

Biomass Combustion services

Biomass plays a major role in fulfilling national renewable energy production targets for 2020 in the EU, accounting for roughly half the estimated EU growth in renewable energy capacity. The bulk of the biomass contribution will have to be met through large scale co-firing of biomass. Large scale, high-percentage co-firing of biomass requires significant changes in operation of (coal) combustion installations as it brings a large number of processing challenges to cope with.

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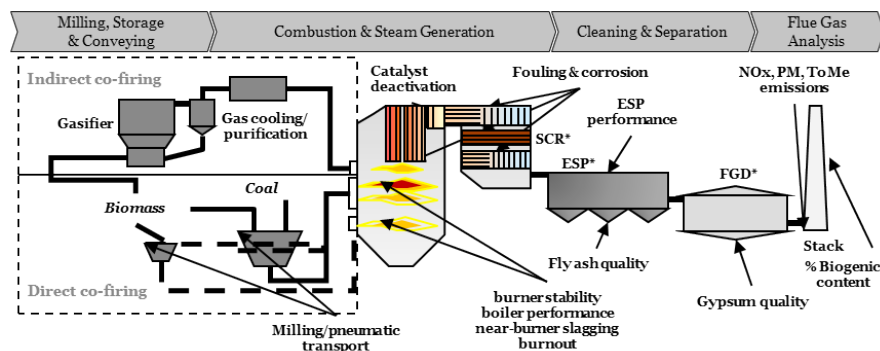
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Optimization of thermal processes

ECN can help optimise (co-) firing biomass in thermal processes. We have over 25 years of hands-on experience in numerous parts of the biomass to energy value chain: from feedstock characterisation, grinding and milling advisory services, to complex analysis and simulation of combustion behavior of fuel blends, measurement and removal of toxic emissions from flue gases, measurement of the biogenic component of energy production.

Deep knowledge of technical bottlenecks in bio-energy based thermal processes



We provide various (biomass) combustion services to support our clients with operational optimization of thermal processes. With our advanced equipment, we conduct state-of-the-art analysis, tests and simulations, on-site or at our own test facilities. Examples include: measurement & validation campaigns, emissions monitoring, complex analysis of bio-fuel blends.

We have supported many clients in optimizing biomass combustion and gasification processes - helping them to achieve higher efficiency at a lower cost, with lower equipment wear and tear and fewer unwanted waste products.





Scope of our services

We support customers in the development of a co-firing strategy, in design of the most optimal process and in solving problems during operation. Our additional expertise in renewable energy policy allows us to support clients with policy related issues as well as transaction related services including technology due diligence and policy scans.

What can ECN do for you? Our biomass combustion services include:

- All fuel (solid & liquid) analysis, low-cost fuel screening, assessment on fouling, corrosion and emissions, boiler diagnostics, process de-bottlenecking
- Complex simulation and analysis of biomass co-firing behaviour using our bespoke 'Lab-scale Combustion Simulator' (LCS). Suited for solid and liquid fuels, combustion and gasification
- Process monitoring and control: on-site measurement systems and equipment for gas analysis, slagging and fouling analysis, agglomeration and steam flux, ash deposition
- Capabilities to measure emissions (particulates, tars, NO_x, SO_x, and dioxins) and develop abatement strategies
- Bench-scale systems to test combustion, gasification or pyrolysis of all feedstock and to determine risks of corrosion
- Advisory services on residual heat management, biomass residue management
- Measurement and validation campaigns
- Cascading opportunities: effective valorisation of biomass, integration with other initiatives & multi party solutions
- Renewable energy policy support

About ECN

ECN is the largest energy research centre in the Netherlands and one of the leading institutes in applied energy research in Europe. Our mission is to develop renewable energy technology with and for the market, thereby contributing to a future sustainable energy system. We're positioned in-between universities and industry, and we aim to bridge the gap between fundamental 'blue-sky' research and commercial application.