

Waste incineration plant optimisation

Title: 6538 - Support system for waste incinerator operators

Proj. man.: Weel & Sandvig Energi & Procesinnovation Aps, Mogens Weel Hansen, ☎ +45 2671 0046

Grant: PSO – DKK 961,000

Tool development for op. improvements through reconstruction to illustrate importance of waste composition, furnace temperature, dynamics.

Incineration plants/aerosols & chemical reactions

Title: 6517 - Laboratory investigations of aerosol formation and chemical reactions in the flue gases from biomass and waste incineration plants

Proj. man.: Dep. of Chemical Engineering Hans Livbjerg, ☎ +45 4525 5535

Grant: PSO – DKK 3,018,000

Alkaline comb. influence on aerosol formation, incl. boiler coating. Some additives reduce aerosol formation, limiting coating.

Straw infeed and fuel optimisation

Title: 3338 - Improved straw infeed and fuel optimisation

Proj. man.: Dong Energy A/S, Charles Nielsen, ☎ +45 7622 2406

Grant: PSO – DKK 978,639

4 online straw crane moist. meter syst. acquired, mounted. Constant fired straw effect control concept developed, implemented, not tested. After proj. 4100, proj. 3322 & 3338 voided.

LT_CFB gasifier/500 kW tests

Title: 4833 - LT_CFB gasifier/500 kW tests

Proj. man.: DFBT, Peder Stoholm, ☎ +45 4677 5907

Grant: PSO – DKK 5,088,000

Gasifier process model. 4 long-term tests. Success criteria: fuel flexibility, op. stability, economic feasibility, ash melting avoidance, reduced coke loss, efficient ash/nutrient retention.

Solid biofuels/QA systems

Title: 4115 - Pre-normative work on sampling and testing of solid biofuels for the development of quality assurance systems

Proj. man.: Dong Energy A/S, Charles Nielsen, ☎ +45 7622 2406

Grant: PSO – DKK 4,589,000

EU-project "BIONORM"/Danish initiative on wood chip moisture determination. Method with low/known volatile component discharge. Methods for reliable on-site/on-line moisture measurements.

Volatiles conversion in combustion

Title: 6518 - Mechanisms for conversion of volatiles in biomass and waste combustion

Proj. man.: Department of Chemical Engineering Peter Glarborg, ☎ +45 4525 5535

Grant: PSO – DKK 3,038,000

Chemistry of SO₂ and HCl emissions, aerosol/coating formation, corrosion in biomass combustion. Models of reactor tests from literature on HCN/NH₃ conversion.

Deposition/corrosion in straw-fired boilers

Title: 6513 - Relations between combustion, deposition, flue gas temperature and corrosion in straw-fired boilers

Proj. man.: Dong Energy A/S, Søren Aakjær Jensen, ☎ +45 4480 6000

Grant: PSO – DKK 2,915,000

Chloride/potassium = treatm. prob. Additives for flux prob. Add to biomass w. lower chloride/potassium cont.; get 100% KCl-convers.; processable resid.

Corrosion investigations at CHP

Title: 6510 - Corrosion investigations at the Maribo-Sakskøbing combined heat and power plant

Proj. man.: Dong Energy A/S, Lars Storm Pedersen, ☎ +45 4480 6660

Grant: PSO – DKK 2,011,000

2006 follow-up meas. on biomass-fired CHP in Maribo-Sakskøbing, commissioned in 2000. No signs of corrosion in superheaters but initial material loss in input channels and on grate.

Improved straw infeed

Title: 3322 - Improved straw infeed

Proj. man.: Dong Energy A/S, Charles Nielsen, ☎ +45 7622 2406

Grant: PSO – DKK 631,515

Design changes to Enstedværket's biomass boiler straw scarifier; feeding channel temp. regulation, screw conveyor control tests. Weighing cells, length meas. equipment on feeding belts (4 straw lines).

Deposit removal in bio-fueled boilers

Title: 3144 - Optimisation of deposit removal in bio-fueled boilers

Proj. man.: Dong Energy A/S, Charles Nielsen, ☎ +45 7622 2406

Grant: PSO – DKK 1,025,000

Examination of 1 Swedish, 11 Danish biomass-fired boiler plants; focus on coatings on boiler surfaces. Coatings appear on all plants; precautions necessary.