

Clean Gasification Combustion



The Enabling Technology



Direct Combustion Of Solid Fuels

The Most Efficient Energy Pathway

- SPACE HEATING
(biomass pellet stoves)
- Central Heating (biomass furnaces/boilers)
- Burners for process heat & for drying grains
- Micro Combined Heat & Power



VERSATILITY

BIOMASS FUEL & AG PELLETS PREDICTABLE ENERGY

- Spoiled Grains
- Densified Crop Residues
- Whole Cobs
- Dedicated Energy Crops



Factors Driving Space Heating And Micro-Cogen Market Opportunities

- Increasing cost of fossil Fuels and electricity
- Reduction in available reserves
- Increasing demand for electricity
- Increasing cost of transmission and distribution
- Deregulation of the electricity generation industry
- Heightened environmental priorities
- The economics of cogeneration
- New technologies

Mutifuel Space Heating



Space Heating Advanced Gasification Combustion



Central Hot Air/Hot Water Furnace Multi-fuels

DELL-POINT REPLACES NATURAL GAS
The World's First Venturi Gasification Furnace



The image shows a large industrial furnace system. On the left is a control cabinet with a viewing window showing a fire. A large hopper on the right is filled with biomass fuel (grains and wood pellets) and is labeled "BioEnergy Fuel Systems". A pipe connects the hopper to the furnace. The background is a blurred image of a field.

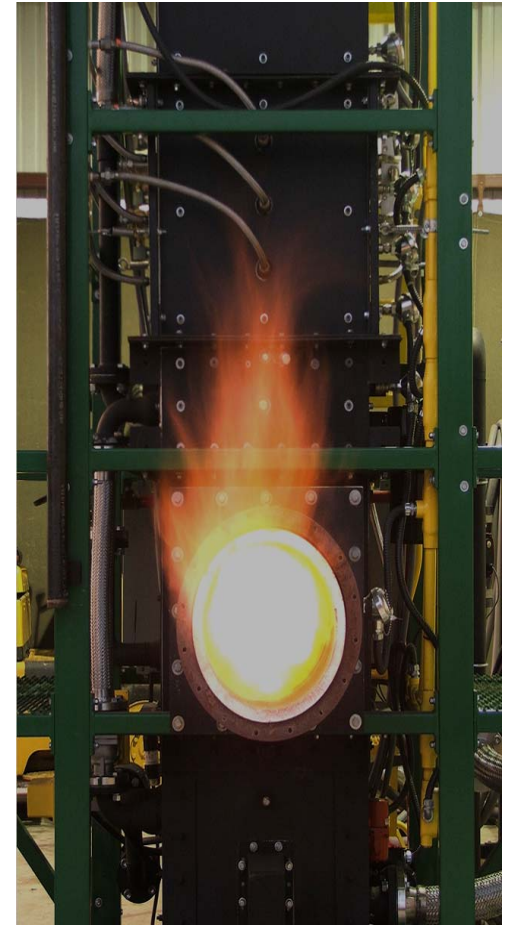
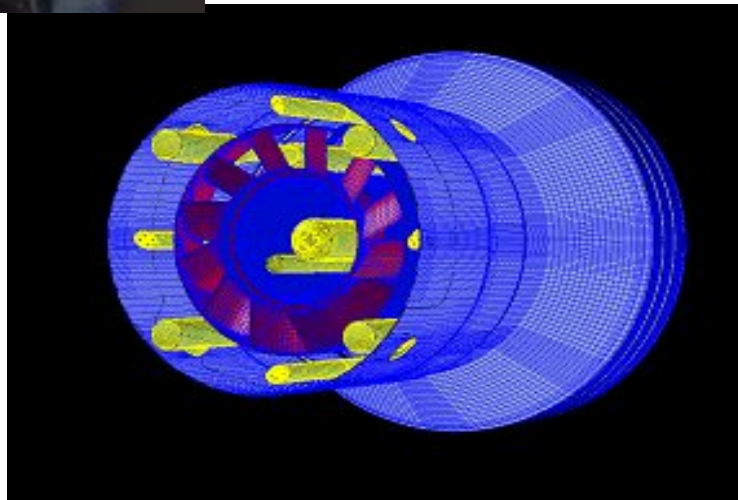
**2004
WINNER**
Canada's
Energy Efficiency
AWARDS
2004

Biomass Fuels
Grains & Wood Pellets
86% overall efficiency
Heats 6,000 - 7,000 Sq. Ft.
Thermostatically
Controlled

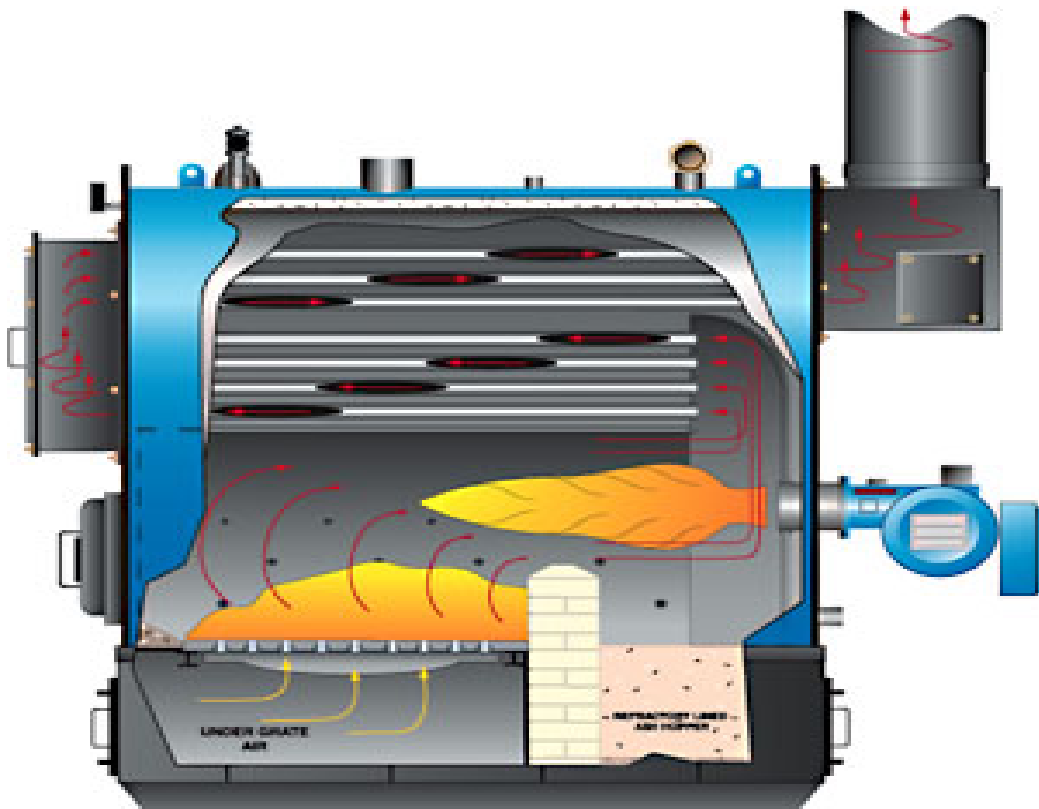
**UNITED STATES • JOINT
ENVIRONMENTAL PROTECTION AGENCY**

DP 120 Venturi Hot Air Furnace 120,000 BTU

GASIFICATION COMBUSTION EFFICIENT CLEAN VERSATILE



REPLACE THE BURNER NOT THE BOILER



- Lower Retrofit Cost
- Lower Energy Costs

BENEFITS

Of Close Coupled Gasification Burners

- **Eliminates hot gas clean up**
- **Eliminates the cost of an economizer and particulates trap and plugging**
- **Eliminates air filtration systems which removes flue gas particulates from exhaust**
- **Clean CO₂ gas for Greenhouse Plant Enrichment**
- **Reduced System Maintenance Outages**



BIOMASS BURNER FLEXIBILITY

- 1 MILLION BTU OUTPUT USED FOR GRAIN DRYING IN THE FALL
- SAME BURNER ATTACHES TO A CENTRAL BOILER FOR HEATING IN WINTER

Gasification Energy Island Electricity Hot Water & Co₂ Enrichment Via Clean Exhaust Into Greenhouses



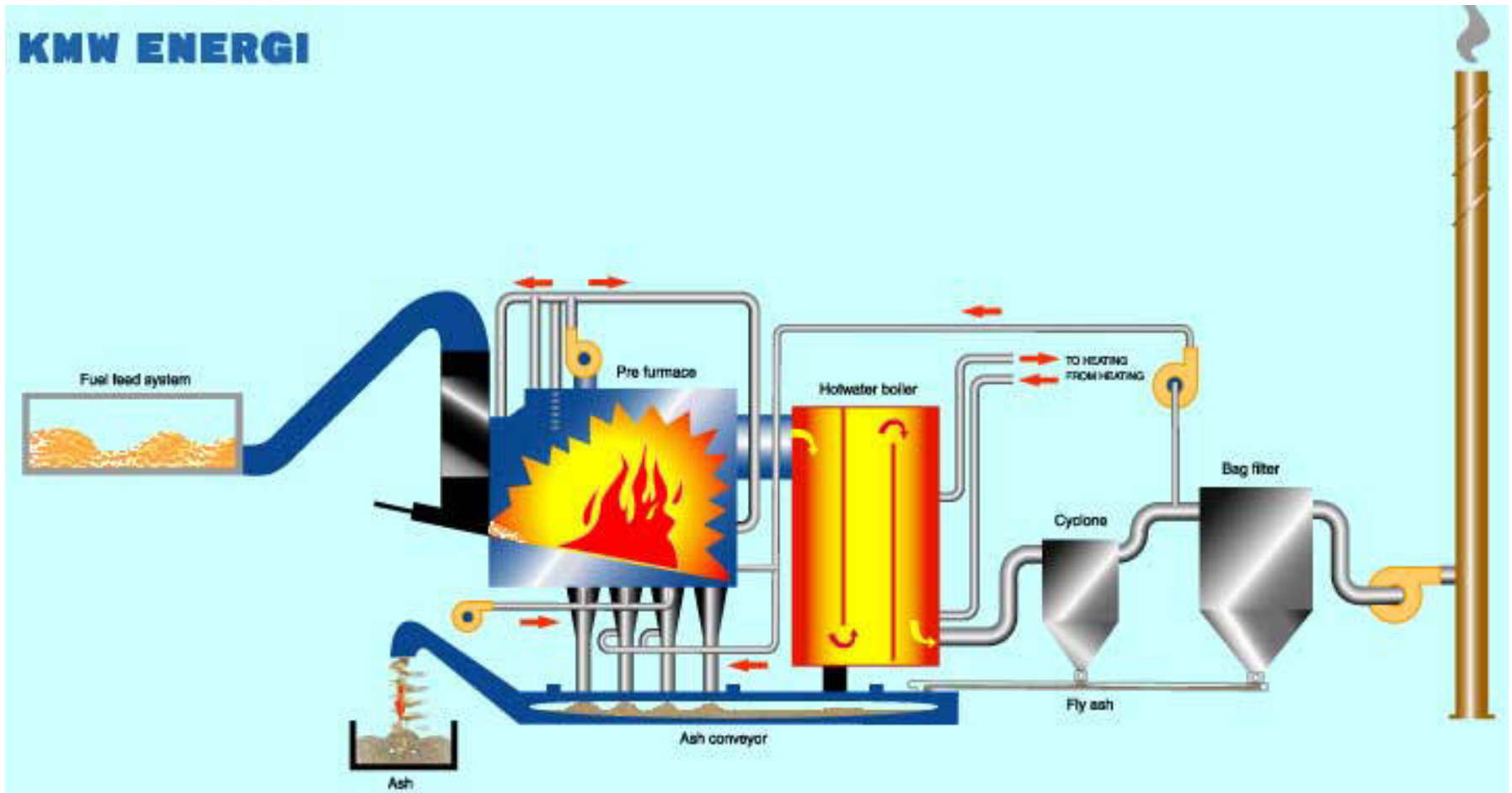
CHP Plants 5-80MW

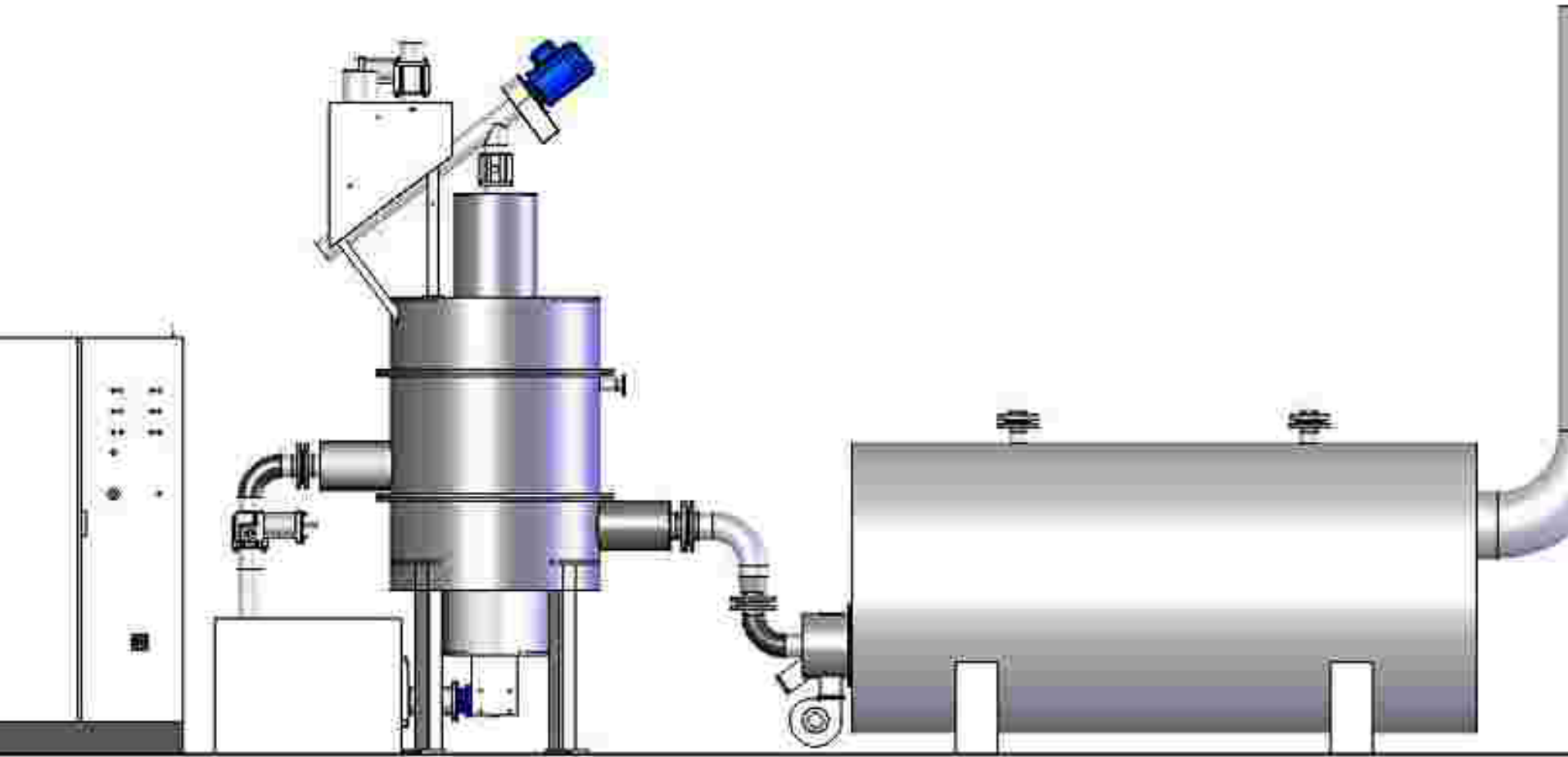
EnvioEnergi

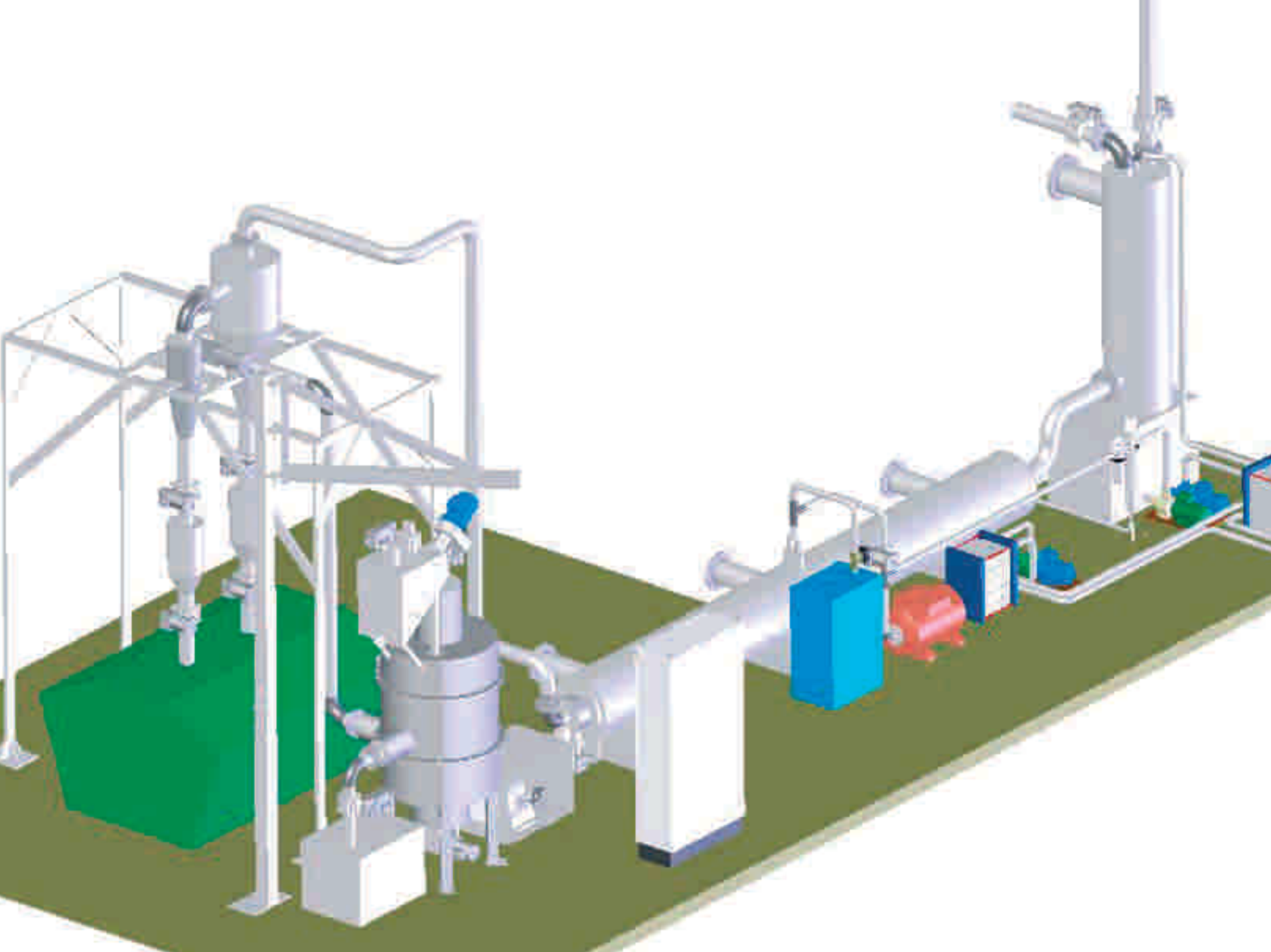
Pellets or up to 60%MC Fuels

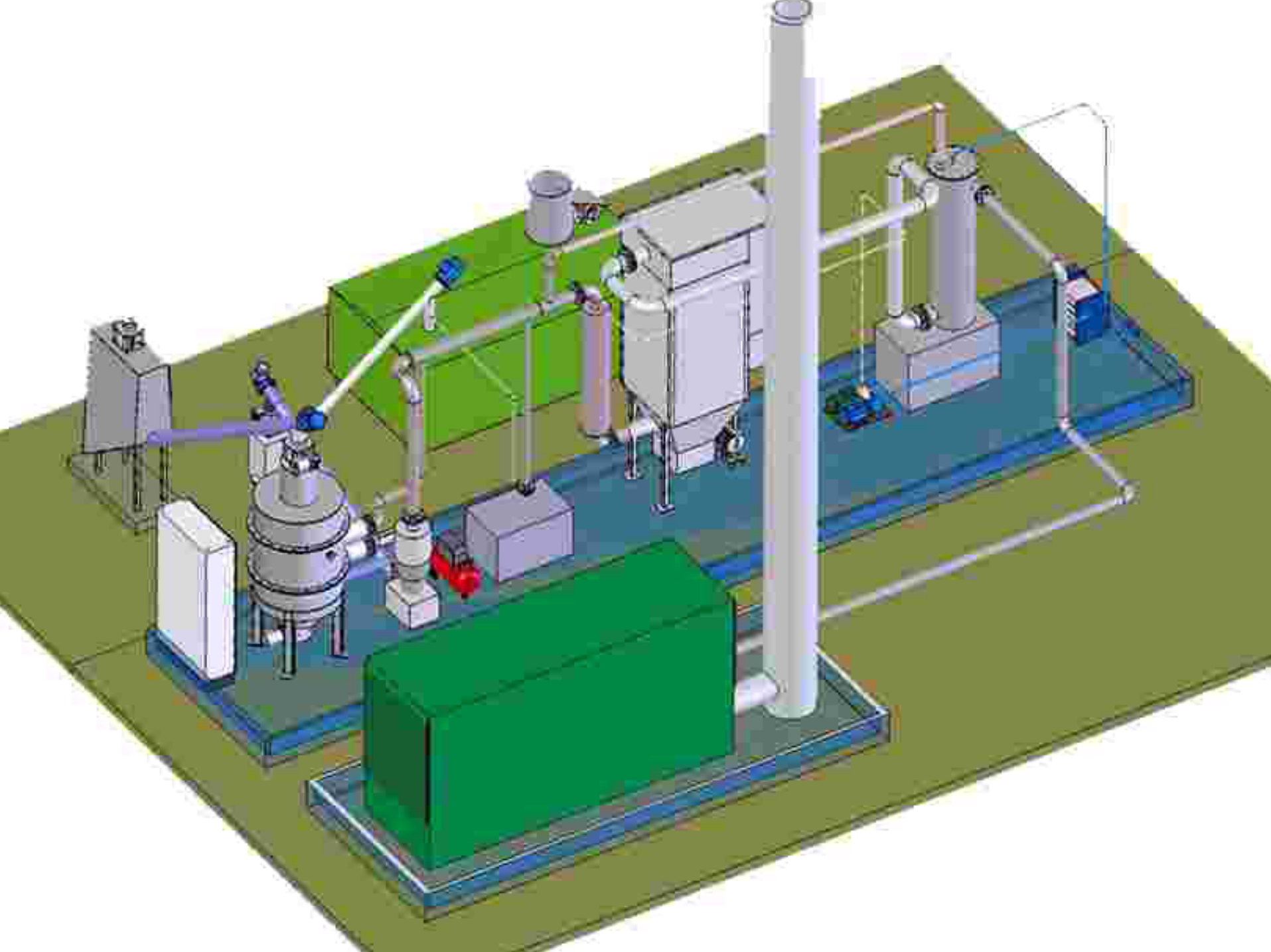


COMBINED HEAT AND POWER (CHP)

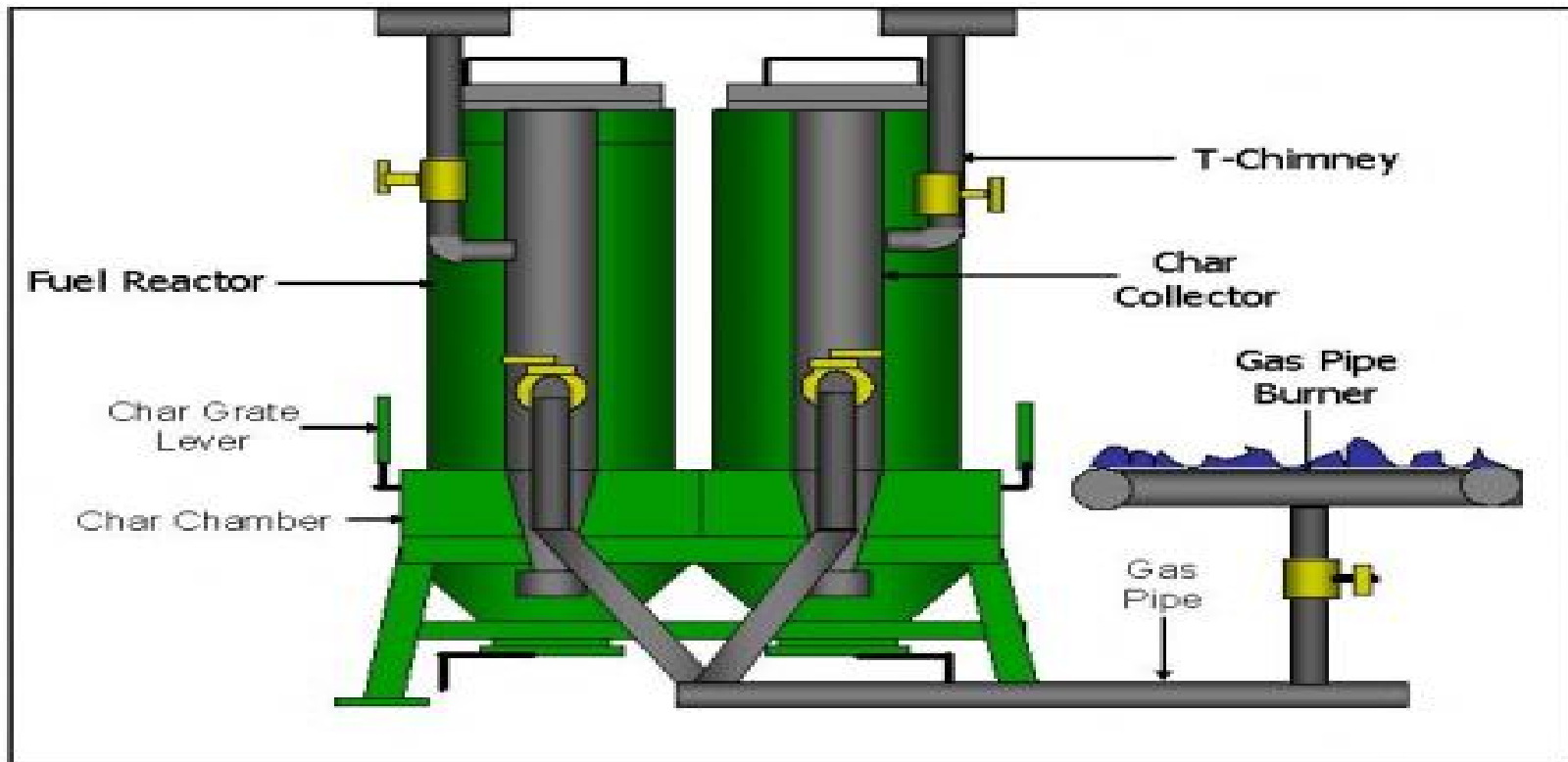






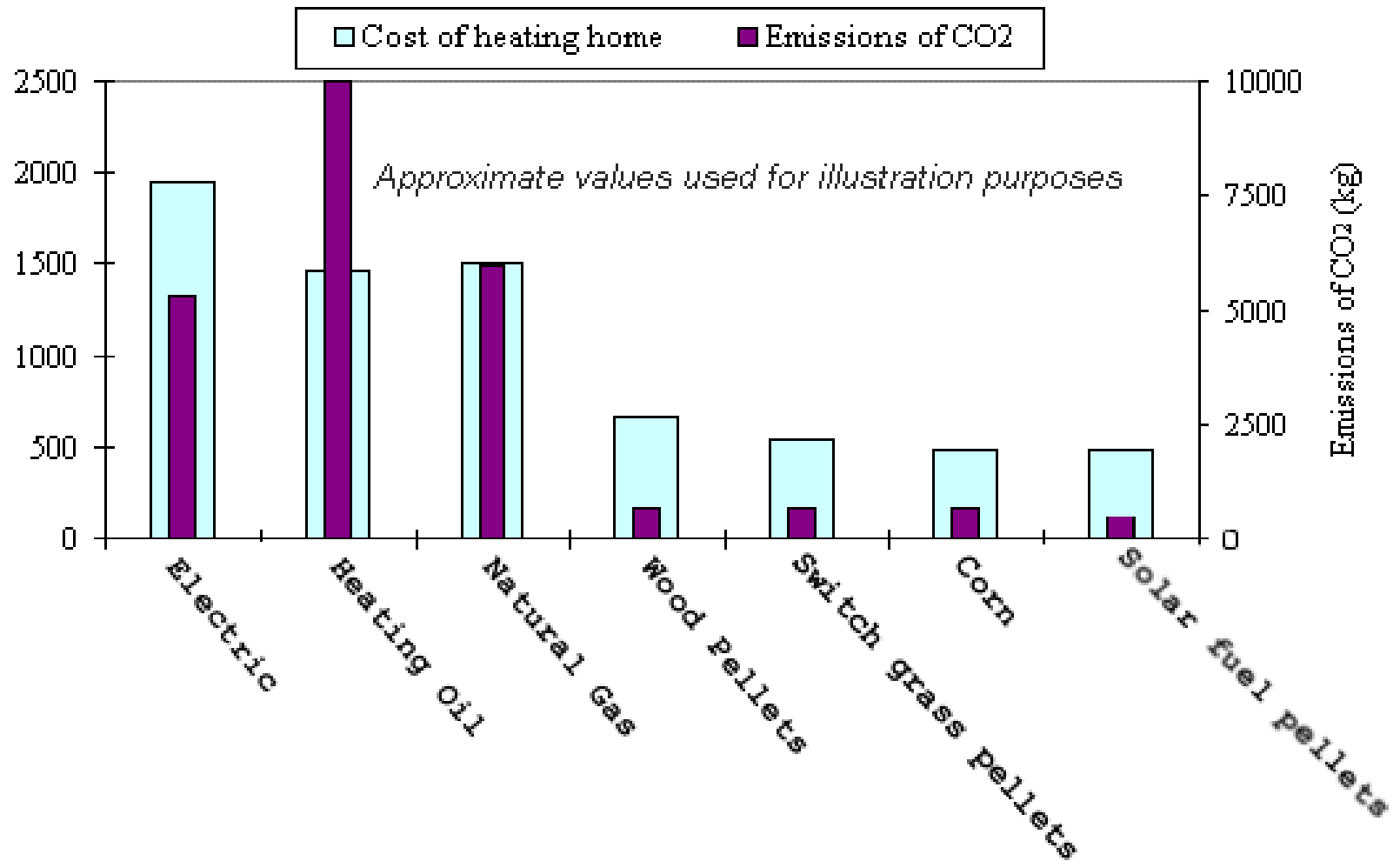


GASIFIERS FOR COOKING IN DEVELOPING COUNTRIES



Schematic Drawing of the Dual Reactor
Rice husk Gasifier

Home Heating Costs



Agriculture Residues and Dedicated Energy Crops

- INCREASES FARM REVENUES
- DIVERSIFIES FARM INCOME
- CREATES RURAL AND SEMI RURAL BUSINESS OPPORTUNITIES

