
- Mining applications

## WE OFFER

Service based solution to transform waste fly ash into CO<sub>2</sub> free product. Our service includes:

- Boiler assessment Fly ash assessment
- Choosing of additives
- Logistics
- Sales and continuous quality control and improvement.

## TECHNOLOGY SHEET – ADDITIONAL PARAMETERS

Identified additives

Biomass boiler / CFB-BFB 50 – 500MW		
Fuelmix (dry) ash amount %	Additive amount %	Comment
5-8	2,5 – 4	Approximate additive amounts dependent on additive and fuel mixture type.
3-5	1-2	
1-3	0,3-1	

- Limestone based solutions have been in operation on
  - 100 MW BFB boiler with peat and wood as fuel
  - 495 MW CFB boiler with peat and wood as fuel
- Additive feeding
  - Option 1: Additive silo attached to boiler with possibility to control loading
  - Option 2: Premixed within Fuel silo
- Risk control
  - Reduces fuel alkali and associated risks
  - Increases melting/softening point of ash mixture
  - Increases amount of circulating ash

## Flowsheet

