

## Reference list 11/2018

### Biogas piloting trials

Potato cell liquid co-digestion  
Golf course waste  
Hamina Energy, Industrial sludge  
Hamina Energy, co-digestion sludge + fish waste  
Hamina Energy, bakery wastes  
Energy crops  
Low quality cooking oils  
Reed canary grass  
Biomass from wetlands  
ESBIO -program  
Greenhouse leaf mass  
Industry wastewater sludge  
Long term energy crops  
Slaughterhouse waste  
Fur animal manure  
Biowaste and municipal sludge co-digestion  
Horse manure dry digestion  
Poultry manure dry digestion  
High lignin content biomasses, lab scale  
High lignin content biomasses, pilot scale  
Co-digestion trials, farm- and agroindustry waste  
Fur animal manure dry digestion, lab scale  
Co-digestion trials for manures and agroindustry waste, long term trials  
Oat straw monodigestion trial, dry process  
Agave bagasse dry digestion trials  
Poultry manure, straw and landscaping grass dry digestion trials  
Lignocellulosic material entzyme treatment & biogasification trials

### Biogas upgrading & refuelling

Biogas Upgrading unit 180 kW, Leppävesi  
Pilot scale Upgrading unit 42 kW, Jyväskylän University  
Biogas Upgrading unit 240 kW, North China  
Biogas Upgrading unit 60 kW, UK  
Biogas Upgrading unit 360 kW, Joutsa  
Biogas Upgrading unit 360 kW, Leppävesi  
Biogas Upgrading unit 60 kW, Australia  
Biogas Upgrading unit 360 kW, Hyvinkää  
Biogas Upgrading unit 360 kW, China (under constr.)

### Gas pressurization technology

Hydraulic booster, Leppävesi  
Hydraulic booster, Hyvinkää (under constr.)  
Hydraulic booster, China (under constr.)

Pressure reducing system, Gasum

### Biogas plants, wet fermentation

Biogas plant 50kWe, Leppävesi  
Biogas plant 30kWe, Halsua  
Biogas plant 20kWe, Maaninka  
Biogas plant 360kW upgraded gas, Leppävesi  
Biogas plant 240kW upgraded gas, China  
Biogas plant for education, Kouvola  
Biogas plant for education, Mikkeli  
Lab reactors, MTT  
Biogas plant 250 kWe, Juva  
Biogas plant 50kWe, Piikkiö  
Biogas plant 150 kWe Huittinen  
Biogas plant 100 kWe, Viro  
Biogas plant 360kW upgraded gas, Joutsa  
Lab reactor system, Tampere  
(forest industry waste)

### Biogas plants, dry fermentation

50-100 kW raw gas power, Leppävesi  
biomasses: grass, dry manures, straw

50-200 kW raw gas power, Kouvola  
biomasses: green waste, grease

360 kW upgraded gas, Hyvinkää  
biomasses: grass, horse and chicken manure

Lab reactor system for Natural Resources Institute Finland

4,5 MW raw gas power, China (under design)  
biomass: straw

360 kW upgraded gas, China (under design)  
biomass: field biomass like grass and straw