



**Gasek**  
**ENERGY SOLUTIONS**





The woodgas  
container and  
wood chip  
storage



Fuel: wood chips





The woodgas  
container  
producing heat  
and electricity  
in winter  
(-35 °C)







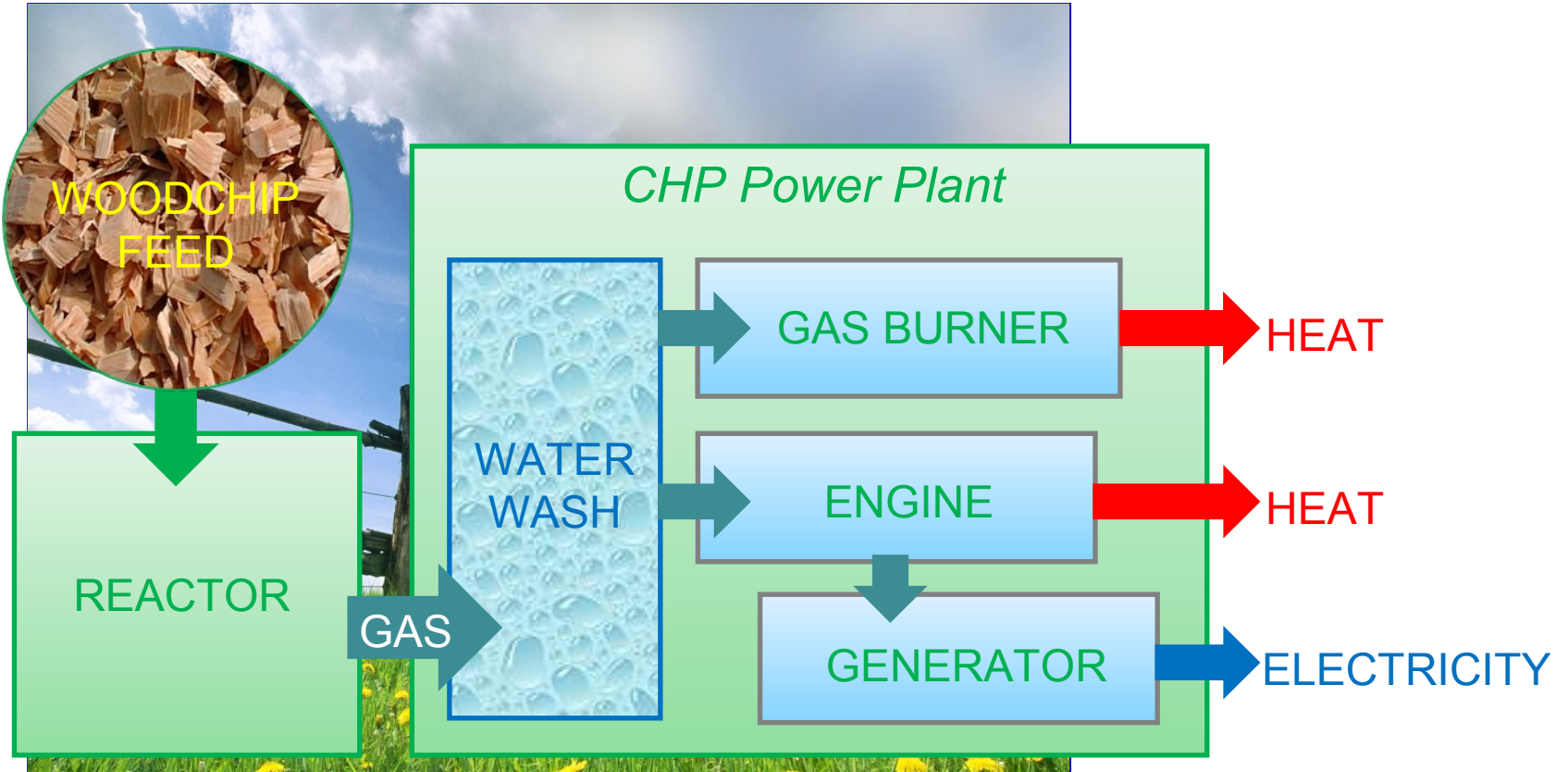
The woodgas container producing heat and electricity in winter (-35 °C)



The woodgas container producing heat and electricity in winter (-35 °C)



## Process



- The invention of Eero Kangasoja
  - Developed and tested during 30 years
  - He knows well the problems of the old gasifiers
- New generation Gasifier
  - No weaknesses as with the old gasifiers
- Electricity and heat from domestic raw materials
  - For small scale energy production

- Airdried chipped wood as fuel
  - Moisture below 45 %
- All tree arts possible
  - Pine, spruce, birch, willow, alder, aspen, rowan, etc.
- Testing with domestic biowaste will be executed
  - In testing phase



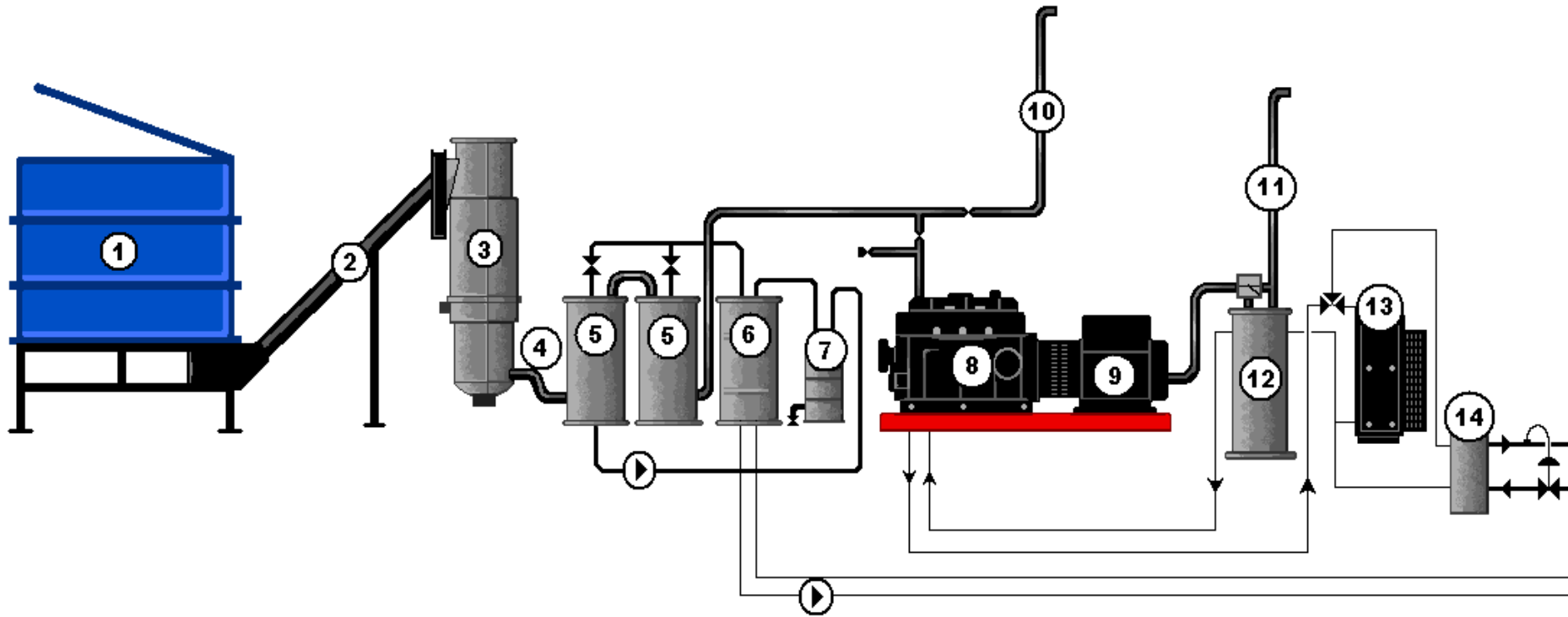
- Product gas for direct burning or for CHP use
- No dry ash, no danger of fire
  - Waste ash and charcoal as sludge
  - Automated ash removal
- Underpressure in system during operation
  - No leak of carbon monoxide
- Very high efficiency

- AGCO SISU POWER-Gasengine
  - 8,4 liter, 6-cylinder
  - Option 4,9 liter, 4 cylinder
  - Ready generator-set unit
  
- Generator
  - 20 – 50 kW



- Natural gas burner
  - Power from 90 kW-150 kW
  - The burner flame invisible in daylight
  - Heat temperature over 900 C°
  - Totally dust free flame





1. Wood chip storage
2. Wood chio screw conveyor
3. Gasifier
4. Raw gas pipe
5. Scrubbers

6. Water tank
7. Ash barrel
8. Engine 8.4 liter
9. Generator 50 kW
10. Start up pipe

11. Exhaust pipe
12. Heat exchanger for exhaust gas
13. Cooler
14. Heat exchanger



- Electricity and heat without emissions
- Cheap fuel
  - Available locally
- Emissions of flue gases are very low
- By-product active carbon

Test  
laboratory  
in Sievi



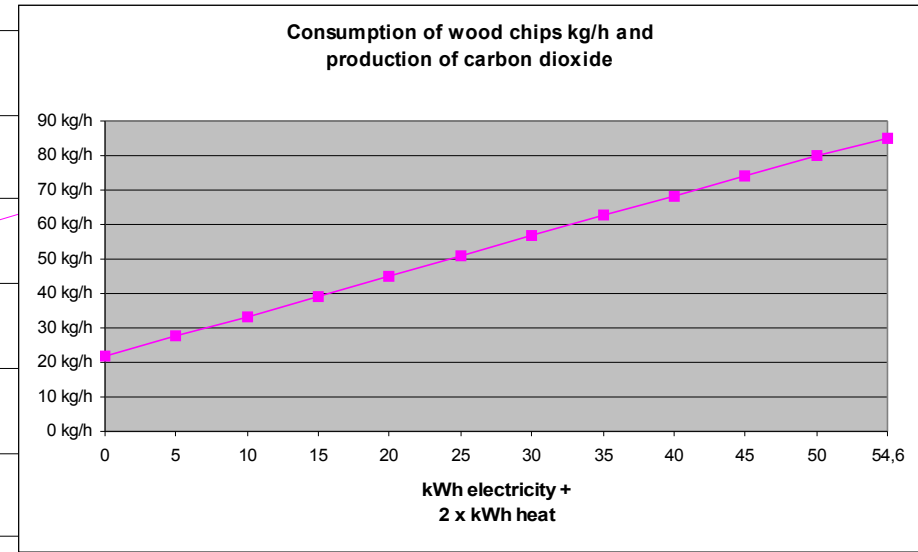
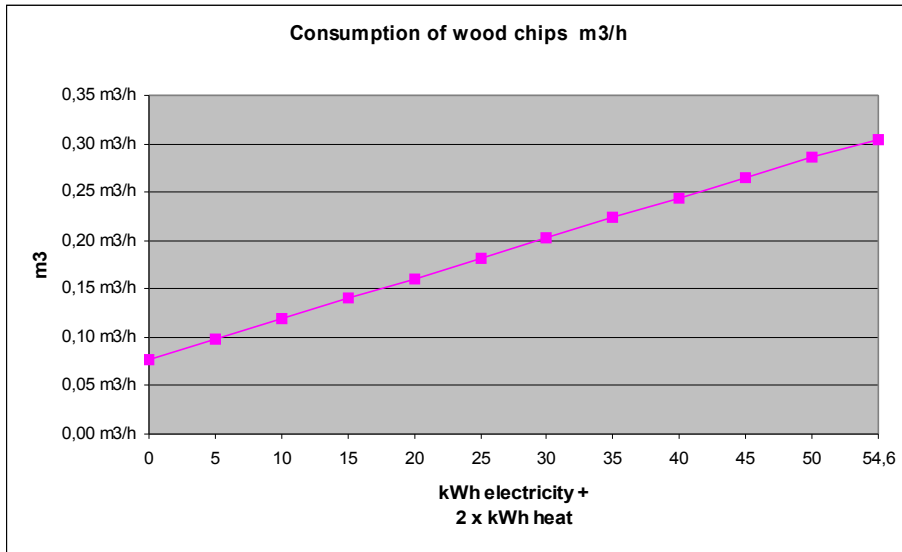


Fuel  
moisture  
40%



## Consumption of wood chips m3/h

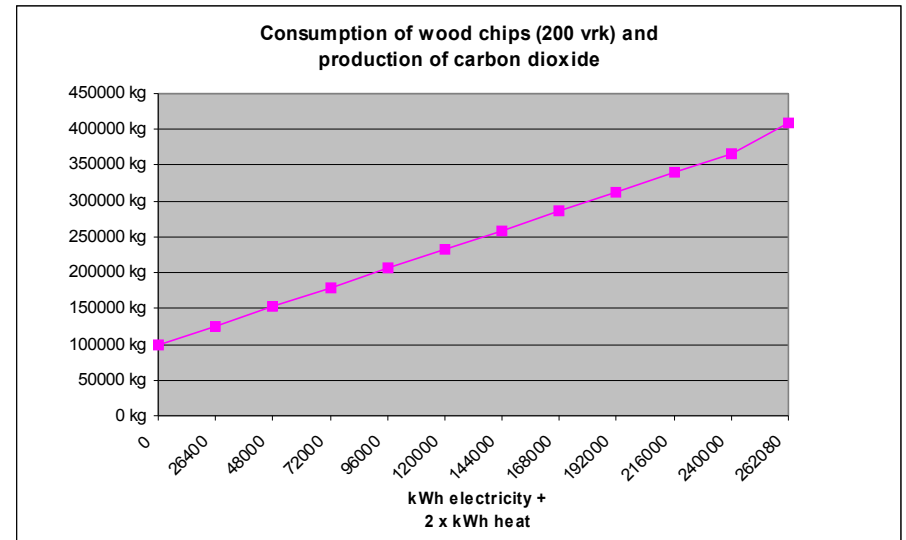
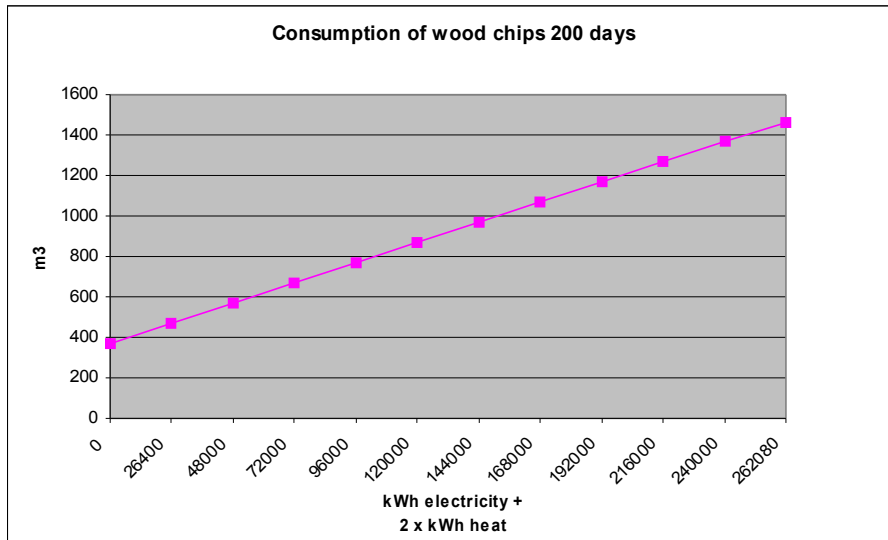
One kilo wood produces one kilo carbon dioxide



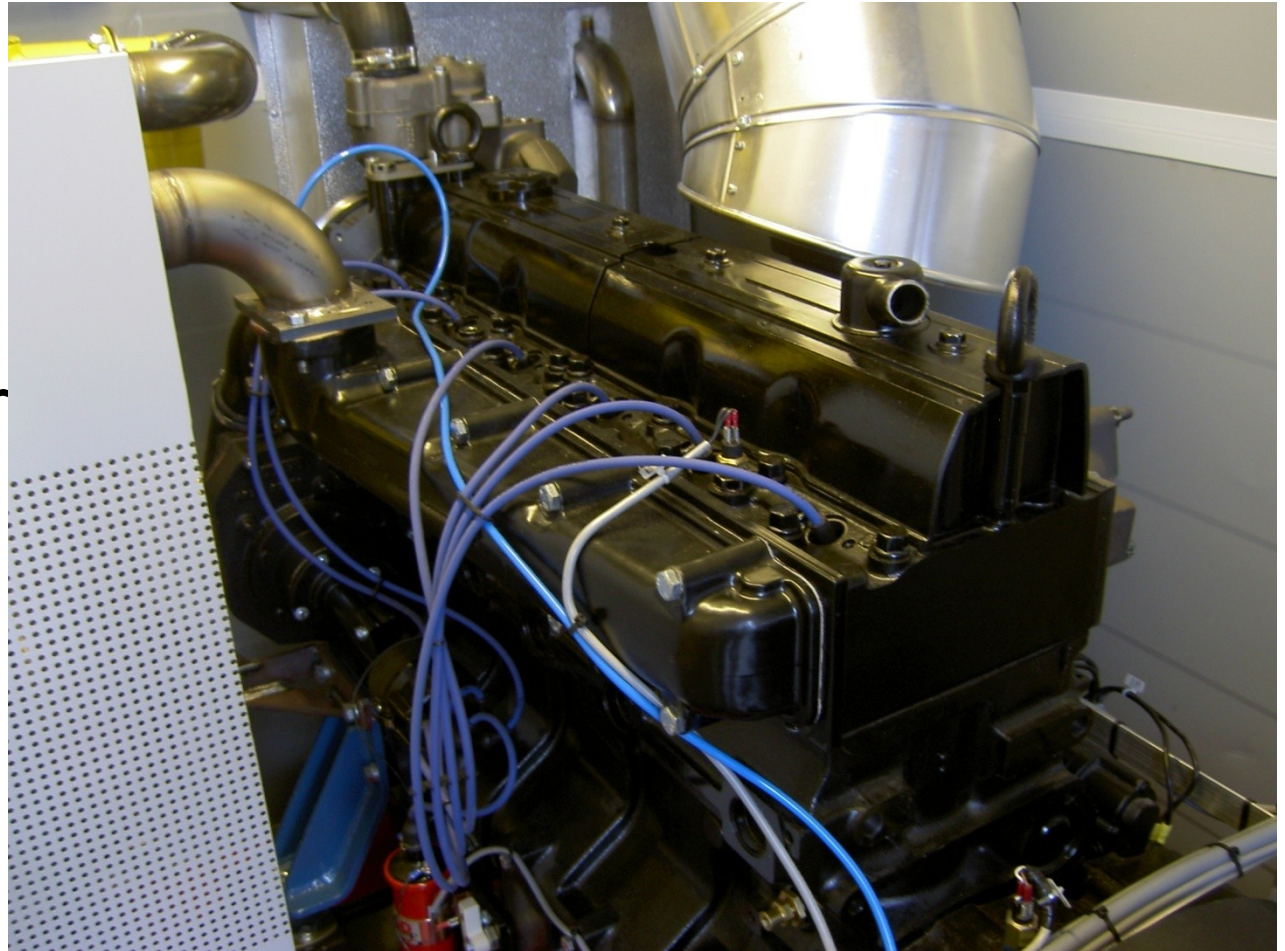


Density of wood chips 280 kg/m<sup>3</sup>

One kilo wood produces one kilo carbon dioxide



8,4 L Sisu  
Agcopower  
engine  
in 10` container





GASEK  
CHP-unit  
from inside





Prime minister  
of Finland  
visting



Fair in  
Finland





Future potential  
operators

