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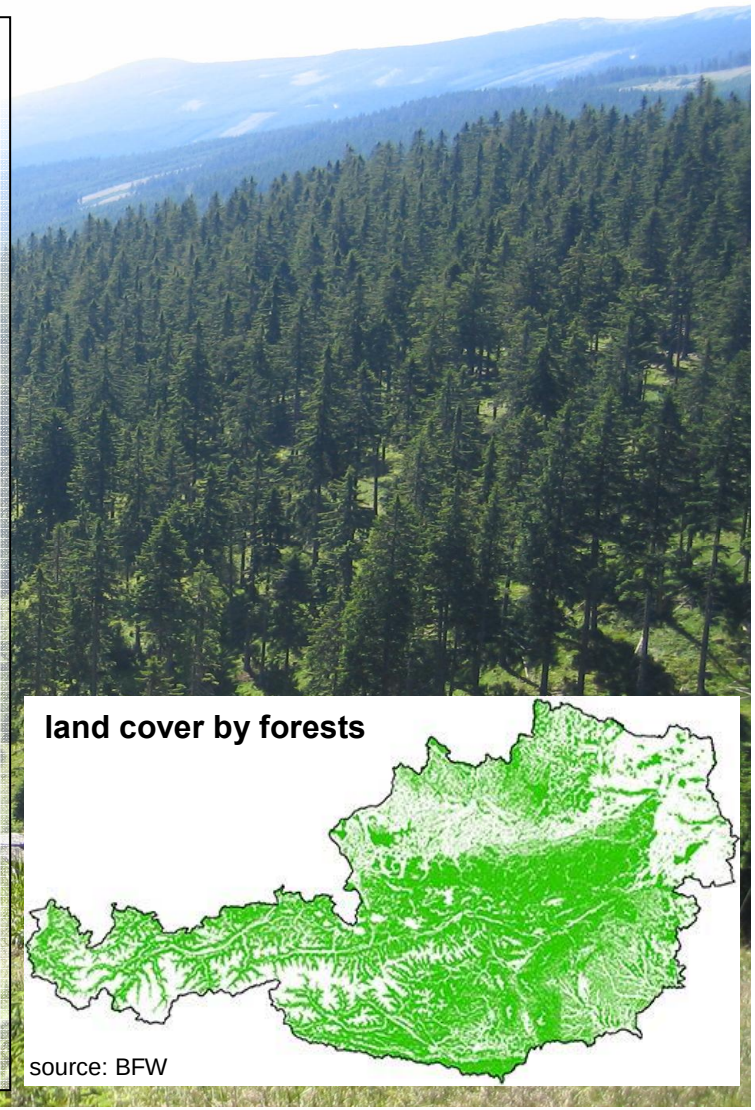
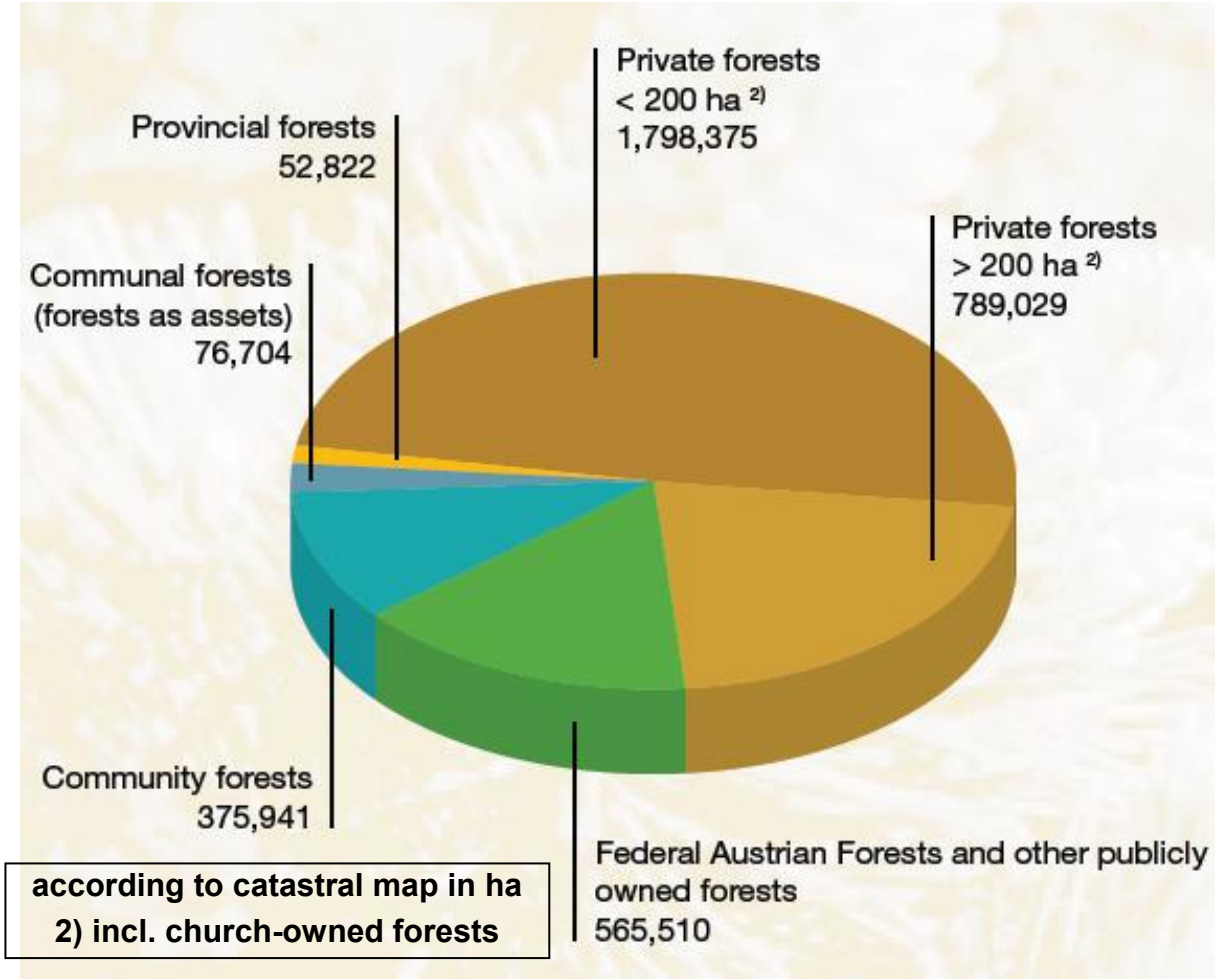
Forest and Forestry in AUT

AGRAR Plus

- AUT: 8.4 million ha, 8.3 million inhabitants
- 47% of land covered by forests
- growing stock: 1.14 billion m^3
- timber harvest 2010: 19.5 million m^3
- 85% of increment is used
- economically most important tree species: Norway spruce (61% of growing stock)
- mountainous conditions
- forestry based on principles of sustainability and multifuncionality



Forest Ownership in AUT



according to catastral map in ha
2) incl. church-owned forests

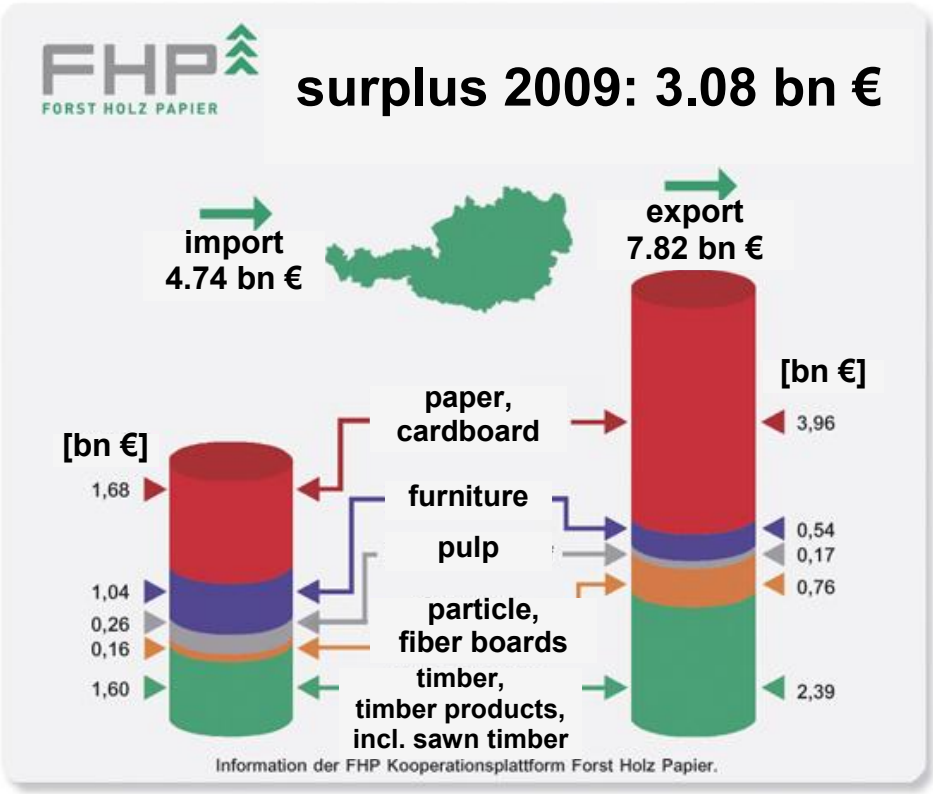
81% private forests

(> 170.500 owners)

19% public forests

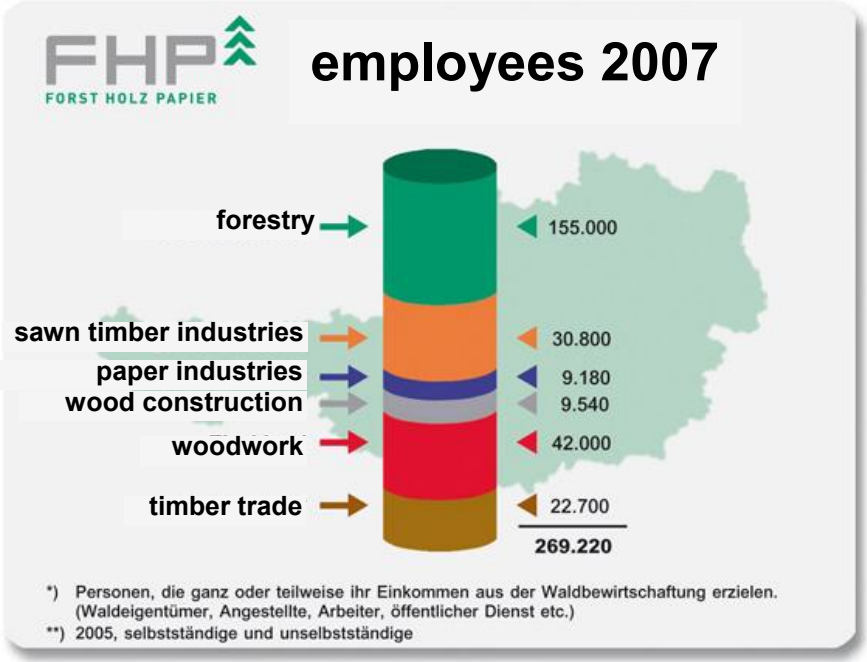
source: Ministry of Life 2010

Wood Based Industries



wood based value chain:

- employment and income



Quelle: Information der FHP Kooperationsplattform Forst Holz Papier

wood based industries:

- export oriented
- surplus in foreign trade

Montecuccoli - Gut Mitterau

Bought by
Ernesto Count Montecuccoli-Laderchi
in 1628

Family-Estate since more than375 years

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Montecuccoli - Gut Mitterau

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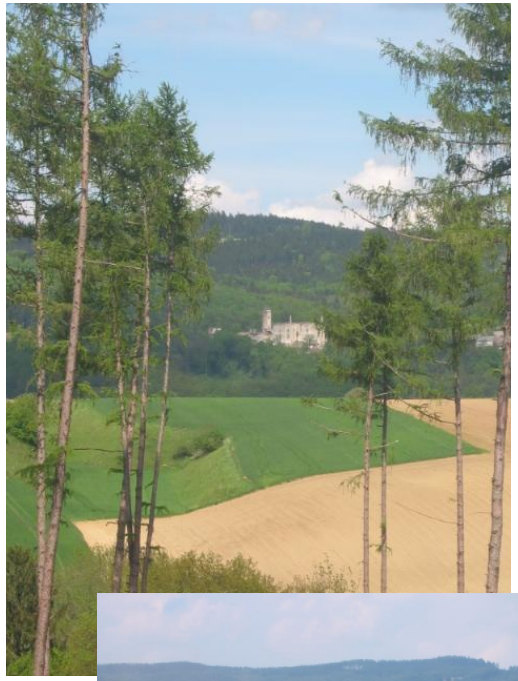
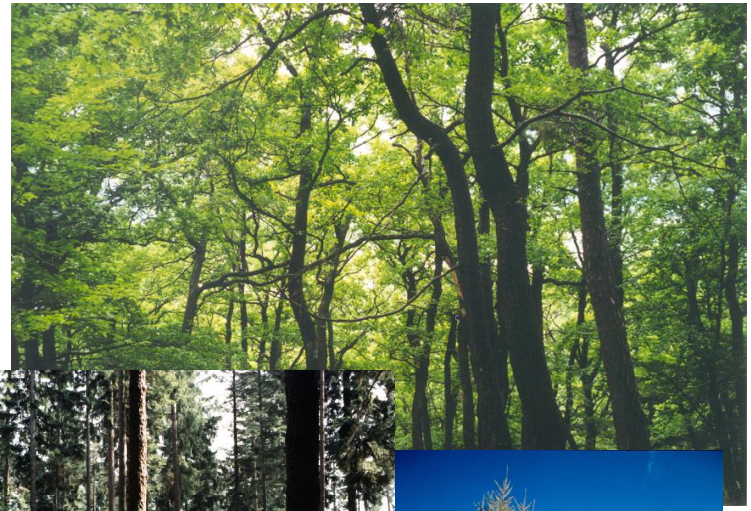


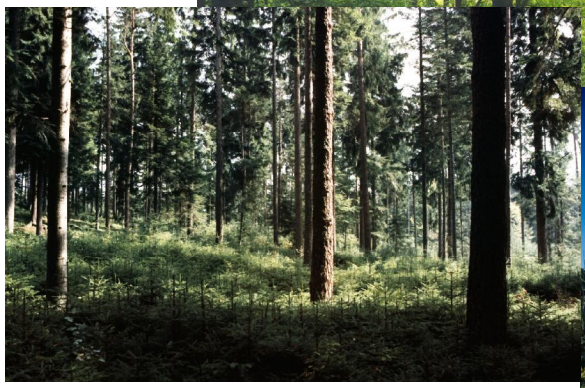
Today: 980 Hectare Forest
195 Hectare arable Land
25 Hectare Grasland
1200 Hectare Hunting Area
13 km River fishing Area

- **Forest Ressources**:
- 60% Spruce, Pine, Fire, Douglas Fire
- 35% Hardwood: Oak, Beech, Maple

•5% Softwood: Popular, Salix



65% Sawlogs
25% Pulpwood
10% Biomass



4 Biomass Heatingsystems
1200 qm Woodchips

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Montecuccoli - Gut Mitterau

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Timber Harvest:

2.800 cbm by Harvester

1.600 cbm by Tractor/own Forestworkers

1.500 cbm by Contractors

2.000 cbm Energy Wood Chips

- Machinery:
- 1 Forwarder Valtra 840.2
- 1 Tractor VALTRA 150 PS/shredder/winch

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Future in rural area

A lower austrian consulting institution

Overview

Foundation

1985 by an initiative of Lower Austrian Councillor responsible for agricultural and environmental affairs

Objective target

Support people during successful realisation of their ideas

Achievements

Consulting of about 60 % of all rual biomass district heating projects

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Tasks of AGRAR PLUS

AGRAR Plus

- Development and realization of concepts for the market
- Development of new or alternative agricultural products
- Coordination of planning, management, financing and supplying of bio energy stations
- Running, taking over and negotiation of all involved businesses

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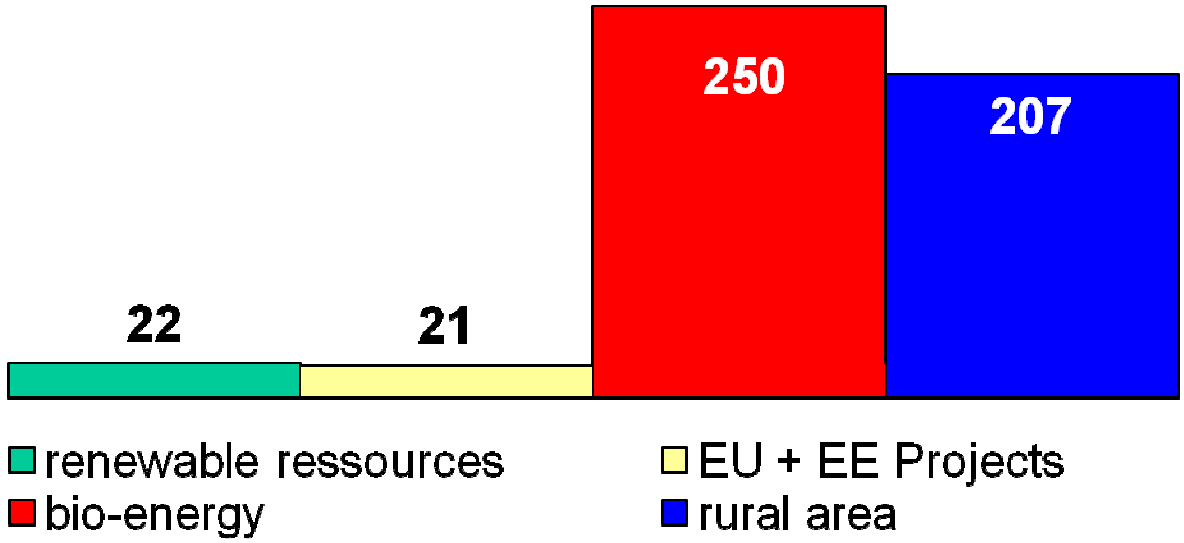
Benchmark

AGRAR Plus

- 13 employees
- 2 office locations: St. Pölten, Laa/Thaya
- ~ 203,6 Mio € project volume – 500 projects
- 22 renewable ressources – Projects
- 21 projects with Middle and Eastern Europe countries
- 250 bioenergy projects (therefrom 10 biogas plants)
- 207 project for development in rural area



BIO - ENERGY

energy – service on the basis of biomass

- ✓ **heat supply, energy-contracting**
- ✓ **combined heat and power generation**
- ✓ **common solutions**
- ✓ **qualitymanagement**
  (QM for heat plants)

- objectives of *Bioenergie NÖ* plants ?
-
- <u>functionality and economics</u>

- An optimum constructional, technical and logistical solution, wich is assured by a clear financing model and a forward looking, sustainable business plan.
-
- During operation the input and price of rural biomass is optimised and a synergetic effect of the operation costs occurs.

PEOPLE with ideas

… agricultural groups
… municipalities / local governments
… housing society / public utility housing enterprise
… research institutes
… existing project executing organisations

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Field of business activity

AGRAR Plus

- ✓ individual, independent consulting - project support
- ✓ feasibility - studies
- ✓ realisation and economic concepts/plans
- ✓ foundation consulting
- ✓ projectmanagement and controlling
- ✓ coaching
- ✓ informative meetings and lectures
- ✓ conferences, workshops and courses
- ✓ agency of experts
- ✓ coordination in the field of research and development

Biomass heat supply
Project progress I

first contacting
- trendsetting consulting and infomation

crude studie
- identify of energy data from possible heat consumer
- elaboration of a crude economic calculation
- estimation of chance for realisation

information of the public
- consulting during development of public relations
- support at informative meetings
- information material, example documents

project organisation
- intern business organisation
- consumer - sourcing
- vernier adjustment of the economic calculation

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Biomass heat supply
Project progress II

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Fundamental decision

- Consulting during the process of fundamental decision to realise the project

Government aid handling

- application
- coordination, intervention
- accounting

Controlling

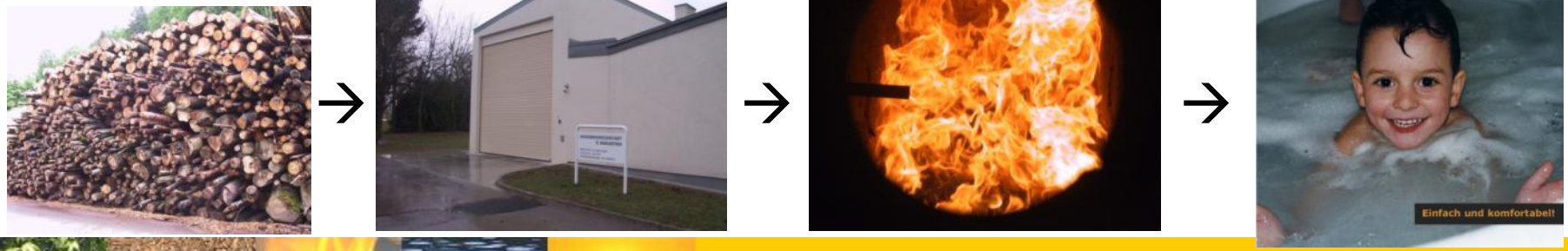
- controlling of project realisation (projectcosts, financing, timetable, business calculation)
- Variance comparison

Operation package

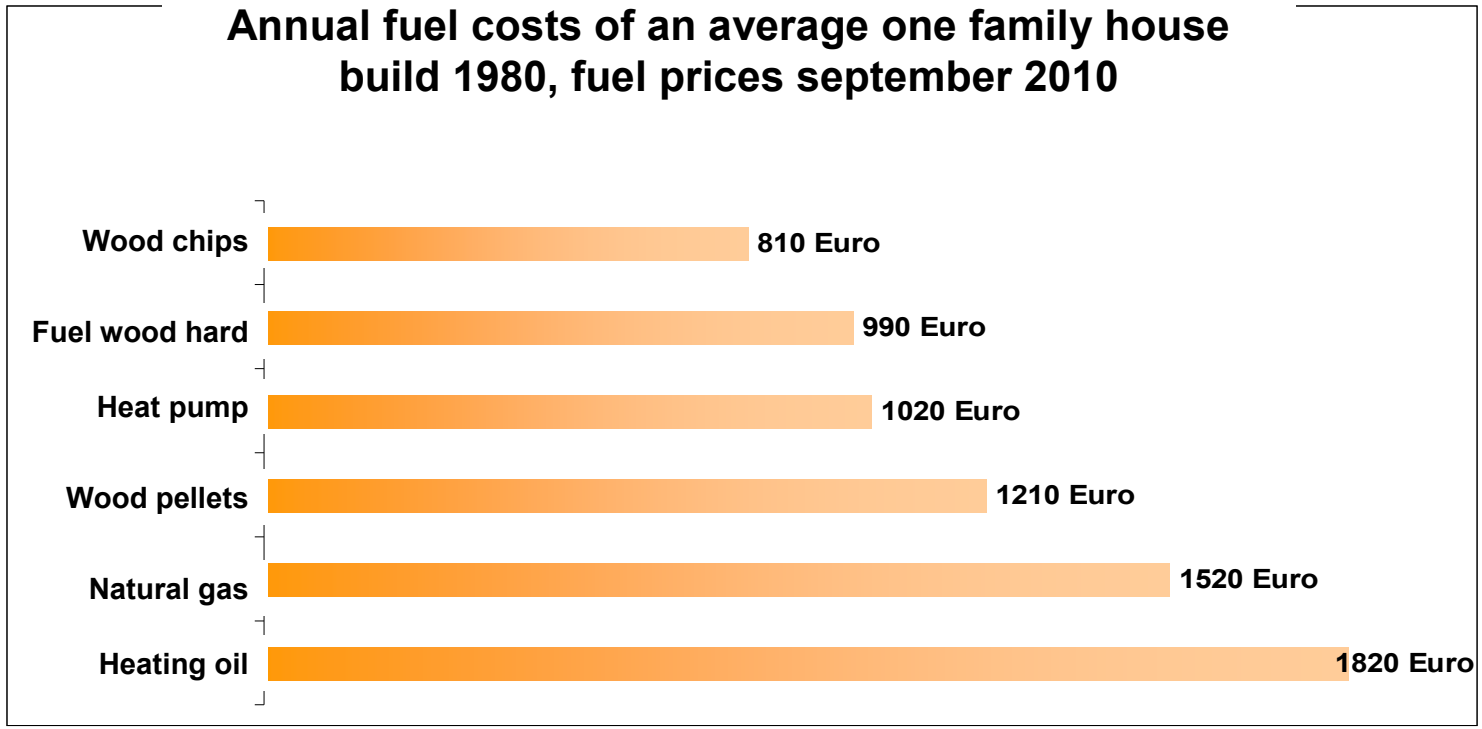
- Training of operators (balance sheet, heat accounting, operation benchmark, business management, technics, plant supervisor)

development of biomass heat supply in Lower Austria

- development away from big district heating grids to small grids were only few objects are supplied, or plants without grid
- Improve efficiency
- reference value government aid 900 kWh/line meter, min. 80 % grid efficiency
- regional added value, creation of new jobs, protection of jobs in the agriculture
- combination of electricity and heat production biogas plants, biomass electricity plants
- research and field trial of wood gasification



costs of different fuels



Source: www.umweltberatung.at

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Example: Community Hafnerbach

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A 200 kW biomass boiler with 5.000l heat storage tank

275m districts heating grid preinsulated synthetic double hose

Supplies a primary school, Kindergarten, municipality office and a parsonage with heat from rural wood chips

4 lokal farmers as owners and supplyers for woodchips

Primary energy

Stored chips

burner

Energy before grid

Heating house

Useable energy

Losses

sold Energy

Heatinghouse | Grid | Transfer station

Supply chain

- Thinning
- Dry on pile
- chipping
- Storage of chips
- just in time supply

Raw material supply

- 200 kW Biomass heat plant (200 kW biomass boiler installed)
  - Produced heat: 257 MWh/a
  - Wood chip demand of: 63 t absolutely dry
- Demand for land: 1 ha for 4 t absolutely dry wood chips
  16 ha for 200 kW example plant

- 1 MW Biomass heat plant (1 MW biomass boiler installed)
  - Produced heat: 1.580 MWh/a
  - Wood chip demand of: 387 t absolutely dry
  - Demand for land: 1 ha for 4 t absolutely dry wood chips
    97 ha for 1 MW example plant

Harvesting Costs and Income

- Harvester + Forwarder
- Hardwood 22 – 30 €/qm
- Softwood 18 – 35 €/qm

- Hardwood:
  - 50% Sawlogs
  - 40% Pulpwood
  - 10% Biomasse
    - » Ø Receipts 55 €/qm total wood

Softwood:

75% Blochholz
20% Industrieholz
5% Biomasse
Ø Receipts 75 €/FMO

- Chipping: 2,50 – 3,50 €/qm chips
  - » 1 qm timber = 2,8 qm chips

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Costs of Chips

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- Mixed soft- and hardwood : 1 AMM represents 1,66qm or 5,00rm chips

- **I Clearcut :**
- Production of Sawlogs + Pulpwood
- Rest: Biomass
- Harvestoperation € 5,00/rm bzw. € 25,00/AMM
- Chipping alongsite forestroad € 3,50/rm bzw. € 17,50/AMM
- ---
- **Costs for chips free on forestroad € 8,50/rm bzw. € 42,50/AMM**
- ---
- **II Thinning :**
- Harvester + Forwarder € 9,00/rm bzw. € 45,00/AMM
- Chipping € 2,50/rm bzw. € 12,50/AMM
- ---
- **Costs for chips free on forestroad € 11,50/rm bzw. € 47,50/AMM**
- ---

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Improvements in technology

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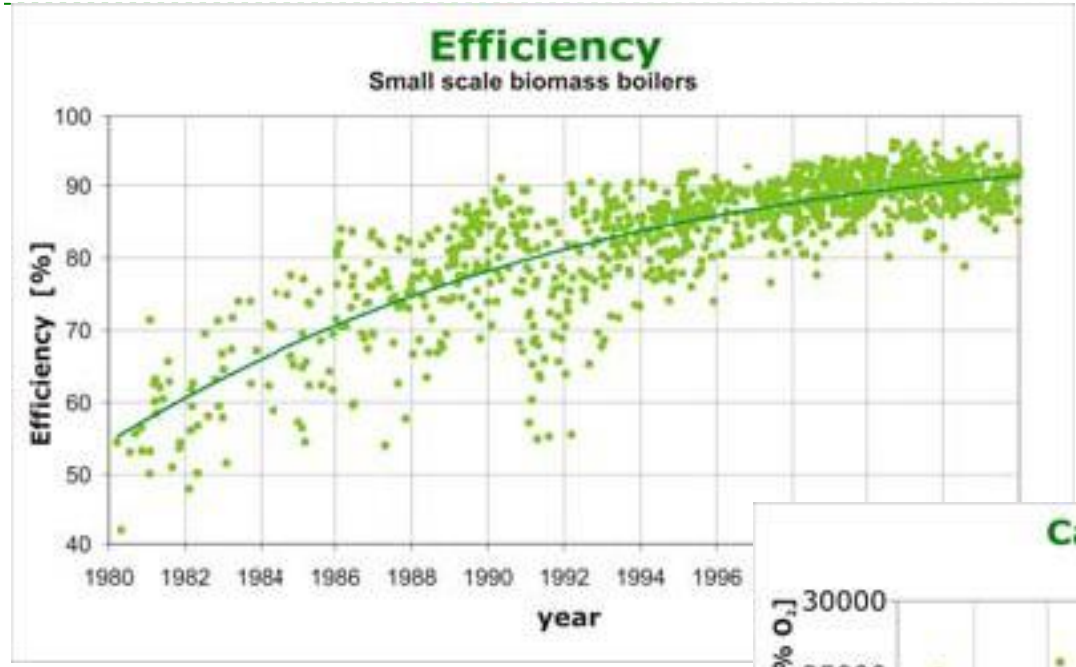

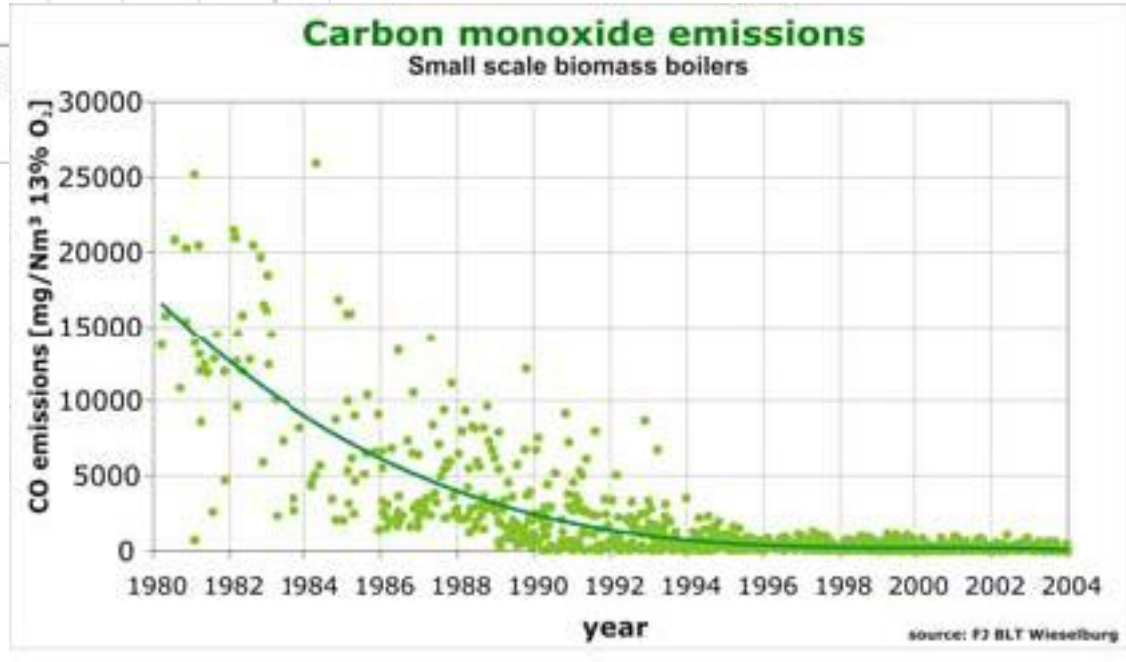

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Burning Systems

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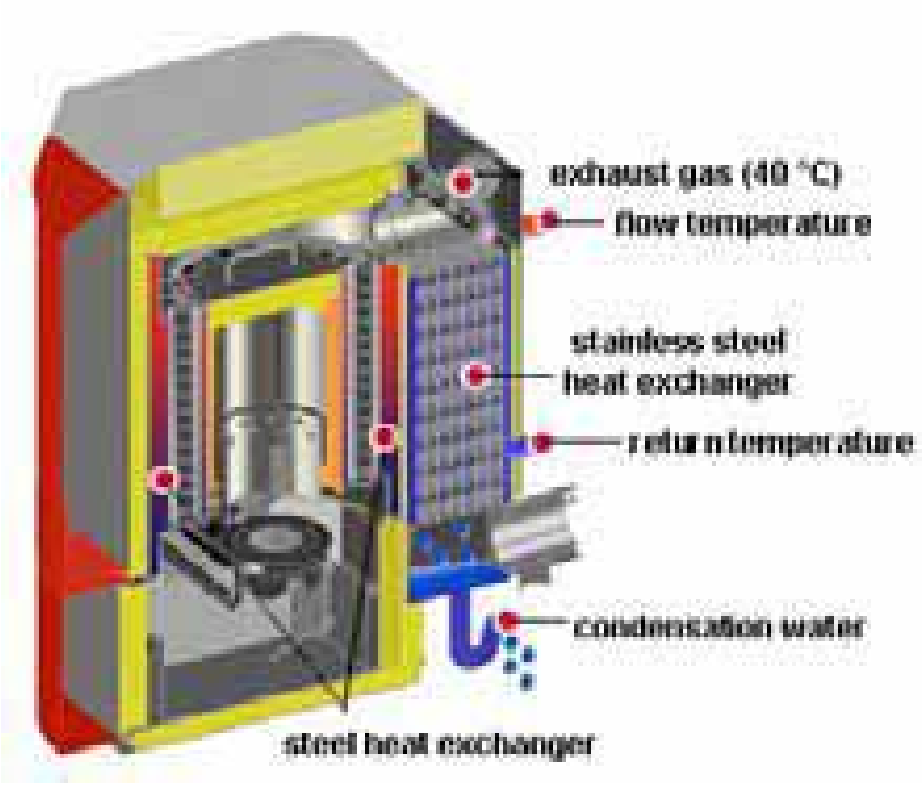
underburning solid wood boiler

Condensing boiler with underfeedburner



Underfeed burner for woodchips or pellets

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Thank you for your attention