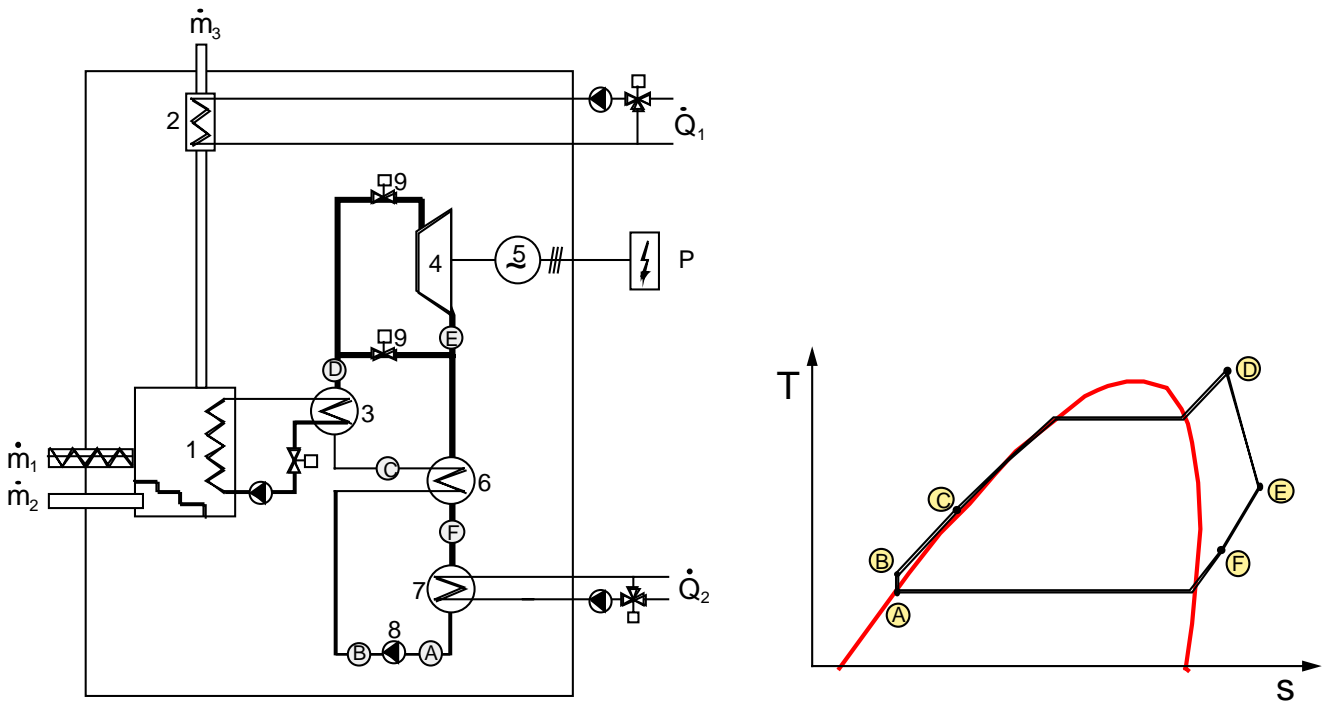


**Errata to the text of  
Handbook of Biomass Combustion and Co-Firing**

Twente University Press, 2002

- Page 110, line 2, should read:  
This will help a lot of manufacturers who export their products to many countries.

- Figure 6.12 on page 159 was misprinted. Here is the correct version.



**Figure 6.12:** Principle of co-generation with an ORC process (above) and process in the T/s diagram. To increase efficiency, a regenerator can be introduced between turbine and condenser to pre-heat the organic oil (6). Furthermore, an economiser can be used for heat extraction from the flue gases after the thermal oil boiler (2).

*Explanation:*  $m_1$ : Fuel input,  $m_2$ : Air inlet,  $m_3$ : Flue gas exit,  $Q_1$  and  $Q_2$ : Heat for district heating (depending on heat demand and temperature levels,  $Q_2$  can be used for pre-heating)

$P$ : Electricity output.

1: Wood furnace with thermal oil boiler, 2: Economiser for heat generation, 3: Evaporator for the organic fluid in the organic Rankine cycle, 4: Expansion turbine, 5: Generator, 6: Organic fluid pre-heater, 7: Condenser for heat generation, 8: Feed pump, 9: Control valves.

- A – B: Pressure increase of the organic fluid in the feed pump
- B – C: Pre-heating of the organic fluid
- C – D: Pre-heating, evaporation and superheating in the evaporator
- D – E: Expansion in the turbine
- E – F: Cooling in the recuperator
- F – A: Condensation in the condenser

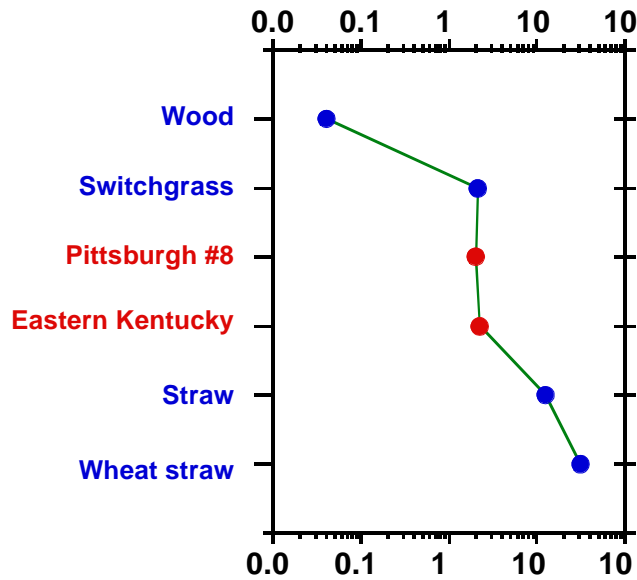
At the plant in Switzerland, the following results are reached [166] :  $P_{tot} = 335 \text{ kW}_e$ ,  $P_{out} = 300 \text{ kW}_e$ ,  $Q_2 = 1440 \text{ kW}_t$ ,  $Q_1 = 460 \text{ kW}_t$ . Assuming an efficiency of 80% for thermal oil boiler and economiser, the efficiencies according to fuel input are estimated as 11% electric, 67% thermal and 78% total.

- Table 6.6 on page 166 is clarified below.

**Table 6.6:** Typical efficiencies for heating plants, CHP plants, and power plants today and expected values in the future.

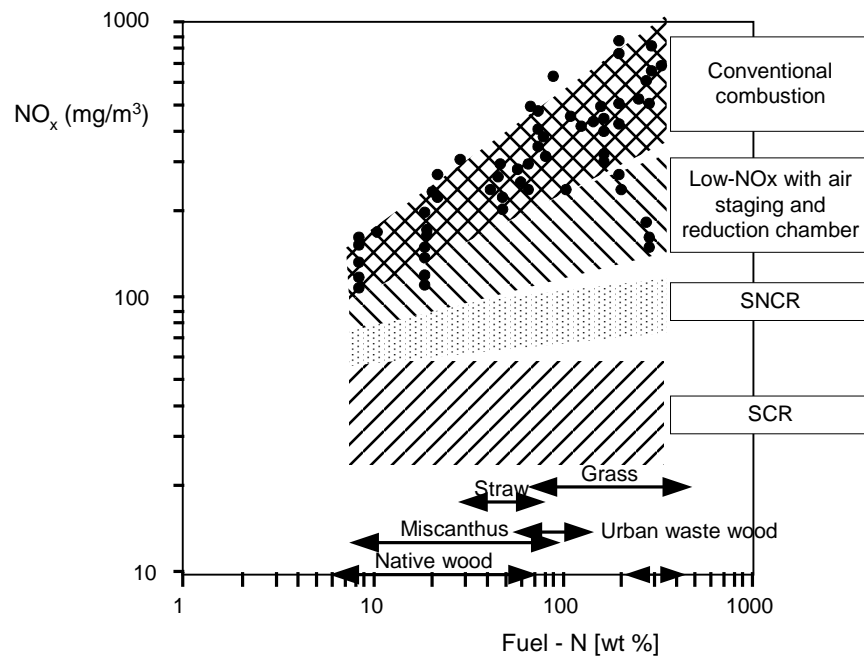
| Technology                                   | Today         |  |                                     | Future  |                                     |
|--|---------------|--|-------------------------------------|---|-------------------------------------|
|  | Heating plant | CHP<br>< 1 MW <sub>e</sub>             | Power plant<br>> 10 MW <sub>e</sub> | CHP<br>< 1 MW <sub>e</sub>                    | Power plant<br>> 10 MW <sub>e</sub> |
|  | Stove, boiler | Steam engine,<br>steam turbine,<br>ORC | Steam turbine                       | Gasifier and<br>IC-engine,<br>Stirling engine | IGCC                                |
| $\eta_h$                                     | 0.85          | 0.68                                   | 0                                   | 0.55  | 0                                   |
| $\eta_e$                                     | 0             | 0.12                                   | 0.25                                | 0.25  | 0.45                                |
| $\epsilon$                                   | 2.5           | 2.5                                    | 2.5                                 | 4   | 4                                   |
| $\eta_{tot} = \eta_e + \eta_h$               | 0.85          | 0.8                                    | 0.25                                | 0.8   | 0.45                                |
| $\eta_{ex} = \epsilon \eta_{el} + \eta_{th}$ | 0.85          | 0.98                                   | 0.63                                | 1.55  | 1.8                                 |

- Figure 7.17 on page 210 was printed incomplete. Here is the correct version.



**Figure 7.17:** Ash deposition rate for various fuels in g deposit per kg fuel. (Courtesy of Larry Baxter, USA).

- Figure 8.20 on page 259 was printed incomplete. Here is the correct version.



**Figure 8.20:** Comparison of NO<sub>x</sub> reduction potential for various NO<sub>x</sub> reduction measures [230].